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Health and Safety Management Systems Program

Purpose

E-Corp is committed to conducting our operations in a manner that will promote the protection of the general health, safety, and welfare of its employees, the general public, and the environment. In order to protect the safety, health, and security of our employees and minimize our environmental footprint, E-Corp is committed to the following:

- Conducting operations in compliance with all applicable environmental, health and safety laws, regulations, and standards.
- Establishing appropriate environmental Health and Safety Management Systems (HSMS) to protect employees, subcontractors, the general public, and the environment from physical hazards at all project locations.
- Establishing effective management systems to promote safety awareness and secure work places.
- Providing employees with the necessary training to ensure full compliance with all applicable environmental, health, safety, and security issues and concerns.

Health, safety, security and our impact on the environment must be part of every operation of our business. Without question, it is every employee's responsibility at all levels.

It is the intent of E-Corp to comply with all laws. To do this, we must constantly be aware of conditions in all work areas that can produce injuries. No employee is required to work at a job they know is not safe or healthful. Your cooperation in detecting hazards and, in turn, controlling them, is a condition of your employment. Inform your supervisor immediately of any situation beyond your ability or authority to correct.

The personal safety and health of each employee of E-Corp is of primary importance. Prevention of occupationally-induced injuries and illnesses is of such consequence that it will be given precedence over operating productivity, whenever necessary. To the greatest degree possible, management will provide all mechanical and physical activities required for personal safety and health, in keeping with the highest standards.

We will maintain an occupational safety and health program conforming to the best practices of organizations of this type. To be successful, such a program must embody proper attitudes towards injury and illness prevention on the part of supervisors and employees. It also requires cooperation in all safety and health matters, not only between supervisor and employee, but also between each employee and their co-workers. Only through such a cooperative effort can a safety and health program, in the best interest of all, be established and preserved.

Our objective is a safety and health program that will reduce the number of injuries and illnesses to an absolute minimum, not merely in keeping with, but surpassing, the best experience of operations similar to ours. Our goal is zero accidents and injuries.

To ensure the accuracy of our policies and procedures, an annual review will be conducted utilizing the applicable resources available. Reviewing the site at www.osha.gov will be the primary source for information utilized in the recognition of any applicable regulation changes. Documentation of these revisions will be recorded in the Revision History section of each HSMS Program.

Our health, safety, security and environmental program includes:

- Providing mechanical and physical safeguards to the maximum extent possible.
- Conducting a program of health, safety and security inspections to find and eliminate unsafe working conditions or practices, to control health hazards, and to fully comply with OSHA safety and health standards for every job.
- Training all employees in good health, safety, security and environmental practices.
- Providing necessary personal protective equipment, and instructions for proper use and care.
- Developing and enforcing health, safety, security and environmental rules, and requiring that employees cooperate with these rules as a condition of employment.
- Investigating, promptly and thoroughly, every accident to find out what caused it, and correct the problem so it will not happen again.

We recognize that responsibilities for occupational safety & health are shared:

- This employer accepts responsibility for leadership of the HSMS program, for its effectiveness and improvement, and for providing the safeguards required to ensure safe work conditions.
- Supervisors are responsible for developing proper attitudes toward health, safety and security in themselves and in those they supervise, and for ensuring that all operations are performed with the utmost regard for the health, safety and security of all personnel involved, including themselves.
- Employees are responsible for wholehearted, genuine operations of all aspects of the HSMS program – including compliance with the rules and regulations – and for continuously practicing safety and health while performing their duties.

The Health and Safety Manager (HSM) shall see that all employees are properly instructed and supervised in the safe operation of any machinery, tools, equipment, process, or practice which they are authorized to use or apply while at work.

Production is never so urgent that we cannot take the time to do our work safely.

Scope

All E-Corp HSMS have been prepared for the E-Corp workforce. Contractors, and subcontractors, who provide services to, or on behalf of, E-Corp are required to meet the requirements of these programs. Contractors may use their own policies and procedures to meet the requirements of these programs if, prior to commencing work, they obtain written approval from E-Corp to do so. Such approval shall be granted when the Contractor provides E-Corp with documentation or other information demonstrating that the Contractor's own policies and procedures meet or exceed the requirements in the E-Corp HSMS.

If any requirements or recommendations herein conflict with legal and regulatory requirements, it is necessary to comply with the legal and regulatory requirements. If these programs create a higher obligation, it shall be followed, as long as full compliance with legal and regulatory requirements is achieved.

The scope of work for each project shall be evaluated to determine what elements of the HSMS program are applicable. Aspects of the HSMS that are deemed applicable shall be included in the site specific Health and Safety Plan or referenced, as appropriate. Consideration shall also be given by the E-Corp workforce to the requirements of specific sites or jobs.

Relevant Documents

The following documents are applicable to this procedure:
All E-Corp Health and Safety Management Systems

Site Health and Safety Plan (HASP)
Site Emergency Response Plan (ERP)
Employee Manual
29 CFR 1910, General Industry Standard
29 CFR 1926, Construction Standard
USACE EM 385-1-1
USACE ER 385-1-92
40 CFR, Protection of Environment
State Specific OSHA Standards

Health and Safety Management Systems (HSMS)

The E-Corp HSMS provide a set of corporate standards that represent the minimum requirements for operations within E-Corp. There may be instances where operations may wish to institute policies and procedures which are more stringent than the HSMS.

The Health and Safety Management Systems (HSMS) are procedure documents that represent corporate Health and Safety standards for office and field operations. The Site Health and Safety Plan (HASP) describes specific activities that are to be completed at the project or office level. In addition, E-Corp must comply with regulatory requirements. Most regulatory requirements for written programs will be met by combining project specific safety information with the required activities applicable to the project from the corporate program.

Responsibilities and Authority

All employees have responsibility for accident prevention and compliance with corporate and regulatory standards. Primary responsibility for program implementation lies with Project Managers (PM) and Site Superintendents. E-Corp Management is responsible for:

- Commitment to the protection of employees and compliance with regulations.
- Support for the E-Corp Health and Safety Program through enforcement, budget, and maintaining adequate safety staffing.
- Appointing Safety Personnel.
- Establishing company goals and objectives.
- Developing and implementing this written Health and Safety Management Systems Program (HSMS).
- Ensuring total commitment to the HSMS Program.
- Committing resources to the HSMS program to ensure it functions as designed.
- Facilitating employees' safety training.
- Establishing responsibilities for management and employees to follow.
- Ensuring that management and employees are held accountable for performance of their safety responsibilities.
- Establishing and enforcing disciplinary procedures for employees.
- Reviewing the HSMS program annually and revising or updating as needed.

Project Manager (PM)

The Project Manager (PM) shall direct onsite operations. The PM may delegate all or part of these duties to a qualified employee who is the designated Site Superintendent or Foreman. The PM is still responsible to ensure these duties are fulfilled. At the site, the PM, assisted by the Site Safety and Health Officer (SSHO) has primary responsibility to:

- See that appropriate personal protective equipment and monitoring equipment is available and properly utilized by all onsite E-Corp personnel.

- Establish that personnel are aware of the provisions of this plan, are instructed in the work practices necessary to ensure safety and are familiar with the planned procedures for dealing with emergencies.
- Monitor the safety performance of all personnel to see that the required work practices are employed.
- Correct any work practices or conditions that may result in injury or exposure to hazardous substances.
- Ensure reporting of incidents and completion of incident reports when applicable.
- Halt site operations, if necessary, using the Stop Work Authority in the event of an emergency or to correct unsafe work practices.
- Ensure there is an ERP at a minimum and HASP where applicable for each project under his/her direction.

Site Safety and Health Officer (SSHO)

The SSHO shall assist the PM in ensuring that all activities on site are performed in a safe manner. The SSHO shall:

- Conduct weekly safety meetings for all E-Corp personnel on site.
- Provide ongoing review of the protection level needs as project work is performed, and inform the PM of the need to upgrade / downgrade protection levels as appropriate.
- See that appropriate personal protective equipment and monitoring equipment is available and properly utilized by all onsite E-Corp personnel.
- Correct any work practices or conditions that may result in injury or exposure to hazardous substances.
- Halt site operations, if necessary, in the event of an emergency or to correct unsafe work practices.
- Review and approve the HASP and ERP.

Health and Safety Manager (HSM)

E-Corp HSM shall:

- Write and implement E-Corp Corporate HSMS and update them as necessary.
- Review the HASP.
- Determine the need for periodic audits of the operation to evaluate compliance with this plan.
- Keep updated training records for all E-Corp employees.
- Assist management and supervisors in the health and safety training of employees.
- Provide health and safety support as requested by the SSHO and PM.
- Maintain OSHA forms and fulfill reporting requirements.
- Develop and maintain accident and incident investigation and reporting procedures and systems.

Employees

Employees involved in operations and investigations on site shall:

- Take all reasonable precautions to prevent injury to themselves and to their fellow employees.
- Perform only those tasks that they believe they can do safely, and immediately report any accidents and/or unsafe conditions to the Site Superintendent, SSHO, PM, or HSM.

- Implement the procedures set forth in the HASP, reporting any deviations from the procedures to the PM.
- Wear all PPE as required by the HASP and Activity Hazard Analysis (AHA).

Subcontractors

Each subcontractor is required to designate a Subcontractor’s Safety Representative (SSR), typically the subcontractor supervisor. The SSR is responsible for safe work performance by the subcontractor work force. During the subcontractor’s activities on site, the SSR shall:

- See that appropriate personal protective equipment and monitoring equipment is available and properly utilized by all onsite subcontractor personnel.
- Exercise full legal responsibility for compliance to safety rules and regulations by all personnel brought into the workplace by the subcontractor and will receive and be responsible for any citation, fine or penalty due to failure of contract employees to comply.
- Establish that subcontractor personnel are aware of the provisions of this plan, are instructed in the work practices necessary to ensure safety, and are familiar with the planned procedures for dealing with emergencies.
- Monitor the safety performance of all subcontractor personnel to see that the required work practices are employed.
- Correct any work practices or conditions that may result in injury or exposure to hazardous substances.
- Perform continuing work area inspections.
- Conduct weekly safety meetings for subcontractor personnel and safety orientations for all new subcontractor employees.
- Investigate accidents / incidents involving subcontractor personnel.

Health and Safety Management Systems

E-Corp has developed corporate HSMS as required by federal as well as company requirements. These HSMS will be available in the main office and include:

E-Corp Health and Safety Management Systems
E-Corp Health and Safety Management System
Aerial Lift and Elevating Work Platforms
Audits / Inspections
Behavior Based Safety
Bloodborne Pathogens
Cold Injury Prevention
Construction Hazards
Control of Hazardous Energy Lockout/Tagout
Control of Work Permit
Cranes and Lifting Operations
Driving Safety
Drug Free Workplace Policy
Fall Protection
Fit For Duty, Fatigue Management, and Medical Surveillance

E-Corp Health and Safety Management Systems

General Safety Rules and Code of Safe Practices
Hazard Communication
Hazardous Materials Operations
Heat Illness Prevention
Heavy Equipment Operation
Incident Reporting and Investigation
Job Zone Control and Traffic Management
Occupational Noise Exposure
Overhead Utilities
Permit Required Confined Space
Personal Protective Equipment Selection and Use
Respirable Crystalline Silica Exposure Control
Respiratory Protection
Risk Assessment
Simultaneous Operations
Trenching Shoring and Excavations
Welding Cutting and Hot Work
Working alone and remote travel
Working over or near water

Emergency Response Plan (ERP)

In addition to Corporate HSMS, each site will have an ERP at a minimum that outlines procedures in the event of an emergency situation. The ERP will include:

Emergency Response Plan

Emergency Contacts
Nearest Hospital Facilities
Emergency Response Responsibilities
Evacuation and Meeting Point Procedures
Hospital Map

Site Health and Safety Plan (HASP)

Specific projects will require a HASP that covers topics specific to that job site. The HASP may be very extensive, depending on the scope of work. The HASP will refer to HSMS as they apply to the specific project. This may include:

Health and Safety Plan (HASP)

General project specific information
Review of hazards specific to the project

Health and Safety Plan (HASP)

Hazardous materials requirements (decontamination, waste handling, etc.)
Personal protective equipment (PPE) requirements
Exposure control plan
Site control (traffic control, security, barricading, etc.)

Activity Hazard Analysis (AHA)

An activity hazard analysis will be completed when required for E-Corp projects. Subcontractors will be responsible for completing the AHA for the portion of work they will be completing. This hazard analysis will give details of principal steps, potential hazards encountered at the site and recommend controls for injury and illness prevention. The hazard analysis process serves as a tool to assist managers and field teams in determining which HSMS are applicable and must be implemented. Once this determination is made, the applicable HSMS will be applied on the project site. Appropriate hazard controls must be put in place prior to project initiation.

Control of site-specific hazards will be included in the AHA. Whenever possible, feasible engineering and/or administrative controls shall be implemented to reduce employee exposure to hazards. If engineering and/or administrative controls are not feasible or do not appropriately reduce employee exposure, proper PPE will be worn to ensure employee safety and health is protected.

Potential Hazards and Risks

The identification of hazards in the workplace should include all work associated with the project. Personnel shall be trained and competent in the use of a formal process of hazard recognition. Hazard identification shall also consider the following:

- Past injuries, incidents, near misses and illnesses associated with the company, site, project, jobs, and tasks.
- Past injuries, incidents, near misses and illnesses associated with similar operations.
- The way work is organized, managed and performed.
- The design of the workplace, work processes, materials, plant process and equipment.
- The fabrication, installation, demolition, commissioning, handling and disposal of materials, workplaces, mechanical system processes and equipment.
- The purchasing of goods and services.
- The contracting of mechanical system processes, equipment, services and labor, including contract specification and responsibilities to and by subcontractors.
- The inspection, maintenance, testing, repair and replacement of mechanical system processes and equipment.

General Safety Rules

E-Corp will provide to every employee general safety rules as per the General Safety Awareness Program. All employees will be required to read and sign that they understand all rules. All employees must abide by those rules at all times while on company business.

Stop Work Intervention

All contractors and employees have the authority and obligation to stop any task or operation where concerns or questions regarding the control of risks exist or potential damage to the environment may occur.

If there is an immediate risk of injury or accident:

- Stop associated work activities.
- Remove person(s) from the area.
- Stabilize the situation and make the area as safe as possible.

If there are no immediate risks, address the potentially unsafe work with the person(s) potentially at risk and/or the person(s) causing the risk. This includes all affected workforce. All workforce members and the site supervisors shall be notified.

All employees of E-Corp are responsible to initiate a Stop Work Intervention when warranted and management is responsible to create a culture where Stop Work Authority is exercised freely. The HSM is responsible for ensuring that this practice is enforced.

E-Corp employees will receive Stop Work Authority training before initial assignment. The purpose of this training is to ensure E-Corp workforce members are made aware of their obligation to Stop Work that they consider to be unsafe and/or potentially damaging to the environment.

E-Corp ensures that employees will not be reprimanded for issuing a Stop Work intervention. Any form of retribution or intimidation directed at any individual or company for exercising their right to issue a Stop Work authority will not be tolerated.

It is the policy of E-Corp that no work will resume until all Stop Work issues and concerns have been adequately addressed.

Stop Work Authority Steps

The steps to a Stop Work Authority for E-Corp Include:

1. Stop
2. Notify
3. Correct
4. Resume

When an unsafe condition is identified the Stop Work Intervention will be initiated, coordinated through the supervisor, and initiated in a positive manner. Notify all affected personnel and supervision of the Stop Work issue, correct the issue, and resume work when safe to do so.

Documentation

All Stop Work Interventions will be documented for lessons learned and corrective measures to be put in place.

All planned and unplanned Stop Work interventions shall be documented in the Daily Report. Often an incident investigation will be required for a Stop Work. If a near-miss or observation report is required, it shall contain the words "Stop Work" at the beginning of the incident description in order to differentiate it from traditional reports and be documented on the E-Corp Incident Investigation Form. Adequate descriptions shall be given of the act, behavior, or condition that caused the Stop Work intervention, its risk assessment and implemented risk mitigations. The Health and Safety team shall communicate and document incident details regarding the number of times work has been stopped.

Follow-Up Importance

It is of high importance of E-Corp to conduct a follow-up after a Stop Work Intervention has been initiated and closed.

It is the desired outcome of any Stop Work Intervention that the identified safety concerns

have been addressed to the satisfaction of all involved persons prior to the resumption of work. Most issues can be resolved in a timely manner at the job site, occasionally additional investigation and corrective actions may be required to identify and address root causes.

Qualifiers for Stopping/Resuming Work

The following should be considered when stopping or resuming work as the result of a Stop Work intervention:

If the Stop Work intervention was based on a perceived (but not an actual) risk as determined from the risk assessment, the affected personnel should:

- Show appreciation to the initiator for his or her awareness and concern.
- Proceed with work.
- Share the learnings with the initiator and workforce.

If the Stop Work intervention was based on an actual risk that cannot be immediately assessed and/or controlled on site by the present workforce and available resources, work shall be suspended. If the identified controls that mitigate the risk in the Stop Work situation are not within the original scope of work, the PM will address changes with the client representative. The Risk Assessment Program should be reviewed to include and identify subsequent controls.

If the work is in the scope of a permit, the HSM or SSHO shall review/reissue the permit. Work can be resumed only once a competent person with the appropriate level of authority approves the risk assessment and the implemented controls.

Method of Assuring Employee Compliance

System of Information and Communication with Employees

Awareness of safety policies and procedures is critical to ensure employee safety. The following procedures will ensure employees are aware of safety requirements:

- HSMS will be available for all employees to review at any time in the main office and electronically.
- HASP will be available for employees to review in the main office and on the project site to which the HASP applies.
- Employees will be provided with training as required by federal regulations on all standard operating procedures that pertain to their job.
- Weekly safety meetings will be held on all job sites to communicate site-specific health and safety information and to update training.
- Safety information will be posted as appropriate on company bulletin boards.
- Safety topics and notices are conveyed during management meetings conducted weekly. Each person in attendance at the meeting is given the opportunity to comment.

Compliance with health and safety rules is a condition of employment. Failure to comply with safety rules and procedures could result in disciplinary action.

Disciplinary Procedures

E-Corp is committed to conducting our operations in a safe manner. In order to ensure compliance with company policies on all E-Corp projects, a progressive disciplinary procedure is required. Personnel who do not follow safety regulations and E-Corp policies regarding safety will not be allowed to continue working for E-Corp, either as E-Corp employees or as subcontractors. The progressive safety disciplinary procedure will be as follows:

First offense:

- Required to stop work immediately and /or removal from the job site until the safety violation has been addressed and corrected.
- Immediate correction of safety violation.
- Written personal safety citation to person involved.
- Person will be required to meet conditions (set by E-Corp policies) prior to being allowed back on site such as retraining, personal commitment to safety, etc.
- Copy of personal citation is given to direct supervisor of the person who received the citation.
- Safety violators can only be allowed back on-site with the approval of the Corporate Safety Manager and Regional Manager.

Safety citations are reviewed weekly with the Project Manager, his/her direct supervisor (Regional Manager or Vice President) and monthly with the Vice Presidents and President.

Second offense:

- Same as the first offense.
- Suspension from all E-Corp job sites for a specified period of time (depending on the severity of the offense).
- Direct supervisor of the person receiving a personal citation will be given a supervisory citation. In addition, supervisory citations may be given to all personnel in any supervisory role to this person (project manager, site safety and health officer, site superintendent, regional manager, program manager, general manager, etc.).

Third offense:

- Same as the first offense.
- Permanent removal from all E-Corp project sites.
- Direct supervisor of the person receiving a personal citation will be given a supervisory citation. In addition, supervisory citations may be given to all personnel in any supervisory role to this person (project manager, site safety and health officer, contract manager, site superintendent, program manager, general manager, etc.).
- Suspension or Termination.

This progressive disciplinary procedure may be changed due to the severity of the offense. Severe offenses may require immediate termination. This determination will be made by the person giving the citation in conjunction with the Project Manager, Contract Manager, Regional Manager, and Health and Safety Manger.

In addition, safety violations will be tracked by E-Corp. Project managers shall review all personnel safety records and have the authority to restrict any personnel who have safety violations from work on their projects. Safety violations may be rectified after a period of time if no additional safety issues are found. These violations will be rectified by a letter in the file stapled to the safety citation as follows:

- Personal violations will be reviewed after one year. If no violations were received within the past year, a letter stating this will be placed in the file over the safety violation. The safety record of that person will be considered clean unless they receive an additional safety violation for the same offense as the original.
- Supervisory violations will be reviewed after four months and given a letter over the supervisory safety citation. If no additional violations were received within the last four months, a letter stating this will be placed in the file over the supervisory violation and the supervisor's record will be considered clean.

In addition to this safety discipline procedure, the company disciplinary process may be used for safety issues when appropriate. See the employee manual for details on the company progressive disciplinary procedure.

Safety rules and the disciplinary process are communicated at the time of initial employment by means of *General Safety Awareness Training* and *Employee Manual*.

Safety Meetings

Project / Activity Start Safety Meetings

Prior to beginning a new project or new phase of a project which involves different tasks or workers, a project start safety meeting will be held. This meeting will include a review of the following topics including where to find documentation:

Applicable Corporate HSMS
Site Health and Safety Plan
Emergency Response Plan and Meeting Point
Nearest hospital facility
Emergency Equipment
Project Contact Personnel
Hazard Communication and location of Safety Data Sheets
Activity Hazard Analysis
Safety Hazards / Precautions of Upcoming Activities
PPE required

Weekly Toolbox Meetings

Weekly toolbox meetings (or similar meeting) shall be held each week. The toolbox meetings should review the planned work activities for the day/week, address site specific hazards, discuss and resolve the risks and mitigations, discuss any Health, Safety, Security and Environment concerns and raise the consciousness of each worker before they start work.

These meetings shall include:

- A review of relevant Health and Safety Plan (HASP) elements to be performed at an appropriate frequency. A review shall be done whenever the HASP is updated and should also be done regularly to remind workforce of relevant elements.
- Complete and review the Weekly Toolbox Meeting Form. This includes a site-specific risk assessment; therefore, the focus should be on how to complete activities on a given site during that workday/week and activity.

These meetings should also include additional content, when appropriate, such as:

- A Hazard Communication review.
- Address the risks of any issues arising from the site walk and the location of on-site equipment and materials.
- A review of permitted activities for the day.
- A review of the right and obligation to 'Stop Work' and identify 'Stop Work' triggers.
- Discussion regarding implementing controls set forth in the Risk Assessment and the Daily Toolbox Meeting. Verify that all parties on site have a complete understanding of the work plan and controls that are in place.
- Allocate resources and complete permits by those performing permitted work.

Weekly Toolbox Meeting Record

The Weekly Toolbox Meeting Form shall be used to document the following:

During the weekly toolbox meeting, prior to starting work:

- Record of meeting discussion.
- Planned jobs.
- Muster point locations.
- Site-safety discussion topics.
- Authorization signature.
- Permits.
- Sign-in times and workforce signatures. By signing, individuals confirm their fitness for duty; understanding of and compliance with the task risk analysis; and understanding of the hazards associated with their assigned tasks and their obligation to 'Stop Work.'

Post job review:

- Best practices or lessons learned/observed during work.
- Health and Safety concerns including incidents, near-miss reports or observations.
- Any 'Stop Work' interventions.
- Sign-out times and workforce signatures. By signing, individuals confirm that they have left uninjured, unless they have been affected by an incident or received first aid, which should be documented as part of the post-job review as allowed by law.
- Additional hazards and risk controls identified requiring Risk Assessment update.

Toolbox Meeting Locations

When selecting the location of the meeting, the following should be considered:

- Safety of personnel
- Background noise
- Uncomfortable or cramped locations
- Weather and environment.

Safety meetings will be held on all project sites to communicate site-specific health and safety information, to comply with OSHA 29CFR 1926.21, and to update training. Topics include relevant findings from safety inspections, current incident reports, modifications to health and safety policies and procedures, etc. Training for unique issues and specific problems will be conducted when applicable. The following will apply to all safety meetings:

- The PM is responsible to ensure a documented safety meeting is completed each week.
- Meetings will include opportunities for employees to raise any issues or express concerns.
- All employees present on a project site are required to attend the weekly safety meetings.
- Weekly speakers may be alternated with different employees conducting the meeting through the project duration.
- A review of upcoming work for the week and safety concerns and precautions shall be communicated. The speaker needs to communicate to employees the importance of accomplishing the daily goals SAFELY and provide POSITIVE reinforcement.

Safety Meeting Documentation

The E-Corp Project Start Safety Meeting Report Form and Weekly Toolbox Meeting Form, or document containing the following information will be used to document safety meetings:

- A summary of discussion topics.
- Name of speaker / trainer.
- Date and length of meeting.

- Name and signature of all attendees.
- Signature of translator if applicable.
- Notes of discussion and questions.

All information will be completed in detail with appropriate backup material attached. All participants in the meeting are required to sign the Weekly Toolbox Meeting form or other documentation of training as applicable.

These reports will be kept by the SSHO until completion of the project. Documents shall be kept at the site location. Audits of records shall be completed periodically.

Subcontractor Safety Meetings

Attendance to E-Corp safety briefings **does not** alleviate the subcontractor's responsibility to train subcontractor personnel. E-Corp in no way will take responsibility for the safety training of subcontractor personnel. All subcontractors shall perform weekly safety and health briefings to communicate to their employees and visitors all possible hazards associated with site-specific work. Documentation of these briefings shall be turned in to the E-Corp PM or SSHO.

Employee Training

All E-Corp personnel assigned to or regularly entering site areas to perform or supervise work; for health, safety, security, maintenance, or administrative purposes, or for any other site-related function will have received appropriate training in General Safety Awareness. In addition, employees are trained on HSMS applicable to their job as per OSHA 29CFR1910 and 29CFR1926.

At a minimum, all training (in-house or third party) shall consist of a documented process that includes an appropriate curriculum and verification by means of an individual examination (written or evaluated experience) with the date and names of the employees attending the training.

Any training program shall be reviewed and/or audited periodically by management and evaluated for effectiveness. Any training process shall consist of the following:

- Determine if training is needed.
- Identify the training needs.
- Identify the goals and objectives.
- Develop the learning activities.
- Conduct the training.
- Evaluate the program's effectiveness.
- Develop a method to improve the program.

Site specific training will be given upon initial assignment to the site and in weekly safety meetings on site. These meetings will be documented and each individual in attendance will sign an attendance sheet.

All training is conducted in an effort to reduce the frequency and severity of work-related accidents, incidents, injuries and illnesses, provide uniform health and safety guidance for personnel and comply with all federal, state and local health regulations that affect E-Corp activities.

General Safety Awareness training must be conducted and documented for new and transferred employees. This training will include orientation and safety topics applicable to all E-Corp employees.

The E-Corp SSHO will conduct follow-up training sessions, including discussion of operational problems and compliance with the HASP for all personnel assigned to work at the site when warranted. Should an operational change affecting on-site fieldwork be made, a meeting prior to implementation of the change shall be convened to explain special health and safety procedures.

E-Corp personnel will be trained in First Aid and CPR as appropriate. E-Corp personnel are not required to respond in an emergency unless it is required by the specific job or contract.

Employees shall be provided with refresher safety training as specified by regulation, company policy, or job requirements.

All training records for E-Corp employees will be updated and kept in training files by the HSM.

Work that is not done on a regular basis (i.e. cranes, heavy equipment, etc.) will require training to be completed prior to beginning that type of work on a project.

E-Corp Training Requirements		
Activity	Training Program	Retraining Required
Contract Manager SSHO	OSHA 30-hour Construction Safety Training	After 5 years
Project Manager	OSHA 10-hour Construction Safety Training	After 5 years
New Hire Orientation	General Safety Awareness	None unless incident shows need for retraining
Aerial Lift Operator	E-Corp Aerial Lift Operator Training or equivalent.	After 3 years.
Behavior Based Safety	E-Corp Behavior Based Safety Training or equivalent	After 3 years.
Cold Injury Prevention	E-Corp Cold Injury Prevention Training or equivalent (can be covered during safety meetings)	Annually
Confined Space Entry	E-Corp Confined Space Entry Training or equivalent. (prior to Confined Space Work)	Annually
Confined Space Rescue	E-Corp Confined Space Rescue Training or equivalent	Annually
Fall Protection	E-Corp Fall Protection Training or equivalent.	Biannually
Crane Operation	Crane operator training and certification from manufacturer representative.	Annually
Driving Safety	E-Corp Driver Safety Training. Approval of driving history required. Fit For Duty and Fatigue Management Training is required for drivers.	If incident occurs, operator receives serious violation ticket, or evidence of unsafe driving is present, driving privileges will be revoked.
Equipment Operator	E-Corp Heavy Equipment Operator Training or equivalent.	After 3 years.
Excavation Competent Person	E-Corp Excavation and Soils Testing Training or equivalent.	Biannually
Explosive actuated tools	Explosive actuated tools from manufacturer representative.	As recommended by manufacturer
First Aid / CPR	National Safety Council, Red Cross, or American Heart Association First Aid / CPR certification.	Biannually

Hazard Communication	E-Corp Hazard Communication Training or equivalent	Annually
Hazardous Materials Operations	Site Specific training required prior to exposure at the site.	Site requirement dependent
Heat Illness Prevention	E-Corp Heat Illness Prevention Training or equivalent (can be covered during safety meeting)	Annually
Lockout / Tagout	E-Corp Lockout / Tagout training or equivalent	Annually
Personal Protective Equipment	E-Corp PPE Use training, depending upon PPE required.	Dependent upon PPE required.
Occupational Noise Exposure	E-Corp Occupational Noise Exposure training prior to exposure at site.	Biannually
Overhead Utilities	E-Corp Overhead Utilities training or equivalent	Biannually
Respiratory Protection	E-Corp Respiratory protection training or equivalent	When site conditions change requiring retraining
Risk Assessment	E-Corp Risk Assessment training or equivalent	Biannually
Trenching Shoring and Excavations	E-Corp Trenching Shoring and Excavations Training or equivalent, prior to exposure on site.	When site conditions change requiring retraining
Welding Cutting and Hot Work	E-Corp Welding Cutting and Hot Work Training or equivalent, prior to exposure on site.	When site conditions change requiring retraining
Working Alone or Remote Travel	E-Corp Working Alone and Remote Travel Training or equivalent, prior to exposure.	When site conditions change requiring retraining
Working Over or Near Water	E-Corp Working Over or Near Water Training or equivalent, prior to exposure.	When site conditions change requiring retraining.

Auditing

Safety Audits are performed to identify and correct unsafe acts and conditions. Audits are also utilized to reinforce safe work conditions and behaviors. “At Risk” Behaviors are unsafe work practices which, if uncorrected, may lead to an accident or incident. Persons performing safety inspections will watch for and immediately correct any “at risk” behaviors.

In addition to internal safety audits, periodic inspections from government regulators or clients may occur at E-Corp sites. Inspectors should be treated with respect. Whenever possible, inspectors should be accompanied by the HSM, PM, or SSHO while performing an audit.

For details of audit protocol, frequency, and documentation, refer to the E-Corp Audits/ Inspections Program.

Accident / Incident Reporting

In the event of an incident or injury, first response must always be to protect the safety of people in the immediate area. If emergency care is required, immediate notification of emergency medical services using 911 is required. Details of what to do in the event of an emergency and the nearest hospital facilities will be located in the ERP. After following the procedures in the ERP, the following reporting procedures will be followed:

- The supervisor present on the job when the incident occurs is responsible to notify the PM and HSM immediately of the incident. The HSM will determine if the incident is OSHA recordable and reportable. E-Corp employees carry cellular telephones so this notification can be done immediately.

- It is the duty of the supervisor of the person involved in the incident to complete the Supervisors Incident Report Form with guidance from the HSM or PM. If the person involved in the incident is unable to help complete the form, the SSHO or PM will complete the form with guidance from any witnesses.
- The HSM will keep a record of all incident reports for two years. For details on incident reporting and investigation procedures, see the Incident Reporting and Investigation Program.
- Employees who are injured and receive medical treatment at a clinic or hospital are required to provide documentation from a physician before they are allowed to return to work. This documentation must be provided to the HSM before the employee returns to regular duties.
- If light duty is mentioned on the documentation, the physician may need to be called to determine exact restrictions required.
- The treating physician should be given a description of the employee's regular duties and alternate work that may be assigned.
- E-Corp may require that an employee have a fitness for duty examination prior to returning to work after an injury or illness.

Responding to an Emergency

In case of an emergency, consider any of the following actions if appropriate:

- Give First Aid / CPR as appropriate. Injuries requiring medical attention or treatment must be immediately transferred to the nearest medical facility, either the nearest hospital or industrial clinic depending upon severity of the injury. The ERP will give details of the nearest medical facility. If injuries are serious emergency medical services must be immediately notified by calling 911 and following the procedures outlined in the ERP.
- Evacuate people from the area. Refer to the ERP for evacuation procedures.
- Call the Fire Department or 911 for assistance.
- Do not put yourself or others at further risk of injury. Evacuate whenever severe injury is possible. As you evacuate, consider the following if applicable and not endangering yourself or others:
 - Isolate the area.
 - If the material is flammable, turn off ignition and heat sources.
 - Wear appropriate PPE if cleanup is required.
 - Use proper decontamination and disposal procedures if cleanup is required.
 - Notify the Site Superintendent, PM, and HSM as soon as possible.

Subcontractors

Subcontracts require that all applicable laws concerning health and safety will be observed by the subcontractor. The provisions of these health and safety responsibilities apply to subcontractors and their employees working for E-Corp. Failure to fulfill this requirement is a failure to meet the conditions of the contract. Subcontractors with good health and safety records will be given priority over subcontractors with poor records. The following are health and safety requirements of subcontractors to E-Corp:

To be received with bid:

Safety record information in one of these forms:

- Experience Modification Rate (EMR), can be obtained from your workers compensation insurance carrier.
- OSHA Incident Rates (Recordable and Lost Workday Cases)

- An updated copy of the posting required portion of your OSHA log for the past 3 years.

To be completed before work begins:

- Certificates of insurance.
- Proof of certifications required for the project.
- Site safety plan for work applicable to this project or sign off on E-Corp's HASP.
- Activity Hazard Analysis for the portion of work you will be completing including principal steps, potential hazards, and recommended controls.

To be received weekly during the duration of the project:

Weekly safety meeting documentation.

Recordkeeping

Accurate safety records will be kept by E-Corp to ensure compliance with regulatory agencies. These records will include but not be limited to the following:

OSHA Documentation

- A log of all recordable occupational injuries and illnesses for E-Corp will be kept on the OSHA 300 log. Each recordable injury and illness will be entered on the OSHA log as early as possible but no later than 6 working days after receiving information that a recordable injury or illness has occurred.
- The OSHA 300 log will be completed in detail, will be available in the main office, and will be kept current by the HSM.
- The OSHA Form 300A, Summary of Work-Related Injuries and Illnesses will be completed and posted in appropriate locations from February 1st until April 1st of the year following the year covered by the form.
- A first report of injury or illness form (OSHA 301 or equivalent) will be completed where applicable. The employee involved will be given a copy of the form and a statement of his/her rights and responsibilities related to the industrial injury or illness.

The HSM will keep a record of all incident reports for two years.

Medical monitoring records will be kept as required by the specific monitoring performed and will be kept confidential.

All training completed will be documented and a record will be kept in each employee's training file. These files will be maintained by the HSM or Contract Administrator and will be kept in the office.

Inspection record sheets will be kept by the SSHO or HSM until completion of the project. Once the project is complete, inspection records will be maintained for 1 year at the corporate office.

Internal audit records will be kept until completion of the next internal audit. After completion of the project, the latest internal audits will be kept for a minimum of 1 year at the corporate office.

Safety meeting report forms will be kept by the SSHO or HSM until completion of the project. Once the project is complete, safety meeting records will be maintained for a minimum of 1 year.

Accident investigations will be kept for a minimum of 1 year at the corporate office.

See HSMS for details of record keeping requirements specific to that program.

Periodic Program Evaluation

A periodic review is scheduled to look at each critical component in our safety and health plan to

determine what is working well and what changes, if any, are needed. All employees are encouraged to participate by keeping E-Corp informed of their concerns regarding the elements of this safety and health plan.

Compliance Audit

To ensure compliance with all applicable federal, state, and local laws, E-Corp shall conduct an internal audit of its HSMS programs annually. The audit shall include a review of E-Corp's programs, policies, and standard procedures. The audit shall be maintained by the HSM in cooperation with the Safety Committee Members. Prior to the audit, the HSM and designated Safety Committee Members shall research and review applicable sections of Title 29 and 40 of the Code of Federal Regulations, State Code, local ordinances, directives, and all provisions required thereby to be included in the audit and amend it as necessary.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/23/21
02	Stacy Maxfield	Revised Weekly Safety Meeting form and references. Removal of Safety Meeting Report Form and Monthly Safety Summary.	08/31/22



Weekly Toolbox Meeting Form

PROJECT _____ LOCATION: _____ DATE: _____

Site Superintendent: _____ Muster Point: _____

SAFETY, RISKS, HAZARDS IDENTIFIED:

<input type="checkbox"/> Driving/Traffic	<input type="checkbox"/> Slips/Trips/Falls	<input type="checkbox"/> Lifting Operations	<input type="checkbox"/> Fire Hazards
<input type="checkbox"/> Equipment Operation	<input type="checkbox"/> Fall From Elevation	<input type="checkbox"/> Heat/Cold Stress	<input type="checkbox"/> Aerial Lifts
<input type="checkbox"/> Electrical	<input type="checkbox"/> Demolition	<input type="checkbox"/> Excavations	<input type="checkbox"/> Biological Hazards

Other Hazards (List):

Describe safety discussion topics covered (may attach separate sheet):

PPE REQUIREMENTS:

<input type="checkbox"/> Safety Glasses	<input type="checkbox"/> Safety Vests	<input type="checkbox"/> Hearing Protection	<input type="checkbox"/> Chemical Protective Clothing
<input type="checkbox"/> Hard Hat	<input type="checkbox"/> Face Shield	<input type="checkbox"/> Safety Harness	<input type="checkbox"/> Other (list)
<input type="checkbox"/> Steel-toe Boots	<input type="checkbox"/> Gloves	<input type="checkbox"/> Respirator	

EMPLOYEE SIGNATURES

Number of People on Site

Printed Name	Signature	Time In/Out	By Your Signature, you agree:
			<ol style="list-style-type: none"> You arrived fit for duty. You are not under the influence of any medication, drugs, or alcohol that could affect your ability to work safely. You are aware of your responsibility to immediately report any injury or illness. You understand the hazards and risks of the work you are about to perform. You are aware of your obligation to "Stop Work" any time you identify an immediate risk of injury or accident.

VISITORS (Name, Company):

Number of Visitors

		<input type="checkbox"/> PPE	<input type="checkbox"/> HSSE Briefing
		<input type="checkbox"/> PPE	<input type="checkbox"/> HSSE Briefing
		<input type="checkbox"/> PPE	<input type="checkbox"/> HSSE Briefing
		<input type="checkbox"/> PPE	<input type="checkbox"/> HSSE Briefing

Visitor's signature confirms receipt of and understanding of the visitor orientation.

SUPERVISOR'S SIGNATURE/DATE: _____

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Aerial Lift and Elevating Work Platforms Program

E-Corp has adopted this program for the safety of employees when working on or around “Vehicle Mounted Elevating and Rotating Work Platforms” from the following OSHA regulations:

§1910.67 – Vehicle-Mounted Elevating and Rotating Work Platforms

§1926.453 – Aerial Lifts

Description and Requirements

The Health and Safety Manager (HSM) is designated by E-Corp as the Competent Person in authority over all aerial device work procedures. HSM will ensure that all safety measures and systems are in place and correctly installed, all safety procedures are adhered to, and ensure regular inspections of the operational site and aerial equipment are made. E-Corp has implemented and will enforce the following work practices and procedures to assure that no employee will be exposed to hazards during aerial lifting operations:

- The Site Safety and Health Officer (SSHO) will verify that all employees are trained in and familiar with required work practices and procedures in the use of any equipment required, proper PPE, and safety procedures which must be followed to safeguard personnel involved in aerial lifting operations or who work in the vicinity of aerial lifting operations.
- Only authorized personnel will be permitted to operate an aerial lift.
- Each work platform will be inspected, maintained, repaired, and kept in proper working order in accordance with the manufacturer's maintenance and repair manuals.
- On a daily basis, before the work platform is used, it must be given a thorough inspection, which will include:
 - Inspection for defects such as cracked welds, hydraulic leaks, damaged control cable, loose wire connections, and tire damage.
 - Inspection of functional controls for proper operation.
- Lift controls will be tested each day prior to use to determine that such controls are in safe working condition. Tests will be made at the beginning of each shift during which the equipment is to be used to determine that the brakes and operating systems are in proper working condition.
- Critical safety components of mechanical elevating and rotating equipment whose failure would result in a free fall or free rotation of the boom will receive a thorough visual inspection before use on each shift.
- Vehicles will have a reverse signal alarm audible above the surrounding noise level or the vehicle will be backed up only when an observer signals that it is safe to do so.
- For power lines rated 50 kV or below, minimum clearance between the lines and any part of the crane or load will be 10 feet.
- Any suspect items discovered through inspection must be carefully examined and a determination made by a qualified service person as to whether they constitute a safety hazard. All unsafe items must be corrected before further use of the work platform.
- Any work platform not in safe operating condition will be removed from service until it is repaired. All repairs will be made by a qualified service person in conformance with the manufacturer's operating, maintenance, and repair manuals.
- Boom, basket, and platform load limits specified by the manufacturer will not be exceeded.

- Each work platform will be equipped with a mechanical parking brake, which will hold the unit on any slope it is capable of climbing. When possible, wheel chocks will be installed before using an aerial lift on an incline.
- Employees will always stand firmly on the floor of the basket, and will not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.
- Approved fall protection will be worn and a lanyard attached to the boom or basket when working from an aerial lift.
- No aerial vehicular equipment having an obstructed view to the rear may be operated on off-highway jobsites where any employee is exposed to the hazards created by moving the vehicle, unless the vehicle has a reverse signal alarm audible above the surrounding noise level or the vehicle is backed up only when a designated employee signals that it is safe to do so.
- Aerial vehicular equipment, if provided with outriggers, will be operated with the outriggers extended and firmly set as necessary for the stability of the specific configuration of the equipment. Outriggers may not be extended or retracted outside of clear view of the operator unless all employees are outside the range of possible equipment motion.
- When the work area or the terrain prevents the use of outriggers, the equipment may be operated only within its maximum load ratings for the particular configuration of the equipment without outriggers.
- Mechanical elevating and rotating equipment used to lift or move material will be used within its maximum load rating and other design limitations for the conditions under which the work is being performed.
- A designated employee other than the equipment operator will observe the approach distance to exposed lines and equipment and give timely warnings before the minimum approach distance is reached.
- The following clearances will be maintained when operating aerial work platforms or other equipment under, over, by, or near energized electric power lines:

Minimum Clearance Distances for Equipment		
Voltage	Clearance with boom raised	Clearance boom lowered and No Load in Transit
Table Text	Table bullet	
To 50 kV	10 feet	4 feet
Over 50 kV	10 feet + .4 inch per each	10 feet
50 to 345 kV	1 kV over 50 kV	
346 to 750 kV		15 feet

- Before using the work platform, the operator will:
 - Read and understand the manufacturer's operating instructions and safety rules, and be trained by a qualified person on the contents of the manufacturer's instructions and safety rules.
 - Read and understand all decals, warnings, and instructions on the work platform.
- Before the work platform is used, the operator will survey the area for hazards such as:
 - Untamped earth fills.
 - Ditches.
 - Drop-offs or holes.
 - Bumps & floor obstructions.

- Debris.
- Overhead obstructions and high-voltage conductors.
- Other possible hazardous conditions.
- Before each elevation of the work platform, the operator will:
 - Check for overhead obstructions and high-voltage conductors. A minimum distance of ten feet from energized high-voltage conductors must be maintained at all times between the conductors and the operator and platform equipment.
 - Ensure that the load and its distribution on the platform are in accordance with the manufacturer's rated capacity. The manufacturer's recommended load limits must never be exceeded.
 - Ensure that outriggers and stabilizers are used if the manufacturer's instructions require their use.
 - Ensure that guardrails are properly installed and gates are closed.
- Before and during driving while the platform is elevated, the operator will:
 - Be required to look in the direction of, and keep a clear view of, the path of travel and assure that the path of travel is firm and level.
 - Maintain a safe distance from obstacles, debris, drop-offs, holes, depressions, ramps, or other hazards to safe elevated travel.
 - Maintain a safe distance from overhead obstacles.
- The operator will limit travel speed according to conditions. Conditions to be observed are: Ground surface, congestion, slope, location of personnel, and other factors that may create a hazard of collision or injury to personnel.
- Personnel will maintain a firm footing on the platform while working thereon unless they are secured by safety harness and lanyard devices fixed to manufacturer-approved anchor points. Use of railings or planks, ladders or any other device on the work platform for achieving additional height is prohibited.
- The operator will immediately report defects or malfunctions which become evident during operation and must stop use of the work platform until correction has been made.
- Altering or disabling of safety devices or interlocks is prohibited.
- Stunt driving and horseplay is prohibited.
- An aerial device acquired before December 31, 1976, which does not meet the requirements will not be used unless it has been inspected and modified as required to conform to the essential stability, structural, electrical insulation, and operational requirements of ANSI A92.2.
- Each aerial device placed in service will have a conspicuously displayed legible plate or other legible marking verifying the aerial device is designed and manufactured in accordance with the following applicable specifications:
 - **ANSI Standard A92.2-1990**
 - **ANSI Standard A92.3-1990**
 - **ANSI Standard A92.5-1992**
 - **ANSI Standard A92.6-1999**
- The following information will be displayed on all work platforms in a clearly visible, accessible area and in as permanent a manner as possible:
 - Warnings, cautions, or restrictions for safe operation in accordance with ANSI requirements.
 - The rated work load will be clearly displayed at each entrance to the platform.

Basic Types of Elevating Work Platforms and Aerial Devices

There are two basic types of elevating work platforms – boom and scissor. Both types come in:

1. “On-Slab” models for use on smooth hard surfaces such as concrete or pavement.
2. “Rough-Terrain” models for use on firm level surfaces such as graded and compacted soil or gravel.

Both types share three major components: base, lifting mechanism, and platform assembly.

Scissor-Type Machines

These are raised and lowered by hydraulic pistons and an expanding scissor mechanism. Platforms are available in various configurations with different capabilities for extension and movement. Some have extendable platforms or platforms that can rotate. Extendable platforms should be retracted before raising or lowering the device.

On-Slab Units

- Not designed for uneven or sloping ground.
- Normally have solid rubber tires.
- Generally powered by rechargeable DC battery.
- Some are powered by internal combustion engine, either gasoline or propane.
- Most have “pothole protection” – a metal plate lowered close to the ground to afford some protection against inadvertent movement into depressions or debris.

Rough-Terrain Units

- Similar in design to on-slab machines.
- Built to handle rigorous off-slab challenges.
- Normally have wider wheel bases, larger wheels, and pneumatic tires.
- Some fitted with outriggers for extra stability.
- Usually powered by internal combustion engines: gasoline, diesel, or propane.
- DC Battery powered units are also available, but are not common.
- Lifting mechanism is hydraulic.

Scissor-lifts range in capacity from 500 to several thousand pounds. They are available with platform heights often reaching 50 feet or more.

Scissor-lifts must be set up on stable, level ground, even with outriggers deployed. A slight imbalance or instability is amplified when the machine is raised.

Although fixed to the platform, the controls are moveable from one side of the platform to the other. This enables the operator to see the path of travel. The controls must be oriented correctly so that the operator does not inadvertently move the machine in the wrong direction. Many machines have color-coded directional arrows on the chassis to aid the operator in moving the machine.

Self-Propelled Boom-Supported Platforms

- Normally fitted with rough-terrain undercarriages.
- Some smaller on-slab units.
- Platforms have lifting capacity of about 500 pounds or two workers.
- Lack capacity of scissor-type machines; not intended for lifting materials.
- Usually powered by an internal combustion engine: gasoline, diesel, or propane.

Booms

- Telescopic, articulating, or combination of both.
- Raised and extended by hydraulic cylinders.

- Can reach up to 150 feet.
- Can extend well beyond the wheelbase.

As with mobile cranes, stability decreases with length of boom and boom angle as the center of gravity moves in relation to the platform position. The machine will overturn if the center of gravity moves outside the machine's base.

Machines come with load charts that show safe operating configurations. Machines with booms long enough to cause overturning at low boom angles are required to have radius-limiting interlocks to prevent operation in unstable configurations. The reach chart indicates the safe operating configurations for a machine operating on a level surface. The reach diagram shows the safe operating envelope. The machine does not achieve its maximum height directly overhead, nor does it achieve its maximum reach at ground level.

Users must be familiar with the operating range of the individual make and model of the equipment they are using. This knowledge is essential in order to position the machine correctly and reach the work location safely.

Non-Self-Propelled or Push-Arounds

As the name indicates, these units are not self-propelled and must be transported from one location to another with an independent power source or manually in the case of the smaller devices.

The machines are intended primarily for use on smooth, level, hard surfaces or on-slab conditions. Some trailer-mounted units are available.

Many of these devices can fold up to pass through a standard door and can be transported by pick-up truck. As a result, they are suitable for maintenance or renovation work.

Push-Arounds

- Raising mechanism normally powered by gasoline or propane engine or by electric motors, either AC or DC.
- Normally raised and lowered by hydraulic cylinders.
- Platform capacities vary from 300 to 1000 pounds or more but are generally less than 500 pounds.
- Devices with capacity less than 500 pounds are **Not Recommended** for construction – this type is better suited to maintenance activities.
- Platforms usually do not exceed 36 feet in height.
- As platform is raised, risk of overturning increases.
- Extra care required when operating at maximum height.

Equipment Selection

Elevating work platforms are designed for different uses. It is essential to select the appropriate equipment for the job.

Typical Mistakes

- Using an on-slab machine on rough terrain.
- Using a unit undersized with respect to height, reach, and lifting capacity.
- Lifting large materials that overhang the platform.
- Using a scissor lift where the reach of a boom-type machine is needed.
- Extending the platform with planks, ladders, or other devices because the machine cannot reach the required height.

Factors to Consider

- *Capacity* – Does the machine have the lifting capacity, the reach, and the height to complete the task?
- *Surface Conditions* – Are the surface conditions hard or soft, sloped or level?
- Will the ground have an effect on the type of machine selected?
 - *Platform Size and Configuration* – Do you need a regular or extendable platform? Is rotation required? Are there space restrictions to consider?
 - *Mobility* – Is a boom type better suited than a scissor lift to the task at hand?
 - *Material to be Lifted* – Will the machine be able to lift the size and weight of material required for the job?
 - *Access* – Will the machine be able to travel around the workplace safely? Are there obstructions or depressions that will restrict the use of certain machines?
 - *Operator Skill or Training* – Are the people on site competent to operate the machine? If a propane-powered engine is used, has the operator received propane training?
 - *Work Environment* – If the work is to be done indoors, or in a poorly ventilated area, will an electrically powered machine be required?

Fundamental Elevating Work Platform Hazards

The following are some of the basic hazards to be aware of during operations:

- ***Machine Tipping or Overturning*** – Many factors cause instability – sudden stops, depressions, drop-offs, overreaching, overloading, etc. Overturning and tipping result in many fatalities and injuries.
- ***Overriding Safety Features*** – Disarming features such as the tilt or level warning and the deadman switch can prevent operators from knowing when they are in a dangerous situation. Overriding the deadman switch has resulted in fatalities; so has malfunction of the tilt warning.
- ***Overhead Power line Contact*** – Contacting overhead wires can cause electrocution. This can happen with any type of machine – and with the loads carried by or overhanging the machine.
- ***Falls from Elevated Platforms*** – Many falls occur because workers get in a hurry and fail to observe standard fall protection procedures. Many such falls cause serious injury or even fatalities.
- ***Makeshift Extensions*** – When the machine cannot reach the working height desired, do not compensate by using scaffold planks, ladders, blocks of wood, or other makeshift arrangements. Such practices lead to falls and machine instability.
- ***Overloading the Platform*** – Elevating work platforms overloaded or loaded unevenly can become unstable and fail. Boom-type machines are especially sensitive to overloading. Always stay within the operating range specified by the manufacturer.
- ***Failure to Cordon Off*** – Elevating work platforms may be struck by other construction equipment or oncoming traffic when the work area is not properly marked or cordoned off. Workers can be injured by falling material/tools or swinging booms and pinched by scissor mechanisms when entering an unmarked area.
- ***Accidental Contact*** – Many elevating work platforms have blind spots. Moving the machine or platform may cause contact with workers or with obstacles. Use a designated signaler on the ground to guide the operator when the path of travel is not clear or access is tight.
- ***Improper Maintenance or Modifications*** – Elevating work platforms should be maintained by competent workers in accordance with manufacturer's instructions. No modifications should be made to the machine without the manufacturer's approval.
- ***Improper Blocking During Maintenance*** – Failing to block, or improperly blocking the

machine, boom, or platform can cause serious crushing injuries and property damage.

- **Improper Access** – Do not enter or leave the platform by climbing the scissors or the boom. Do not use extension ladders to gain access. Ladders exert lateral loads on the platform that can cause overturning. For the safest access, lower the machine completely.
- **Moving with Platform Raised** – Lower the platform before moving the machine unless:
 1. The machine is designed to move with platform raised.
 2. The supporting surface is smooth and level. Slight dips and drops are amplified when the platform is raised and can cause the machine to overturn.
- **Improper Refueling** – Take care when refueling. Gasoline, for instance, should be kept in approved containers and dispensed to prevent spills and sparking.
- **Pinch Points** – Clothing, fingers, and hands can get caught in scissor mechanisms. As platforms are raised, machines may sway. Workers can be pinched between guardrails and the structure. Position the platform so that work takes place above guardrail height.

Responsibilities During Elevating Work Platform Operations

Because elevating work platforms are often rented from an equipment supplier, there is confusion as to the responsibilities of the parties involved. Generally, the responsibilities can be summarized in the following way:

Owner/Supplier must ensure equipment:

- Is maintained in good operating condition.
- Conforms to appropriate regulations and standards.
- Includes the operator's manual and correct load rating charts.

Site Superintendent:

- Ensure that the operator is fully trained and is competent to operate the particular equipment being used.
- Ensure that the machine has the correct load rating capacity for the job.
- Maintain the equipment and all its protective devices.
- Maintain a daily inspection log for each platform.
- Ensure that workers use appropriate personal protective equipment.
- Keep the manufacturer's operating manual with the equipment.
- Train workers on each type of equipment that they will be using.

Equipment Operators:

- Receive adequate training to be fully competent.
- Only operate the machine when competent.
- Operate the machine in a safe manner as prescribed by the manufacturer and according to Company safety and health policies.
- Inspect the equipment each day or each shift before use.
- Perform function tests before use.
- Report any defects to the supervisor.
- Read, understand, and obey the manufacturer's safety rules, including the operating manual and warning decals. When a defect is reported to the supervisor, the equipment must be taken out of service until the repairs are completed and the equipment is inspected and approved for use.

Stability and Tipping

In general, elevating work platforms are well manufactured and are safe to use within their specific limitations. However, as with any equipment or tool, there are dos and don'ts to follow.

One of the most dangerous hazards in operating elevating work platforms is tipping over. This can be caused by one or more of the following factors:

- Sudden movement of the unit or parts of the unit when elevated.
- Making sudden stops while in motion with platform elevated.
- Uneven or overloading of the platform.
- Traveling or operating on a slope or uneven terrain.
- Changing the weight distribution of the machine by replacing parts with others of a different weight or adding attachments not approved by the manufacturer.
- Holes or drop-offs in the floor surface causing one wheel to drop suddenly.
- Operating the equipment in windy conditions (refer to the operator's manual for safe operating conditions).

It is important that users understand what makes a platform stable and what causes it to overturn. To understand stability, one must understand the concept of center of gravity, tipping axis (or tipping point), and forces that shift the center of gravity.

Stability is resistance against tipping over. Stability depends on the location of the center of gravity in relation to the tipping axis.

Center of Gravity

Every object has a center of gravity. It is the point where the object's weight would be evenly distributed or balanced. If a support is placed under that point, the object would be perfectly balanced.

The center of gravity is usually located where the mass is mostly concentrated. However, the location does not always remain the same.

Any action that changes the machine's configuration – such as raising the platform, extending the boom, or traveling on a slope – can change the location of the center of gravity.

Tipping Axis and Area of Stability

When an Elevated Work Platform (EWP) turns over, it tips around an axis or point. This is called the tipping axis or tipping point. EWPs typically have four tipping axes – front, back, left, and right.

Each EWP has its own area of stability. This varies from platform to platform and from model to model. In most cases, the area of stability is bound by the four tipping axes (or the four tires or outriggers). The platform is stable as long as the center of gravity remains inside the area of stability. This is the key to safe operation.

When the center of gravity shifts beyond the area of stability, the machine will tip over. Some factors that can cause a shift beyond the stability area are overloading, moving on excessively sloped ground, a sudden drop of one wheel, and shock loading.

Raising the platform also raises the EWP's center of gravity. When a scissor lift is situated on a slope, and the platform is raised, the platform's center of gravity will move toward the tipping axis. If the center of gravity moves beyond the tipping axis, the platform will overturn.

Boom-supported aerial devices work in the same way. When the boom is extended outward, the center of gravity moves outwards towards the tipping axis. The aerial device will overturn if the boom is extended such that the center of gravity moves beyond the axis. Boom-type machines have an interlocking system that prevents the machine from moving into an unstable

configuration.

Factors Affecting Stability

Dynamic Forces

Dynamic forces are forces generated by movement or change of movement. For example, applying the brakes suddenly or traveling too fast around corners can cause instability – as in a car or van. Sudden stops while raising or lowering the platform can also cause instability.

Traveling

Traveling the platform over rough or uneven ground can also cause instability. A tire dropping 4 inches can cause the boom to sway 2 feet. It is important to lower the platform fully or to retract telescoping sections while traveling, particularly on uneven surfaces.

Equipment Inspection

All components that bear directly on the safe operation of the EWP and can change from day to day must be inspected daily. Inspection is mostly visual – done in a quick but thorough manner. Users must check the operator's manual for a complete list of pre-operational checks. See the end of this section for Daily Inspection Checklists for Elevating Work Platforms and Aerial Devices.

Safe Practices

Operators must be familiar with the requirements for the specific machine they will use:

- The manufacturer's operating manual.
- The manufacturer's warning and caution signs on the machine.
- The location of all emergency controls and emergency procedures.
- The daily maintenance checks to perform.

General Safety Guidelines for EWPs and Aerial Devices

- Always check for overhead power lines before moving the machine or operating the platform. The limits of approach from overhead power lines must be observed. If work must be done within these limits, make arrangements with the owner of the utility to have the power line de-energized. Allow for movement or sway of the lines as well as the platform. Be aware of overhanging tools or equipment.
- Wear a full body harness and tie off to a designated tie-off point while the machine is moving.
- Do not leave the machine unattended without locking it or otherwise preventing unauthorized use.
- Do not load the platform above its rated working load. Wherever possible, keep the load below 2/3 of the rated working load.
- Make sure that all controls are clearly labeled with action and direction.
- Keep guardrails in good condition and ensure that gate is securely closed before moving the platform. Do not remove guardrails while the platform is raised.
- Shut off power and insert the required blocking before maintenance or servicing.
- Deploy stabilizers or outriggers according to the manufacturer's instructions.
- Position the boom in the direction of travel where possible.
- Keep ground personnel away from the machine and out from under platform.
- Do not access the platform by walking on the boom.
- Do not try to push or move the machine by telescoping the boom.

- Do not use the machine as a ground for welding.
- Do not use a boom-supported platform as a crane.
- Do not operate the equipment in windy conditions. For safe wind speeds, refer to the operator's manual.
- Do not place the boom or platform against any structure to steady either the platform or the structure.
- Secure loads and tools on the platform so that machine movement will not dislodge them.
- Make sure that extension cords are long enough for the full platform height and will not be pinched or severed by the scissor mechanism.
- Use three-point contact and proper climbing techniques when mounting or dismounting from the machine.

Important Note: *Never operate equipment on which you have not been trained or which you are not comfortable operating. Your safety and that of others on site depends on competent, knowledgeable operation of the equipment.*

Work Area Inspection

Before operating elevating work platforms and aerial devices, check the work area for:

- Drop-offs or holes in the ground.
- Slopes.
- Bumps or floor obstructions.
- Debris.
- Overhead obstructions.
- Overhead wires, power lines, or other electrical conductors.
- Hazardous atmospheres.
- Adequate operating surface – ground or floor.
- Sufficient ground or floor support to withstand all forces imposed by the platform in every operating configuration.
- Wind and weather conditions.

Fall Protection Requirements for Elevating Work Platforms & Aerial Devices

The fall protection required for persons who work on aerial lifts depends on the type of aerial lift used. The table below shows acceptable fall protection.

Fall Protection for Elevating Work Platforms and Aerial Lifts	
Type of Lift	Fall Protection Required
Vehicle-Mounted Elevating and Rotating Work Platforms (ANSI A92.2 devices)	Platforms other than buckets or baskets must include guardrail systems – guardrails, a midrail, and toeboards. Each person who works on a boom-supported platform must wear a body harness and lanyard attached to the boom or basket.
Manually Propelled Elevating Aerial Platforms (ANSI A92.3 devices)	The platform must have a guardrail at least 42 inches ±3 inches above the floor, a midrail, and toeboards at least 4 inches high.
Boom-Supported Elevating	The platform must have a guardrail at least 42 inches ±3 inches

Fall Protection for Elevating Work Platforms and Aerial Lifts	
Type of Lift	Fall Protection Required
Work Platforms (ANSI A92.5 devices)	above the floor, a midrail, and toeboards at least 4 inches high. Each worker on the platform must wear a body harness and lanyard attached to the boom or platform.
Self-Propelled Elevating Work Platforms (ANSI A92.6 devices)	The platform must have a guardrail 42 inches \pm 3 inches above the floor, a midrail, and toeboards at least 4 inches high.

Fall Protection for Elevating Work Platforms

- Personnel will maintain firm footing on the platform while working on the platform. The use of railings, planks, ladders, or any other devices on the platform for achieving additional height is prohibited.
- A safety harness that has a lanyard which is in compliance with construction safety standard “Fall Protection” and which is affixed to attachment points provided and approved by the manufacturer will be provided and used by any occupant of an aerial work platform described in this section. A fall arrest system will only be used where the aerial lift is designed to withstand the vertical and lateral loads caused by an arrested fall.
- A body belt is not to be used as a personal fall arrest system but may be used with a restraint device for positioning. A restraint device is required where the aerial lift cannot withstand the vertical and lateral loads imposed by an arrested fall.
- **Belting off to an adjacent pole, structure, or equipment while working from an aerial work platform is prohibited.**
- E-Corp will not allow employees to exit an elevated aerial work platform, except where elevated work areas are inaccessible or hazardous to reach. Employees may exit the platform with the knowledge and consent of *E-Corp*. When employees exit to unguarded work areas, fall protection will be provided and used as required.

Fall Protection for Aerial Devices

- Employees will always stand firmly on the floor of the basket, and will not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.
- Boom and basket load limits specified by the manufacturer will not be exceeded.
- A safety harness will be used with a lanyard attached to the boom or basket when working from an aerial lift. An in-plant, industrial-type aerial device used on a level surface and equipped with a platform with approved railings is exempt from this rule.
- Body belts are not acceptable as part of a personal fall arrest system. The use of a body belt in a tethering system or in a restraint system is acceptable.
- A boom platform will be provided with a rail or other structure around its upper periphery that will be not less than 38 inches above the floor of the platform and with a toeboard not less than 4 inches high. A basket of a cherry picker will be considered to meet this requirement. A platform may have the guardrail removed from the working side if a safety lanyard is worn by the employee on the platform.
- Belting off to an adjacent pole, structure, or equipment while working from an aerial device will not be permitted.
- Climbers will not be worn while working from an aerial device unless gaff guards are provided.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/11/21
02	Stacy Maxfield	Annual Review/ Update	09/09/22



AERIAL LIFT DAILY INSPECTION CHECKLIST

Use only equipment which is in safe working condition. DO NOT operate equipment if any inspected items need

Company: _____ **Location of Use:** _____ **Time:** _____ **Date:** _____

Operator's Name: _____ **Supervisor's Name:** _____

Inspector(s) Name: _____ **Hour Meter Reading:** _____

Equipment Type: _____ **Equipment I.D. Numbers:** _____ **Manufacturer:** _____

General Site Information:

- | OK | REPAIR | N/A | | OK | REPAIR | N/A | |
|--------------------------|--------------------------|-----|--|--------------------------|--------------------------|-----|---|
| <input type="checkbox"/> | <input type="checkbox"/> | | Hazard assessment of work area? | <input type="checkbox"/> | <input type="checkbox"/> | | Ground man available for emergency descent who is knowledgeable of descent valve operation? |
| <input type="checkbox"/> | <input type="checkbox"/> | | Controls in place for identified hazards? | <input type="checkbox"/> | <input type="checkbox"/> | | Test controls – including emergency descent valve? |
| <input type="checkbox"/> | <input type="checkbox"/> | | Work areas properly signed and barricaded? | <input type="checkbox"/> | <input type="checkbox"/> | | |
| <input type="checkbox"/> | <input type="checkbox"/> | | Operator's manual on lift? | | | | |

Carrier Vehicle:

- | OK | REPAIR | N/A | | OK | REPAIR | N/A | |
|--------------------------|--------------------------|-----|--------------------------------------|--------------------------|--------------------------|-----|-----------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | | Motor | <input type="checkbox"/> | <input type="checkbox"/> | | Cab |
| <input type="checkbox"/> | <input type="checkbox"/> | | Crank case oil is clean and full | <input type="checkbox"/> | <input type="checkbox"/> | | Steering |
| <input type="checkbox"/> | <input type="checkbox"/> | | Engine coolant is about 2" below cap | <input type="checkbox"/> | <input type="checkbox"/> | | Lights |
| <input type="checkbox"/> | <input type="checkbox"/> | | Clutch /Converter | <input type="checkbox"/> | <input type="checkbox"/> | | Tires properly inflated |
| <input type="checkbox"/> | <input type="checkbox"/> | | Drive Line | <input type="checkbox"/> | <input type="checkbox"/> | | Cuts or bulges in the tires |
| <input type="checkbox"/> | <input type="checkbox"/> | | Transmission fluid at proper level | <input type="checkbox"/> | <input type="checkbox"/> | | Wheels & Lug Nuts secure |
| <input type="checkbox"/> | <input type="checkbox"/> | | Frame | <input type="checkbox"/> | <input type="checkbox"/> | | Fire Extinguisher |
| <input type="checkbox"/> | <input type="checkbox"/> | | Brakes | <input type="checkbox"/> | <input type="checkbox"/> | | Cab Glass |
| <input type="checkbox"/> | <input type="checkbox"/> | | Differentials | <input type="checkbox"/> | <input type="checkbox"/> | | Warning Lights and Alarm |
| <input type="checkbox"/> | <input type="checkbox"/> | | Outriggers | <input type="checkbox"/> | <input type="checkbox"/> | | Access |

HYDRAULICS:

- | OK | REPAIR | N/A | | OK | REPAIR | N/A | |
|--------------------------|--------------------------|-----|----------------------|--------------------------|--------------------------|-----|---------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | | Relief Valve(s) | <input type="checkbox"/> | <input type="checkbox"/> | | Pumps |
| <input type="checkbox"/> | <input type="checkbox"/> | | Restrictor Valves | <input type="checkbox"/> | <input type="checkbox"/> | | Bearings |
| <input type="checkbox"/> | <input type="checkbox"/> | | Pipe Lines | <input type="checkbox"/> | <input type="checkbox"/> | | Check hydraulic oil level |
| <input type="checkbox"/> | <input type="checkbox"/> | | Hose Lines | <input type="checkbox"/> | <input type="checkbox"/> | | Mounting Bolts |
| <input type="checkbox"/> | <input type="checkbox"/> | | Outrigger Cylinders | <input type="checkbox"/> | <input type="checkbox"/> | | Swing Gear |
| <input type="checkbox"/> | <input type="checkbox"/> | | Boom Crowd Cylinders | <input type="checkbox"/> | <input type="checkbox"/> | | Swing Pinion |
| <input type="checkbox"/> | <input type="checkbox"/> | | Control Valves | <input type="checkbox"/> | <input type="checkbox"/> | | Seals - Hydraulic |
| <input type="checkbox"/> | <input type="checkbox"/> | | Swing Motor | <input type="checkbox"/> | <input type="checkbox"/> | | Leaks |

BOOM:

- | OK | REPAIR | N/A | | OK | REPAIR | N/A | |
|--------------------------|--------------------------|-----|-------------------|--------------------------|--------------------------|-----|-------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | | Shipper Welds | <input type="checkbox"/> | <input type="checkbox"/> | | Support Roller |
| <input type="checkbox"/> | <input type="checkbox"/> | | Boom Welds | <input type="checkbox"/> | <input type="checkbox"/> | | Boom Pins |
| <input type="checkbox"/> | <input type="checkbox"/> | | Pins - Boom Pivot | <input type="checkbox"/> | <input type="checkbox"/> | | Boom Main Section |

OPERATIONAL CHECKS:

- | OK | REPAIR | N/A | | OK | REPAIR | N/A | |
|--------------------------|--------------------------|-----|---|--------------------------|--------------------------|-----|--|
| <input type="checkbox"/> | <input type="checkbox"/> | | Operators familiar with load charts? | <input type="checkbox"/> | <input type="checkbox"/> | | Vehicle is leveled, working properly? |
| <input type="checkbox"/> | <input type="checkbox"/> | | Test emergency descent valve? | <input type="checkbox"/> | <input type="checkbox"/> | | Brakes & brake systems check out? |
| <input type="checkbox"/> | <input type="checkbox"/> | | Out rigger pads not cracked? | <input type="checkbox"/> | <input type="checkbox"/> | | Safety pressure relief valves check out? |
| <input type="checkbox"/> | <input type="checkbox"/> | | Hydraulic hoses in good condition? | <input type="checkbox"/> | <input type="checkbox"/> | | Back-up alarm is working? |
| <input type="checkbox"/> | <input type="checkbox"/> | | Does boom swing break work properly? | <input type="checkbox"/> | <input type="checkbox"/> | | Does the horn work? |
| <input type="checkbox"/> | <input type="checkbox"/> | | Outriggers fully extended, working properly, and swing radius barricades in place? | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | | Boom angle indicator is available and working? | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | | Swing through 360 degrees, does boom angle indicator stay the same throughout rotation? | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | | Engine is started and gauges are checked and working properly? | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | | Extend out the boom, are all sections extending evenly? | | | | |

Comments:

Signature (person(s) performing inspection/evaluation) _____ **Date** _____



SCISSOR LIFT DAILY INSPECTION CHECKLIST

Company Name: _____ Time: _____ Date: _____

Site Location: _____ Job Foreman/Supervisor: _____

Person(s) Making Inspection: _____

Equipment Type: _____ Equipment #s: _____ Manufacturer: _____

OK REPAIR N/A

MECHANICAL

- Structural damage or cracked welds** – Visual walk-around inspection.
- Parking brake** – Check operation.
- Tires/wheels & fasteners** – Visually inspect, check operation & tightness
- Guides/rollers & slider pads** – Visually inspect, check operation, and ensure there is no metal to metal contact with slider, slider side, or running surface. Check for free movement of surface. Also check for free movement of the slider pin through the slider.
- Railings & railing lock pins** – Visually inspect & check tightness.
- Entry chains or gates** – Check operation & tightness.
- Bolts and fasteners** – Check tightness.
- Safety Bar** – Check operation.
- Wheel Bearings & King pins** – Visually inspect, check operation & lubricate.
- Pothole Protection** – Visually inspect & check operation.
- Steering cylinder & tie rod** – Visually inspect, check operation & lubricate.

OK REPAIR N/A

ELECTRICAL

- Battery fluid level** – Visually inspect.
- Control switches** – Visually inspect & check operation.
- Cables & wiring harnesses** – Visually inspect.
- Battery Terminals** – Visually inspect & check tightness.
- Terminals & Plugs** – Check tightness.
- Generator/receptacle** – Visually inspect & check operation.
- Limit switches** – Check operation.

OK REPAIR N/A

HYDRAULIC

- Hydraulic oil reservoir level** – Check oil level.
- Hydraulic Hoses/Fittings** – Visually inspect & check for leaks.
- Lift/lowering time** – Check operation & refer to specification tables.
- Cylinders** – Visually inspect & check operation.
- Emergency lowering** – Check operation.
- Lift capacity** – Check relief valve setting & refer to specification tables.

OK REPAIR N/A

MISCELLANEOUS

- Manual** – Visually check that proper manual is in box.
- Placards, I.D. plates, warnings & control labels** – Replace if missing/illegible.

OK REPAIR N/A

PRESTART CHECKS

- Ensure that there are no obstacles around the work platform and in the path of travel such as holes, drop offs, ditches, soft fill, or debris.
- Check overhead clearances.
- Make sure the batteries are fully charged. Disconnect the AC charger cord from the external power source.
- Make sure that the Free-Wheeling Valve is fully closed.
- Make sure all guardrails and lock-pins are in place and locked in position
- Make sure both side battery and hydraulic trays are closed and locked.

At any point during this inspection there are any deficiencies, do not operate lift any further. Notify the proper personnel or repair unit as needed. Do not operate equipment without proper authorization and training.

Signature (person(s) performing inspection/evaluation) _____

Date _____



AERIAL LIFT TRAINING QUIZ

Name: _____ Signature _____

Date: _____ Score: _____

- 1) Who is ultimately responsible for the safe operation of the aerial platform?
 - A) Equipment Owner
 - B) Operator
 - C) Safety Director
 - D) Superintendent

- 2) The operator is responsible for reading the safety rules and operational instructions for the aerial platform, this information can be found in the_____.
 - A) Owner's manual
 - B) EM-385 manual
 - C) OSHA home office
 - D) Employee handbook

- 3) Falls, pinch/crush points, and electrocution are 3 hazards that can be associated with operating an aerial lift.
 - A) True
 - B) False

- 4) Aerial platforms are intended to be operated on_____surfaces.
 - A) Rocky
 - B) Uneven
 - C) Wet
 - D) Firm and level

- 5) List 3 things that the operator must check for on the machine as part of his inspection.

- 6) If the operator has any questions regarding the operation or application of the machine, he/she should_____.
 - A) Do the best they can under the circumstances
 - B) Experiment with machine
 - C) Stop operation and seek assistance from employer, manufacturer, or dealer
 - D) Modify or make alterations when necessary

- 7) Extending the platform while exposed to the wind, will_____the stability of the machine.
 - A) Decrease
 - B) Increase
 - C) Have no effect on
 - D) Make it possible to get more work done

- 8) It is okay to attach outside loads to any part of the aerial lift.
 - A) True
 - B) False



- 9) All occupants of an aerial lift must wear_____.
- A) Seatbelts
 - B) Respirators
 - C) Fall Protection (Full body-harness)
 - D) Life Jackets
- 10) Limit your_____according to ground conditions, location of personnel, slope and any other factors which could cause a collision.
- A) Travel speed
 - B) PPE
 - C) Phone calls
 - D) Load capacity
- 11) The rated load capacity for a platform basket should always be_____.
- A) 500 pounds
 - B) 250 pound
 - C) Visibly posted on the machine
 - D) Determined by the operator
- 12) Which of the following is more likely to contribute to a tipping hazard while operating aerial lift?
- A) Damage tires; low tire pressure
 - B) No fire extinguisher
 - C) No operator's manual present
 - D) It is not possible for an aerial lift to tip over
- 13) Which of the following is true about aerial lifts?
- A) Every model is the same
 - B) The operator needs at least 7 years' experience to operate one
 - C) They should only be operated in a way that fits its intended use.
 - D) Since they weigh so much; it's impossible for one to tip over
- 14) You do not have to be qualified to operate an aerial lift.
- A) True
 - B) False
- 15) A functions test should always be performed prior to use.
- A) True
 - B) False
- 16) When is it okay to stand on the top rail of an aerial lift?
- A) When deemed necessary to complete a job
 - B) If given the okay by the Superintendent
 - C) Only when wearing a body harness
 - D) Never



AERIAL LIFT OPERATION PRACTICAL

Name: _____ Signature _____

Date: _____ Signature of Trainer _____

Lift Type: _____

NOTE: Hands-On Operator Training must be completed for each type of aerial lift utilized.

<u>Step</u>	<u>Evaluation</u>	<u>N/A</u>	<u>Pass</u>	<u>Fail</u>
1. Pre-use equipment inspection	<u>Including but not limited to:</u> safety devices, air/hydraulic/fuel system for leaks, cable/wiring harnesses for damage, loose/missing parts, tires and wheels, placards/warnings/and control markings, outriggers/stabilizers and other structures, guardrail system, other items as specified in owner's manual.			
2. Inspect Worksite	Including but not limited to: drop-offs or holes, slopes, bumps and floor obstructions, debris, overhead obstructions and electrical hazards, inadequate surface and support to withstand all load forces, wind and weather conditions, presence of bystanders, other unsafe conditions.			
3. Function test of lower control station.	Done to determine if there are any malfunctions.			
4. Utilize fall protection equipment	Face the machine. Maintain 3 point contact with ladder/hand rails (two hands, one foot OR two feet, one hand).			
5. Function test of bucket / platform / basket control station.	Done to determine if there are any malfunctions.			
6. Drive and creep / inch forward and reverse.	Move approximately 10 feet in a driving mode. Creep approximately 5 feet. Verify unit balance and stability.			
7. Turn vehicle 360 degrees right and left.	Minimum disturbance of aerial lift platform. Verify unit balance and stability.			
8. Boom up & down, in & out.	Fully extend, fully raise. Minimum disturbance of aerial platform. Verify unit balance and stability.			
9. Rotate/swing boom 360 degrees in each direction.	Minimum disturbance of aerial platform. Verify unit balance and stability.			
10. Tilt platform in each direction.	Minimum disturbance of aerial platform. Verify unit balance and stability.			
11. Turn off machine using emergency stop function.	Locate and use emergency stop function.			
12. Park and shutdown aerial lift.	Minimum disturbance of aerial platform. Verify unit balance and stability.			



Step	Evaluation	N/A	Pass	Fail
13. Dismount safely. Face the machine when dismounting.	Maintain 3 point contact with ladder/handrails (two hands, one foot OR two feet, one hand)			
14. Deploy/setup and store outriggers.	Follow manufacturer's guidance. Refer to owner's manual.			
15. Comments	<i>Must be included for all "Failed" tasks. If task is failed the evaluator must explain what was done incorrectly and have the trainee repeat the task until it is completed correctly.</i>			
Trainee Signature				
Evaluator Signature				

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Audits/Inspections

Purpose

E-Corp safety audits and inspections are performed to identify and correct unsafe acts and conditions. Audits are also utilized to reinforce safe work conditions and behaviors.

Scope

This practice has been prepared for the E-Corp workforce. Contractors and subcontractors, who provide services to, or on behalf of, E-Corp are required to meet the requirements in this practice. Contractors may use their own policies and procedures to meet the requirements in this practice if, prior to commencing work, they obtain written approval from E-Corp to do so. Such approval will be granted when the Contractors provide E-Corp with documentation or other information demonstrating that the Contractors' own policies and procedures meet or exceed the requirements in this practice.

If any requirements or recommendations herein conflict with legal and regulatory requirements, it is necessary to comply with the legal and regulatory requirements. If this practice creates a higher obligation, it will be followed, as long as full compliance with legal and regulatory requirements is achieved.

Definitions

“At Risk” Behaviors: unsafe work practices which, if uncorrected, may lead to an accident or incident.

Audit: for the purposes of this program, an audit is a formal examination of the project site which may include assessment of the work area to determine if unsafe conditions exist, observation for at risk and safe behaviors, review of documentation, check that equipment is in proper working order, and examination of procedures and management systems. Audits may be completed internally or externally.

Inspection: assessment of the work area to determine if unsafe conditions exist, observation for at risk and safe behaviors, and check that equipment is in proper working order. For the purpose of this program, documented inspections will be completed weekly on each project site.

Inspections

Safety inspections are conducted to promote a safe work environment for all employees and prevent accidents before they occur. Persons performing safety inspections will watch for and correct any “at risk” behaviors.

Inspection Protocol

- Inspections should focus on identifying physical hazards in the work area, at risk behaviors, and safe behaviors.
- Safe behaviors and work practices should be recognized at the time they are noticed. This reinforces safe behaviors. See the Behavior Based Safety Management System for details.
- At risk behaviors will be addressed immediately.

- Unsafe conditions or workplace hazards will be addressed immediately to eliminate the potential risk.
- All findings, including safe work behaviors will be recorded on the Inspection Record Sheet.
- Corrective actions should be based on the root cause and are to be completed and/or initiated by the inspecting party. Contact the Project Manager (PM) or the Health and Safety Manager (HSM) for assistance.
- Completed inspection record sheets will document inspection team members, date, findings, and corrective actions.

Frequency of Inspections

Daily Inspections

Daily inspections of the job site will be completed by the supervisor on site. These inspections will be informal and will involve correction of any at risk behaviors observed, recognition for safe behaviors observed, observation for correct PPE use, etc. Unsafe conditions found during this inspection will be corrected immediately and documented on the Daily Toolbox Meeting form.

Weekly Inspections

Weekly inspections of the job site will be completed by the PM or Site Safety and Health Officer (SSHO). These inspections will be documented on the Inspection Record Sheet. Whenever possible, an employee working on the site will be involved in the weekly inspection. Unsafe acts or conditions will be documented on the Inspection Record Sheet as well as the corrective action taken and completion dates. Unsafe conditions and corrective actions will be discussed in the next weekly safety meeting.

Unscheduled Inspections

Unscheduled inspections of the job site may be completed periodically by the PM, SSHO, HSM, or other management. These inspections will involve dropping in at the job site without prior notice and will be documented by the person completing the inspection. If the inspection is completed by E-Corp personnel, it will be documented on the Inspection Record Sheet.

Internal Audits

Periodic Audits

- Periodic audits of the job site will be completed by the HSM, Regional Manager, Project Manager, or a designated representative.
- Periodic audits will follow the inspection protocol. In addition, periodic audits will include review of documentation and examination of procedures and management systems.
- These audits will be formal and will be scheduled with the PM.
- Whenever possible, the periodic audit should include the HSM or Safety Auditor, PM, SSHO and where appropriate, one additional E-Corp employee working on-site.
- Depending on audit findings, current projects, and need, as determined by the HSM, frequency of periodic audits will vary with each PM.
- Documentation of periodic audits will be kept by the HSM.

Results of Audits

Audit results will be available to employees in the corporate office and reviewed with management personnel. Weekly Inspection Record Sheets will be kept on each job site until project completion.

Inspection Record sheets that are completed by management staff will be kept in the main office. Periodically, employees will be asked to participate in audits and inspections.

External Audits

In addition to audits completed internally, periodic inspections from government regulatory agencies (i.e. OSHA, EPA, etc.) or customers may occur at E-Corp sites. The protocol for external audits will depend upon the agency conducting the audit and the purpose of the audit. External auditors or inspectors should be treated with respect. Any time an auditor or inspector is on a job site, the HSM, PM, or SSHO should be notified immediately. Whenever possible, inspectors should be accompanied by the HSM, PM, or SSHO while performing an audit. All external audit results must be forwarded to the HSM and PM.

Correction of Unsafe Conditions

All unsafe conditions will be corrected as soon as possible. Whenever possible, immediate corrective action will be taken. Unsafe conditions found will be discussed with all employees on site in the next weekly safety meeting. Audit and inspection documentation will be available for all employees to review.

Inspections

Unsafe acts or conditions found during an inspection will be documented on the inspection record sheet. Corrective action taken and the date of completion will also be documented on the inspection record sheet. Weekly inspection record sheets will be on site for employee review.

Audits

Unsafe acts or conditions found during an internal audit will be documented on the Audit Inspection Checklist. Corrective action taken and the date of completion will be documented on the Audit Corrective Action Form. Corrective actions must be completed in a timely manner. Unsafe acts or conditions found during an external audit will be documented by the agency performing the audit (i.e. USACE, OSHA, EPA, etc.). Corrective actions will be completed in a timely manner and documented as recommended by the agency completing the audit.

Recordkeeping

Inspection record sheets will be kept for a minimum of 1 year.

Audit records will be kept until completion of the next audit.

After completion of the project, records of weekly inspections and the most recent internal audit will be archived with other project records. Records of any external audits will also be included with the archived project records. Copies will be kept in the corporate office for a minimum of 1 year.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/01/21
02	Stacy Maxfield	Annual Review/Update, Insert updated Inspection Record Sheet. Removed Audit Checklist.	09/15/22



Inspection Record Sheet

Revised 03/10/22

Check boxes as appropriate during the safety inspection. Findings and corrective actions should be filled out in the bottom section, use back of form if necessary. As you are performing the inspection, recognize safe behaviors and express appreciation for working safely. During walk around, watch for:

- Reactions of people
- Proper PPE
- Positions of People

- At Risk/Safe Behaviors
- Proper/Improper use of tools
- Procedures and Orderliness

Pass	Fail	N/A	General:
			First Aid Kit on site, inventory complete. Replace missing items.
			Fire Extinguishing equipment on site, in good condition, charged, inspected, and ready for use.
			Flammable and combustible liquids stored properly.
			Emergency numbers posted on site.
			Proper Housekeeping being maintained.
			Equipment and tools in good condition, equipment guards are in place.
			No trip or slip hazards.
			Sanitation facilities available, proper cleanliness maintained, potable water available.
			Personnel on site are properly trained for duties they are performing (Competent Person/Qualified Person)
			Vehicle inspections available, all drivers have a Driver Safety Training Course card.
			Simultaneous Operations do not create hazardous conditions.
			Site-Specific Documentation:
			Haz Com-SDS for all hazardous materials on site, chemical inventory, proper labeling.
			Emergency Response Procedures, safety meetings, and inspections documented.
			Applicable Risk Assessments available for review.
			Control of Work Permits documented and available for review.
			Electrical:
			Lighting adequate.
			Electrical tools properly grounded, cords are not frayed.
			Temporary electrical cords/lines in good condition, GFCI in use.
			Lockout / Tagout procedures followed.
			Proper PPE for task:
			Safety glasses
			Proper footwear
			Proper Clothing
			Hard Hat
			Other: Gloves, Hearing Protection, Fall Protection, Chemical Protective Clothing, Respirator-Circle or specify:
			Construction:
			Competent person inspections completed as required (Scaffold/Excavation/Equipment Operation, etc).
			Scaffolds are properly secured, leveled, guarded, and inspected by a competent person.
			Heavy equipment on site is in good condition, inspection complete, and operators certified.
			Excavations and trenches are properly sloped, stepped sides, or shored. Piles and equipment are a minimum of 2 feet from the edge. Trenches are barricaded.
			Fall Protection - all areas with fall potential of 6' or greater have fall protection system in place.
			Ladders in good condition and are being used properly.
			Environmental:
			Are all operations on site in compliance with Environmental regulations?
			Are hazardous materials properly stored, containment areas in place, and spill kits available?
			Are water, air, natural, and cultural resources adequately protected?
			Are waste minimization procedures including waste segregation and recycling being followed?
Findings: (Failed Items and Safe Observations)			Project Number/Description: _____
Corrective Action Taken: Complete: _____			Date Corrective Action _____

Name of Inspector(s) _____

Inspection Date: _____

Audit Corrective Action Form



AUDIT CORRECTIVE ACTION FORM

Revision Date: 06/01/21

PHYSICAL FACILITY AUDIT Corrective Action Checklist

Location:

Date:

Auditors:

Item #	Corrective Action Required	Audit Date	Completion Date	Completion Approval Signature
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

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Behavior Based Safety Program

Purpose

E-Corp has adopted this Behavior-Based Safety (BBS) program for the safety of our employees and to help prevent occupational injuries and illness. This program is open to all members of the E-Corp workforce. Each employee shall be trained in the requirements and the process of the BBS program.

The elements of our program consist of:

- **Common Goals**-Employee and Managerial commitment to the process
- **Creating** a systematic, ongoing process that defines a set of behaviors that reduce the risk of work-related injury, derived from safety assessments.
- **Training** personnel in the Observation Process.
- **Feedback** and reinforcement to encourage and support positive safety practices.
- **Action Plan**-Team meetings to decide on how to proceed, based on the data.
- **Review**-monitoring the progress of the Action Plan on a regular basis.

Observation

A critical element in our BBS program depends on site observation. Site observation includes direct and open communication with the employees involved. The observer will:

- Meet with the worker at the site and introduce himself and the job being done.
- Observe and monitor the worker, noting his safe behaviors.
- Monitor the At-risk behaviors the worker is putting himself in.

Observation Process Training

Training in the Observation Process will be established and implemented to the proper personnel. These individuals will be experienced employees of E-Corp. Training will consist of either classroom or on the job training.

Elements of the Training Program include:

- Ensuring employees know the basic elements of the Behavior-based Program.
- Ensuring that all employees involved in the process are trained in the classroom or on the job.

The types of training that will be provided are:

- **Management training**-to ensure the common goals and process of the program are being met.
- **New employee training**-effectively communicating the program to all employees.
- **Refresher training**-to be done as needed or when changes are made to the policy or procedure of the program.

This training will include:

- Program objectives and incident report reviews.
- How to conduct the site observations.
- The observer's knowledge of the job procedures they observe.

- Knowledge of the correct work and safety procedures involved.
- How to complete the observation form.
- How to determine and analyze At-risk behaviors.
- Feedback training and role play (mentoring and coaching). Employees should be aware they may be observed at any time.

This training process will be documented in order to keep on record those qualified to observe on site behaviors and effectively implement the program's elements.

Feedback

Communication is a crucial element in a successful Behavior-based Safety Program. To effectively accomplish this, feedback is of key importance.

The observer will start by commending the safe behavior the worker was doing during his work. You then want to explain, one by one, the At-risk behaviors the worker was doing. Then the observer asks the worker why he was putting himself at risk. For example, if the worker is welding a piece of metal and the sparks are flying in the workers direction. The observer would then ask the worker why he was not wearing protective clothing, like flame-retardant apron.

At this time the observer and worker will discuss the at-risk behaviors until the worker agrees to try the suggested recommendation made by the observer. The worker might be aware of his at-risk behavior or maybe not. The worker may be doing the at-risk behavior for a long time without hurting himself.

The Observer's job here is to highlight this behavior, then explain the associated negative consequences with this behavior. The above discussion and agreement is the individual feedback which helps the worker to change his behavior. This feedback is considered as a form of reward since:

- The worker received commendable comments on his safe behavior.
- The worker understood his at-risk behavior without being reprimanded at site or reported to his superiors for further penalties.

Key elements for the observer to remember during the feedback process are:

- Reviewing the observation with the employee.
- Start with positive comments on behavior and procedure.
- Reinforce these behaviors.
- Describe and discuss the unsafe portions observed.
- Determine the reasons for the unsafe actions with open-ended questions to the worker.
- Re-emphasize that there are not negative consequences at this stage, so long as the observer and worker agree on the change behavior.
- A reward and recognition program shall be put into place for total safe man-hours and employee safe man-hours, focusing on positive observations in the workplace.

Data Collection

At the end of the observation, the Observer will:

- Fill out an Observation Form with the safe and at-risk behaviors he noticed.
- Record the date, time and location of the observations.
- Note the workers comments and reasons for the at-risk behavior.
- Record recommended safe behavior.

NOTE: The worker's name or identification number are not noted in the Observation Form.

- The completed Observation Forms will be used by E-Corp to summarize the observation process. Recording this interaction is important for later detailed analysis by the committee in charge of the program.
- Data from the Observation Form will be gathered and entered into an electronic database. Trend Analysis (Feedback) Reports will be generated from the data gathered for the committee to analyze and recommend practical solutions. These reports highlight trends of at-risk behaviors and in which location they are taking place.
- Data collection and trend analysis allows E-Corp to compile the information taken from the observation and feedback phase of the program and transfer it to useful data, which will be implemented in the Action Plan.
- The Trend Analysis Reports are distributed quarterly to all committee members at a regularly scheduled safety committee meeting. A copy of the Trend Analysis Report is posted for employee review.

Elements of the Action Plan

In order to address unsafe behaviors E-Corp will construct its Action Plan based on observation reports, trend analysis, and recommendations from the Observers and employees. E-Corp's Safety Committee is responsible for the procedures of the Action Plan.

Action planning will include:

- Holding regularly scheduled quarterly meetings to discuss and analyze behavior-based report findings.
- Evaluating unsafe behaviors.
- Designating responsible parties and time frames to complete the Action Plan.
- Ensuring support of management.

The committee will:

- Produce a set of recommendations to correct worker's behavior.
- Make recommendations. Recommendations may be as simple as providing Personal Protective Equipment (PPE) to workers in a certain location, or increase work force in another location.
- Some of the recommendations require site modification or costly machinery. Such recommendations are sent to top management for necessary approvals.

The committee's responsibility is to ensure that:

- The recommendations will change the at-risk behaviors at the targeted location.
- The recommendations will eliminate hazards and risks caused by hardware or wrong design.

Follow-Up

Any Action Plans set out by E-Corp at the direction of the HSM will be completed in a time frame agreed upon by the entire committee.

Regularly scheduled meetings will be held to:

- Assign responsibility for the completion of the Action Plan.
- Ensure that the guidelines of the Action Plan are being carried out.
- Document the Action Plan and its progress.

Recognition

E-Corp is committed to recognizing and rewarding active employee participation in the BBS Program. Recognitions include, but are not limited to:

- Employee Safety Recognition awards: Employees are nominated by their peers, department or supervisor. Nominations are based on who best represents an active, positive impact on E-Corp's BBS program.
- Project Safety Recognition awards: The Safety Committee and Management nominate candidates for the "Project Safety Recognition Award". The project is recognized for its outstanding efforts at integrating safety procedures or improving its safety performance. Performance is measured by observation, formal audit results, total safe man -hours and workers compensation accident claim data.
- Employee lunches
- Annual Employee Recognition Dinners
- Gift certificates
- Safety equipment, tools, etc.

Summary

E-Corp is committed to the safety of its employees. Behavior-based safety is an approach that instills not only correct job safety procedures but a safety conscious attitude and behaviors that positively impact the entire Company and those with whom we work.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/01/21
02	Stacy Maxfield	Annual Review/Update	09/15/22



Safety Observations Form

Date: _____ Duration: _____ Project: _____

Name of Observer(s): _____

Type of work Observed: _____

As you are performing the inspection, recognize safe behaviors and express appreciation for working safely.

During walk around, watch for: Reactions of People, Proper PPE, Positions of People, At Risk/Safe

Behaviors, Proper/Improper Use of Tools, Procedures and Orderliness.

Enter Safety Observations, check only those that apply

	Good Practice	Deviation	Comments
Field			
Area Well Maintained			
Protection from Hazards			
Work Layout Safe			
Energy Sources Controlled			
Leaks/Spills Contained			
Access/Egress Clear			
Good Housekeeping			

Personnel			
Hazards Understood			
Work Positions Safe			
Personnel Competent			
Appropriate PPE			
No Distractions			
No Risk to Others			
Work Position Safe			

Work Performed			
Correct Procedures Used			
Work Well Organized			
Procedures Valid			
Communication Effective			
Risks Documented			

Performance			
Leadership supports safety			
Work Pressure Does not Compromise Safety			
Work Pace Appropriate			
Supervision Appropriate			
Safety Performance Recognized			

Key Safety Comments/ Conclusions/ Agreements Made



Behavior-Based Safety Program Trend Analysis Report

Date:		Analyst:			
Review Results					
Department	# of Forms Rv'd	# of At-Risk Behaviors Identified	% of At-Risk Behaviors	Description:	Audit #:
Trend(s) Identified:					
1.					
2.					
3.					
Summary Analysis:					
Recommendations:					
1.					
2.					
3.					
Distribution:					

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Bloodborne Pathogens Program

Purpose

E-Corp is committed to the safety and health of our employees and prohibiting the spread of Bloodborne Pathogens. Therefore, the following Bloodborne Pathogens Safety Program has been adopted. In the event an employee is exposed to Bloodborne Pathogens, all measures within this program shall be provided to eliminate the spread of disease.

This policy for the prevention of hazardous employee exposure to Bloodborne Pathogens is adopted in accordance with the following OSHA regulations:

§1910.1030 – Bloodborne Pathogens

§1910.1200 – Hazard Communication

General

E-Corp has implemented this plan to ensure that no employee is exposed to hazardous Bloodborne Pathogens in the workplace. The Health and Safety Manager is the Company administrator who has the overall supervisory responsibility for the effectiveness of this program and for maintaining medical and training records.

E-Corp will ensure that a copy of the Exposure Control Plan is kept at the Company office, and in the workplace, available to employees at all times in accordance with 29 CFR §1910.1020(e).

- Upon initial hiring, all employees will be trained in exposure awareness and prevention techniques for Bloodborne Pathogens. Employees will receive refresher training annually, or if observed to commit unsafe acts regarding potentially infectious material, or when changing job conditions or assignments warrants it. Training records will include date of training, training content, attendance records including job title, and will be kept on file at the office for a minimum of 3 years.
- E-Corp will establish and maintain an accurate record for each employee with occupational exposure, in accordance with §1910.1020. Training records will include the dates and contents of training, and the names and job titles of persons attending. Training records will be maintained for three (3) years from the date of training and medical and exposure records will be maintained for at least the duration of employment plus thirty (30) years.
- E-Corp will ensure that all records required by this section will be made available upon request of employees, Assistant Secretary, and the Director for examination and copying. Medical records will have the written consent of the employee before being released. E-Corp will comply with the requirements involving transfer of records set forth in §1910.1020 (h). E-Corp will make available the Hepatitis B vaccine to all employees that have occupational exposure at no cost to the employee(s).

Exposure Control Program

Employees with occupational exposure for the construction industry is limited to job duties that require workers to administer first aid and/or CPR when necessary. Employees trained in first aid and CPR and designated as First Aid Responders are considered at risk of occupational exposure due to the nature of these duties (e.g., assisting bleeding victims, resuscitation).

Occupational exposure is defined as reasonably anticipated contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.

The exposure determination will be made without regard to the use of personal protective equipment. All employees who, as a result of performing their job duties, must engage in activities where exposure to blood or other potentially infectious materials is reasonably anticipated are considered to have occupational exposure to Bloodborne pathogens. Employees will take necessary precautions to avoid direct contact with body fluids. Body fluids that personnel may come in to contact with include but are not limited to blood, mucus, and saliva.

Personal Protective equipment will be available at all times to prevent exposure to infectious material for employees required to handle potentially hazardous material, perform first aid procedures, or to perform routine duties which may bring an employee into contact with potentially infectious material.

Employees in job classifications in which they may possibly have occupational exposure to Bloodborne Pathogens, or material possibly containing Bloodborne Pathogens, will be given the opportunity to participate in the Hepatitis B vaccine program.

Universal Precautions

Universal precautions will be observed. Under circumstances in which differentiation between body fluids is difficult or impossible, all body fluids will be considered potentially infectious. The term "universal precautions" refers to a method of Bloodborne Disease Control that requires all human blood and other potentially infectious materials to be treated as if known to be infectious HIV, HBV or other Bloodborne Pathogens.

Following Universal Precautions, personnel will use appropriate PPE, and sanitary procedures such as hand washing and cleaning work surfaces to reduce the risk of exposure. If provision of handwashing facilities is not feasible, E-Corp will provide either an appropriate antiseptic hand cleanser in conjunction with cloth/paper towels or antiseptic wipes. All employees are allowed access to proper restroom and sanitary facilities. Hand washing and disinfecting supplies are always available to employees either at restroom facilities or upon request.

Blood-soaked bandages or other potentially infectious materials from the accident site will be put in properly marked leak-proof bags for handling.

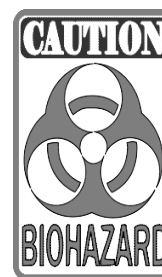
Proper disposal containers for potentially infectious material are available as needed. Any such containers will be properly marked for biohazards and disposed of properly.

All equipment or environmental surfaces will be cleaned and decontaminated after contact with blood or other infectious materials.

Any injury to personnel must be reported immediately to a supervisor, and unauthorized personnel will be restricted from the area where the injury occurred until it is determined that no threat of infection is present, or until properly trained personnel can dispose of any infectious material.

Any exposed sharp edges or devices which may cause laceration or puncture on machines, tools, or equipment will be eliminated or protected to prevent injury to personnel. All machine guards will be inspected daily to ensure that they are in place and secure to prevent injury to personnel and the spread of Bloodborne Pathogens.

Engineering and work practice controls will be used to eliminate or minimize employee exposure. Company assigned first aid responders will be trained in universal precautions and proper PPE use



Regulation label to be Used

when giving first aid. Engineering controls will be examined and maintained or replaced on a regular schedule to ensure their effectiveness.

Personal Protective Equipment (PPE)

PPE, such as gloves, masks, gowns, and other appropriate equipment are provided to our employees at no cost to them when the possibility of occupational exposure is present. Appropriate PPE in the proper sizes will be readily accessible. PPE will be cleaned, laundered, and properly disposed. PPE will be repaired or replaced as needed to maintain its effectiveness. Appropriate PPE will be used.

Training in the use of the appropriate PPE for specific tasks or procedures is provided by E-Corp. PPE may be obtained by contacting the Site Safety and Health Officer, who is responsible for ensuring that PPE is available.

All employees using PPE must observe the following precautions:

- Wash hands as soon as feasible after removing gloves or other PPE.
- Remove PPE after it becomes contaminated and before leaving the work area.
- Contaminated PPE must be properly handled or disposed of in properly marked, leak-proof bags. When PPE is to be decontaminated, proper handling precautions and procedures will be observed during this process.
- Wear appropriate gloves when it is reasonably anticipated that there may be hand contact with blood or Other Potentially Infected Material (OPIM), and when handling or touching contaminated items or surfaces; replace gloves if torn, punctured or contaminated, or if their ability to function as a barrier is compromised.
- Wear appropriate face and eye protection when splashes, sprays, spatters, or droplets of blood or OPIM pose a hazard to the eye, nose, or mouth.
- Remove immediately or as soon as feasible any garment contaminated by blood or OPIM, in such a way as to avoid contact with the outer surface.

E-Corp will ensure that a copy of this Exposure Control Plan is accessible to employees in accordance with §1910.1020 (e). Employees will be notified of the location of this Exposure Control Plan.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/02/21
02	Stacy Maxfield	Annual Review/Update	09/15/22

HEPATITIS B VACCINE DECLINATION (MANDATORY)

I understand that due to my occupational exposure to blood or 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 vaccine, 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 or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Name

Employee's Title

Employee Signature

Date

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Cold Injury Prevention Program

Purpose

E-Corp has implemented this practice to ensure that no employee is exposed to injuries from cold temperatures in the workplace and will evaluate if coldness could be a problem on a particular day based on temperature levels, and then implement adequate controls, methods, or procedures to reduce the risk of cold stress.

Description and Requirements

Hazard Assessment

E-Corp will ensure that a hazard assessment is conducted prior to each job to identify the potential risk for cold exposure.

Cold stress applies to work environments where workers may be exposed to either artificial or natural cold as follows:

- Artificially cold workplaces include cold storage rooms, freezers, and refrigerated transportation units.
- Industries where workers may be exposed to natural cold include fishing, forestry, construction, and the petroleum industry.
- Exposure in this document is exposure to cold air or water either as part of routine work procedures or as a result of accidental or an unplanned event.
- Accidental or unplanned events include a worker falling into water such as from a boat or breaking through ice (cold water immersion) or a worker becoming stranded outdoors in the cold.

Signs & Symptoms

E-Corp employees will be made aware and familiar with the signs and symptoms of cold weather induced health problems. ***First aid shall be administered immediately to employees displaying symptoms of cold related injury.***

Non-freezing cold injuries include chilblain, immersion foot, and trenchfoot. Chilblains are a mild cold injury caused by prolonged and repeated exposure for several hours to air temperatures from above freezing (32°F) to as high as 61°F. In the affected skin area, there will be redness, swelling, tingling and pain.

Immersion foot occurs in individuals whose feet have been wet but not freezing cold for days or weeks. It can occur at temperatures up to 50°F. The primary injury is to nerves and muscle tissue. Symptoms include tingling and numbness; itching, pain, swelling of the legs, feet or hands; or blisters. The skin may be red initially and turn to blue or purple as the injury progresses. In severe cases, gangrene may develop. A similar condition of the hands can occur if a person wears wet gloves for a prolonged period under cold conditions. Symptoms are similar to immersion foot.

Trenchfoot results from prolonged exposure to a damp or wet environment from above the freezing point to about 50°F. Depending on the temperature, the onset of symptoms may range from several hours to many days, but the average is three days. Trenchfoot is more likely to occur at lower temperatures while immersion foot is more likely to occur at higher temperatures

and longer exposure times.

Frostnip is the mildest form of a freezing cold injury. It occurs when ear lobes, nose, cheeks, fingers or toes are exposed to the cold and the top layers of skin freeze. The skin of the affected area turns white and it may feel numb. The top layer of skin feels hard but the deeper tissue still feels normal (soft). Prevention of frostnip can be achieved by wearing warm clothing and footwear. Frostnip is treated by gentle rewarming; e.g., holding the affected tissue next to unaffected skin of the victim or of another person. As for all cold-induced injuries, never rub the affected parts. Ice crystals in the tissue could cause damage if the skin is rubbed. Do not use very hot objects, such as hot water bottles, to rewarm the area or person.

Frostbite is a common injury caused by exposure to extreme cold or by contact with extremely cold objects, especially those made of metal. It may also occur at normal temperatures from contact with cooled or compressed gases. Frostbite occurs when tissue temperature falls below the freezing point (32°F) or when blood flow is obstructed. Blood vessels may be severely and permanently damaged and blood circulation may stop in the affected tissue. In mild cases, the symptoms include inflammation of the skin in patches accompanied by slight pain. In severe cases, there can be tissue damage, without pain, or there could be burning or prickling sensations and blisters. Frostbitten skin is highly susceptible to infection and gangrene may develop.

First Aid for Frostbite, Immersion Foot, and Trench Foot

Areas that do not have major muscles to produce heat are at the greatest risk; toes, fingers, ears and nose fall into this category. The body preserves heat by favoring the internal organs. This reduces the flow of blood to the extremities under cold conditions. Hands and feet tend to get cold more quickly than the torso because:

- They lose heat more rapidly, since they have a higher surface area-to-volume ratio
- They are more likely to be in contact with colder surfaces than other parts of the body.

The eyes should be protected with goggles in high wind chill conditions. If left unprotected the corneas of the eyes may freeze.

If the symptoms of cold weather induced health problems become evident:

- Seek medical attention.
- Move the victim to a warm area, if possible.
- Gently loosen or remove constricting clothing or jewelry that may restrict circulation.
- Loosely cover the affected area with a sterile dressing.
- Quickly transport the victim to an emergency care facility.
- DO NOT attempt to rewarm the affected area on site but do try to stop the area from becoming any colder. Without the proper facilities, tissue that has been warmed may refreeze and cause more damage.
 - DO NOT rub the area or apply dry heat.
 - DO NOT allow the victim to drink alcohol or to smoke.

Hypothermia

The most severe cold injury is hypothermia. Hypothermia is the excessive loss of body heat and the resulting lowering of the inner core temperature (internal temperature of the body). Hypothermia can be fatal.

In moderately cold environments, the body's core temperature does not usually fall more than 34°F to 36°F below normal because of the body's ability to adapt. However, in intense cold, without adequate clothing, the body is unable to compensate for the heat loss and the body's

core temperature starts to fall. The sensation of cold followed by pain in exposed parts of the body is the first sign of mild hypothermia. As the temperature continues to drop, or as the exposure time increases, the feeling of cold and pain starts to diminish because of increasing loss of sensation. If no pain can be felt, serious injury can occur without the victim noticing it. Muscular weakness and drowsiness are experienced when body temperature falls below 91°F. Additional symptoms of hypothermia include interruption of shivering, diminished consciousness and dilated pupils. When body temperature reaches 81°F, coma sets in. Heart activity stops around 20°C and the brain stops functioning at around 63°F.

Table 1 Hypothermia Signs and Symptoms

Stage	Core Temperature	Signs and Symptoms
Mild Hypothermia	99 - 97° F (37.2 - 36.1° C)	<ul style="list-style-type: none"> • Normal shivering may begin
	97 - 95 ° F (36.1 - 35° C)	<ul style="list-style-type: none"> • Cold sensation • goose bumps • unable to perform complex tasks with hands • shivering can be mild to severe • hands numb
Moderate Hypothermia	95 - 93° F (35 - 33.9° C)	<ul style="list-style-type: none"> • Intense shivering • muscle incoordination becomes apparent • movements slow and labored • stumbling pace • mild confusion • may appear alert • <i>Use sobriety test. If unable to walk a 30-foot straight line, the person is hypothermic.</i>
	93 - 90° F C (33.9 - 32.2°)	<ul style="list-style-type: none"> • Violent shivering persists • difficulty speaking • sluggish thinking, amnesia starts to appear • gross muscle movements sluggish, unable to use hands, stumbles frequently, difficulty speaking, signs of depression, withdrawn.
Severe Hypothermia	90 - 86° F (32.2 - 30° C)	<ul style="list-style-type: none"> • Shivering stops exposed skin blue or puffy • muscle coordination very poor, inability to walk, confusion, incoherent/irrational behavior, but may be able to maintain posture and appearance of awareness.
	86 - 82° F (30 - 27.8° C)	<ul style="list-style-type: none"> • Muscle rigidity • semiconscious, stupor, loss of awareness of others, pulse and respiration rate decrease, possible heart fibrillation
	82 - 78° F (27.8 - 25.6° C)	<ul style="list-style-type: none"> • Unconscious • erratic heartbeat and respiration • a pulse may not be palpable
	78 - 75° F (25.6 - 23.9° C)	<ul style="list-style-type: none"> • Pulmonary edema • cardiac and respiratory failure • death • <i>Death may occur before this temperature is reached.</i>

First Aid for Hypothermia

Hypothermia is a medical emergency. At the first sign, find medical help immediately. The survival of victims depends on their co-workers' ability to recognize the symptoms of hypothermia. The victim is generally not able to notice his or her own condition. First aid for hypothermia includes the following steps:

- Seek medical help.
- Ensure that wet clothing is removed.

- Place the victim between blankets so the body temperature can rise gradually. (Body-to-body contact can help warm the victim's temperature slowly.)
- Give warm, sweet (caffeine-free, non-alcoholic) drinks, unless the victim is rapidly losing consciousness, unconscious or convulsing.
- Quickly transport the victim to an emergency medical facility.
- Do NOT apply direct heat; i.e. hot water bottles.

Factors That Influence Your Response to Cold

A cold environment challenges the worker in three ways:

- **Air Temperature:** Air temperature is measured by an ordinary thermometer in degrees Fahrenheit (°F) or degrees Celsius (°C).
- **Air Movement** (i.e., wind speed): Various types of commercially-available anemometers are used to measure wind speed or air movement. Wind speed is usually measured in km/h or mph.
- **Humidity** (i.e., wetness): Water conducts heat away from the body 25 times faster than dry air.

To work safely, these challenges have to be counterbalanced by proper insulation, such as layered protective clothing, physical activity and by controlling exposure; e.g., work/rest schedule.

- **Physical Activity:** The production of body heat by physical activity is difficult to measure. However, tables are available in literature, which shows metabolic rates for a variety of activities. Metabolic heat production is measured in kilo calories (kcal) per hour. One kilocalorie is the amount of heat needed to raise the temperature of one kilogram of water by 24°F.
- **Work/rest Schedule:** Regular rest breaks in a heated area are recommended for anyone working in the cold. The frequency of breaks depends on the air temperature and wind speed, as well as the degree of physical activity.
- **Protective Clothing:** To be protected from the cold, workers should dress in layers. The inner layers should trap moisture and wick it away from the body; the middle layers provide insulation; the outer layers protect against the wind and weather. As work activity and environmental conditions change, workers should be able to easily add or remove layers.
- **Wind Chill:** At any temperature, you feel colder as the wind speed increases. The combined effect of cold air and wind speed is expressed as equivalent chill temperature (ECT) or simply wind chill temperature in degrees Fahrenheit or Celsius. It is essentially the air temperature that would feel the same on exposed human flesh at the given combination of air temperature and wind speed. It can be used as a general guideline for deciding clothing requirements and the possible health effects of cold.

Preparation for Cold Weather Work

Environmental Measures

- Temperature and wind conditions should be known; e.g., weather report on the radio, current weather office information, TLVs for cold stress.
- Steps shall be taken to protect workers from wind (or indoors from drafts or forced air from air handling units). The combination of low temperatures and even moderate

- winds can quickly create dangerous working conditions.
- Ensure that heated rest areas, such as a truck cab, tent or hut, are available.

Equipment Design

- For work below the freezing point, metal handles and bars should be covered by thermal insulating material. Also, machines and tools should be designed so that they can be operated without a person having to remove mittens or gloves.

Work Practices

A schedule of regular rest breaks shall be established to allow workers to warm up. These breaks shall not be less than 10 minutes in length and will be taken in a heated area. All work shall be conducted within the limits established by the American Conference for Governmental Industrial Hygienists (ACGIH).

- Heated warming shelters; e.g., tents, cabins, rest rooms, shall be provided.
- When entering the heated shelter, outer and middle clothing layers (as necessary) should be removed to prevent overheating and to allow dampness to evaporate. A change of dry clothing may be necessary since returning to cold work while damp or sweaty may result in rapid chilling.

Recognize the symptoms of cold stress. The onset of severe shivering, the feeling of excessive fatigue, drowsiness, irritability or euphoria are indications to immediately return to the shelter.

The following additional precautions apply at colder temperatures:

- Workers shall be under constant protective observation by a buddy or supervisor.
- Work rate should not be high enough to cause sweating. If heavy work must be performed, rest periods in heated shelters and the opportunity to change into dry clothing shall be provided.
- New employees shall not be required to work full-time in the cold during the first days of employment until they become accustomed to the working conditions and required protective clothing.
- Weight and bulkiness of clothing should be included in estimating required work performance.
- Work should be arranged to minimize periods of standing or sitting still.
- Workers should be appropriately trained.

Personal Measures

Personal factors such as diet, health issues, and previous cold injury can affect a person's ability to adapt to cold temperatures.

Workers have increased energy requirements when working in the cold. Consider adding additional wholesome foods to the diet, such as pasta, potatoes, rice, dairy products, nuts, meat, herring and salmon. Light snacks and warm fluids should be taken during rest breaks. Alcohol must not be consumed when working in the cold. Alcohol produces a deceptive feeling of warmth but may contribute to dehydration and impair judgment.

Dressing for the Cold

Clothes must be layered to manage moisture and keep dry. Insulating layers must trap air for warmth, and the worker must be protected from the wind and weather. To remain comfortable as weather and work conditions change, clothing layers should be added or removed, or ventilation openings in clothing opened or closed. Every effort must be

made to avoid sweating and becoming damp. Clothing selections are normally made on the basis of staying warm while inactive. Consider the work to be performed and the weather conditions, then have workers dress so that layers can be shed and they can still remain comfortably warm. If clothing layers do become damp and remain that way, workers should be prepared to replace them before becoming chilled and hypothermic. If a worker is sweating, then his or her clothing is probably too warm for the conditions and tasks being performed.

Employees shall be provided with adequate insulated clothing to maintain a core temperature above 98.6°F. Each site will be prepared with proper clothes ready for extreme temperature drops within a shift. When applicable, cold protective clothing will be specified in the Risk Assessment and a specific list of clothing shall be listed in each Site-Specific Health and Safety Plan.

Hand wear

- Mittens keep hands warmer than gloves since fingers are together. With gloves, fingers are separated and lose heat from one another.
- Have workers wear thin liners under gloves or mittens. Liners need not be removed when removing the gloves.
- Removable glove and mitten liners can be replaced and dried when they become damp.
- Mitten styles, including three-finger lobster claws that keep fingers warm yet offer good dexterity are available.
- Windproof overmitts offer additional hand protection, without adding significant bulk.

Headwear

- Up to 50% of body heat is lost through the head. A hat or other head protection must be worn in the cold.
- Avoid cotton and use synthetic fabrics or wool instead.
- Workers must use an appropriate hard hat liner to reduce heat loss when wearing a hard hat.
- Select a hat appropriate for the weather conditions and activity level. Consider thickness, extent of head coverage (e.g., open-face, full balaclava, ear coverage), need for wind-proof headwear, effect on vision and hearing, and ability to fit into or over protective headwear, if required.
- A facemask and eye protection may sometimes be necessary.

Footwear

- Warm, insulated safety footwear is essential. Boots should have thick soles for insulation while standing in snow or on cold concrete. Footwear selection should be based on the work being performed, the surfaces on which the worker will work and the weather conditions to which the worker will normally be exposed. Tight-fitting boots reduce circulation and can make feet feel cold.
- Footwear should be sized so that it will accommodate an extra layer(s) of socks.
- A synthetic sock liner, worn beneath a synthetic blend or wool outer sock, wicks moisture away from the skin, keeping feet drier and warmer.

Special Precautions

- Exposure to vibration may increase a worker's susceptibility to cold injury because of the way that vibration can reduce circulation, particularly in the extremities.
- Work performed in snow-or ice-covered terrain may require tinted safety eyewear

and/or sunglasses with side shields. If there is a potential for eye injury from blowing snow or ice crystals, special safety goggles shall be worn. Workers in such situations shall be prepared for white-out conditions and have a plan in place regarding movement and navigation under such conditions.

- Alcohol must be avoided – it produces a deceptive feeling of warmth but can affect circulation, fluid balance and judgment.
- Limit the consumption of caffeine-containing beverages because they act as diuretics and affect hydration.
- Workers with health conditions that affect normal body temperature regulation or impair circulation, such as Raynaud's Syndrome or diabetes, should take appropriate precautions when working in the cold. This might include more layers, including hat and mitts, and less time in the cold environment.
- Body parts that have sustained a frostnip or frostbite injury are sensitive to re-injury, so extra care must be taken to protect/cover these areas.
- If loose or bulky clothing is worn, special care shall be taken when working around moving equipment or machinery to prevent clothing entrapment.
- For work practices at or below 10°F (-12°C) ECT, the following shall also apply:
 - All workers shall be under constant protective observation using the buddy system or by supervision.
 - The work rate shall not be so high as to cause heavy sweating that will result in wet clothing. If heavy work is required, rest periods shall be taken in heated shelters and the opportunity for changing into dry clothing shall be provided.
 - Workers not acclimated shall not be required to work full time in cold weather in the first few days until they become accustomed to the working conditions. They are required to wear protective clothing.
 - Work shall be arranged in such a way that sitting still or standing still for long periods is minimized. Contact with metal (i.e., unprotected metal chair seats) shall be avoided.
 - Additional precautions, as identified in the Cold Stress Assessment, may be warranted.

Cooling power of wind

The ACGIH criteria, in the Fahrenheit scale, are listed in the following figure as it appears in "Cold Stress" of Threshold Limit Values and Biological Exposure Indices (the ACGIH Standard). The figure shows the cooling power of wind on exposed flesh. If there is a wind, use the wind speed in the first column and the actual temperature across the top to find what the equivalent temperature would be under calm conditions.

Figure 1 Cooling Power of the Wind (Imperial Units)

Estimated wind speed (in mph)	Actual temperature reading (degrees Fahrenheit)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent chill temperature (degrees Fahrenheit)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
Wind speeds greater than 40 mph have little additional effect	LITTLE DANGER In < 1 hour with dry skin. Maximum danger of false sense of security.			INCREASING DANGER Danger from freezing of exposed flesh within one minute.				GREAT DANGER Flesh may freeze within 30 seconds.				
	Trench foot and Immersion foot may occur at any point on this chart.											

Note: Equivalent chill temperature requiring dry clothing to maintain core body temperature above 36 C (96.8 F) per cold stress TLV.

Cooling power of wind (metric units)

Figure 2 Cooling Power of the Wind (Metric Units)

Estimated wind speed (in kp/h)	Actual temperature reading (degrees Celsius)													
	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	
	Equivalent chill temperature (degrees Fahrenheit)													
Calm	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	
8	9	3	-2	-7	-12	-18	-23	-28	33	38	44	49	54	
16	4	-2	-7	-14	-20	-27	-33	-38	45	50	57	63	69	
24	2	-5	-11	-18	-25	-32	-38	-45	52	58	65	72	78	
32	0	-7	-14	-21	-28	-35	-42	-50	56	64	71	78	84	
40	-1	-8	-16	-24	-31	-38	-46	-53	60	67	76	82	90	
48	-2	-10	-17	-25	-33	-40	-48	-55	63	70	78	86	94	
56	-3	-11	-18	-26	-34	-42	-50	-58	65	73	81	89	96	
64	-3	-11	-19	-27	-35	-43	-51	-59	66	74	82	90	98	
Wind speeds greater than 64 kp/h have little additional effect	LITTLE DANGER In < 1 hour with dry skin. Maximum danger of false sense of security.			INCREASING DANGER Danger from freezing of exposed flesh within one minute.				GREAT DANGER Flesh may freeze within 30 seconds.						
	Trench foot and Immersion foot may occur at any point on this chart.													

Note: Equivalent chill temperature requiring dry clothing to maintain core body temperature above 36 C (96.8 F) per cold stress TLV.

The ACGIH Standard provides values for the cooling power of wind on exposed flesh in the Fahrenheit scale (Figure 1). Figure 2 has the same information, expressed in degrees Celsius and in km/h. It is organized for actual temperature to decrease by intervals of 5°C, resulting

in an additional column. The figures show the cooling power of wind on exposed flesh. If there is a wind, use the wind speed in the first column and the actual temperature across the top to find what the equivalent temperature would be under calm conditions.

Cold Stress Risk Assessment

If a worker is or may be exposed to cold stress conditions (ECT of 20°F [-7°C] or less) the employer shall conduct a cold stress assessment to determine the potential for hazardous exposure of workers. The conditions when this occurs are:

- The air is calm and the temperature is equal to or less than 20°F
- The wind speed is 5 mph or greater and the air temperature is 23°F
- The wind speed is 10 mph or greater and the air temperature is 32°F
- The wind speed is 20 mph or greater and the air temperature is 41°F

The first step in a cold stress assessment is to determine the areas, occupations, or tasks that place workers at risk of hypothermia or cold-related injuries.

Consider factors such as the following:

- Areas with an equivalent chill temperature below 20°F (see below)
- Fine dexterity tasks that require work with bare hands
- Contact with metal surfaces or use of evaporative liquids (gasoline, alcohol, or cleaning liquids)
- Working on or near bodies of water
- Areas or occupations that have been identified through accident investigation reports, first aid treatment record books, and records of injury and disease

Once the areas, occupations, or tasks that should be monitored are determined, the risk of developing hypothermia or a cold-related injury shall then be evaluated. A cold stress assessment shall include determining the air temperature and wind speed (to determine the "equivalent wind chill temperature").

As part of the risk assessment, the potential for worker exposure to artificially generated air velocities should also be considered, for example when working in walk-in refrigerators and freezers, when riding all-terrain vehicles or snowmobiles, or when exposed to helicopter rotor downwash.

A general assessment of contact cooling for exposed skin, particularly the hands, should consider the following when workers are in contact with metal:

- Below 59°F-Prolonged contact may impair dexterity.
- Below 44°F-Prolonged contact may induce numbness.
- Below 32°F-Prolonged contact may induce frostnip or frostbite.
- Below 19.4°F-Brief contact with may induce frostnip or frostbite.

For materials other than metal, such as plastics and wood, the temperatures will be lower than those noted above since they are less conductive than metal.

Any contact with liquids (i.e., gasoline, alcohol or cleaning fluids) in cold weather with an ECT at or below 20°F (-7°C) is of concern. If workers are handling fluids, precautions shall be taken to avoid soaking of the clothing and/or skin contact with the fluids. If workers are working with cryogenic "fluids" (super-cooled liquefied gases) additional precautions shall be taken when the ECT is within the following temperature ranges:

- ≤61°F for sedentary work
- ≤39°F for light work
- ≤19.4°F for moderate work

Cold Exposure Control Plan

If a worker is or may be exposed to cold stress conditions, the employer shall develop and implement a cold exposure control plan.

Some specific components of the exposure control plan, as they relate to education and training of workers are described below.

Education and Training

This element shall contain initial and ongoing training and education that will be provided to all workers who work in areas where there is a reasonable likelihood of exposure to conditions that could cause cold stress. The training and education material provided to workers who have not previously worked in a cold stress environment shall include the following information:

- Recognition of the signs and symptoms of impending hypothermia or excessive cooling of the body even when shivering does not occur.
- Recognition of impending frostbite.
- Proper re-warming procedures and appropriate first aid treatment.
- Proper use of clothing.
- Proper eating and drinking practices.
- Safe work practices appropriate to the work that is to be performed for those workers exposed to cold-stress environments, provide refresher training and education to ensure that workers remain knowledgeable about the above-mentioned items. It is recommended that continuing education be provided at least annually.
- Additional special training for those workers working in remote locations.

Engineering Controls

An employer can reduce the exposure hazard of workers to thermal conditions that could cause cold stress or injury using a hierarchy of control methods: engineering controls, followed by administrative controls and, as a last resort, personal protective equipment.

Here are some examples of engineering controls to reduce cold exposure:

- Isolate the worker from the environment, where possible.
- Use local heating for the body and especially bare hands (when fine work is required). This may include the use of warm air jets, radiant heaters, or contact warming plates.
- Provide barricades or other structures to block air or reduce air velocities at the work location.
- Provide heated metal tools and equipment handles or cover them with thermal insulating materials.
- Use machine controls and tools designed so that workers do not have to remove mittens or gloves to use them.

Administrative Controls

If the above action is not practicable, the employer must reduce the exposure hazard by providing effective administrative controls to reduce the exposure hazard of workers to thermal conditions that could cause cold stress or injury. Continuous skin exposure is not permitted when air speed and temperature results in an equivalent chill temperature of -25°F or less.

Several administrative controls that are commonly used to reduce worker exposure to cold stress are described below:

- Work/warm-up schedules: A work/warm-up schedule refers to the period a worker

- spends working in a cold environment and the time spent in a warm area.
- Scheduling and organization of work: There are several ways to organize and to schedule tasks so as to minimize the length of time of exposure and to maximize the temperatures to which workers may be exposed.

For example:

- When possible, schedule tasks for the warmest part of the day or when the wind is the most calm.
- Schedule routine maintenance and repair work for warmer seasons of the year.
- Postpone non-urgent tasks when ECT are in the "great danger" portion of the "Cooling Power of Wind" ACGIH table.
- Take the equivalent chill temperature into account when planning or scheduling work activities.

To ensure that employees are under constant observation a buddy system will be implemented to ensure that no employee is working alone in cold environments.

Fluid Replacement and Diet

When working in the cold (ECT of 20°F [-7°C] or less), warm fluids should be consumed to provide energy and warmth and to replace fluids lost during work. An ample supply of warm drinks or soup shall be available, and workers are encouraged to drink them in order to replace fluids lost through breathing and perspiration. Workers should restrict their intake of coffee and caffeine because of diuretic and circulatory effects.

In addition, workers are encouraged to increase their caloric intake. A diet high in fats and carbohydrates may help to maintain body temperature.

A work/warm-up schedule is an example of an administrative control. The ACGIH Standard contains a work/warm-up schedule for a 4-hour shift for workers who are properly clothed. See Table 2.

Table 2 TLVs Work/Warm-up Schedule for Outside Workers based on a Four-Hour Shift*

Air Temperature - Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°F (approx)	°C (approx)	Max. work Period	No. of Breaks**	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
-15° to -19°	-26° to -28°	(Norm breaks) 1		(Norm breaks) 1		75 min.	2	55 min.	3	40 min.	4
-20° to -24°	-29° to -31°	(Norm breaks) 1		75 min.	2	55 min.	3	40 min.	4	30 min.	5
-25° to -29°	-32° to -34°	75 min.	2	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease	
-30° to -34°	-35° to -37°	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease			
-35° to -39°	-38° to -39°	40 min.	4	30 min.	5	Non-emergency work should cease					
-40° to -44°	-40° to -42°	30 min.	5	Non-emergency work should cease							
-45° & below	-43° & below	Non-emergency work should cease									

Personal Protective Equipment

Personal protective equipment can be used to reduce exposure if the equipment provides protection equally effective as administrative controls. Workers who are at risk of exposure to thermal conditions that could cause cold stress or injury due to unplanned or accidental events shall be provided with clothing and equipment sufficient to permit survival from the natural elements until the worker can be removed from the exposure.

As a minimum, a worker shall be provided with the following:

- Additional clothing selected in accordance with the anticipated overnight low temperatures for the region in which work or travel is conducted.
- A sleeping bag rated for the anticipated overnight low temperatures for the region in which work or travel is conducted.
- Survival equipment that will allow a worker to survive the natural elements until rescued.

Cold weather supplies will be regularly inspected to ensure that the supplies are always in stock.

Table 3 Emergency Kit Contents

GENERAL:	SIGNAL:
1-backpack with pockets	1-mini-flashlight and batteries
1-10 ft x 12 ft plastic tarp	1-compass
1-5 ft x 6 ft polar fleece blanket	1-survival whistle
2-tarp straps	1-set of flares
	1-handheld flare launcher
COOKING:	OTHER:
2-large stainless steel cups	2-toilet tissue packets
2-sets of cutlery	1-50 foot parachute cord
1-survival stove	1-sheathed knife
1-500 ml water bottle	1-tube of lip balm and/or sunscreen
FOOD:	1-container of insect repellent
4-instant soup mix	1-small folding saw
10-tea bags	4-garbage bags
1-food ration	
10-instant hot chocolate	FIRST AID:
12-food bars	1-basic first aid kit
1-water treatment kit	
FIRE:	
1-fire starting kit	

Heated Shelters

Clothing should be loosened to permit sweat to evaporate. Workers are required to use the shelter. If a worker is exposed to a thermal environment with an equivalent chill temperature less than or equal to 20°F (-7°C), as determined using the ACGIH Standard, a nearby heated shelter must be available to the worker. The intent of a heated shelter is to allow workers the opportunity to come out of the cold and warm themselves. The outer layer of clothing should be removed.

Signs and symptoms indicating that the shelter shall be used are:

- Onset of heavy shivering
- Minor frostbite (frostnip)
- Feeling of excessive fatigue
- Drowsiness, irritability or euphoria

A heated vehicle may be used as a heated shelter. In cases where workers are in remote or isolated areas without provision of vehicles capable of being heated (such as all-terrain vehicles or snowmobiles) or in cases where workers are on foot, workers should carry adequate equipment and supplies to permit the timely assembly of a heated shelter, if necessary.

Clothing (Whole Body)

A worker who is or may be exposed to cold stress conditions must wear adequate insulating clothing and personal protective equipment. The most widely used approach to dressing for work in cold environments is to use multiple layers of clothing.

Generally, three layers of clothing are used:

- An inner layer that absorbs moisture and keeps it away from the skin.
- A second insulating layer that helps keep a layer of air trapped around the body.
- An outer layer that keeps dust, dirt, wind, and moisture away from the previous layer and that can be easily removed to prevent the build-up of body heat. In wet environments, the outer layer should be waterproof.

The insulating value of clothing selected should be based upon the equivalent chill temperature of the work environment and the anticipated metabolic rate of the work activity. Wearing too much clothing can lead to sweating. If a worker begins to sweat they should remove the outer layer of clothing and loosen the rest to prevent sweating. Wet clothing causes greater heat loss and increases the risk of developing hypothermia. Many manufacturers of insulated garments provide guidance for recommended temperature and metabolic rate ranges for their clothing. There are also several standards that recommend the insulating value of clothing for use with a given temperature and metabolic rate. An example of a standard for selecting clothing is the required insulation value or IREQ.

Any employees who become immersed in water, or whose clothes become wet at temperatures of 35.6°F will be immediately provided with a change of clothes and checked for symptoms of hypothermia before returning to work. In the event that available clothing does not provide adequate protection from hypothermia or frostbite, work shall be either modified or suspended.

Clothing (Extremities)

Mittens rather than gloves should be worn when the air temperature is less than -1.4°F (17°C). Gloves and mittens should have removable liners so they can be effectively dried.

Footwear for use in cold environments should be insulated and should also have removable insoles for effective drying.

Exposed areas of the head and neck should be protected against heat loss and the danger of frostbite by use of adequate head covering and/or facemasks.

Snow & Ice Buildup

Unstable snow and ice buildup are known to be a great threat to the safety on the job; therefore it is the determination of E-Corp to ensure that employees are made aware of the dangers and destructive potential caused by them and how to prevent the accidents caused by them. It is the policy of E-Corp that regularly used walkways and travel ways must be salted, sanded, or cleared of snow or ice on a regular basis to ensure the safety of all employees.

Monitoring

Temperature and wind speed monitoring shall be conducted when temperatures drop below 45°F. The site supervisor shall check the temperature, wind speed, and working conditions every hour to determine if conditions have changed that may require additional or different controls.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/10/21
02	Stacy Maxfield	Annual Review/Update	09/15/22

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Construction Hazards Program

Purpose

E-Corp is committed to the safety and health of our employees and protecting them from construction hazards in the workplace. This program address construction hazards that are not addressed in other locations in the E-Corp Health and Safety Management systems. This program applies to all project locations.

This policy for the prevention of hazardous employee exposure to Construction Hazards is adopted in accordance with the following OSHA regulations:

§29 CFR 1926 – OSHA Construction Industry Regulations

Concrete and Masonry

The following apply to all Concrete and Masonry operations:

- No construction loads shall be placed on a concrete structure or portion of a concrete structure unless it is determined by a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.
- All protruding reinforcing steel onto which employees could fall must be guarded to eliminate the hazard of impalement.
- No employee, except those essential to post-tensioning operations, shall be permitted to be behind the jack during tensioning operations. Signs and barriers shall be erected to limit employee access to the post-tensioning area during tensioning operations.
- Riding on concrete buckets is prohibited.
- Concrete mixers with one cubic yard or larger loading skips shall have a mechanical device to clear the skip of materials, and guardrails installed on each side of the skip.
- Powered and rotating type concrete trowel machines that are manually guided shall be equipped with a control switch that will automatically shut off the power whenever the hands of the operator are removed from the equipment handles.
- Compressed air hoses used on concrete pumping systems shall have positive fail-safe joint connectors to prevent separation of sections when pressurized.
- Concrete buckets equipped with hydraulic or pneumatic gates shall have positive safety latches or similar safety devices installed to prevent premature or accidental dumping.
- Masonry saws shall be guarded with a semicircular enclosure over the blade. A method for retaining blade fragments shall be incorporated in the design of the semicircular enclosure.

Formwork and Shoring

- Formwork shall be designed, fabricated, erected, supported, braced and maintained so that it will be capable of supporting without failure all vertical and lateral loads that may reasonably be anticipated to be applied to the formwork.
- Manufacturer's specifications for fabricated shoring systems shall be available at the job site during job planning and execution.
- All Shoring equipment (including equipment used in reshoring operations) shall be inspected prior to erection to determine that the equipment meets the requirements specified in the formwork drawings. Any equipment found to be damaged shall not be used.

- Erected shoring equipment shall be inspected immediately prior to, during, and immediately after concrete placement.
- Reshoring shall be provided to safely support slabs and beams after stripping or where such members are subjected to superimposed loads due to construction.
- Whenever single post shores are used one on top of another (tiered), the layout shall be designed and inspected by an engineer qualified in structural design.
- Single post shores shall be vertically aligned and spliced to prevent misalignment.
- Reshoring shall not be removed until the concrete being supported has attained adequate strength to support its weight and all loads in place upon it. Strength may be determined by testing or specifications of the design.

Precast Concrete

- Precast concrete members shall be adequately supported to prevent overturning or collapse until permanent connections are complete.
- Lifting inserts which are embedded or otherwise attached to tilt-up precast concrete members shall be capable of supporting at least two times the maximum intended load applied or transmitted to them.
- Lifting inserts which are embedded or otherwise attached to precast concrete members, other than the tilt-up members, shall be capable of supporting at least four times the maximum intended load applied or transmitted to them.
- Lifting hardware shall be capable of supporting at least five times the maximum intended load applied to the lifting hardware.
- No employee shall be permitted under precast concrete members being lifted or tilted into position except those employees required for the erection of those members.

Lift – Slab Operations

- Lift-slab operations shall be designed and planned by a registered professional engineer who has experience in lift-slab construction. Such plans shall include detailed instructions and sketches indicating the prescribed method of erection and provisions for ensuring lateral stability of the building/structure during construction.
- Jacks/lifting units shall be marked to indicate the rated capacity as established by the manufacturer and shall not be loaded beyond their rated capacity.
- Jacks shall be designed and installed so that they will not continue to lift when overloaded and have a positive stop to prevent over travel.
- Jacking operations shall be synchronized to ensure even and uniform lifting of the slab.
- During lifting, all points of the slab support shall be kept within ½ inch of that needed to maintain a level position.
- No one shall be permitted under the slab during jacking operations.

Masonry Construction

- A limited access zone shall be established whenever a masonry wall is being constructed. The limited access zone shall conform to the following:
 - The limited access zone shall be established prior to the start of construction of the wall.
 - The limited access zone shall be equal to the height of the wall to be reconstructed plus four feet and shall run the entire length of the wall.
 - The limited access zone shall be established on the side of the wall which will be

- un-scaffolded.
- The limited access zone shall be restricted to entry by employees actively engaged in constructing the wall. No other employees shall be permitted to enter the zone.
- The limited access zone shall remain in place until the wall is adequately supported to prevent overturning and to prevent collapse.
- All masonry walls over eight feet in height shall be adequately braced to prevent overturning and to prevent collapse unless the wall is adequately supported so that it will not overturn or collapse. The bracing shall remain in place until permanent supporting elements of the structure are in place.
- Scaffolds for masonry construction workers shall not be used to provide temporary lateral support of masonry walls.
- Fall protection shall be provided to masonry workers potentially exposed to falls of 6 feet or more.

Demolition

Preparatory and General Operations

A competent person must be appointed to conduct a pre-demolition engineering survey to determine the condition of the framing, floors, and walls, possibility of unplanned collapse of any portion of the structure, and the existence of other potential demolition hazards. Survey adjacent structures in the same manner and make a written record of these surveys.

Determine if any asbestos, lead, or other hazardous materials are present within the structure. If so, refer to the Hazardous Materials Program for the proper procedures for each specific material.

Notify, in advance, any utility companies involved, and require that all electric, gas, water, steam, sewer, or other service lines are shut off or otherwise controlled.

Relocate as needed and protect any utility lines providing utilities which may need to be maintained during demolition.

Determine if any type of hazardous chemicals, gases, explosives, flammable materials, or other dangerous substances have been used in any tanks, pipes, or other equipment. If so, perform testing and purging prior to the start of demolition activity.

All employees engaged in demolition activities shall be instructed in the demolition plan so that they may conduct their work activities in a safe manner.

Use Fall Protection where applicable during demolition procedures.

Brace or shore walls and floors of structures that have been damaged by fire, flood, explosion, or other cause if employees will be required to work within the structure.

Barricade and provide warning signs for areas into which material is dropped through holes in floors without the use of chutes. The barricade must be at least 42 inches high and 6 feet back from the projected edge of the opening above. Do not permit removal activities on these lower levels until debris handling ceases above.

Employee entrances to multistory structures being demolished shall be protected by sidewalk sheds, canopies, or both.

Conduct daily inspections prior to the start of work to identify and correct unsafe conditions.

Conduct weekly inspections of the demolition area to ensure safety.

Stairs, Ladders, and Passageways

Designate stairways, passageways, and ladders that are to be used for access, and keep other access ways entirely closed off at all times.

Inspect all stairs, passageways, and ladders frequently, and maintain them in a clean, safe condition.

Require that adequate natural or artificial lighting is provided in stairwells that are being used.

Removal of Materials

Do not drop material to any point lying outside the exterior walls of the structure unless the area is effectively protected.

When using chutes, require that:

- All material chutes at an angle of more than 45° from the horizontal are totally enclosed.
- Closures are provided for openings at floor levels where materials are inserted.
- The chute openings do not exceed 48 inches in height measured along the wall of the chute.
- Any space between the chute and the edge of openings in the floors through which it passes are solidly covered over.
- When operations are not in progress, the area surrounding the discharge end of a chute shall be closed.

Do not cut an opening in a floor for material disposal larger than 25% of the total floor area unless the lateral supports of the removed floor remain in place.

Shore all floors that are weakened or made unsafe by demolition operations to safely carry the maximum intended imposed load.

Demolition of Interior Walls

Prior to demolition of any wall, check for electrical, mechanical, etc. present in the wall.

Existing plans should be reviewed whenever possible to determine what is behind walls that will be demolished. Existing plans are not always accurate; therefore, plans should not be relied on solely when demolishing walls.

Electrical installations should be locked and tagged out prior to beginning demolition. Electrical lines shall be checked by using instrumentation which can detect live electrical lines prior to beginning demolition work.

If an outlet is present on the wall to be demolished, test to ensure it is de-energized using an electrical tester.

Mechanical installations should be isolated prior to beginning demolition.

Removal of Walls, Masonry, and Chimneys

Employees are not permitted to work on top of a wall when weather conditions constitute a hazard.

Do not allow masonry walls to fall on floors in quantities that exceed the safe carrying capacities of the floors.

Provide ladders or walkways to allow employees to safely reach or leave any scaffold or wall.

Do not permit any wall section more than one story in height to stand alone without lateral bracing, unless the wall was originally designed and constructed to stand alone.

Leave all walls in stable condition at the end of each shift.

Do not cut or remove any structural or load-supporting members on any floor until all stories above have been demolished and removed.

Dismantle steel construction column length by column length, and tier by tier.

Do not demolish retaining walls that support earth or adjoining structure until the earth has been properly braced or structures have been properly underpinned.

Require that walls used as retaining walls for piling debris are capable of supporting the imposed load.

Floor Removal

Remove all debris and materials from floor arches and adjacent areas (20 feet) before beginning demolition.

Barricade areas directly underneath floor arches that are being demolished, and do not allow personnel in the area.

Openings cut in a floor must extend the full span of the arch between supports.

Do not use mechanical equipment on floors or working surfaces unless they are of sufficient strength to support the imposed load.

Storage of Debris

Do not exceed the allowable loads when storing materials on floors.

Do not remove wooden floorboards more than 1 floor above grade for storage of debris and require that falling material does not endanger the stability of the structure.

Leave wood beams in place to brace interior walls or free-standing exterior walls until other support can be installed to replace them.

Block off storage space into which material is dumped, except for openings necessary for removal of material.

Mechanical Demolition

Designate a competent person to perform continuing inspections as the work progresses to detect hazards resulting from weakened or deteriorated floors or walls, or loosened material.

Do not permit anyone in areas where potential hazards exist until they are corrected by shoring, bracing, or other means.

Keep the crane boom and load line as short as possible. Require that the weight of the demolition ball does not exceed 50% of the crane's rated capacity.

Remove all roof cornices or other ornamental stonework before pulling walls over.

Cut all affected steel members free prior to pulling walls over.

Electrical Hazards

E-Corp will use Ground Fault Circuit Interrupters on all jobsites when possible. GFCI's are

used on all 120-volt, single phase 15 and 20-ampere temporary wiring on construction sites. In the rare case when GFCI equipment is infeasible, the following guidelines, procedures, engineering controls, and work practices will be enforced to eliminate all injuries resulting from possible malfunctions, improper grounding and/or defective electrical tools and systems:

- The Site Safety and Health (SSHO) on site is designated as the Competent Person in charge of the Assured Grounding Conductor program for E-Corp.
- This Assured Grounding Conductor Program applies to all E-Corp sites, covering all cord sets and receptacles that are not part of the building or structure, and equipment connected by cord and plug which are available for use or used by employees.
- E-Corp will not make available, or allow the use by employees, of any equipment which does not meet the requirements of this Assured Grounding Conductor Safety Program.

Inspection/Testing

Employees are required, before use each day, to visually inspect each extension cord, or other device, and any equipment connected by cord and plug, for external defects, such as deformed or missing pins or insulation damage, and for signs of possible internal damage. Cord sets, devices, and receptacles that are fixed and not exposed to damage are exempt from this inspection. Employees are prohibited from using damaged or defective equipment. Any equipment found to be damaged or defective will be immediately tagged "DO NOT USE" and removed from service.

Tests performed as required by this program will be recorded as to the identity of each receptacle, cord set, and cord and plug connected equipment that passed the test and will indicate the last date tested or interval for which it was tested. This record will be kept by means of logs, color coding, or other effective means and will be maintained until replaced by a more current record. These records will be made available at the jobsite for inspection by OSHA and any affected employees.

Tests will be performed on all extension cords, other devices and receptacles that are not part of the permanent wiring of the building or structure, and cord- and plug-connected equipment required to be grounded will include:

- Testing all equipment grounding conductors for continuity.
- Testing each receptacle or plug to assure the equipment grounding conductor is connected to its proper terminal.

Testing will be performed:

- Before each use.
- Before equipment is returned to use following any repairs.
- Before equipment which has sustained possible damage is used.
- At intervals not to exceed 3 months, except that cord sets & receptacles which are fixed and not exposed to damage will be tested at intervals not exceeding 6 months.

A log will be kept on the job site of all tests performed. These records will be kept until replaced by a newer record. The log will include:

- Pass/Fail record of each receptacle, cord set, and cord-and plug- connected equipment that was tested.
- Date of testing or test intervals.

Qualified and Non-Qualified Personnel

E-Corp has implemented this policy to ensure that no employee is exposed to electrical hazards in the workplace. The SSHO is the supervisor responsible for ensuring the following policy for controls, training, personal protective equipment, and safe work practices is enforced:

Only qualified personnel are authorized to perform work, service, or maintenance on electrical parts or systems at E-Corp.

Non-qualified personnel are prohibited from working on or near exposed energized electrical circuits or systems. If a work task requires unqualified personnel, any exposed electrical systems will be de-energized and lockout/tagout procedures adhered to, per the E-Corp Control of Hazardous Energy Lockout/Tagout program before unqualified personnel are allowed access to the work areas. Non-qualified personnel will be trained in the recognition and avoidance of electrical hazards in the work area.

SSHO will ensure that all employees exposed to work involving electrical systems or energized parts will be trained in and familiar with the safety-related work practices required by OSHA regulation and NFPA 70E that pertain to their respective job assignments.

SSHO will ensure that all employees exposed to work involving electrical systems will be trained in, and familiar with, the following:

- The requirements of NFPA 70E Standards for Electrical Safety in the Workplace.
- The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment.
- The skills and techniques necessary to determine the nominal voltage of exposed live parts.
- The clearance distances specified in §1910.333(c) and the corresponding voltages to which the qualified person will be exposed.

Safe Work Practices

Safe work practices will be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts when work is performed near or on equipment or circuits which are or may be energized. The specific safe work practices will be consistent with the nature and extent of the associated electrical hazards.

- Live parts to which an employee may be exposed will be de-energized before the employee works on or near them.
- If the exposed live parts are not de-energized for reasons of increased or additional hazards, other safety-related work practices such as insulating shielding will be used to protect employees who may be exposed to the electrical hazards involved.

Live electrical parts or systems which an employee may be exposed to will be de-energized prior to beginning work on the system. Systems will be assured of being de-energized by proper lockout procedures following company policy.

Any work to be performed on energized parts will require the use of appropriate personal protective equipment, insulating and shielding materials, and insulated tools.

If work is to be performed near overhead lines, the lines will be de-energized and grounded, or other protective measures such as insulating shielding will be provided before work is started.

Vehicles or equipment working near overhead lines will be required to maintain a safe working distance of at least 10 feet. If the voltage is higher than 50 kV, the clearance will be increased 4

inches for every 10 kV over that voltage.

All workers will maintain the safe approach distances as stated in §1910.333(c)(3) Table S-5.

Training

The training required will be of the classroom or on-the-job type. The degree of training provided will be determined by the risk to the employee based upon the NFPA 70E - Standards for Electrical Safety in the Workplace.

The training requirements apply to employees who face a risk of electric shock that is not reduced to a safe level by the electrical installation requirements.

Other employees who also may reasonably be expected to face comparable risk of injury due to electric shock or other electrical hazards will also be trained.

Employees will be trained in and familiar with the safety-related work practices required that pertain to their respective job assignments.

Employees who are not qualified persons will also be trained in and familiar with any electrically related safety practices not specifically addressed by regulations, but which are necessary for their safety.

Qualified persons (i.e. those permitted to work on or near exposed energized parts) will, at a minimum, be trained in and familiar with the following:

- The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment.
- The skills and techniques necessary to determine the nominal voltage of exposed live parts.
- The specified clearance distances and the corresponding voltages to which the qualified person will be exposed.
- Qualified persons whose work on energized equipment involves either direct contact or contact by means of tools or materials will also have the required training.

De-energized Electrical Equipment

Conductors and parts of electric equipment that have been de-energized but have not been locked out or tagged will be treated as energized parts. This applies to work on or near them.

While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts will be locked out or tagged or both.

Lockout-Tagout Procedures

All lockout will follow the E-Corp Control of Hazardous Energy Lockout-Tagout Program.

Energized Electrical Equipment

If work is to be performed under or near overhead lines, the lines will be de-energized and grounded, or other protective measures will be provided before work is started. If the lines are to be de-energized, arrangements will be made with the person or organization that operates or controls the electric circuits involved to de-energize and ground them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions will prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.

When any personnel are working near overhead lines, the requirements of the Overhead Utilities Program and permit procedure will be followed. When an unqualified person is working in an elevated position near overhead lines, the location will be such that the person and the longest conductive object he or she may contact cannot come closer to any unguarded, energized overhead line than the following distances:

- For voltages to ground 50kV or below – 10 feet.
- For voltages to ground over 50kV – 10 feet plus 4 inches for every 10kV over 50kV.

When an unqualified person is working on the ground in the vicinity of overhead lines, the person may not bring any conductive object closer to unguarded, energized overhead lines than the distances given above. For voltages normally encountered with overhead power line, objects which do not have an insulating rating for the voltage involved are considered conductive.

When a qualified person is working in the vicinity of overhead lines, whether in an elevated position or on the ground, the person may not approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown in Table S-5.

Table S-5 Approach Distances for Qualified Employees – Alternating Current	
Voltage range (phase to phase)	Minimum approach distance
300V and less	Avoid Contact
Over 300V, not over 750V	1 ft. 0 in.
Over 750V, not over 2kV	1 ft. 6 in.
Over 2kV, not over 15kV	2 ft. 0 in.
Over 15kV, not over 37kV	3 ft. 0 in.
Over 37kV, not over 87.5kV	3 ft. 6 in.
Over 87.5kV, not over 121kV	4 ft. 0 in.
Over 121kV, not over 140kV	4 ft. 6 in.

Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines will be operated so that a clearance of 10 ft. is maintained. If the voltage is higher than 50kV, the clearance will be increased 4 in. for every 10kV over that voltage.

Employees standing on the ground will not contact the vehicle or mechanical equipment or any of its attachments, unless:

- The employee is using protective equipment rated for the voltage.
- The equipment is located so that no uninsulated part of its structure (that portion of the structure that provides a conductive path to employees on the ground) can come closer to the line than permitted below.

If any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding may not stand at the grounding location whenever there is a possibility of overhead line contact.

Additional precautions, such as the use of barricades or insulation, will be taken to protect employees from hazardous ground potentials, depending on earth resistivity and fault currents, which can develop within the first few feet or more outward from the grounding point.

Illumination

Employees may not enter spaces containing exposed energized parts unless illumination is provided that enables the employees to perform the work safely.

Where lack of illumination or an obstruction precludes observation of the work to be performed, employees may not perform tasks near exposed energized parts.

Employees may not reach blindly into areas which may contain energized parts.

Confined Spaces

When an employee works in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, E-Corp will provide, and the employee will use, protective shields, protective barriers, or insulating materials as necessary to avoid inadvertent contact with these parts. The Permit Required Confined Space Program will be followed for all confined spaces requiring a permit.

Doors, hinged panels, and the like will be secured to prevent their swinging into an employee and causing the employee to contact exposed energized parts.

Conductive Materials and Equipment

Conductive materials and equipment that are in contact with any part of an employee's body will be handled in a manner that will prevent them from contacting exposed energized conductors or circuit parts.

If an employee will handle long dimensional conductive objects (such as ducts and pipes) in areas with exposed live parts, SSHO will institute work practices (such as the use of insulation, guarding, and material handling techniques) which will minimize the hazard.

Portable Ladders

Portable ladders will have nonconductive side rails if they are used where the employee or the ladder could contact exposed energized parts.

Conductive Apparel

Conductive articles of jewelry and clothing (such as watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) may not be worn if they might contact exposed energized parts. However, such articles may be worn if they are rendered nonconductive by covering, wrapping, or other insulating means.

Housekeeping

Where live parts present an electrical contact hazard, employees may not perform housekeeping duties at such close distances to the parts that there is a possibility of contact, unless adequate safeguards (such as insulating equipment or barriers) are provided.

Electrically conductive cleaning materials (including conductive solids such as steel wool, metalized cloth, and silicon carbide, as well as conductive liquid solutions) may not be used in proximity to energized parts unless procedures are followed which will prevent electrical contact.

Interlocks

Only a qualified person following the requirements of this section may defeat an electrical safety interlock, and then only temporarily while he or she is working on the equipment. The interlock system will be returned to its operable condition when this work is completed.

Fire Prevention

This Fire Prevention section is focused on general requirements for fire prevention on construction sites. The purpose of this section is:

- To prevent injury to employees due to fire.
- To prevent ignition sources in the form of sparks, hot slag, etc. from contacting flammable materials. Flammable materials include, but are not limited to wood, paper, textiles, plastics, chemicals, flammable liquids and gases, and combustible ground cover such as grass.
- To separate or shield combustibles from ignition sources.

Any Welding, Cutting, or Hot Work will follow the Welding Cutting and Hot Work Program.

Fire Fighting Equipment

- Each E-Corp project site will have fire extinguishing equipment on site applicable for the potential hazards of the project.
- Access to all available firefighting equipment shall be maintained at all times.
- All firefighting equipment shall be periodically inspected and maintained in operating condition. Defective equipment shall be immediately replaced.
- Smoking shall be prohibited at or in the vicinity of operations which constitute a fire hazard.

Housekeeping

Accumulations of flammable and combustible waste materials and residues will be controlled to avoid contributing to a fire emergency. Good housekeeping includes, but is not limited to the following guidelines:

- All equipment will be maintained in a condition that is free of excess or leaking flammable material such as oil and grease.
- The work area will be kept orderly, clean, and free of debris.
- Incompatible materials will not be stored in the same area.
- Storage areas will be kept orderly and free of excess material that may cause physical damage to the storage containers.
- Hazardous materials and chemicals will be disposed of properly, not through the sewer system or storm water drains.
- Workers constructing objects that require a saw will sweep up the dust that was created before they leave the work area.
- Solid scrap and dust will be collected and disposed of as they accumulate during the workday. The work area will also be cleaned before the worker leaves the workstation.
- Cardboard boxes, shipping crates, and other ordinary combustibles will not be permitted to accumulate. They should be disposed of properly when no longer in use.
- Municipal waste will be removed from projects on an as needed basis. The waste will be stored in the designated storage area until disposal.
- Spilled non-hazardous and hazardous materials will be cleaned up directly following the spill.

Employee Training

- Employees must be trained in fire hazard recognition, prevention, extinguisher use, and emergency evacuation procedures.

- Each project site will have an emergency response plan which includes evacuation procedures, meeting point, headcount, location of emergency equipment, and a map and directions to the nearest medical facility. All employees must be trained and know the location of this information.
- The emergency alarm system for E-Corp project sites is an air horn or 3 long vehicle horn blasts.
- When on client property, client alarm and evacuation procedures will be followed.

Hand / Power Tools

General

All hand and power tools and similar equipment, whether furnished by the employer or the employee, shall be maintained in a safe condition.

Hand and power tools shall be used, inspected, and maintained in accordance with the manufacturer's instructions and recommendations and shall be used only for the purpose for which designed.

Hand and power tools shall be inspected, tested, and determined to be in safe operating condition before use.

Hand and power tools shall be in good repair with all required safety devices installed and properly adjusted. Tools having defects that will impair their strength or render them unsafe shall be removed from service.

Loose and frayed clothing, loose long hair, dangling jewelry (including dangling rings, chains, and wrist watches) shall not be worn while working with any power tool.

Personal Protective Equipment (PPE) shall be used as appropriate when using power tools, (see activity hazard analysis and manufacturer recommendations for details).

Wrenches, including adjustable, pipe, end, and socket wrenches shall not be used when jaws are sprung to the point that slippage occurs.

Impact tools, such as drift pins, wedges, and chisels, shall be kept free of mushroomed heads.

The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool.

Electric power operated tools shall either be of the approved double-insulated type or grounded.

The use of electric cords for hoisting or lowering tools shall not be permitted.

Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.

Guarding

Power tools designed to accommodate guards shall be equipped with guards.

Guards shall not be removed or bypassed.

Reciprocating, rotating, and moving parts of equipment shall be guarded if exposed to contact by employees or otherwise create a hazard.

When work is to be performed overhead, tools not in use shall be secured or placed in holders.

Only non-sparking tools shall be used in locations where sources of ignition may cause a fire or explosion.

Manufacturer's safe operating pressures for hydraulic hoses, valves, pipes, filters, and other fittings shall not be exceeded.

Power Saws and Woodworking Machinery

Saws shall be equipped with guards that automatically enclose the cutting edges.

Automatic feeding devices shall be installed on machines whenever possible. The operating speed shall be marked on all circular saws.

Radial arm power saws shall be equipped with an automatic brake and the cutting head shall return to the starting position when released by the operator.

The use of cracked, bent, or otherwise defective parts such as saw blades, cutters, or knives are prohibited.

Power saws shall not be left running unattended.

Pneumatic Tools

Safety clips or retainers shall be installed and maintained on pneumatic impact tools to prevent dies and tools from being accidentally expelled from the barrel.

Pressure shall be shut off and exhausted from the line before disconnecting the line from any tool or connection.

Hoses shall not be used for hoisting or lowering tools.

All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 psi shall have a safety device on the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in contact with the work surface.

Compressed air shall not be used for cleaning purposes.

Explosive – Actuated Tools

Explosive-actuated (powder-actuated) tools shall meet the requirements of ANSI A10.3, Safety requirements for explosive-actuated tools.

Only qualified operators who have been trained shall operate explosive-actuated tools.

Daily inspection, cleaning, and testing shall be performed as per the recommendations of the manufacturer.

Explosive-actuated tools shall not be loaded until just before the intended firing time.

Neither loaded nor empty tools are to be pointed at any employee and hands shall be kept clear of the open barrel.

Explosive-actuated tools are prohibited in explosive or flammable atmospheres.

Abrasive Blasting Equipment

Hose and hose connections shall be designed to prevent build-up of static electricity.

Equipment shall be inspected prior to each use to ensure it is in safe operating condition. Equipment found to be in unsafe condition must be removed from service until repaired or determined to be in safe condition.

Proper PPE must be used when using abrasive blasting equipment.

Jacks

The manufacturer's rated capacity shall be legibly marked on all jacks and shall not be exceeded.

All jacks shall have a positive stop to prevent over travel.

When it is necessary to provide a firm foundation, the base of the jack shall be blocked or cribbed.

Where there is a possibility of slippage of the metal cap of the jack, a wood block shall be placed between the cap and the load. After the load has been raised, it shall be cribbed, blocked, or otherwise secured at once.

Hydraulic jacks exposed to freezing temperatures shall be supplied with an adequate antifreeze liquid.

All jacks shall be properly lubricated at regular intervals.

Each jack shall be thoroughly inspected periodically (depending upon the service conditions). Inspections shall be not less frequent than the following:

- For constant or intermittent use at one locality, once every 6 months.
- For jacks sent out of shop for special work, when sent out and when returned.
- For a jack subjected to abnormal load or shock, immediately before and immediately after.

Repair or replacement parts shall be examined for possible defects. Jacks which are out of order shall be tagged accordingly and shall not be used until repairs are made.

Lasers

When lasers are used on construction sites, E-Corp will ensure they are used properly to prevent hazards to employees. The following requirements apply:

- Only qualified and trained employees shall be assigned to install, adjust, and operate laser equipment.
- Proof of qualification of the laser equipment operator is required to be in possession of the operator at all times on site.
- Employees, when working in areas in which a potential exposure to direct or reflected laser light greater than 0.005 watts (5 milliwatts) exists, shall be provided with anti-laser eye protection devices.
- Areas in which lasers are used shall be posted with standard laser warning placards.
- Beam shutters or caps shall be utilized, or the laser turned off, when laser transmission is not actually required. When the laser is left unattended for a substantial period, such as during lunch hour, overnight, or at change of shifts, the laser shall be turned off.
- Only mechanical or electronic means shall be used as a detector for guiding the internal alignment of the laser.
- The laser beam shall not be directed at employees.
- When it is raining or snowing, or when there is dust or fog in the air, the operation of laser systems shall be prohibited where practicable. If laser use must continue, the PM must give permission and employees must be kept out of range of the area of source and target

- during such weather conditions.
- Laser equipment shall bear a label to indicate maximum output.
- Employees shall not be exposed to light intensities above:
 - Direct staring: 1 micro-watt per square centimeter
 - Incidental observing: 1 milliwatt per square centimeter
 - Diffused reflected light: 2 1/2 watts per square centimeter.
- Laser unit in operation should be set up above the heads of the employees, when possible.
- Employees shall not be exposed to microwave power densities in excess of 10 milliwatts per square centimeter.

Laser protection.

Employees whose occupation or assignment requires exposure to laser beams shall be furnished suitable laser safety goggles which will protect for the specific wavelength of the laser and be of optical density adequate for the energy involved. E-Corp will select laser safety glass on a project specific basis following OSHA and manufacturer guidelines.

All protective goggles shall bear a label identifying the following data:

- The laser wavelengths for which use is intended
- The optical density of those wavelengths
- The visible light transmission.

E-Corp will provide for the instruction of each laser equipment operator and instructor in accordance with the applicable manufacturer's recommendations. Training will include various hazards associated with the use of the equipment and the necessary or recommended control measures for the elimination of hazards to personnel. All training will be conducted by a qualified and knowledgeable individual.

Material Handling

Whenever heavy or bulky material is to be moved, material handling needs shall be evaluated in terms of weight, size, distance, and path of movement. The following hierarchy shall be used in selecting procedures for material handling:

1. Elimination of material handling needs by engineering.
2. Movement by mechanical device (i.e. lift truck, overhead crane, conveyor, etc.).
3. Movement by manual means with handling aid (i.e. dolly or cart).
4. Movement using proper lifting techniques.

Engineering Controls:

Whenever possible, engineering controls will be implemented to avoid manual material handling. Often on project sites, this may not be possible due to the scope of work and customer requirements.

Movement by Mechanical Means:

Equipment shall be properly inspected before use each day as per the manufacturer recommendations.

Materials will not be moved over or suspended above personnel.

When a difference in road or working levels exist, means such as ramps, blocking, or grading shall be used to ensure the safe movement of vehicles between the two levels.

Where the movement of materials may be hazardous to persons, taglines or other devices shall be used to control the loads being handled by hoisting equipment. These devices shall be nonconductive when used near energized lines.

Movement by Manual Means with Handling Aids:

Handling aids shall be inspected prior to use each day to ensure they are in safe operating condition.

When moving objects on carts, rollers, etc., always push not pull. This places less stress on the lower back resulting in less potential for an injury.

Proper Lifting Techniques:

- Plan ahead.
- Estimate the load to be carried and your capabilities.
- Test the weight of the object at one end. If it is too heavy, obtain assistance from fellow workers or use a mechanical lifting device to carry the load.
- Inspect the load to be lifted for sharp edges, splinters, and wet or greasy spots.
- Wear gloves when lifting or handling objects with sharp or splintered edges.
- Bend at the knees, not at the waist when lifting objects from a low level such as the floor.
- Place your feet together and as close to the object as possible.
- Center your body over the load and bend at the knees.
- Use your leg muscles to lift the object, not your back muscles.
- The lift should be straight up and performed in a smooth motion.
- Once the load is lifted, carry it as close to your body as possible.
- Do not twist or turn your body once the load is lifted.
- Make sure you are capable of carrying the load to the destination before starting the journey.
- If you are not positive you can carry the load, set it down by bending at the knees.
- Once you arrive at the destination, set the load down in the same manner as it was lifted.
- Lower the load slowly by bending your knees.
- Do not let go of the load before it is against the surface it is being placed upon.

Material Storage

- All material in bags, containers, bundles, or stored in tiers shall be stacked, blocked, interlocked, and limited in height so it is stable and secured against sliding or collapse.
- Material shall be stacked as low as practical and no higher than 20 ft.
- Material stored inside buildings under construction shall not be placed within 6 ft of any hoist way or floor opening, nor within 10 ft of an exterior wall which does not extend above the material stored.
- Aisles and passageways shall be kept clear to provide for the free and safe movement of material handling equipment or employees. Such areas shall be kept in good repair.
- Material shall not be stored on scaffolds or runways in excess of needs for normal placement operations, or in excess of safe load limits.
- Non-compatible materials shall be segregated in storage.
- Lumber shall be supported on stable sills and shall be stacked level, stable, and self-supporting.
- Reusable lumber shall have all nails withdrawn before it is stacked for storage.
- Lumber piles shall not exceed 20 ft in height; lumber to be handled manually shall not be

stacked more than 16 ft high.

- Bags of materials shall be stacked by stepping back the layers and cross keying the bags at least every ten bags high.
- While stacking bags, the top of the stack shall be kept nearly level and the necessary setback maintained.
- Brick shall be stacked on an even, solid surface, not more than 7 ft high.
- Storage of pipe shall not be more than 5 ft high unless racked. Cylindrical materials, unless racked, shall be stacked, and blocked to prevent spreading or tilting.

Housekeeping

- Work areas and means of access shall be maintained safe and orderly.
- Sufficient personnel and equipment shall be provided to ensure compliance with all housekeeping requirements.
- Work areas shall be inspected daily for adequate housekeeping and findings recorded on daily inspection reports.
- Loose or light material shall not be stored or left on roofs or floors that are not closed in unless it is safely secured.
- Tools, materials, extension cords, hoses, or debris shall not cause tripping or other hazards.
- Rubbish, brush, long grass, or other combustible material shall be kept from areas where flammable and combustible liquids are stored, handled, or processed.

Material Disposal

- Waste materials and rubbish shall be placed in containers or, if appropriate, in piles.
- Waste materials and rubbish shall not be thrown down from a height of more than 6 ft unless:
 - Materials are dropped through an enclosed chute.
 - The area into which materials are dropped are barricaded in such a way as to keep personnel out.
- Separate covered, non-reactive containers shall be provided for the collection of garbage, oily, flammable, and dangerous wastes with a label describing the contents and shall be disposed of daily.
- Hazardous material waste shall be collected, stored, and disposed of in accordance with Federal, state, and local requirements.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/14/21
02	Stacy Maxfield	Annual Review/Update	09/19/22

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Control of Hazardous Energy Lockout/Tagout

Purpose

E-Corp, has adopted this defined practice for the prevention of employee exposure to hazards resulting either directly or indirectly from Control of Hazardous Energy and Lockout/Tagout procedures in the workplace from the following OSHA regulations:

§1910.147 – The Control of Hazardous Energy (Lockout/Tagout)

E-Corp has implemented this Hazardous Energy Control Program and Lockout/Tagout procedures to ensure that employees are properly trained, aware of hazards associated with Lockout/Tagout, and correctly informed of procedures, policies, and practices to prevent or, if possible, eliminate these hazards.

Scope

The E-Corp Lockout Procedure Permit or equivalent must be obtained before conducting work on energy systems. The E-Corp Hazardous Energy Control Program will address the following elements:

- Program Training.
- Who controls the Program.
- How the Program is enforced.
- Specific procedures that outline the scope, purpose, authorization, rules, and techniques to be utilized.
- Inspections where unexpected energizing start up or release of stored energy could occur and cause injury.
- Equipment surveys and listings will be provided that will include electrical, steam, hydraulic, tension, gravity, etc. as potential sources of energy.

Roles and Responsibilities

Health and Safety Manager

The Health and Safety Manager (HSM) is responsible for ensuring the following training, engineering controls, work practices, and safety procedures are enforced:

- Understand the hazards and complexities of energy isolation, Lockout/Tagout and E-Corp Lockout Procedure Permit requirements. This includes being trained and competent to function in a coordinator role.
- Coordinate all Lockout/Tagout activities with field personnel. If the job is affected by or affects other jobs within the project or site, then the HSM shall communicate with other personnel who are coordinating Lockout/Tagout activities to verify Lockout/Tagout workplace safety.
- The HSM is responsible for Lockout/Tagout Procedure Permit requirements and for verifying that other applicable permits (i.e., hot work, working at heights, confined space) have been obtained for the work to be performed. In addition, the Health and Safety Manager shall verify that the work does not trigger a permitted activity. If the

activity has a permit, the permit shall be reviewed. If an applicable permit is triggered, the work shall be stopped until the applicable permit is generated by appropriate personnel.

- Confirm that timing devices and delayed starts have been isolated.
- Inform the Client Representative (or designated alternate) that the equipment, machinery or system is safe to be returned to service.
- Oversee the return to service of the equipment, machinery or system.
- Cancel permits, as appropriate.

Site Safety and Health Officer

The E-Corp Site Safety and Health Officer (SSHO) will provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. In the scope of the Lockout/Tagout defined practice, the SSHO is an authorized person who oversees or leads a group of authorized persons who lockout or tagout equipment, machinery or systems to perform maintenance or servicing on that equipment, that machinery or those systems. The SSHO is also responsible to:

- Perform all duties specified for the Performing Authority in the Control of Work Defined Practice.
- Secure the approval of the HSM to proceed with the Lockout/Tagout activity.
- Lockout or tagout the equipment, machinery or system in order to perform maintenance or servicing work on that equipment, machinery or system.
- Inspect and confirm that all equipment, machinery or systems and energy sources associated with specific jobs or tasks are properly isolated before starting maintenance or servicing work.
- Use personal locks and apply “DO NOT OPERATE” tags that are legibly dated and signed by the person performing the maintenance or servicing work. All lockout locks shall have one key only.
- Follow a ‘Lock, Tag, Clear and Try’ procedure, which consists of checking the work site to confirm that all personnel have been safely positioned or removed and the equipment, machinery or system has been tested to verify that it is properly locked or tagged out and will not operate.
- Check the equipment, machinery or system and disconnecting devices at the beginning of each shift or after any extended absence from the work (i.e., breaks or meals) to confirm that the equipment, machinery or system is safe to perform maintenance or servicing work on and was not tampered with during the SSHOs’ absence.

When restoring energy to equipment, machinery or a system, the SSHO shall:

- Inspect the work area to confirm that nonessential items (e.g., tags and tools) have been removed.
- Confirm that the equipment, machinery or system components are operationally intact.
- Survey the work area to confirm that all on-site personnel are accounted for and in safe areas.
- Notify affected employees that the Lockout/Tagout device(s) have been removed.
- Inform the HSM of the removal of the Lockout/Tagout device(s).

Control of Hazardous Energy Training

Control of Hazardous Energy Training will include the following:

- The E-Corp SSHO (or authorized employee) will receive training in the recognition of

- applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
- Each affected employee will be instructed in the purpose and use of the energy control procedure.
 - All other employees whose work operations are or may be in an area where energy control procedures may be utilized, will be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.
 - SSHOs will be trained in recognition of applicable hazardous energy sources and verification provided of training, about the equipment, machinery, and systems being de-energized and isolated.
 - When tagout systems are used, employees will also be trained in the following limitations of tags:
 - Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.
 - When a tag is attached to an energy isolating means, it is not to be removed without permission of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
 - Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.
 - Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
 - Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
 - Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.
 - E-Corp will provide employee retraining under the following circumstances:
 - Retraining will be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment, or processes that present a new hazard, or when there is a change in the energy control procedures.
 - Additional retraining will also be conducted whenever a periodic inspection reveals, or whenever the Health and Safety Manager has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.
 - The retraining will reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.
 - E-Corp will certify that employee training and/or retraining has been accomplished and is being kept up to date. The documentation will contain each employee's name, dates of training, and who conducted the training.

General Requirements

- Before maintenance or servicing work begins, affected employees shall be educated in the purpose and use of energy control procedures and in lockout/tagout, and made aware of the prohibition regarding attempts to restart or reenergize equipment, machinery or systems that have been locked or tagged out.
- If an energy source can be locked out, a lockout will be utilized. A "Lockout Device"

utilizes a lock, either key or combination, to hold an energy isolating device in a safe position.

- If an energy source cannot be locked out, a tagout system will be utilized. A “Tagout Device” is a warning tag (weather and chemical resistant) standardized in size, color, with wording warning of hazardous energy such as: (Do Not Start) (Do Not Open) (Do Not Close) (Do Not Energize) (Do Not Operate). The color of custody or security locks may not be used in the color-coding scheme.
- Lockout/Tagout devices will be clearly marked to indicate the identity of the authorized employee applying the device.
- Lockout or tagout will be performed only by the authorized employees who are performing the servicing or maintenance.
- Periodic reviews shall be documented and any recommendations according to local procedures that address deviations, inadequacies, or program enhancements shall be tracked and noted for further review.
- Affected employees will be notified by the SSHO or authorized employee of the application and removal of lockout devices or tagout devices. Notification will be given before the controls are applied, and after they are removed from the machine or equipment.
- If more than one group is working on the same item, then each authorized employee must place a lock on the hasp or lock box and document their actions.

Types of Potential Energy

Employees who are required to utilize the lockout/tagout procedure must be knowledgeable of the different energy sources and the proper sequence of shutting off or disconnecting energy means. The four types of energy sources are:

1. Electrical
2. Hydraulic or Pneumatic
3. Fluids and Gases
4. Mechanical (including gravity)

More than one energy source may be utilized on some equipment and the proper procedure must be followed in order to identify energy sources and lockout/tagout accordingly.

Electrical

1. Shut off power at machine and disconnect.
2. Disconnecting means must be locked or tagged.
3. Press start button to see that correct systems are locked out.
4. All controls must be returned to their safest position.
5. Points to remember:
 - If a machine or piece of equipment contains capacitors, they must be drained of stored energy.
 - Possible disconnecting means include the power cord, power panels (look for primary and secondary voltage), breakers, the operator's station, motor circuit, relays, limit switches, and electrical interlocks.
 - Some equipment may have a motor isolating shut-off and a control isolating shut-off.
 - If the electrical energy is disconnected by simply unplugging the power cord, the cord must be kept under the control of the authorized employee, or the plug end of the cord must be locked out or tagged out.

Hydraulic/Pneumatic

1. Shut off all energy sources (pumps and compressors). If the pumps and compressors supply energy to more than one piece of equipment, lockout or tagout the valve supplying energy to the piece of equipment being serviced.
2. Stored pressure from hydraulic/pneumatic lines shall be drained/bled when release of stored energy could cause injury to employees.
3. Make sure controls are returned to their safest position (off, stop, standby, inch, jog, etc.).

Fluids and Gases

1. Identify the type of fluid or gas and the necessary personal protective equipment.
2. Close valves to prevent flow, and lockout/tagout.
3. Determine the isolating device, then close and lockout/tagout.
4. Drain and bleed lines to zero energy state.
5. Some systems may have electrically controlled valves. If so, they must be shut off and locked/tagged out.
6. Check for zero energy state at the equipment.

Mechanical Energy

Mechanical energy includes gravity activation, energy stored in springs, etc.

1. Block out or use die ram safety chain.
2. Lockout or tagout safety device.
3. Shut off, lockout or tagout electrical system.
4. Check for zero energy state.
5. Return controls to safest position.

Control of Hazardous Energy Procedures

The development of equipment-, machinery- or system-specific lockout/tagout procedures shall follow the requirements outlined in this document. These procedures, at a minimum, shall include the following safety control elements:

- The energy source and the magnitude of the energy source,
- A statement of the intended use of the procedures,
- The procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy,
- The procedural steps for the placement, removal and transfer of isolation devices and the responsibility for them,
- The procedural steps for Disabling Safety Systems, Shutdowns, and/or Alarms,
- The requirements for testing equipment to determine and verify the effectiveness of the isolation,
- The requirements for removing the isolation, and
- The requirements for returning equipment to service.

Established E-Corp procedures for energy control and the application of lockout or tagout devices covers the following elements and actions. Procedures will be done in the following sequence:

Preparation for Shutdown

- Before an authorized or affected employee turns off a machine or equipment, the authorized employee will have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.

Machine or Equipment Shutdown

- The machine or equipment will be turned off or shut down using the procedures established for the machine or equipment. An orderly shutdown will be utilized to avoid any additional or increased hazard(s) to employees resulting from the equipment stoppage.

Machine or Equipment Isolation

- All energy isolating devices that are needed to control the energy to the machine or equipment will be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).

Lockout or Tagout Device Application

- Lockout or tagout devices will be affixed to each energy isolating device by authorized employees.
- Lockout devices, where used, will be affixed in a manner that will hold the energy isolating devices in a "safe" or "off" position.
- Tagout devices, where used, will be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited.
 - Where tagout devices are used with energy isolating devices designed with the capability of being locked, the tag attachment will be fastened at the same point at which the lock would have been attached.
 - Where a tag cannot be affixed directly to the energy isolating device, the tag will be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.

Stored Energy

- Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy will be relieved, disconnected, restrained, and otherwise rendered safe.
- If there is a possibility of re-accumulation of stored energy to a hazardous level, verification of isolation will be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

Verification of Isolation

- Prior to starting work on machines or equipment that have been locked out or tagged out, the SSHO will verify that isolation and de-energization of the machine or equipment have been accomplished.
- Before lockout or tagout devices are removed and energy is restored to the machine or equipment, procedures will be followed, and actions taken by the authorized

employee(s) to ensure the following:

The Machine or Equipment

- The work area will be inspected to ensure that nonessential items have been removed and to ensure that machine or equipment components are operationally intact.

Employees

- The work area will be checked to ensure that all employees have been safely positioned or removed.
- After lockout or tagout devices have been removed and before a machine or equipment is started, affected employees will be notified that the lockout or tagout device(s) have been removed.

Removal of Lockout or Tagout Devices

- Each lockout or tagout device will be removed from each energy isolating device by the authorized employee who applied the device.
- **Exception:** When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the SSHO. Such procedures include the following elements:
 - Verification by the SSHO that the authorized employee who applied the device is not at the facility.
 - All reasonable efforts were made to contact the authorized employee to inform him/her that his/her lockout or tagout device has been removed.
 - Confirming that the work area has been inspected, non-essential items removed, and equipment, machinery, or system components have been left operationally intact.
 - Confirming that all personnel are safety positioned or removed from the worksite.
 - Ensuring that the authorized employee has this knowledge before he/she resumes work at that facility.
- In situations where lockout or tagout devices must be temporarily removed and the machine or equipment energized to test or position, the following procedures will be followed:
 - Communicate to and receive approval from the SSHO.
 - Clear the machine or equipment of tools and materials.
 - Remove employees from the machine or equipment area.
 - Remove the lockout or tagout devices as specified.
 - Energize and proceed with testing or positioning.
 - De-energize all systems and reapply energy control measures to continue the servicing and/or maintenance.

This procedure will be verified and documented by personnel performing it.

- Whenever outside servicing personnel are to be engaged in operations requiring lockout or tagout procedures, the HSM and the outside employer will inform each other of their respective lockout or tagout procedures.
- The SSHO will ensure that employees understand and comply with the restrictions and prohibitions of the outside employer's energy control program.
- When servicing and/or maintenance is performed by a crew, craft, department, or other group, they will utilize a procedure which affords the employees a level of protection

equivalent to that provided by the implementation of a personal lockout or tagout device. Group lockout or tagout devices will be used with the following specific requirements:

- Primary responsibility is vested in the SSHO for a set number of employees working under the protection of a group lockout or tagout device (such as an operations lock).
- Provision for the SSHO to ascertain the exposure status of individual group members regarding the lockout or tagout of the machine or equipment.
- When more than one crew, craft, department, etc. is involved, assignment of overall job-associated lockout or tagout control responsibility to the SSHO to coordinate affected work forces and ensure continuity of protection.
- Each authorized employee will affix a personal lockout or tagout device to the group lockout device, group lockbox, or comparable mechanism when he or she begins work, and will remove those devices when he or she stops working on the machine or equipment being serviced or maintained.
- Each authorized person must place a lock on the hasp or lock box and document it (for Simultaneous Operations Lockout/Tagout).
- The supervisor responsible for the group lockout/tagout is forbidden to remove the group lockout/tagout device until each authorized employee in the group has removed his or her personal device.
- During shift or personnel changes, procedures will be utilized to ensure the continuity of lockout or tagout protection, including provision for the orderly transfer of lockout or tagout device protection between off going and oncoming employees, to minimize exposure to hazards from the unexpected energization or start-up of the machine or equipment, or the release of stored energy. Documentation will be maintained as to personnel, equipment, and particular lockout/tagout procedures involved in a specific ongoing operation.
- Failure to comply with proper lockout/tagout procedures is grounds for disciplinary action. Any unauthorized removal of warning tags or lockout devices will be grounds for immediate termination of employment. The performance of lockout/tagout procedures at E-Corp will be inspected/evaluated at least annually by The HSM for compliance with Company Policy. Inspections will be documented and date, equipment, and employee(s) reviewed will be recorded.
 - The periodic inspection will be conducted to correct any deviations or inadequacies identified.
 - Where lockout or tagout are used for energy control, the periodic inspection shall include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.
 - E-Corp will certify that the periodic inspections have been performed. The certification must identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person performing the inspection.
 - Lockout procedures are to be utilized over tagout procedures, where possible.
 - Locks and tags used for lockout or tagout procedures will be clearly marked with identification of the employee applying the device.
 - The Lockout /Tagout procedures for E-Corp are administered by the HSM and will be those described in the following procedures.

Risk Assessment

Prior to locking out a system, a Risk Assessment (RA) that identifies hazards and provides

mitigations must be performed and documented. This job risk assessment must be performed before maintenance or service work begins on a locked or tagged out system. The RA shall be discussed during the daily toolbox meeting, when applicable, prior to the start of work.

Lockout Procedure for E-CORP

Purpose

This procedure establishes the minimum requirements for the lockout of energy using isolating devices whenever maintenance or servicing is done on machines or equipment. It will be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury.

Compliance with this Program

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized employees are required to perform the lockout in accordance with this procedure. All employees, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance will not attempt to start, energize, or use that machine or equipment.

Sequence of Lockout

- 1) The authorized employee will notify all affected employees that servicing, or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.
- 2) The authorized employee will refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, will understand the hazards of the energy, and will know the methods to control the energy.
- 3) If the machine or equipment is operating, the authorized employee will shut it down by the normal stopping procedure (depress stop button, open switch, close valve, etc.).
- 4) The authorized employee will deactivate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).
- 5) The authorized employee will lock out the energy isolating device(s) with assigned individual lock (locks will be labeled with individuals name and number).
- 6) Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
- 7) The authorized employee will ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate. **Caution:** Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.
- 8) The machine or equipment is now locked out.

Restoring Equipment to Service

When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps will be taken by the authorized employee. When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the SSHO.

- 1) Communicate to and receive approval from the SSHO.
- 2) Check the machine or equipment and the immediate area around the machine or equipment to ensure that non-essential items have been removed and that the machine or equipment components are operationally intact.
- 3) Check the work area to ensure that all employees have been safely positioned or removed from the area.
- 4) Verify that the controls are in neutral.
- 5) Remove the lockout devices and reenergize the machine or equipment. Note: The removal of some forms of blocking may require re-energization of the machine before safe removal.
- 6) Notify affected employees that the servicing or maintenance is completed, and the machine or equipment is ready for use. The person responsible for the equipment will then confirm that the operating device or selector switch has been returned to its normal operating position and the equipment functions are acceptable.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/01/21
02	Stacy Maxfield	Annual Review/Update	09/19/22



Lockout Procedure Permit

Permit Number: _____

Revised 06/01/21

Date:	
Site Location and Description:	
Authorized Person (Print Name):	

Notify all affected employees that service or maintenance is required on a machine or piece of equipment and that the machine or piece of equipment must be shut down and locked out to perform the service or maintenance.

Affected employees and how to notify:

Name	Job Title

The authorized employee will refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, will understand the hazards of the energy, and will know the methods to control the energy.

Type(s) and magnitude(s) of energy, its hazard(s) and the method(s) to control the energy:

Type and magnitude of Energy	Energy Hazards	Control Methods

If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open switch, close valve, etc.).

Machine(s) or equipment operating controls:

Machine or equipment	Stop Procedure

Deactivate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).

Type(s) and location(s) of energy isolating devices:

Type	Location

Lock out the energy isolating device(s) with assigned individual lock (Locks will be labeled with individuals name and #).

Lock Numbers and Assignments:

Lock #	Assigned To:

Stored or residual energy (such as that found in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, as well as air, gas, steam/water systems) must be dissipated or restrained by methods such as grounding, repositioning, bleeding down, etc.

Type(s) of stored energy and methods to dissipate or restrain:

Type of stored energy	Methods to dissipate or restrain:

Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate. CAUTION: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

Method of verifying the isolation of the equipment:

AUTHORIZATION BY PERMIT SUPERVISOR

I certify that I have reviewed the permit, all required precautions have been taken and necessary equipment is provided and inspected for this permitted work.

Name: **Signature:** **Date:** **Time:**

PERMIT REVALIDATION

I confirm that the conditions under which the permit was originally issued remain unchanged, that work is allowed to continue, and that the revalidated permit has been reviewed with the work team.

Name: **Signature:** **Date:** **Time:**

Restoring Equipment to Service:

When the service or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken:

1. Check the machine or equipment and the immediate area around the equipment to ensure that non-essential items have been removed and that the machine or equipment components are operationally intact.
2. Check the work area to ensure that all employees have been safely positioned or removed from the area.
3. Verify that the controls are in neutral.
4. Remove the lockout devices and re-energize the machine or piece of equipment. Note: The removal of some forms of blocking may require re-energization of the machine before safe removal.
5. Notify affected employees that the service or maintenance is completed, and the machine or equipment is ready for use.

PERMIT CANCELLATION BY PERMIT SUPERVISOR

I attest that the Permitted Work is complete and permit is closed.

Name: **Signature:** **Date:** **Time:**

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Control of Work Permit Program

Purpose

E-Corp has adopted this program to prescribe a formal approach to managing the risks associated with Control of Work Permits (CoW) activities.

Roles and Responsibilities

Area Authority (AA)

In the scope of this practice, the AA shall be a representative (usually the Project Manager or Construction Manager), who shall, for each Project assigned to him or her:

- Identify the scope, performance standards, objectives, and applicable requirements for each Project.
- Inform relevant members of the workforce of the Project scope, performance standards, objectives, and applicable requirements, along with the consequences of failing to work within these limits. Where work is to be done by a Contractor, this requirement may be satisfied by providing this information to the Contractor and requiring the Contractor to provide it to relevant members of the Contractor workforce, including subcontractors.
- Authorize all work activities within the Client Representative's designated area of responsibility.
- Assign or agree on the Contractor's assignment of a competent Health and Safety Manager (HSM), Site Safety and Health Officer (SSHO) for each Project or activity before related work commences on E-Corp work site premises.
- Assign or agree on the Contractor's assignment of any persons needed to replace the HSM and SSHO.
- Have knowledge of and participate, where necessary, in the development and verification of permits.
- Verify that all work activities for each Project in the Client Representative's portfolio are consistent with the Control of Work program as well as any associated practices and permit requirements. This shall include responsibility to:
 - Verify that the competencies of all members of the workforce performing regular job duties have been assessed by their employer.
 - Verify that all work is appropriately planned and scheduled.
 - Verify that the appropriate permits are issued, closed and filed per local operating requirements.
 - Verify that all appropriate control measures have been or will be put in place prior to commencement of activity so that work can be carried out safely.
 - Verify that risk assessments are complete when required and followed.
 - Apply defined consequences for failure to meet the above requirements, where the verification process identifies a failure to conform.
 - Contribute to the Lessons Learned, where appropriate, to support improvement in the work process or in hazard assessment.

All field tasks shall be conducted under the direction of a trained and competent Area Authority (or equivalent representative).

Health and Safety Manager

The HSM shall:

- Supervise the Risk Assessment for any jobs determined to require a CoW permit.
- Be responsible for instructing the SSHO on permit requirements.
- Communicate with the AA or designee about the issuance and closure of permits and inform the Client Representative or designee when each permit is ready for approval.
- Prepare Lessons Learned, where appropriate, to support corrective action or continuous improvement efforts and share these with the Client Representative, and any other members of the E-Corp workforce who are designated to receive this information by the Client Representative.

Site Safety and Health Officer

The SSHO shall:

- Be responsible for activities carried out on E-Corp premises under the Control of Work Program and be accountable to the HSM for the safe, responsible, and reliable delivery of all assigned permitted work activities.
- Be responsible for the issuance and closure of permits in his or her area of competency (e.g., hot work, confined space entry, ground disturbance, lifting and energy isolation work permits).
- Participate in the risk assessment for the planned activity.
- Accept and sign any authorized permits for the planned work activity.
- Review a site-specific emergency response plan with all members of the E-Corp workforce at the job site premises.
- Verify and certify to the HSM that:
 - The CoW permit contains all required controls.
 - The required CoW permits are in place and that any work undertaken under those permits is consistent with and confined to the original scope of work.
 - Work is progressing within permit requirements.
 - Each CoW permit is revalidated and closed consistent with this practice.
 - All members of the E-Corp workforce involved in a work activity have been assessed as competent by their employer and correctly prepared for the work they will perform.
 - All members of the E-Corp workforce involved in the work activity have been informed and demonstrated a clear understanding of the scope of work, potential hazards, controls and mitigations for the work they will perform.
 - The correct tools and equipment are available to the E-Corp workforce and the appropriate certifications and inspections are reviewed or made, as appropriate.
 - Nonessential members of the E-Corp workforce are kept a safe distance from the work activity.
 - Adequate handovers take place at all shift and crew changes.
- Observe all work activities covered by the applicable permit. If an individual deems that he or she cannot safely manage more than one concurrent task, stop the appropriate portions of assigned work and request assistance from the HSM or the Client Representative.

E-CORP Workforce

In the scope of this practice, each member of the E-Corp workforce shall:

- Comply with the CoW Program.

- Stop work if it appears potentially unsafe.
- Attend training on the CoW Program and associated practices and procedures, as appropriate.
- Demonstrate an understanding and acceptance of their accountabilities or assigned responsibilities.
- Participate in and/or review risk assessments, when requested.
- Conduct a work area inspection prior to commencing work at E-Corp job site premises, as appropriate.
- Assist in the identification of deficiencies in the work process and help identify possible improvements.
- Actively monitor the E-Corp job site premises and its surroundings for changes that might affect the performance of the task or affect the safety of those involved in the task.
- Demonstrate understanding of the emergency response plan and his or her assigned role in any emergency response activity.
- Report all allegations or occurrences of unsafe work, near misses, and opportunities.
- Participate in incident investigations, if requested.

Control of Work Process

The CoW process shall document the scope of work, planning, scheduling, risk assessing, authorizing, executing work, inclusive of performance assurance and improvement. CoW is managed through the risk assessment of tasks for which specific controls are put in place. These analyses cover the scope of work and tasks to be undertaken, hazards, controls, and mitigations.

The CoW process includes four fundamental steps, all of which shall be completed to enable robust CoW. These steps may be represented as a cycle, as the process flow is generally executed many times over the course of the project life cycle.

Define/Plan

The first step of each CoW cycle is the definition and planning of the work to be carried out in each phase. Time and resource requirements for hazard identification, risk assessment, preparation and planning shall be considered in this step.

The work planning process includes identification of the scope of work, breakdown of the work into tasks and the interactions between the scope and the individual tasks. The work planning process shall be documented and consider the time required for all stages of the CoW process. The planning process allows time for hazard identification and risk assessment(s), identification of employees and equipment required for the completion of the work, development of risk assessed and approved plans for the work and safe isolation and re-instatement of the equipment and the identification of parts and materials required for the work. Work that is dependent on or affects other work is defined, coordinated, prioritized, and scheduled. Simultaneous operations are identified and considered for their compatibility. The planning and scheduling process identifies dependent (linked) work and assures coordination.

Assess Risk

Once the plan is defined, it will be risk-assessed. Requirements for risk assessments are defined in the Risk Assessment Program.

Identify Controls

The next step is the identification of controls to mitigate risk. Requirements for controls identification are defined in the Risk Assessment Program.

Action

Based on the risk assessment and control identification, the plan should be amended and then formally approved. The final step in the CoW process flow is carrying out any other actions according to the revised plan. Once an action is complete, any identified lessons learned should be documented and communicated.

Authorization to Work

All work shall be authorized prior to the start of any task. Authorization is recorded in the Daily Report or on the specific permit for the work.

Weekly Toolbox

Weekly toolbox meetings (or similar meeting) shall be held weekly. Toolbox meetings should review the planned work activities for the week, address site specific hazards, discuss and resolve the risks and mitigations, discuss any Health, Safety, Security and Environment concerns, and raise the consciousness of each worker before they start work.

Lessons Learned

All E-Corp workforce members shall have access to, and use of any lessons learned that will improve the CoW process and the safe means of carrying out work. All major incidents shall be evaluated for relevance, and implementation plans shall be evaluated.

Control of Work Permit Requirements

Before conducting work that involves a permitted activity, a permit shall be obtained that:

- Defines the scope of work.
- Links the work to other associated permits or simultaneous operations.
- Identifies the hazards and assesses risks.

In addition, the following requirements shall be met by the E-Corp workforce:

- Permit information shall be communicated to all involved in the work immediately prior to implementing work.
- All E-Corp workforce members associated with the job shall review the requirements and risks associated with the permit prior to starting work.
- Communication of the permit risks and mitigations shall be appropriately defined, documented, communicated, and signed off by the E-Corp workforce.
- Permits shall be issued or re-validated at the beginning of every shift. Permit requirements shall be monitored throughout the permit's life, as stipulated in the Process section of this practice.
- The status of all permits shall be established at a central location for a site. The status of permits shall be accurate, up to date, and available.

Permit Process

The control of work permit process from initiation to closeout is described in Table 1:

Table 1: Permit Process Summary

Stage	Responsible Party	Responsibilities
1. Approval	Client Representative	Authorizes overall job approval. Gives authorization to proceed. Designates SSHO. Determines self-authorization authority.
2. Request	SSHO	Requests permit. Looks for previous Risk Assessments. Visits work site. Identifies hazards and controls.
3. Initial Review	HSM	Reviews work request. Assembles RA team. Defines controls. Discusses with Project Manager.
4. Permit Meeting/ Authorization	Work Team	Reviews all permit requests. Reviews risk assessment and isolations. Reviews ongoing jobs Reviews resources. SSHO authorizes permit.
5. Permit Preparation	SSHO	Prepare equipment and work site. Put isolations in place. Put controls in place.
6. Permit Issue	PM/SSHO	Inspects work site. Verifies that controls are in place. Issues permit. Verifies that communication and monitoring of the permit occurs. Is notified of suspended permits. Signs revalidated/suspended permits
7. Permits Review	PM/HSM	Reviews all permits and activities. Determines if simultaneous operations are occurring. Determines the order of work in consultation with SSHOs.
8. Permit Live Work Execution	SSHO	Is present at the work site. Accepts permit or signs re-validation of permit. Identifies if a permit is required if it has not been previously identified. Gathers all relevant paperwork. Leads “toolbox talk” with personnel performing permitted work. Oversees commencement of work. Agrees with HSM on ongoing monitoring. Signs suspended permits.
9. Job Completion	SSHO	Oversees cleanup of work site. Signs permit for completion of task. Returns permit to HSM.
10. Permit Completion	SSHO	Oversees removal of controls and reinstatement of isolations. Closes and archives permit.

Pre-planning

Prior to issue of the permit, pre-planning shall be completed per the project work plan. At a minimum, this includes performing or updating a risk assessment, identifying standard operating procedures and verifying individuals are properly trained.

Work planning shall be used to coordinate among differing yet interacting types of work in line with the Simultaneous Operations (SIMOPS) Program.

Permits Required

E-Corp has the following permitted programs which require completion of a permit to work:

E-Corp Permits
Confined Space Entry Permit
Fall Protection Permit
Ground Disturbance Permit
Hot Work Permit
Lifting Operations Permit
Lockout Procedure Permit
Overhead Utilities Permit

Permit Display

A permit shall be filled out for each job that entails one or more hazardous activities listed above. Permits shall be:

- Displayed at the work site in a location where they are protected from damage.
- Readily available to and easily read by the workforce.
- Maintained for easy accessibility for review and audits.

Permit Suspension

Work being carried out under a permit might have to be stopped before the work is completed. Circumstances necessitating this situation include:

- Emergencies.
 - Permit procedures shall make provisions for actions to be taken in case of an emergency. Emergencies shall require an immediate “Stop Work” and subsequent actions to address emergencies. Where it is hazardous to stop permitted activities suddenly, it shall be clear that work should only cease once it is safe to do so.
 - Post-emergency actions should include a reassessment of permitted tasks to verify that conditions have not altered because of the emergency and that the permit remains valid.
- The need to prevent interaction with another activity.
- Work that can only be carried out during one shift.
- Delayed delivery of materials or services.
- The end of a shift.

The following shall be documented for a permit suspension:

- Date
- Time
- Reason for suspension
- Notification to the HSM
- Signature of the SSHO on documentation of permit suspension

In certain circumstances, it might be appropriate to cancel the permit outright and implement a secure, long-term isolation procedure.

Re-validation

Re-validation shall be allowed for permitted work activities that last longer than one shift. For the permit to be re-validated, the SSHO shall:

- Determine that the conditions under which the permit was originally issued remain unchanged and that work is allowed to continue.
- Review and/or update the Risk Assessment, as needed
- Sign the re-validated permit and have it reviewed with the new work team.

NOTE: Confined Space does not allow re-validation.

If activity is suspended, re-validation shall be completed at the start of the new shift or more frequently. An adequate RA shall be made or reviewed prior to any re-validation. **Re-validation shall not occur for more than seven consecutive days.** The time of no activity during permitted work shall not exceed 24 hours. If a 24-hour period is exceeded, a new permit shall be issued. If the work cannot be continuous, then the permit shall be reviewed with the workforce before the work can be reinitiated.

Monitoring of Open Permits

E-Corp will perform spot checks and ongoing monitoring of permits that includes reporting and feedback. Spot checks will document the requirements of this policy are being met or exceeded. Spot check documentation will be reviewed by E-Corp Management and feedback will be provided to improve on the process. Permit monitoring shall involve a cross-section of all permitted activities. Monitoring frequency shall be defined and based on the experience levels of the SSHO and PM. All monitoring shall maintain documentation and tracking of actions.

Training Requirements

All personnel performing permitted work will be appropriately trained in the type of work they are doing. Training will comply with the specific permitted work program.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/16/21
02	Stacy Maxfield	Annual Review/Update	09/19/22

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Cranes and Overhead Lifting Program

Purpose

E-Corp has adopted this defined practice for Lifting/Mobile Equipment to ensure the safety of employees derived from the following OSHA regulations:

- §1910.179 – **Overhead and Gantry Cranes**
- §1910.180 – **Crawler, Locomotive, and Truck Cranes**
- §1926.Subpart CC – **Cranes and Derricks in Construction**

This Program applies to all cranes and other material handling equipment for the movement of material by hoisting. The Site Safety and Health Officer (SSHO) is designated as the Competent Person in authority over all hoisting operations. The SSHO will ensure that all safety measures and systems are in place, all safety procedures are adhered to, and ensure regular inspections of the crane, operational site, and rigging equipment are made.

Roles and Responsibilities

Site Safety and Health Officer /Lift Leader

The Lift Leader (LL) is ultimately accountable for a lift. The SSHO or designated subcontractor personnel shall be the LL and be responsible for the overall lifting operation. Additionally, the SSHO/LL shall:

- Complete training.
- Issue the Lifting Operations Permit
- Be competent to ascertain that:
 - Equipment is in safe condition.
 - Equipment is set up and positioned properly.
 - Proper rigging equipment and techniques are used.
 - Assuring all equipment is assembled properly prior to use.
 - Assuring all equipment is properly disassembled when lifting operations are complete.
- Understand the requirements associated with the rigger/signaler and crane/hoist operator.
- Complete and pass a formal lifting training program or its equivalent.
- Understand the SSHO responsibilities and have responsibility for the issuance of the Lifting Operations Permit.

Qualified Signal Person

The qualified signal person shall:

- Be designated by the employer as a competent signaler to perform rigging activities.
- Complete a formal signaler training program or its equivalent.
- Demonstrate the ability to read and comprehend signaler charts.
- Be responsible for observing the load and lift.
- Provide direct instructions to the crane/hoist operator.
- Have sufficient knowledge and experience to confirm that the lift is not maneuvered in a hazardous manner.

Crane Operator

To be competent as a crane operator, the person shall:

- Be designated by the employer as a competent operator to operate cranes.
- Possess certification as required by the associated jurisdictional agency.
- Meet the requirements of a competent rigger and signaler.
- Complete an actual or simulated practical operating skill evaluation test for the appropriate type of equipment.
- Demonstrate the ability to read and comprehend load capacity charts in the language of the crane manufacturer's operation and maintenance instruction materials.
- Satisfactorily complete an evaluation on load chart usage that covers a selection of the operating configurations for the specific type of equipment.
- Demonstrate knowledge of inspection requirements for the appropriate equipment, including all safety devices.

Rigger

To be competent as a rigger, the person shall:

- Be designated by the employer as a competent rigger to perform rigging activities.
- Complete a formal rigging training program or its equivalent.
- Demonstrate the ability to read and comprehend sling capacity charts.
- Demonstrate the ability to perform the pre-use, initial, monthly and annual rigging inspections.

Hoist Operator

To be competent as a hoist operator, the person shall:

- Be designated by the employer as a competent operator to operate hoists.
- Meet the requirements of a competent rigger and signaler.
- Receive practical hoist operations training.
- Demonstrate the ability to perform the pre-use, initial and monthly inspections as described in this practice.

Training

Only trained, qualified and competent personnel are allowed to operate cranes, hoists and lifting equipment and perform rigging. Contractors shall provide trained crane operators, signalers and riggers who meet the requirements described in this practice.

The training shall include a mechanism for verifying employee and Contractor's comprehension of the work process and associated equipment by a written test, observation, and evaluation by a competent trainer.

Retraining shall be provided when there is a change in the work process, whenever job changes or changes in equipment or processes present a new hazard, in response to an incident or when there is reason to believe that there are inadequacies in the employee or Contractor's knowledge.

Refresher Training

Operators, riggers, and signalers shall have refresher training every three years. In addition to the three-year requirement, refresher training in relevant topics shall be required when an individual has been:

- Observed operating machinery in an unsafe manner.

- Involved in an accident or near-miss incident.

Refresher training shall satisfy the requirements for competence.

General Lifting Requirements

E-Corp has implemented and will enforce the following work practices and procedures to assure that no employee will be exposed to hazards during crane hoisting operations:

- Only authorized personnel trained in safe operating procedures and designated to operate any cranes or other lifting equipment will be allowed to operate such equipment for E-Corp. Operators will be trained in safe work standards including use of fire extinguishers.
- If a permit is required, the Lifting Operations Permit shall be completed.
- The manual provided by the crane manufacturer will be readily accessible for the Crane Operator's reference at the work site.
- A portable carbon dioxide, dry chemical, or equivalent fire extinguisher with not less than 5 BC rating will be available in the cab, in the operating enclosure, or on the unit. The operator and maintenance personnel will be trained in the use and care of the fire extinguisher.
- A substantial and durable load-rating chart with clearly legible letters and figures will be provided with each crane and securely fixed to the crane cab in a location easily visible to the operator while seated at the control station. The rating charts shall contain the following:
 - A full and complete range of manufacturer's crane loading ratings at all stated operating radii.
 - Optional equipment on the crane such as outriggers and extra counterweight which effect ratings.
 - A work area chart for which capacities are listed in the load rating chart, i.e., over side, over rear, over front.
 - Weights of auxiliary equipment, i.e., load block, jibs, boom extensions.
 - A clearly distinguishable list of ratings based on structural, hydraulic, or other factors rather than stability.
 - A list of no-load work areas.
 - A description of hoist-line reeving requirements on the chart or in the operator's manual.
- Rated load capacities, recommended operating speeds, special hazard warnings, or instruction, will be conspicuously posted on all equipment. Instructions or warnings will be visible to the operator while he is at his control station.
- Hand signals to crane operators will be those prescribed by the applicable ANSI standard for the type of crane in use. An illustration of the signals will be posted at the job site.

When using any type of lifting equipment, it is necessary to follow requirements for a successful lift. These requirements include:

- Only competent operators, LLs and riggers shall perform lifting operations.
- All personnel who are not involved with the lift shall be kept at a distance no less than three times the length of the boom.
- Employees shall not work or walk under a suspended load.
- The LL shall consider the stability of the ground prior to each lift.
- Suspended loads shall be attended unless they are physically secured to prevent unintended movement.

Lifting shall not commence:

- If the load exceeds the dynamic or static capacities of the lifting equipment.

- Unless all safety devices installed on the lifting equipment are operational.
- Unless a competent person has visually examined all lifting devices and equipment prior to use.
- Unless a visual assessment of the lift has been completed, and a competent person has determined the lift method and equipment are safe and ready for use.

A crane operator shall observe the following minimum safety precautions:

- Prior to moving a crane into an area, evaluate soil conditions for crane stability and the possibility of damage to the underground facilities or injury to personnel.
- Follow the manufacturer's instructions for entering and exiting the cab. (The only acceptable alternative for entering and exiting the cab is to use a straight ladder that has been affixed to the crane.)
- Follow the manufacturer's recommendations for maximum allowable loads, and maximum boom lengths. (Booms shall be lowered when storms or winds exceed the limits in the manufacturer's recommendations.)
- Always know the radius of the load.
- Always keep the load directly under the trolley.
- Keep personnel away from the loading and unloading areas and swing path.
- Barricade the swing radius of the counterweight.
- Be alert constantly to the effects of dynamic loading when swinging, hoisting, and lowering the load or when moving the crane.
- Do not:
 - Allow anyone else on the crane when it is in use.
 - Leave the controls when the load is suspended.
 - Operate cranes when sustained wind speeds (as measured by the mast tip anemometer) exceed 35mph (56kph).
- Store loose items, such as tools, lubrication cans and waste materials, in a toolbox inside the cab.
- Wear seat belts when seated at the controls.
- In addition, the crane operator shall verify the following minimum safety requirements. This evaluation should be part of the lift analysis.
 - The hoist line is always vertical and plumb.
 - The crane hooks' safety latches are in good working order and are used properly.
 - The crane is level to 1 percent of grade before operations begin.
 - The truck's cab is unoccupied when crane is loading or unloading trucks.
 - The equipment is shut down and a fire extinguisher (minimum acceptable is a 30# BC) is available during refueling.
 - The tag lines are:
 - Used to always control the load and long enough to keep people out from underneath the load.
 - Not used where an individual cannot control or guide the load. Control lines utilizing mechanized systems should be used in those cases.

No one shall work or walk under a suspended crane load, nor ride the ball or load. Everyone not directly participating in the move shall stay far enough from the base of the crane when moving a tracked crane to avoid contact with moving parts or with pieces thrown out by the tracks.

Under normal circumstances, telescoping boom cranes shall be retracted and lowered when not in use. Unless lattice-boom cranes can safely be left unattended to weathervane, the booms shall be pointed downwind according to the prevailing wind direction with the load block or headache ball lowered to grade and tied off to restrict occurrence of a weathervane.

Moving and Lifting the Load

Moving and lifting of a load demands complex requirements to complete a task safely and successfully. The following requirements shall be fulfilled:

- In the case of personnel changes during the lift, the lift permit and the RA shall be reviewed prior to proceeding with the work. If a change in rigging and set up (e.g., change to a different size of rigging components) occurs during a lift, a new permit shall be required.
- When multiple personnel are involved in a lift, there can be only one designated signal person.
- Hoisting and rigging operations for non-incidentals lifts require a designated LL who shall be present at the lift site during the entire lifting operation. The LL designation shall be by written instructions, specific verbal instructions for the job or clearly defined responsibilities within the crew's organizational structure. If only one person is conducting the lift, that person is the designated LL. The designated LL shall verify that the load is correctly rigged.
- When eyebolts or other lifting attachments are used, verify that they are of sufficient strength and are used in accordance with the manufacturer's requirements. Eyebolts shall not be side loaded.
- Personnel near the lifting operations who are not directly involved with the lift shall stay out of the area of maximum boom radius plus swing distance of rigging. The supervisor may establish this radius based on the site specifics and risk assessment.
- To prevent worker injury, use either permanent or temporary barricades to block off accessible areas within the swing radius of the rear of the rotating superstructure of the crane.
- Do not carry loads over people. Personnel shall not pass under suspended loads or the loaded crane boom. Never allow anyone to get close to or under the load.
- Do not work on suspended loads.
- No one shall be on the load, hook or rigging during hoisting, lowering, or swinging of the load or traveling with the lifting equipment.
- Suspended loads shall not be unattended unless they are physically secured to prevent unintended movement.
- Tag lines are the preferred method to control the load. Evaluate the need for tag lines in the lifting RA. The LL will approve the decision not to use tag lines. Additional risks associated with handling a load without tag lines will be addressed in the RA.
- The load weight should include the weight of the load, block, ball, lattice extension, jib, hoist rope, rigging and any other weight that would affect the gross load.
- Avoid placing hands on loads. Where there is no alternative but to physically guide or stab loads into place by hand, implement precautions to minimize exposure to personnel.
- Secure and balance the load in the sling or lifting device before it is lifted more than a few inches.
- During the planning of the lift, if clearances from structures are a concern, station an individual to observe the clearance and warn the signal person of any impending danger.
- If the potential exists for people to move into the area of the lift, assign a person to control access to the area. The individual shall be located outside any pitch points in a position that offers a view of the area of concern.

Lifts

The LL shall be present at the lift site during non-incidentals lift operations.

The following lift requirements shall be followed to complete the task successfully:

- The risk assessment shall consider the wind conditions and how to mitigate the motion energy created by wind. Do not lift loads when winds create an unsafe or hazardous condition, regardless of wind speed. Suspend lifting operations when wind speeds reach 30mph (26.06kt or 48.20km/h) for cranes utilizing booms. Do not lift personnel in winds of more than 10mph (8.69kt or 16.09km/h). Consider carefully any lift.
- Lifting operation shall be suspended if visibility is impaired by environmental conditions such as dust, snow, rain, fog, or darkness.
- Personnel shall be kept away from lifted loads, except for rig floor operations.
- The load should not exceed the dynamic or static capabilities of the lifting equipment. Complete an evaluation of crane capacity for each lift and keep it for the duration of the job.

The minimum clearance between the maximum boom extension, load or load line and a power line is defined in Table 1: Minimum Boom Extension Clearance.

Table 1: Minimum Boom Extension Clearance		
Normal Voltage (phase to phase)	Minimum Required Clearance (ft.)	Minimum Required Clearance (m)
To 50kV	10ft	3m
51-200kV	15ft	4.5m
200-350kV	20ft	6m
351-500kV	25ft	7.6m
501-750kV	35ft	10.6m
751-1000kV	45ft	13.7m

Appropriate Lifting Equipment

Cranes, chain hoists and lifting equipment shall be tested, inspected, and maintained in accordance with the manufacturer’s recommendations.

A crane capacity evaluation shall be completed before a lift is attempted. The evaluation shall include the gross load, boom radius, boom angle, boom length and jib length. Consult the crane load chart to obtain the gross capacity percentile of the crane as it was configured.

Use backhoes, track hoes, front-end loaders, side loaders and similar earth-moving equipment only for incidental lifting as they are designed. Use of this equipment shall comply with the equipment manufacturer’s requirements, specifications, and designs for lifting. A risk assessment of the proposed application shall be completed. The use of this type of equipment shall require lift design and meet lift competence requirements.

An anti-two block device shall be installed on all cranes and maintained in operational condition. It is prohibited to bypass this device. Gin pole trucks are not required to have this device.

Any time that a crane or lifting device is shock loaded, it shall be red-tagged and removed from service pending an inspection and re-certification by a qualified agency. The following requirements are also applicable:

- During lifting operations, anyone can give the “**Stop Work**” command, which shall be obeyed by everyone, including the crane or hoist operator.

- E-Corp will maintain a crane and its accessories in a condition which will not endanger an operator or other employees.
- The Lift Leader is the designated Competent Person who will inspect all machinery and equipment prior to each use, and during use, to make sure it is in safe operating condition. Any deficiencies will be repaired, or defective parts replaced, before continued use.
- Before any servicing or maintenance of equipment is done, personnel will perform proper applicable lockout/tagout procedures and placement of "Warning" or "Out of Order" signs on the crane to ensure the safety of personnel performing these tasks.
- Modifications or additions which affect the safe operation of the equipment may only be made with the manufacturer's written approval. The original safety factor of the equipment will not be reduced if modifications or changes are made to the equipment. Modifications or changes will be certified by a qualified registered engineer. The capacity, operation, and maintenance instruction plates, tags, or decals will be changed accordingly to reflect any modifications or changes.
- A crane or its wire rope will not be used as a ground or to carry current while welding repair operations are being performed on the equipment. The ground will be attached to the part being welded while welding.
- Before adjustments and repairs to a crane are started, the following steps will be taken:
 - The crane will be placed where it does not interfere with other operations.
 - A "warning" or "out of order" sign will be placed at the controls, and the controls will be in the "off" position. The sign need not be used if the energy source is locked out.
 - The power plant will be disconnected, locked out, or made safe by other means.
 - The boom will be lowered to the ground or otherwise secured against dropping.
 - All hydraulic cylinders used for boom hoist and boom telescope on a mobile hydraulic crane will be retracted.
 - Hydraulic oil pressure from all hydraulic circuits will be relieved before loosening or removing hydraulic components of a mobile hydraulic crane.
 - The load block will be lowered to the ground or otherwise secured against dropping, except when operation is necessary for the adjustment.
- After adjustments and repairs have been completed, the crane will not be returned to operations until all guards have been installed, safety devices activated, trapped air removed from the hydraulic system of a mobile hydraulic crane, and maintenance equipment and warning signs or out of order signs removed.
- Hazardous conditions disclosed by the inspection requirements will be corrected before operation of the crane is resumed.
- Adjustments will be maintained to assure correct functioning of such components as operating mechanisms, safety devices, control systems, power plants, brakes, and clutches.
- The original safety factor will be maintained when repairs and replacements are made. Hooks showing defects will be replaced. Pitted or burned electrical contacts affecting their operations will be replaced in sets.
- E-Corp will require contractors providing cranes to keep and maintain written reports on rated load tests showing the test procedures and confirming the adequacy of any repairs or alterations. Certified production written operational and rated load tests will be obtained from the equipment manufacturer and kept available with the equipment. Equipment will be re-tested after any structural repairs or modifications which may only be made by the manufacturer or technician certified by the manufacturer.

Sling Types

The dominant characteristics of a sling are determined by the components of that sling. For example, the strengths and weaknesses of a wire rope sling are essentially the same as the strengths and weaknesses of the wire rope of which it is made.

The following slings may be used: Chain, wire rope, metal mesh, natural fiber rope, synthetic fiber rope, or synthetic web. In general, use and inspection procedures tend to place these slings into three groups: chain, wire rope and mesh, and fiber rope web. Each type has its own advantages and disadvantages. Factors to consider when choosing the best sling for the job include the size, weight, shape, temperature, and sensitivity of the material to be moved, as well as the environmental conditions under which the sling will be used.

- A thorough inspection of all wire ropes in use, including running ropes, will be made at least once a month. E-Corp will request certification records from crane providers which will include the date of inspection, the signature of the person who performed the inspection, and an identifier for the ropes will be made and kept on file at the Company office. The same records will be kept on inspections of all other ropes.
- All wire rope inspections will be performed by the Lift Leader, who is certified as the Competent Person for operation and inspection of overhead and gantry cranes, truck cranes, hoisting equipment, and derricks. Any deterioration resulting in appreciable loss of original strength will be kept under observation to determine whether further use of the rope would constitute a safety hazard. Care will be taken to inspect ropes at equalizer sheaves or other sheaves where rope travel is limited, or with saddles.
- Running ropes in continuous service will have an inspection not less than once a month. The inspection will include:
 - Measurement of diameter of rope.
 - Count of broken wires in 1 lay when concentrated.
 - End connections for broken wires.
 - Corrosion, kinking, crushing, cutting, or other conditions affecting the capability of the rope.
 - Cracked, bent, worn, corroded, or improperly applied end connectors.
- For rope in contact with equalizer sheaves or with saddles, or on sheaves where rope travel is limited, the inspection will include moving the rope from its normal position on the sheave and examining the rope at the rope contact point.

Lift Risk Assessment

A risk assessment of the lift shall be completed in line with the Risk Assessment Program. One RA may cover multiple similar lifts (e.g., unloading a truckload of pipe). The following requirements are also applicable:

- If crane operations are to be performed in the vicinity of overhead power lines, the lines will be de-energized and grounded, or other protective measures provided before work is started. If the lines are to be de-energized, arrangements will be made with the utility operator involved to de-energize and ground them. If protective measures, such as guarding, isolating, or insulating are provided, these precautions will prevent employees from contacting lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.
- Except where electrical power lines and equipment have been de-energized and visibly grounded at the point of work or where an insulating barrier, not a part of the crane has been erected, or the employee is insulated or isolated from the crane, a crane will maintain clearances in accordance with the following:

Table 2 Overhead Clearance Distance Required

Voltage	Clearance Boom Raised	Clearance in Transit With Boom Lowered and No Load
To 50 KV	• 10 feet	4 feet
Over 50 KV	• 10 feet + .4 inches per KV	
50 to 345 KV	•	10 feet
346 to 750 KV	•	16 feet

- Each sling will be inspected before being used. Each sling, fastenings, and all attachments will be inspected by the Lift Leader. Additional inspections will be performed during sling use, where service conditions warrant. Damaged or defective slings will be tagged and immediately removed from service.
- Whenever any sling is used, the following safety practices will be observed:
 - Slings that are damaged or defective will not be used.
 - Slings will not be shortened with knots or bolts or other makeshift devices. Sling legs will not be kinked.
 - Slings will not be loaded more than their rated capacities.
 - Slings will be securely attached to their loads and will be padded or protected from the sharp edges of their loads. Slings used in a basket hitch will have the loads balanced to prevent slippage.
 - All employees will be kept clear of loads about to be lifted and of suspended loads. Suspended loads will be kept clear of all obstructions.
 - Hands or fingers will not be placed between the sling and its load while the sling is being tightened around the load. A sling will not be pulled from under a load when the load is resting on it.
 - Shock loading is prohibited.
 - Hands or fingers will not be placed between the sling and its load while the sling is being tightened around the load. A sling will not be pulled from under a load when the load is resting on it.

Lifting Permit

A Lifting Operations Permit shall be prepared prior to any operation with a mobile crane (excluding forklifts and pickup truck jib cranes) or any lift determined to be a critical lift.

If a permit is required, the Lifting Operations Permit shall be completed. All line items on the permit shall be completed. The permit shall be signed by a qualified crane operator, designated LL, and designated rigger. No critical lift may proceed without a Lifting Operations Permit signed and accepted by the LL and reviewed with the project manager.

Non-critical Lift Control

Lifts that fall outside of the definition of a 'critical lift' present many, if not more, hazards than traditional critical lifts because they often do not get the same level of attention. Backhoes, track hoes, front-end loaders, side loaders and similar earth-moving equipment shall be used only for the incidental lifting for which they are designed. Such use of this equipment shall comply with the equipment manufacturer's requirements, specifications, and designs for lifting and be properly risk assessed. The use of this type of equipment shall require lift design and meet lift competence requirements. A lift plan shall be developed for all incidental or non-critical lifts.

The operator shall use a lift checklist for all lifts. All non-critical lifts shall be documented on a log kept by the operator. The log shall include the following critical elements of the lift:

- Weight of the item being lifted.
- Weight of the rigging.
- Radius.
- Capacity of the crane at the configuration and radius in which it will be used.
- Percent of crane capacity represented by the combined weight of the load and rigging.
- Wind speed at the time of lift.

The Contractor supervision shall periodically audit these lift logs for accuracy. For non-critical lifts, personnel shall not be allowed in the shadow of the load swing path

Critical Lift

No lift is allowed if it exceeds 90 percent of the load as indicated on the crane load chart for any given configuration of the crane. Approval is required if the load exceeds 80 percent and is a critical lift (refer to crane load chart).

Critical Lift Conditions

A lift is critical if it has one or more of the following conditions present:

- The lift is on site and the weight of the item to be lifted exceeds 20,000lbs (9.07MT).
- The total load to be lifted exceeds 75 percent of the chart for the lift configuration of the crane.
- Lifts where the load cannot be reasonably estimated should trigger the critical lift procedure
- Lifts that require multiple cranes for the lift, or the use of two or more cranes or lifting devices to lift one load simultaneously. For example, the simultaneous use of any combination of hoist devices, including forklifts or gin pole trucks, to lift an object (except for multiple lifting devices for pipeline/flowline installation or removal operations). Multiple crane lifts are required engineered lifts.
- Lifting where energized electric power lines (220kV or above) are within twice the maximum swing radius (360°) of the crane.
- Lifting where the operator of the lifting equipment cannot see the load.
- Lifting over or potentially reaching energized or pressurized equipment.
- Lifting over a building capable of occupancy, such as an office, home, or retail store. Evacuate all occupants prior to any such lift.
- Lifting of personnel.

NOTE Single tailing cranes and the handling of long sections of material at grade are excluded from this definition of multiple crane lifts.

Critical Lift Documentation and Acceptance

The LL in charge of each critical lift shall verify that the following documents are prepared prior to any lift:

- Critical Lift Plan for safe performance of the lift. The Contractor shall submit a Critical Lift Plan for review and acceptance by the Client Representative, E-Corp Administrator/Technical Manager or designated alternate prior to performing any critical lift. The Critical Lift Plan will be returned to the Contractor as accepted, accepted with comments, or not accepted.
- Risk Assessment.
- Lifting Operations Permit.
- A diagram of the lift and rigging.

The LL shall communicate, discuss, and approve the Critical Lift Plan and the risk assessment with a Client Representative who is familiar with this practice and all personnel involved in the critical lift.

Critical Lift Plan Components

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

- A completed Lifting Operations Permit associated with the Critical Lift Plan. (Refer to the Lifting Operations Permit.)
- An elevation view that shows:
 - The make and model of the crane with boom, boom length, radius and crane capacity for the configuration used.
 - Rigging accessory information to identify and show capacity of sling, shackles, spreader beams, blocks, and other equipment.
- Tabulation of weights of all items that constitute the load on the crane boom (e.g., lifted load, load lines, load blocks, spreaders, slings, shackles, jib, and headache ball).
- Lifted equipment information to include weight, height, diameter, point of support, center of gravity and degree of dress-out.
- Calculation of tailing load.
- A horizontal loading diagram showing the initial tailing crane load on the elevation view.
- The equipment's center of gravity (to be obtained from the vendor).
- Any obstructions or interferences to the lift from existing equipment or structures.
- Details of the supporting mats under the lifting crane and tailing crane with notations to indicate the bearing capacity of the subsoil and the calculated applied load.
- Ratio of the lifted load of each crane's load chart capacity as configured.
- Crane-boom-to-load clearances.
- Crane mats are required whenever the crane outrigger or crawler tracks soil-bearing pressure exceeds 2,000lb/ft².
- Clearance requirements in Table 2 shall also be met.
- A plan view that shows the following on an overlay of the area plot plan:
 - The lift and tailing crane location at the beginning of the lift, any travel, and the final location.
 - Initial horizontal position of equipment to be lifted.
 - Outrigger or crawler track soil-bearing pressure chart or calculations.
 - Layout and specifics for all required matting.
 - The plot layout should show existing areas and any new construction that will be in place when the lift occurs.
 - Special notes of any underground lines or if the lift will pass over any operating condition (e.g., electrical, building).
 - Special notes if any portion of the lifting configuration will, at any time during the lift, pass within 10' (3.04m) of any exposed live electrical component.
 - The area under the boom's arc that shall be off limits to all personnel not associated with the lift.
- Any item that will make the review more efficient and complete shall be attached to the rigging study and include the following:
 - Equipment weight information from the equipment manufacturer.
 - Equipment weight verification, either by scale weight tickets or independently calculated weight.
- Cut sheets from the crane vendor's capacity chart indicating the appropriate configuration.
- Cut sheets from the manufacturer of the rigging attachments showing capacity and weight.

Personnel Lifts with Crane

The personnel platform and suspension system shall be designed by a qualified engineer or a qualified person competent in structural design.

The suspension system shall be designed to minimize tipping of the platform from movement of employees occupying the platform.

The personnel platform itself, except the guardrail system and personnel fall-arrest system anchorages, shall be capable of supporting without failure its own weight and at least five times the maximum intended load.

Boatswain's Chairs

Boatswain's chair usage for lifting personnel will require a site-specific plan that meets the minimum requirements of the critical lift. The LL will not require notification on each lift.

Boatswain's chair tackle shall consist of the correct size ball bearings or bushed blocks containing safety hooks and first-grade manila rope that is properly eye-spliced and a minimum diameter of 5/8" (1.6cm). Other rope which will satisfy the criteria may be used.

Boatswain's chair seat slings shall be:

- Reeved through four corner holes in the seat, cross each other on the underside of the seat and be rigged to prevent slippage, which could cause an out-of-level condition.
- A minimum of 5/8" diameter fiber, synthetic or other rope that will satisfy the criteria (e.g., strength, slip resistance, durability) of first-grade manila rope.
- A minimum of 3/8" wire rope when a heat-producing process such as gas or arc welding is being conducted.

Boatswain's chairs made of wood that is not cross-laminated shall be reinforced on their undersides by cleats securely fastened to prevent the boards from splitting.

Personnel Platform Specifications

The personnel platform shall be conspicuously posted with a plate or other permanent marking that indicates the weight of the platform and its rated load capacity or maximum intended load. Each personnel platform shall be equipped with a guardrail system that is designed and constructed so that it meets the standard requirements for guardrails.

Guardrail systems shall be enclosed from the top rail to the walking/working level/toe board and along the entire opening between top rail support with either solid construction or expanded metal with openings no greater than 1/2". In addition, a grab rail shall be installed inside the entire perimeter of the personnel platform.

Access gates, including sliding or folding gates, shall be equipped with a restraining device to prevent accidental opening. Access gates, if installed, shall not swing outward during hoisting. A qualified welder familiar with the weld grades, types and material specified in the platform design shall perform all welding of the personnel platform and its components.

In addition to the use of hard hats, employees shall be shielded by overhead protection when exposed to falling objects while on the personnel platform.

Headroom shall be provided to allow employees to stand upright on the platform.

All rough edges with which employees may have contact shall be surfaced or smoothed to prevent injury from punctures or lacerations.

Personnel Platform Loading

The personnel platform shall not be loaded more than its rated load capacity. When a personnel platform does not have a rated load capacity, then the personnel platform shall not be loaded more than its maximum intended load.

The number of employees occupying the personnel platform shall not exceed the number required for the work being performed.

Personnel platforms shall be used only to hoist employees with their tools or materials necessary to do their work. Personnel platforms shall not be used to hoist tools or materials when not hoisting personnel.

During a personnel lift, tools and materials shall be secured to prevent displacement. They shall be evenly distributed within the confines of the platform while the platform is suspended.

Personnel Platform Rigging

When a wire rope bridle is used to connect the personnel platform to the load line, each bridle leg shall be connected to a master link or shackle in such a manner to verify that the load is evenly divided among the bridle legs.

Hooks on overhaul ball assemblies, lower load blocks or other attachment assemblies shall be of a type that can be closed and locked, eliminating the hook throat opening. Alternatively, an alloy anchor-type shackle with a bolt, nut and retaining pin may be used.

Wire rope, shackles, rings, master links and other rigging hardware shall be capable of supporting without failure at least five times the maximum intended load applied or transmitted to that component. Where rotation-resistant rope is used, the slings shall be capable of supporting without failure at least ten times the maximum intended load.

All eyes in wire rope slings shall be fabricated with thimbles.

Bridles and associated rigging for attaching the personnel platform to the hoist line shall be used only for the platform and the necessary employees, their tools, and the materials necessary to do their work; they shall not be used for any other purpose when not hoisting personnel.

Personnel Platform Trial Lifts, Inspections and Proof Testing Trial Lift

A trial lift with the unoccupied personnel platform loaded at least to the anticipated lift weight shall be made from ground level or other location where employees will enter the platform to each location where the personnel platform is to be hoisted and positioned. This trial lift shall be performed immediately prior to placing personnel on the platform.

The operator shall determine that all systems, controls, and safety devices are activated and functioning properly, and that no interferences exist.

All configurations necessary to reach those work locations will allow the operator to remain under the 50 percent limit of the hoist's rated capacity.

Tools and materials to be used during the actual lift can be loaded in the platform as provided in this section for the trial lift.

A single trial lift may be performed at one time for all locations that are to be reached from a single set-up position.

The trial lift shall be repeated prior to hoisting employees whenever the crane or derrick is moved and set up in a new location or returned to a previously used location. Additionally, the trial lift

shall be repeated when the lift route is changed, unless the operator determines that the route change is not significant (i.e., the route change would not affect the safety of hoisted employees).

After the trial lift, and just prior to hoisting personnel, the platform shall be hoisted a few inches and inspected to verify that it is secure and properly balanced.

Employees shall not be hoisted unless hoist ropes are free of kinks. Multiple part lines shall not be twisted around each other. The primary attachment must be centered over the platform.

Inspections

The hoisting system shall be inspected if the load rope is slack to confirm that all ropes are properly stated on drums and in sheaves.

A competent person shall conduct a visual inspection of the crane or derrick, rigging, personnel platform, and the crane or derrick base support or ground immediately after the trial lift to determine whether the testing has exposed any defect or produced any adverse effect upon any component or structure.

Any defects found during inspections that create a safety hazard shall be corrected before use by hoisting personnel.

Proof Testing

At each job site, prior to hoisting employees on the personnel platform and after any repair or modification, the platform and rigging shall be proof tested to 125 percent of the platform's rated capacity by holding it in a suspended position for five minutes with the test load evenly distributed on the platform. (This may be done concurrently with the trial lift.)

After proof testing, a competent person shall inspect the platform and rigging. Any discovered deficiencies shall be corrected, and then another proof test shall be performed. Hoisting of personnel shall not be conducted until the proof-testing requirements are satisfied.

Personnel Platform Work Guidelines

All employees working on personnel platforms shall adhere to the following guidelines:

- Employees shall keep all parts of the body inside the platform during raising, lowering, and positioning. This provision does not apply to an occupant of the platform performing signal person duties.
- Before employees exit or enter a hoisted personnel platform that is not landed, the platform shall be secured to the structure where the work is to be performed unless securing to the structure creates an unsafe situation.
- Tag lines shall be used unless their use creates an unsafe condition.
- The crane or derrick operator shall remain at the controls at all times when the crane engine is running, and the platform is occupied.
- Hoisting of employees shall be promptly discontinued upon indication of any dangerous weather conditions or other impending danger.
- Employees being hoisted shall remain in continuous sight of and in direct communication with the operator or signal person. In those situations where direct visual contact with the operator is not possible, and the use of a signal person would create a greater hazard for the person, direct communication alone (e.g., radio) may be used.
- Except over water, employees occupying the personnel platform shall use a body belt/harness system with lanyard appropriately attached to the lower load block or

overhaul ball, or to a structural member within the personnel platform capable of supporting a fall impact for employees using the anchorage. When working over water, employees shall be furnished with regulatory-approved life jackets or buoyant work vests.

- No lifts shall be made on another of the cranes or derrick's load lines while personnel are suspended on a platform.

Personnel Lifts and Crane Travel Restrictions

Hoisting of employees while the crane is traveling is prohibited, except for portal, tower, and locomotive cranes, or where the employer demonstrates that there is no less hazardous way to perform the work.

Under any circumstances where a crane would travel while hoisting personnel, the following restrictions shall apply:

- Crane travel shall be restricted to a fixed track or runway.
- Travel shall be limited to the load radius of the boom used during the lift.

The boom shall be parallel to the direction of travel. A complete trial run shall be performed to test the route of travel before employees are allowed to occupy the platform. This trial run can be performed at the same time as the required trial lift.

If travel is done with a rubber-tired carrier, the condition and air pressure of the tires shall be checked. The load chart capacity for lifts on rubber shall be used for application of the 50 percent reduction of rated capacity. Outriggers may be partially retracted as necessary for travel.

Personnel Platform Pre-lift Meeting

The crane or derrick operator, signal person(s) (if necessary for the lift), employees to be lifted and the person responsible for the task to be performed shall attend the pre-lift meeting, which is held to review the appropriate requirements and the procedures to be followed.

This meeting shall be held prior to the trial lift at each new work location and shall be repeated for any employees who are newly assigned to the operation.

Overhead Cranes and Hoists

Maintenance Program

A preventive maintenance program based on the crane manufacturer's recommendations shall be established. The documentation of the maintenance shall be retained.

Inspections Program

An inspection program based on the manufacturer's recommendations for inspections and equipment condition shall be established. Inspections of overhead hoists shall include, but are not limited to, the items listed in Overhead Hoist Crane Inspection Requirements at the end of this section. Particular attention shall be given to the condition and correctness of sheaves used on lifting equipment.

At a minimum, overhead hoists shall be inspected prior to use and annually.

Deficiencies or hazards found during an inspection shall be corrected or repaired before the overhead crane or hoist is used. The operator shall approve and sign off on any repairs made to any lifting equipment.

A written verification of the crane or hoist inspection shall be available upon request.

Testing Program

Prior to initial use, testing shall be conducted on any new or extensively repaired or altered hoists and overhead cranes for the following functions:

- Hoisting and lowering.
- Trolley travel.
- Bridge travel.
- Limit switches, locking and safety devices.

A load test shall be conducted. Test results shall be documented.

Tests shall not exceed 125 percent of the rated load capacity. The rated load capacity of each hoist shall be plainly marked on each side of the hoist. This marking should be clearly legible from the ground/floor level. The traveling beam shall be marked with the maximum load capacity. A report confirming the load rating of the equipment shall be retained on file and provided on request.

Mobile Cranes

Operation

Anti-two block systems shall be in place on all mobile cranes so that, when activated, they can disengage all crane functions that can cause two-blocking when in motion. Anti-two block systems shall be function tested prior to use daily and after the crane has been turned off and left unattended for any length of time. Anti-two block systems cannot depend on human interaction to work (e.g., relying on the alarm to sound and the operator to stop in time).

Anti-two block systems and the load-rate charts that are mounted on equipment may not be available for some equipment listed (e.g., boom trucks and side boom equipment). However, the mitigation of identified hazards shall be documented or risk assessed.

Maintenance Program

A preventive maintenance program based on the crane manufacturer's recommendations shall be established. Documentation of the maintenance shall be retained.

Inspections Program

The manufacturer's recommendations for inspections and equipment condition shall be followed. At a minimum, cranes shall be inspected prior to use and annually. A written verification of the crane or hoist inspection shall be available upon request.

Any deficiencies or hazards found during inspection shall be corrected, repaired, or mitigated before the lifting equipment is placed into service. The operator should approve and sign off on the repairs and mitigating actions prior to use. Only authorized personnel shall do work on lifting equipment.

Testing

Mobile cranes shall have an accurate load-rating chart affixed to the unit in plain view of the operator when the crane is in use. Prior to initial use, new or extensively repaired or altered mobile cranes and hoists shall be load tested. A report confirming the load rating of the equipment shall

be provided on request and retained on file. Tests shall not exceed 110 percent capacity of the rated load.

Wire Ropes, Chains and Slings Safety

When using wire ropes, chains and slings, the following safety measures shall be implemented.

Safety Factor

Slings, shackles, and other similar equipment shall have a safety factor of five. Slings and manufactured rigging equipment shall not be loaded more than their rated capacities.

The safety factor is a result of dividing the nominal failure load by the rated working load.

Approval and Stamps

All spreader bars, eye pads and other custom lifting devices shall be engineered, and registered professional engineers shall stamp their designs. Copies of the designs and seals shall be on site prior to use. Manufacturer's specific lifting devices shall have specifications sheets for each device that shall be on location.

Makeshift and job-made devices shall not be used. The Contractor shall control the issue of all lifting and hoisting equipment. Chinese-manufactured slings, shackles, hooks, etc. shall not be used.

General Sling Requirements

The following requirements apply to the use and types of slings:

Slings shall be:

- 1/2" minimum diameter if the slings are wire rope slings.
- Used in a basket hitch if the slings have the loads balanced to prevent slippage.
- Attached securely to their loads.
- Padded or protected with softeners from the sharp edges of their loads.
- Prohibited if they are single-leg slings with hand-tucked eye splices.
- Deemed permanently unusable if damaged or defective.
- Chain slings shall not be used for lifts. Chain slings are discouraged due to the potential for damage that is difficult to see during inspections.

Slings shall not be:

- Shortened with knots, bolts, or other makeshift devices.
- Kinked.
- Pulled from under a load when the load is resting on the sling.
- Used if slings are single-leg slings with hand-tucked eye splices. Hand-tucked types used in pairs will be acceptable. Slings with Flemish eye splices with pressed-on fittings are preferred.

Rigging shall be performed by competent riggers only.

All employees shall remain a safe distance from suspended loads and loads that are about to be lifted.

Suspended loads shall avoid all obstruction.

Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load or at any other time.

Shock loading is prohibited.

Sling and Rigging Maintenance Program

A maintenance program shall be utilized when using wire ropes, chains and slings as follows:

- Any defective sling shall be removed from service immediately and made permanently unusable. Refer to the manufacturer's specifications for determining when a sling is defective.
- Prior to the initial use, any new, repaired or reconditioned chain sling shall be proof tested by the manufacturer and the applicable certification stored on file.
- When not in use, rigging materials shall be removed from the work area for storage.

Sling and Rigging Inspection Program

Inspections of slings, shackles, eyebolts, and wire ropes shall be conducted by a competent person. The inspections shall include, but are not limited to, the items listed in Sling Inspection Requirements. Visually inspect lifting equipment for damage before use. Synthetic fabric slings, wire rope slings and steel alloy chain slings shall have a legible load rating attached. If the load rating is missing or cannot be read, the sling shall be taken out of service. Documentation of this 'before use' inspection is required.

Alternatively, utilize the manufacturer's equipment-specific checklist, provided it is as comprehensive as the requirements in Sling Inspection Requirements. A sling inspection verification should be immediately available. At a minimum, slings shall be inspected prior to use.

Deficiencies or hazards that are found during an inspection shall be corrected before the slings, shackles, eyebolts, and wire ropes are placed into service. The operator or rigger shall approve and sign off on any corrective actions or repairs of rigging prior to use.

Periodic

Slings and rigging equipment shall be inspected monthly by the qualified inspector:

- This inspection shall be indicated by an attached color-coded tape system or its equivalent.
- Employees using slings and rigging equipment shall verify that the marking system remains legible between inspections.
- Slings or rigging equipment with illegible marking systems shall be considered unsafe and shall be removed from service and made unusable.

Daily

Slings and rigging equipment shall be inspected daily and prior to each use by the user to verify that they are in proper working order:

- Damaged or defective slings shall be destroyed.
- Damaged or defective rigging equipment shall be tagged "Do Not Use" and returned to the tool room immediately.
- Under no circumstances shall any slings and rigging equipment in need of inspection or repair remain in service.

Standard Hand Signals for Lifting Operations

For effective communication of important information while lifting, a standard of universal hand signals has been developed. The Recommended Hand Signals for Controlling Crane Operations, provided at the end of this section, describes these hand signals. The following rules for successful use of hand signals shall be used:

- One trained and competent individual shall be designated as the signal person to communicate with the operator. The signal person shall be positioned to have continuous visual contact with the operator. If visual contact cannot be maintained, a Critical Lift

Assessment and Plan should be developed.

- The signal person should wear clothing that allows him/her to be easily identifiable in a crowd.
- Hand signals to the mobile crane/lift equipment operator should be in accordance with the standards prescribed in the relevant local and federal regulations for the type of crane being used. If local regulations are not available, American Society of Mechanical Engineers (ASME) and Occupational Safety and Health Administration (OSHA) regulations shall be referenced and used.
- Voice communications equipment shall be used if the line sight with the signal person is not possible.
- Constant visual or audio communication is always required between the operator and the signal person.
- Some special operations may require additions or modifications to the standard hand signals. For such cases, the operator and signal person shall agree upon and thoroughly understand these special or nonstandard signals, which shall not conflict with the standard signals. The reason for the use of these nonstandard signals shall be documented in the operator's logbook.
- If communication is interrupted or lost, the operator shall stop moving the load immediately until communication is re-established.

Type of Crane Inspections

- A thorough, annual inspection of the hoisting machinery will be made by the Lift Leader or by a government or private agency recognized by the U.S. Department of Labor. E-Corp will require submittal of a record of the dates and results of inspections for each hoisting machine and piece of equipment.
- Crane inspection certification records which include the date of inspection, the signature of the person who performed the inspection, and the serial number or other identifier of the crane, which was inspected, will be made monthly on critical items in use such as brakes, crane hooks, ropes, structural members, and welds. This record will be kept readily available with the equipment.
- E-Corp will establish and maintain a preventative maintenance program based on the crane manufacturer's recommendations, under the supervision of an authorized and trained employee or outside service. Maintenance records will be kept of all repairs or replacements made. Only authorized technicians may perform repairs on lifting equipment.
- Inspection of a non-rotating type of rope will include the determination that the wires are not broken or worn within the rope.
- All rope which has been idle for a period of a month or more due to shut down or storage of a crane on which it is installed will be given a thorough inspection before being used. The inspection will be for all types of deterioration and will be performed by the Lift Leader, whose approval will be required for further use of the rope. A certification record which includes the date of inspection, the signature of the person who performed the inspection and an identifier for the rope which was inspected will be made and kept readily available.
- Lifting hooks or shackles will be visually inspected before each use. A monthly inspection with a certification record which includes the date of inspection, the signature of the person who performed the inspection, and the serial number or other identifier of the hook inspected will be made by the Lift Leader. Hooks or shackles with cracks or having more than 15 percent in excess of normal throat opening, or more than 10° twist from the plane of the unbent hook will be taken out of service and replaced.

- Hoist chains, including end connections, will be inspected before each use for excessive wear, twist, distorted links interfering with proper function, or stretch beyond manufacturer's recommendations. Monthly inspection with a certification record which includes the date of inspection, the signature of the person who performed the inspection, and an identifier of the chain which was inspected will be made by the Lift Leader.

Frequent Inspections

A crane will be given the following daily to monthly visual inspections:

- Control mechanisms for wear and malfunction, each daily use.
- Deterioration or leakage of air or hydraulic systems, each daily use.
- Hydraulic system for oil level, each daily use.
- Hydraulic hoses and fittings for leaks and deterioration.
- All running ropes, each daily use.
- Lifting hooks for deformation or cracks. A hook having a crack, a throat opening of more than 15% of normal or more than 10-degree twist from the plane of an unbent hook will be replaced.
- Rope reeving in conformance with the original installation.
- Electrical apparatus for malfunction, wear, dirt, and moisture accumulations.
- Tires for specified pressure.

A crane will be given a visual inspection not less than monthly for malfunction of safety devices.

Periodic Inspections

A crane will be given the following monthly to yearly inspections:

- Structural members and boom for cracks, deformation, and corrosion.
- Bolts and rivets for tightness.
- Sheaves, drums, pins, bearings, shafts, gears, rollers, locking and clamping devices for wear, distortion, and cracks.
- Power sources for performance.
- Brake & clutch system parts, linings, pawls, & ratchets for excessive wear.
- Load, boom angle, and other indicators for inaccuracies over their full range.
- Travel, steering, braking, and locking devices for malfunction.
- Tires for wear or damage.
- Radiators and oil coolers for leakage, blockage of air passages, and improper performance.
- Rust on piston rods and control valves.
- Oil strainers and filters for blockage.

Occasional and Out of Service Inspections

- A crane which has been idle more than 1 month, but less than 6 months will receive an inspection before being placed in service.
- A crane, which has been idle more than 6 months, will receive an inspection before being placed in service.
- A standby crane will be inspected at not less than 6-month intervals.

Important Crane Inspection Items

- **Manufacturer's Operating and Maintenance Manuals** – Manufacturer's operating and maintenance manuals shall accompany all mobile hoisting equipment. These manuals set forth specific inspection, operation and maintenance criteria for each mobile crane

- and lifting capacity.
- **Guarding** – All exposed moving parts such as gears, chains, reciprocating, or rotating parts are guarded or isolated.
 - **Swing Clearance Protection** – Materials for guarding rear swing area.
 - **High-Voltage Warning Sign** – High-voltage warning signs displaying restrictions and requirements should be installed at the operator's station and at strategic locations on the crane.
 - **Boom Stops** – Shock absorbing or hydraulic type boom stops are installed in a manner to resist boom overturning.
 - **Jib Boom Stops** – Jib stops are restraints to resist overturning.
 - **Boom Angle Indicator** – A boom angle indicator readable for the operator station is installed accurately to indicate boom angle.
 - **Boom Hoist Disconnect, Automatic Boom Hoist Shutoff** – A boom hoist disconnect safety shutoff or hydraulic relief to automatically stop the boom hoist when the boom reaches a predetermined high angle.
 - **Two-Blocking Device** – Cranes with telescoping booms should be equipped with a two-blocking damage prevention feature that has been tested on-site in accordance with manufacturer's requirements. All cranes hydraulic and fixed boom used to hoist personnel must be equipped with two-blocking devices on all hoist lines intended to be used in the operation. The anti-two blocking device has automatic capabilities for controlling functions that may cause a two-blocking condition.
 - **Power Controlled Lowering** – Cranes for use to hoist personnel must be equipped for power controlled lowering operation on all hoist lines. Check clutch, chains, and sprockets for wear.
 - **Leveling Indicating Device** – A device or procedure for leveling the crane must be provided.
 - **Sheaves** – Sheave grooves shall be smooth and free from surface defects, cracks, or worn places that could cause rope damage. Flanges must not be broken, cracked, or chipped. The bottom of the sheave groove must form a close-fitting saddle for the rope being used. Lower load blocks must be equipped with close fitting guards. Almost every wire rope installation has one or more sheaves – ranging from traveling blocks with complicated reeving patterns to equalizing sheaves where only minimum rope movement is noticed.
 - **Main Hoist and Auxiliary Drums System** – Drum crushing is a rope condition sometimes observed which indicates deterioration of the rope. Spooling is that characteristic of a rope which affects how it wraps onto and off a drum. Spooling is affected by the care and skill with which the first larger of wraps is applied on the drum. Manufacturer's criteria during inspection usually specify:
 - Minimum number of wraps to remain on the drum.
 - Condition of drum grooves
 - Condition of flanges at the end of drum.
 - Rope end attachment.
 - Spooling characteristics of rope.
 - Rope condition.
 - **Main Boom, Jib Boom, Boom Extension** – Boom jibs, or extensions, must not be cracked or corroded. Bolts and rivets must be tight. Certification that repaired boom members meet manufacturers original design standard shall be documented. Non-certified repaired members shall not be used until recertified.
 - **Load Hooks and Hook Blocks** – Hooks and blocks must be permanently labeled with rated capacity. Hooks and blocks are counterweighted to the weight of the overhaul line from highest hook position. Hooks must not have cracks or throat openings more than

15% of normal or twisted off center more than 10° from the longitudinal axis. All hooks used to hoist personnel must be equipped with effective positive safety catches, especially on hydraulic cranes.

- **Hydraulic Hoses Fittings and Tubing** – Flexible hoses must be sound and show no signs of leaking at the surface or its junction with the metal and couplings. Hoses must not show blistering or abnormal deformation to the outer covering and no leaks at threaded or clamped joints that cannot be eliminated by normal tightening or recommended procedures. There should be no evidence of excessive abrasion or scrubbing on the outer surfaces of hoses, rigid tubing, or hydraulic fittings.
- **Outriggers** – Outrigger number, locations, types, and type of control are in accordance with manufacturer's specifications. Outriggers are designed and operated to relieve all weight from wheels or tracks within the boundaries of the outriggers. If not, the manufacturer's specifications and operating procedures must be clearly defined. Outriggers must be visible to the operator or a signal person during extension or setting.
- **Load Rating Chart** – A durable rating chart(s) with legible letters and figures must be attached to the crane in a location accessible to the operator while at the controls. The rating charts shall contain the following:
 - A full and complete range of manufacturer's crane loading ratings at all stated operating radii.
 - Optional equipment on the crane such as outriggers and extra counterweight which effect ratings.
 - A work area chart for which capacities are listed in the load rating chart, i.e., over side, over rear, over front.
 - Weights of auxiliary equipment, i.e., load block, jibs, boom extensions.
 - A clearly distinguishable list of ratings based on structural, hydraulic, or other factors rather than stability.
 - A list of no-load work areas.
 - A description of hoist line reeving requirements on the chart or in operator's manual.
- **Wire Rope** – Main hoist and auxiliary wire rope inspection should include examining for:
 - Broken wires.
 - Excess wear.
 - External damage from crushing, kinking, cutting, or corrosion.
- **Cab** – Contains all crane function controls in addition to mechanical boom angle indicators, electric wipers, dash lights, warning lights and buzzers, fire extinguishers, seat belts, horn, and clear unbroken glass.
- **Braking Systems** – Truck cranes and self-propelled cranes mounted on rubber-tired chassis or frames must be equipped with a service brake system, secondary stopping emergency brake system and a parking brake system. Unless the owner/operator can show written evidence that such systems were not required by the standards or regulations in force at the date of manufacture and are not available from the manufacturer. The braking systems must have been inspected and tested and found to comply with applicable requirements. Crawler cranes are provided with brakes or other locking devices that effectively hold the machine stationary on level grade during the working cycle. The braking system must be capable of stopping and holding the machine on the maximum grade recommended for travel. The brakes or locks are arranged to engage or remain engaged in the event of loss of operating pressure or power.
- **Turntable/Crane Body** – Make sure that the rotation point of a crane gears and rollers are free of damage, wear and properly adjusted and the components are securely locked and free of cracks or damage. The swing locking mechanism must be functional (pawl, pin) and operated in the cab.
- **Counterweight** – The counterweight must be approved and installed according to

manufacturer's specifications with attachment points secured.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/16/21
02	Stacy Maxfield	Annual Review/ Update	09/20/22

Overhead Hoist Crane Inspection Requirements

Overhead Hoist/Crane Inspection Requirements		Pre-use	Annual
1.	Functional operating mechanisms, including hoist limit switches, for maladjustment which would interfere with proper operation.	X	X
2.	Air or hydraulic systems, where applicable, for leaks or deterioration.	X	X
3.	Hooks for deformation or cracks or lack of safety latch. Hooks should have functional safety latches in good condition. Hooks that are bent, cracked, or twisted shall be discarded and replaced.	X	X
4.	Hoist or load attachment chains, including end connections, for excessive wear and for twisted or distorted links that would interfere with proper function, or which stretch beyond the manufacturer's recommendations.	X	X
5.	Any sling assembly, including end connections, for excessive wear, broken strands, or wires, stretch, kinking, or twisting.	X	X
6.	Functional operating mechanisms for excessive wear of components.	X	X
7.	Rope reeving for compliance with manufacturer's recommendations.	X	X
8.	Deformed, cracked, or corroded members.	X	X
9.	Loose bolts or rivets.	X	X
10.	Cracked or worn sheaves and drums.	X	X
11.	Worn, cracked, or distorted parts such as pins, bearings, shafts, gears, rollers, and locking and clamping devices.	X	X
12.	Excessive wear on brake system parts, linings, pawls, and ratchets.	X	X
13.	Excessive wear on chain drive sprockets and excessive chain stretch.	X	X
14.	Crane hooks—magnetic particle detection or other suitable crack-detecting inspection shall be performed if any cracks are detected or suspected.	X	X
15.	Electrical apparatus for signs of pitting or any deterioration of controller contactors, limit switches, and push-button stations.	X	X
16.	Load, wind, and other indicators over their full range for significant inaccuracies	X	X
17.	Internal combustion, electric, or other power plants for improper performance or hazards.	X	X

Sling and Rigging Attachment Inspection Requirements

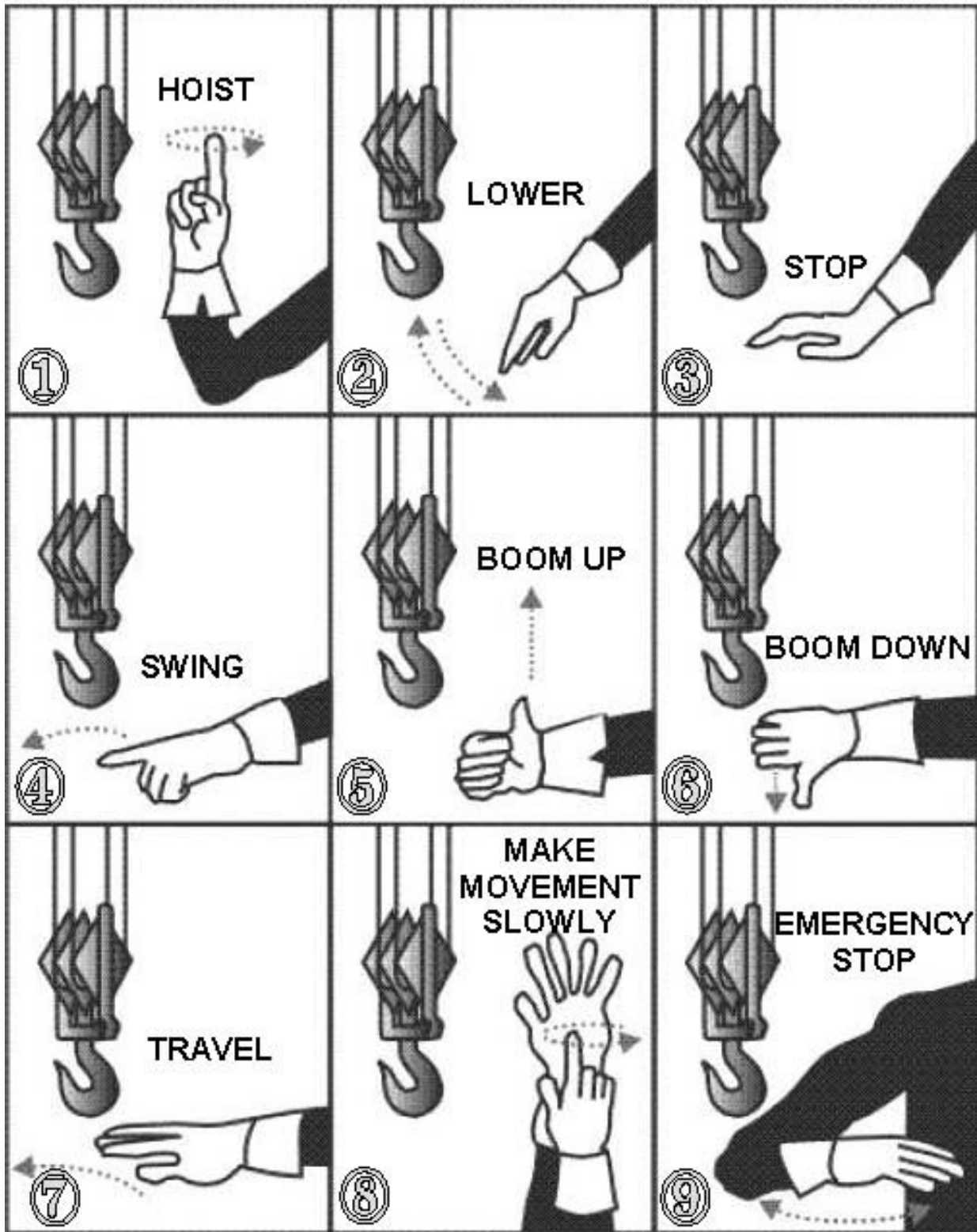
	Inspect:	Pre-use	Annual
1.	Slings and fastenings for any defects or damage.	X	X
2.	Alloy steel chain slings for cracked master links, coupling links or other damaged components.	X	X
3.	Alloy steel chain slings for wear, defective welds, deformation, and increased length.	X	X
4.	Alloy steel chain slings with cracked hooks, that have been opened more than 15% of the normal throat opening or twisted more than 10 degrees from the plane of the unbent hook. There are to be removed from service immediately.	X	X
5.	Wire rope slings for 10 randomly distributed broken wires in one rope lay or five broken wires.	X	X
6.	Wire rope slings for any wear or scraping of one-third the original diameter of outside individual wires.	X	X
7.	Wire rope slings for kinking, crushing, bird caging or any other distortion of the wire rope structure.	X	X
8.	Wire rope slings for evidence of heat damage.	X	X
9.	Wire rope sling end attachments that are cracked, deformed, or worn.	X	X
10.	Wire rope slings with cracked hooks, that have been opened more than 15% of the normal throat opening or twisted more than 10 degrees from the plane of the unbent hook. There are to be removed from service immediately.	X	X
11.	Wire rope slings for corrosion of the rope or end attachments (i.e., external, and internal core damage).	X	X
12.	Synthetic web slings for acid or caustic burns.	X	
13.	Synthetic web slings for melting or charring of any part of the sling surface.	X	
14.	Synthetic web slings for snags, punctures, tears, or cuts.	X	
15.	Synthetic web slings for broken or worn stitches.	X	
16.	Synthetic web slings for a distortion of fittings.	X	
17.	Synthetic web slings for the appearance of wear/overload indicator threads.	X	



Crane Operator Daily Inspection Checklist

CRANE OPERATOR DAILY INSPECTION CHECKLIST							
Crane name/number:		Crane Type:		Crane Capacity:		Date of Inspection:	
Location				Hour Meter:		Total Hours Operated:	
				Start:			
				Stop:			
Operator's Name:				Oiler's Name:			
INSTRUCTIONS: Check all items indicated. Inspect and indicate as satisfactory = S, Unsatisfactory = U, or not applicable = N/A							
Walk Around Inspection	U	S	N/A	Operator Cab Inspection	U	S	N/A
Safety guards and plates				Gauges			
Carrier Frame, Rotate Base				Warning & Indicator Lights			
General Hardware				Control/Brakes			
Wire Rope				Visibility			
Reeving				Load Rating Charts			
Block				Safety Devices			
Hook				Emergency Stops			
Sheeves				List/Trim Indicators			
Boom/Jib				Boom Angle/Radius Indicator			
Gantry, Pendants, Boom Stops				Machinery House Inspection	U	S	N/A
Walks, Ladders, Handrails				Housekeeping			
Wind Locks, Chocks, Stops				Engine/Compressor			
33				Leaks - Fuel, Lube, Oil, Water			
Leaks-Fuel, Oil, Lube, Water				Lubrication			
Radius Indicator				Battery			
Outrigger/Locking Device				Lights			
Operations Inspection	U	S	N/A	Glass			
Area Safety				Clutch/Brake Linings			
Unusual Noises				Electric Motors			
Control Action				Warning Tags			
Brakes/Boom/Load/ Rotate				Fire Extinguisher			
Crane Stability				Comments			
No Load Test							
Fleeting Sheeve							
Limit Switches							
Operator's Signature:				Supervisor's Signature			

Crane Operator Hand Signals





Permit Number: _____

Date of Last Revision: 06/16/21

Lift Operations Permit

This permit may be issued for up to seven (7) consecutive days with appropriate revalidation prior to each shift.

Date:	
Site Location and Description:	

Crane/Rigging/Load Information

Crane Specifications

Crane #1 Make and Model:	
Total weight of required rigging:	
Total weight of the lift to be made:	
Additional weight to be added to load:	
Total weight of the lift:	
Maximum operating boom radius:	
Planned operating boom radius:	
Allowable load (from load chart):	
Ratio of lift to the allowable load:	

Crane Setup Diagram:	Rigging Diagram:

Crane (If the answer to any of the following questions is NO, lifting operations shall not proceed.)

1. Is the yearly crane/hoist inspection current? (Is it documented?)	Yes	No
2. Was a pre-lifting operations meeting held?	Yes	No
3. Has the daily visual inspection been completed?	Yes	No
4. Are safety devices (e.g., two-block) installed and tested?	Yes	No
5. Is wind speed below 30 miles per hour (26.06kt or 48.2 km/hr.)? (Wind speeds of over 20 miles per hour (17.38kt or 32.18km/h) require reassessments of the risk assessment. If the wind speed is over 30 miles per hour, lifting operations shall not proceed.)	Yes	No
6. Have precautions been taken to keep other personnel out of the area?	Yes	No
7. Was the need to protect the swing area and lift/landing zones considered?	Yes	No
8. Has the ground stability been assessed, and is the ground stability adequate for this lift?	Yes	No

Rigging (If the answer to any of the following questions is NO, lifting operations shall not proceed.)

1. Has the rigging been inspected? (Shackles, chains, wire, rope, etc.)	Yes	No
2. Is the rigging attached to the load at the proper angle?	Yes	No

Load (If the answer to any of the following questions is NO, lifting operations shall not proceed.)

Weight of Load:	(Circle One) Estimated or known	Method by which weight was determined:	
Center of Gravity was:	(Circle One) Estimated or calculated	By whom:	
1. Has the need for taglines been evaluated?	Yes	No	
2. Is the load to be lifted stable? (No liquid or other resulting load)	Yes	No	
3. Have the lifting lugs and pad eyes been inspected?	Yes	No	



Permit Number: _____

Date of Last Revision: 06/16/21

Critical -Lift Assessment

(If the answer to any of the following questions is YES, a Critical-Lift plan must be completed.)

1. Are people being lifted? If yes, ensure lifting of personnel requirements are followed.	Yes	No	Not Applicable
2. Are power lines within twice the maximum boom swing radius plus the equaled clearance?	Yes	No	Not Applicable
3. Are two or more lifting machines being used to simultaneously lift one load?	Yes	No	Not Applicable
4. Is this a lift that presents a risk of significant property damage or high potential of personal injury?	Yes	No	Not Applicable
5. Will the crane or hoist operator lose sight of the lead original person at any time during the lifting operation?	Yes	No	Not Applicable
6. Is the weight of the load more than 75% of the dynamic or static capabilities of lift equipment?	Yes	No	Not Applicable
7. Is the lift being conducted over energized or pressurized equipment (pressurized well heads, piping, or process units)?	Yes	No	Not Applicable

Pre-Lift Notes:

Lifting Considerations

If hoist operator cannot view the load being lifted or the rigger giving directions to the operator, then ask:

1. Is there sufficient communication between the rigger/lift leader and the hoist operator?	Yes	No
2. The type of communication will be (Circle One): Radio Relayed hand signals Other	Describe if other:	

Power Lines: All power lines must be energized without proper verification.

1. Are the power lines at closer than twice the distance as the maximum length of the boom?	Yes	No
2. Are the power lines energized?	Yes	No

(If the answer to both above questions is "YES," then stop the job! Contact the Electrical Service Provider (ESP) to request the power to be turned off.)

3. Do you have documentation from the ESP that all the electrical power lines in question have been de-energized?	Yes	No
4. Is there sufficient clearance to de-energize power lines?	Yes	No
5. Is there a spotter?	Yes	No
6. Will there be a representative of the ESP on site during the lift?	Yes	No

If yes, write name here: _____

I certify the total weight of the lift is less than the allowable load (from the load chart) at the planned boom radius.

Role	Name and Company	Signature	Date
Designated Lift Leader			
Qualified Crane Operator			
Designated Rigger			



Permit Number: _____

Date of Last Revision: 06/16/21

Hoist Operator			
Signaler			

AUTHORIZATION BY PERMIT SUPERVISOR

I certify that I have reviewed the permit, all required precautions have been taken, and necessary equipment is provided and inspected for this permitted work.

Name: **Signature:** **Date:** **Time:**

PERMIT REVALIDATION

I confirm that the conditions under which the permit was originally issued remain unchanged, that work is allowed to continue, and that the revalidated permit has been reviewed with the work team.

Name: **Signature:** **Date:** **Time:**

PERMIT CANCELLATION BY PERMIT SUPERVISOR

I attest that the Permitted Work is complete, and permit is closed.

Name: **Signature:** **Date:** **Time:**

Post-Lift Notes:

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Driving Safety

Purpose

E-Corp has implemented this policy to inform workers of the written Driving Safety Program in the workplace. This ensures the safety and health of the employees on the job site.

The Health and Safety Manager is responsible for ensuring that the following policy for control, training, personal protective equipment and safe work practices is enforced.

Driver Requirements

E-Corp will only allow authorized employees to drive a motor vehicle in the course and scope of the work to be performed, or operate a company owned vehicle. Employees who have medical, physical, or psychological conditions that may impair their driving performance shall inform their immediate supervisor. Supervisors are encouraged to pay special attention to employees with medical, physical, or psychological conditions and may supervise them more prominently to ensure they are able to perform their job tasks properly.

Each driver will be appropriately assessed, licensed, trained, and fit to operate the company vehicle, including the attachment of trailers if necessary. The driver's license of each driver will be valid and kept current. Drivers must notify their supervisor of any medical, physical or psychological conditions that would impair their performance of driving tasks.

Authorized drivers will be prohibited from operating a motor vehicle while under the influence of any of the following that might impair their driving skills:

- Alcohol
- Illegal drugs
- Prescription or over the counter medications that may affect their driving ability

Authorized drivers will report to the appropriate personnel any of the following:

- Collision
- Traffic violation, or
- Near hit incident

Training

Drivers shall complete the required training prior to operating a vehicle. Personnel who drive while conducting work on behalf of E-Corp are required to successfully complete a driving safety course and assessment within six months of first commencing driving on work business. The refresher training and assessment shall be completed at least every three years thereafter.

Drivers shall attend an approved driving safety course which includes:

- Defensive driving,
- Driver distractions
- Driver tiredness/fatigue awareness
- Hands on driving, inspecting vehicles, and attachment of trailers.

Where assessments identify higher-risk drivers, the supervisor is responsible for confirming the re-training and re-assessment before the individual is allowed to drive on work business.

Additional specific driver training is required for the type of vehicle the work force is to operate. This includes the following vehicles and classes of vehicle:

- Any combination of vehicles with a GCWR of 26,001 or more pounds provided the GVWR of the vehicle(s) being towed is in excess of 10,000 pounds.
- Any single vehicle with a GVWR of 26,001 or more pounds, or any such vehicle towing a vehicle not in excess of 10,000 pounds GVWR.
- Any single vehicle that is either designed to transport 16 or more passengers, including the driver, or is transporting material that has been designated as hazardous under 49 U.S.C. 5103 and is required to be placarded under subpart F of 49 CFR Part 172 or is transporting any quantity of a material listed as a select agent or toxin in 42 CFR Part 73.
- Heavy Equipment including, but not limited to:
 - forklift
 - backhoe
 - bulldozer
 - excavators
 - front end loader
 - aerial lift
 - farm machinery
- Motorcycles/ATVs/Snowmobiles
- Attachment of trailers

Professional drivers shall successfully complete an on-road driving assessment as part of their recruitment/selection.

Professional drivers shall have a medical assessment. The assessment shall be performed and documented after the driver successfully completes the driving assessment portion of the training. If the professional driver does not pass the driving assessment because of a functional limitation, the driver shall then be referred to a medical doctor for a full evaluation. If a change in medical condition occurs that affects driving ability, the driver shall immediately inform the supervisor and cease operation of the vehicle until a medical re-assessment is conducted.

To confirm that professional drivers can maintain the functional capacity to safely operate vehicles, follow-up assessments shall be conducted at least every three years. The medical assessment for non-professional drivers consists of the respective state division of motor vehicles' assessment that is made during driver's license acquisition/renewal.

Safe Driving Practices

All authorized drivers will follow safe driving practices and safe driving behaviors to include but not limited to:

- Cell phone use is prohibited while driving
- Do not manipulate radios or other equipment which may cause a distraction
- Do not exceed the posted speed limit
- Maintaining a safe distance between other vehicles
- Do not exceed the occupant capacity of the vehicle
- Drivers must be rested and alert. Employees who are fatigued are prohibited from operating vehicles.
- All company vehicles shall have fully functioning seat belts installed and must be always worn by all occupants whenever the vehicle is in motion.

- Drivers of ATVs, snowmobiles, or other similar vehicles will always wear safety helmets while the vehicle is in motion.
- Secure all cargo prior to driving any motor vehicle.

Requirements for Light-vehicle Drivers

All E-Corp employees that drive on E-Corp business shall attend a tiredness management session and/or fatigue management training. The following requirements for working and driving will apply to light-vehicle drivers on E-Corp business:

- Stop driving if you are tired.
- Avoid driving during dusk and dawn hours on long trips.
- Adhere to the maximum length of driving time:
 - 14 hours work in a rolling 24 hours.
 - 60 hours work in a rolling seven days.
 - 10 hours driving per day maximum (excludes commuting time).
 - Stop every two hours for 5-15 minutes at a safe location.
- Take at least one 24-hour continuous break per rolling seven days.

On-Site Driver Training

On-Site Driver training is a training focused on slow speed driving on project sites. Topics covered in this training may include proper parking, use of mirrors, Circle of Safety 360° vehicle walk around, blind spots vs. blind zones, use of spotter while backing, hand signal requirements, proper connection of trailers, proper driving and backing with trailers, no cell phones while driving, avoiding distractions, 4 A's of Driving, and the STAR Self-Check. This training will be completed on an as needed basis but at a minimum every 3 years.

Communication Devices

Drivers shall not use mobile phones or other two-way communication devices while operating vehicles, except as required by regulation. This includes hands-free devices and applies to mobile phones and two-way radios in any vehicle while working.

Passive listening and response to operational emergencies using two-way radios is allowed. Operational emergencies comprise those situations that expose operational activities to immediate danger or require immediate attention due to significant adverse business impact.

Vehicle Requirements

All company vehicles will be fit for the purposes intended and will be maintained in a safe working order. Vehicles must be inspected before each use, including any attached trailers and hitching devices, to confirm proper working conditions. A Monthly Vehicle Inspection Checklist Form appears at the end of this section. Any malfunctions or other problems with the vehicle will be promptly reported to the appropriate person to ensure they are resolved.

When transporting loads, the load will be secured, and will not exceed the manufacturers load specifications, or the legal limits for the vehicle. All E-Corp vehicles operated while on owner client business shall be operated and maintained to the Vehicle Maintenance Standards or the owner client's defined standard.

Signs, stickers or labels are to be fitted in such a manner that they do not obstruct the driver's vision or impede use of any controls.

Motorcycle Use

Motorcycles are not used while on company business unless a documented risk assessment is completed to support the advantages of their use rather than automobiles.

ATV/UTV Use

All-Terrain Vehicles (ATV) or Utility Terrain Vehicles (UTV) will only be used when a documented risk assessment has been completed and it is determined they are the best method for use at the project. When ATV/UTVs are necessary for completion of work, the ATV/UTV Requirements document following this program will be followed to ensure personnel are properly trained in operation, use, and inspection procedures.

Risk Assessment

E-Corp shall systematically identify transportation hazards, assess risk, and implement and maintain plant, process, people and performance risk reduction measures as necessary to manage potential risks. In specific higher-risk countries risks of the journey shall be assessed and a journey risk management policy shall be in place. A current list of countries identified as high-risk geographies may be obtained from the World Health Organization.

Vehicle Maintenance Standards

Vehicle inspections, repair and maintenance are critical to the safe operation of motor vehicles. They are designed to reduce accidents, injuries and fatalities resulting from unsafe vehicles operating on the highways. Maintenance standards cover systematic maintenance, pre-trip/post-trip inspection reports and annual inspections. All drivers on owner client business must comply.

General Standards

- A driver is responsible for ensuring that they properly inspect, repair and maintain vehicles under their control.
- A motor vehicle may not be operated when its mechanical condition is likely to cause an accident or breakdown.
- Parts and accessories must always be in safe operating condition.
- A vehicle must be maintained according to the vehicle manufacture's recommended schedule, or an improved schedule based on actual operating conditions, and
- Push out windows, emergency doors and emergency door markings, and lights in buses must be inspected at least every 90 days.

Required Records

The driver must ensure the proper vehicle maintenance records are maintained. Each vehicle record must contain:

- Vehicle identification including company number, make, serial number, year and tire size. If the vehicle is leased, the person furnishing the vehicle must be identified.
- Due date and type of inspections and maintenance operations to be performed.
- A record of inspections and maintenance operations to be performed.
- A record of tests conducted on push out windows, emergency doors, and emergency door marking lights on buses.

Vehicle maintenance records must be retained where the vehicle is maintained for a period of one year and for six months after the vehicle leaves the driver's control.

The driver shall require a driver vehicle inspection to be completed at the end of each day's work on each vehicle operated. Weekly reports shall cover the following:

- Parking (hand) brake
- Steering mechanism
- Lighting devices and reflectors
- Horn
- Tires
- Windshield wipers
- Read vision mirrors
- Coupling devices
- Wheels and rims
- Emergency equipment
- Service brakes including trailer brake connections

The report shall identify the vehicle, any defect or deficiency discovered by the driver, which would affect the safety of the operation of the vehicle or result in its mechanical breakdown. If no defect is discovered the report shall so indicate. In all instances, the driver shall sign the report.

Prior to requiring or permitting a driver to operate a vehicle, the driver shall repair any defect or deficiency listed on the driver vehicle inspection report, which would likely affect the safety of operation of the vehicle. Every motor carrier or its agent shall certify on the original driver vehicle inspection report any listed defect that has been repaired or that repair is unnecessary before the vehicle is operated again. These reports shall be maintained for a period of three months.

Before driving a motor vehicle, the driver shall be satisfied that the vehicle is in safe operating condition, review the last driver vehicle inspection report; and sign the report if defects or deficiencies were noted by the driver who prepared the report, to acknowledge that the driver has reviewed it and that there is a certification that the required repairs have been performed.

The driver is responsible for ensuring that all inspections, maintenance, repairs and service to brakes of motor vehicles comply with these regulations.

Journey Management

It is the determination of E-Corp that road travel is a risk that is difficult to control. The follow Journey management guidelines are meant to reduce the risk of travel by vehicle

Road Travel Minimization

It is the policy of E-Corp that long road trips shall only be taken when the job calls for it. To improve safety and efficiency multiple tasks shall be combined into one trip to minimize the amount of driving.

Daylight Travel

It is the determination of E-Corp to ensure that all driving is done during daylight hours unless special circumstances call for driving at night. Daylight hours include 30 minutes before sunrise and 30 minutes after sunset.

If required to drive at night:

- Reduce the speed of the vehicle,
- Be aware of the potential for wildlife to be on the road

Adverse Weather

It is a requirement of E-Corp that employees must ensure that weather conditions are safe for driving prior to leaving on a trip.

Ensure the vehicle being used is adequate for the weather conditions.

Make sure emergency supplies are in the vehicle, and the driver has a cell phone in case of emergency.

In particularly harsh conditions, consider canceling or rescheduling the trip.

Driving Directions

Employees must have GPS or printed driving directions, prior to taking a trip to an unfamiliar location. Printed directions should be kept as a back-up, particularly in areas with limited cell phone service.

Driver Trip Itinerary

Employees must notify their supervisor or another individual who is not traveling with them of their travel plans. This includes where they are going, when they should be getting there, and when they plan to return.

Communication

Employees must always carry a cell phone, especially when traveling in rural areas.

Rest Breaks

Whenever operating a vehicle on E-Corp business, every employee shall be rested and alert and shall not operate any vehicle when overly tired or fatigued.

All drivers should take adequate rest breaks when driving, especially on long distance trips, to prevent the risk of becoming fatigued or overly tired. In addition, excessive hours spent travelling to and from work and while performing fieldwork can extend the length of the working day and reduce the time available for sleep and recovery.

It is the policy of E-Corp that employees take sufficient breaks to prevent fatigue when driving long distances. Generally, you should stop every 2 hours for a 15-minute rest break. If you have trouble staying awake while driving alone, pull off the road and get out of the vehicle for fresh air, or take a power nap. If you become fatigued while driving, consider getting a hotel room and starting fresh the next day. If two licensed drivers are in the vehicle, take turns driving. Get plenty of rest before beginning your journey.

All employees shall also comply with the Working Alone & Remote Travel and Fit for Duty and Fatigue Management Programs.

All-Terrain Vehicle / Utility Terrain Vehicle Requirements

All-Terrain Vehicle (ATV) - a vehicle that travels on low-pressure tires, with a seat that is straddled by the operator, along with handlebars for steering control. Most ATVs are for use by a single operator and no passenger and used to carry only those amounts of cargo that do not exceed the manufacturer's limits for the front and rear racks.

Utility Terrain Vehicle (UTV) – for the purposes of this Program a UTV is referring to a small 2- to 6-person four-wheel drive off-road *vehicle*. Sometimes referred to as a side by side, a recreational off-highway *vehicle*, or a multipurpose off-highway *utility vehicle*. UTVs are designed to carry passengers and many UTVs are designed to carry additional cargo in the back.

Prior to using an ATV/UTV on an E-Corp project, a hazard assessment will be completed following the Risk Assessment Program.

Terrain and Operating Conditions

At times, E-Corp may elect to use ATV/UTVs because they enable employees to traverse rough terrain and get to remote locations. It is very important that operators drive at a safe speed to accommodate the changing terrain (rocks, logs, ditches, and other obstacles) and to reduce the risk of overturning or rolling over the ATV/UTV. A site speed limit is required to ensure operators drive at low speeds.

ATV/UTVs are specifically designed for off-road use and are not intended to be driven on concrete or paved roads.

Load Limitations and ATV/UTV Modification

ATV/UTVs are engineered for certain operating conditions and for handling specific loads. Modifications to an ATV/UTV may alter its performance and increase the potential for an accident. Any modification to an ATV/UTV should be performed only after obtaining approval from the manufacturer. Modification includes the use of after-market products that are sold as accessories. ATV/UTV drivers should read the operator's manual to understand the limitations of the ATV/UTV.

The cargo (front and rear racks) and passenger weight limits of an ATV should not be exceeded because it affects the ATV's maneuverability and performance.

Many ATVs are not typically designed to carry passengers, and a common mistake made by ATV operators is to allow a passenger on their ATV. A passenger can impair the safe operation and maneuverability of the ATV and the additional passenger weight may exceed the manufacturer's weight limit for the ATV.

Units that are made for carrying passengers such as side by side UTVs will always be operated within the manufacturer recommendations. Seatbelts shall be used in UTVs that have seatbelts.

ATV/UTV Operator Qualifications and Training

Inexperienced drivers face a higher risk of incident and injury according to injury statistics. The often-severe terrain and operating conditions, along with the unique handling of ATV/UTVs, necessitate proper training, practice, and experience. E-Corp will:

- Provide instruction and hands-on training on safe handling and operation of ATV/UTVs.

- Ensure that employees are competent in operating their specific ATV/UTV under the variety of conditions in which they will be driving.
- Ensure that all likely ATV/UTV drivers have reviewed and understand the operator's manual.

E-Corp may choose to use a state-specific Off-Highway vehicle training course as part of the operator qualification. Hands on training is also required.

Personal Protective Equipment

Personal protective equipment is required when operating ATV/UTVs. Due to potential rollover hazards, the following PPE is required in addition to normal work PPE required by E-Corp:

- DOT-approved helmet
- Appropriate boots
- Gloves
- Goggles
- Seatbelts (in UTVs that have seatbelts)

ATV/UTV Maintenance/Inspections

Like any piece of workplace machinery, ATV/UTVs must have regular maintenance. E-Corp must follow the manufacturer's recommended maintenance schedule. In addition, the vehicle operator is responsible for completion of a pre-ride inspection. Tire condition, braking, steering, and suspension systems are all critical to safe operation. Your ATV/UTV manufacturer may have an inspection checklist that is specific to the type of ATV/UTV you are using. General inspection requirements include the T-CLOC system.

T-CLOC stands for Tires and Wheels, Controls and Cables, Lights and Electrics, Oil and Fuel, Chain/Driveshaft and Chassis.

T-CLOC Inspection System		
T	Tires and Wheels	<ol style="list-style-type: none"> 1. Air pressure – Always maintain the recommended tire pressure. Incorrect pressure can cause poor handling and tire or wheel damage. To measure pressure (usually 2 to 6 psi), you'll need a low-pressure gauge; automotive tire gauges are not accurate for use on ATV/UTVs. 2. Condition – Check for cuts or gouges that could cause air leakage. 3. To avoid loss of control or injury, make sure axle nuts are tight and secured by cotter pins, and make sure wheel nuts are torqued properly.
C	Controls and Cables	<ol style="list-style-type: none"> 1. Controls – Ensure all controls work smoothly. 2. Throttle and other cables – Ensure the throttle moves smoothly and snaps closed with the handlebars in any position. Ensure the throttle limiter (if equipped) is adjusted appropriately for the rider. 3. Brakes – Ensure the controls operate smoothly and are adjusted (engagement point and position of controls) according to the owner's manual. Your brakes are a crucial safety feature and must always be in excellent working condition. 4. Foot shifter – Ensure it is firmly attached and positioned for safe operation.
L	Lights and Electrics	<ol style="list-style-type: none"> 1. Ignition switch – Check the condition of the switch and make sure it works properly by switching it off and on during your warm-up period.

T-CLOC Inspection System		
		<ol style="list-style-type: none"> 2. Engine stop switch – Ensure it turns off the engine. 3. Headlight and taillight (if equipped) – Check operation and condition of the lights.
O	Oil and Fuel	<ol style="list-style-type: none"> 1. Know your ATV/UTV’s cruising range. Start your ride with a full tank of gas. 2. Check oil level with dipstick or sight glass while the engine is off. Check your owner’s manual for procedure. 3. Check for fuel or oil leaks. 4. Take off the air filter cover and check the condition of the filter element. Be sure it is clean and not torn or blocked.
C	Chain/Driveshaft and Chassis	<ol style="list-style-type: none"> 1. Chain – Inspect, adjust and lubricate the chain regularly. Your chain is the vital link from the engine to the wheels. Ensure chain slack is within specifications as described in your owner’s manual. 2. Drive shaft – If your ATV/UTV is equipped with a drive shaft rather than a drive chain, check for oil leaks. Maintain its oil supply as outlined in your owner’s manual. 3. Nuts & bolts – Riding in rough terrain will loosen parts. Look and feel for loose parts while the engine is off. Shake handlebars, footrests, etc., before each ride and periodically check fasteners.

Other Considerations

ATV/UTV manufacturers sometimes issue product recalls to replace, modify, or repair faulty products. The Consumer Product Safety Commission (CPSC) maintains copies of ATV/UTV recalls, which may be accessed on the CPSC's website at <http://www.cpsc.gov>. When a recall is issued by a manufacturer, E-Corp will follow the instructions or guidance in the notice to ensure that their ATV/UTVs are maintained in proper operating condition.

Three-wheel ATVs will not be used by E-Corp employees.

E-CORP employees will follow all applicable state laws regarding ATV/UTV use. This includes laws prohibiting ATV/UTV operation on public roads, age and registration requirements, and requirements for operators to wear a protective helmet while operating an ATV/UTV.

ATV/UTV Rules

The following rules will apply to use of ATV/UTV’s for E-CORP Company Business:

- All operators will always wear DOT approved protective helmets when operating ATV/UTVs.
- Whenever possible based on site specific conditions, E-Corp will use UTVs with rollover protection systems.
- Ensure ATV/UTV drivers have had adequate training on the equipment they will use.
- Ensure that all likely ATV/UTV drivers have reviewed and understand the operator’s manual.
- Ensure that all manufacturer’s warnings are followed and that drivers review and understand them.
- Do not permit ATV/UTV drivers to carry passengers unless the vehicle is designed for passenger use.

- Ensure that a pre-ride inspection of the ATV/UTV is performed, using the T-CLOC inspection system or manufacturer recommendations.
- Ensure that ATV/UTV drivers report any damage or mechanical failures so that repairs can be made.
- Ensure that drivers wear proper helmets and boots. Where conditions require, ensure the use of goggles, gloves, and other safety clothing.
- ATV/UTV use is prohibited in designated areas, such as on paved or public roads and in areas with high vehicular or heavy equipment traffic.
- Ensure that employees drive at appropriate speeds to allow for avoidance of potential hazards and the speed is appropriate for the type of terrain (e.g., mud, snow, ditches, gravel, etc.). Only slow speeds will be allowed on project sites.
- Ensure that employees and all contractors using ATV/UTVs are aware of any site-specific hazards, such as excavations, trenches, and areas where ATV/UTV use is prohibited.
- Follow the maintenance program for all ATV/UTVs that meets the manufacturer's recommendations to ensure proper ATV/UTV performance.
- Ensure that employees only haul items on the ATV/UTV in accordance with the manufacturer's specifications and never exceed the weight limit.
- Ensure loads are evenly distributed.
- Do not allow modification of ATV/UTVs without approval from the manufacturer.
- Monitor manufacturer's recalls and ensure prompt action when a recall is issued for your ATV/UTV(s).

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/08/21
02	Stacy Maxfield	Annual Review/Update	09/20/22



Monthly Vehicle Inspection Report

Date _____

Driver _____

State _____

License _____

Year _____

Make & Model _____

VIN# (last 5 digits) _____

Current Mileage _____

Mileage of Last Oil Change _____

Please check each item. If defective, give details under remarks.

- Battery- check for leaks, acid build up on cables & connectors
- Brakes- check for soft or mushy pedal, or noisy when braking
- Horn
- Lights: Headlights, brake lights, turn signals
- Mirrors
- Engine Oil Level
- Radiator; check for leaks
- Tires: check for proper inflation, wear, (rotate every 5,000 miles)
- Transmission; check for slipping, leaks, noise
- Windshield; check for rock chips & cracks
- Wipers
- Clean; Interior & Exterior
- Registration Current; Expiration Date _____
- Insurance Card
- Special Equipment; trailer hitch, trailer wire plug

Remarks:

I certify that I have personally inspected the above listed items and have not observed any defects that would impair the safe operation of the vehicle. Contact Mike Watkins for any needed repairs.

Driver Signature _____

RM/Manager Signature _____



Fleet Maintenance Schedule

E-Corp Fleet Maintenance Schedule										
Mileage	15K	30K	45K	60K	75K	90K	100K	105K	120K	135K
Air Filter	X	X	X	X	X	X		X	X	X
Fuel Filter*		X		X		X			X	
Spark Plugs*				X			X			
Transmission Fluid*				X					X	
Engine Coolant*							X			
Oil changes & tire rotation/balance every 5,000 miles										
*may vary by vehicle & driving conditions										

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Fall Protection Program

Purpose

E-Corp has implemented this practice to ensure that proper safe work practices and procedures are followed to protect employees from fall hazards. The following OSHA regulations are applicable:

- §1926 Subpart M –**Fall Protection**
- §1926 Subpart L – **Scaffolds**
- §1926 Subpart X –**Stairways and Ladders**

The following work practices, procedures, and engineering controls will be enforced as an integral part of our Company Safety Policy:

- E-Corp will provide at no cost to employees fall protection such as guard rails, safety nets, or personal fall arrest systems whenever employees are potentially exposed to falls to lower levels from heights of six feet or greater. This includes work near and around excavations. Exception: When the standard methods of protection are not feasible, or a greater hazard would be created. Scaffolds, ladders, or vehicles will only be used when appropriate fall protection is in place.
- All accidents and serious incidents involving E-Corp employees will be reported immediately to the supervisor for the work location. All accidents/incidents will be investigated under the guidelines of the E-Corp Incident Investigation Program. Changes will be implemented to the Fall Protection Plan as necessary.

Training Requirements

The E-Corp Health and Safety Manager will ensure that all employees who participate in work where fall hazards are present are trained in recognition of fall hazards, fall protection procedures, equipment, and work practices. Written certification records will be maintained showing who was trained, types of training, dates of training, signature of person providing training, and the date training was determined to be adequate.

Employees will be certified upon completion of training in the following areas:

- The nature of fall hazards in the work area.
- The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used.
- The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, personal fall restraint systems, slide guard systems, positioning devices, and other protection to be used.
- The role of each employee in the safety monitoring system when this system is used.
- The limitations on the use of mechanical equipment during the performance of roofing work.
- The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection.
- The role of employees in the fall protection work plan.

Employee re-training in fall protection will be provided when:

- Previous training is deemed deficient.
- Changes in work environment occur which would necessitate additional training.
- Changes in fall protection equipment or systems occur.
- Employee is observed applying unsafe work practices.

Roles and Responsibilities

Health and Safety Manager

The Health and Safety Manager (HSM) will ensure that all employees who participate in work where fall hazards are present follow the requirements of this program. In the scope of this practice, the following responsibilities for the HSM are applicable:

- Managing and supervising the Fall Protection Program.
- Communicating with employees regarding the presence of other operations on site.
- Identifying and managing the risks associated with work activities.
- Designating the competent person of the fall protection program for E-Corp employees and will specify a fall protection system for each worksite.

Site Safety and Health Officer

In the scope of this practice, the Site Safety and Health Officer (SSHO) completes and authorizes a Fall Protection permit. The SSHO shall:

- Communicate with the HSM and the site workforce.
- Identify and manage the risks associated with work activities.
- Supervise implementation of the fall protection system and inspect the system prior to use.
- The SSHO shall review and sign the prepared permits.
- By signing the permit, the SSHO authorizes the work to proceed and accepts responsibility for preparing the equipment for the scope of work that is described in the permit.
- The SSHO then submits the document to the HSM.
- Confirm that everyone working under a specific permit adheres to the permit's documented conditions.

E-CORP Workforce

In the scope of this practice, the workforce shall:

- Adhere to the requirements of the Fall Protection program.
- Adhere to the Golden Rule of Safety when working at heights.
- Follow the stop work authority anytime an unsafe condition is present on site.

Description and Requirements

Golden Rule of Safety – Working at Heights

The Golden Rule of Safety for Working at Heights states that working at heights of 2 meters (6 feet) or higher above the ground without a fixed platform that has guard rails or handrails must not proceed unless:

- A properly anchored fall arrest system is used.
- The fall arrest system ensures 100% tie-off is always achieved.
- A plan is in place for the timely rescue of personnel performing work at height while using fall arrest equipment.
- Fall arrest equipment is inspected prior to each use.
- The risk of dropped objects on personnel and equipment below has been assessed and plans to manage the risks established.

Site Specific Fall Protection Plan

When applicable, a Site-Specific Fall Protection plan will be completed on a project specific basis. This plan will be written by a qualified person and address all fall potential at the specified project. The plan will be maintained and updated as applicable and specify the name of the qualified person who wrote it, their title, and qualifications. The E-Corp Fall Protection Permit will be a part of the site-specific fall protection plan and is located at the end of this Program.

Minimize Fall Exposure

Fall prevention requires assessing the workplace and work processes to identify fall hazards that cannot be eliminated. E-Corp shall attempt to prevent falls by improving the workplace. Avoid relying on an employee's behavior or fall-arresting equipment to prevent injuries. Early installation of stairs, guardrails, barriers, and travel-restriction systems can provide a safe work environment. Establish proper workplace positioning and help eliminate the fall. All equipment used for fall protection will meet all industry regulations and standards.

For General Industry, every wall opening from which there is a drop of more than 4 feet shall be guarded. For Construction Industry each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet or more above a lower level shall be protected from falling using guardrail systems, safety net systems, or personal fall arrest systems.

Free-Fall Limits

A free fall shall never be greater than 6' (1.83m). Wearing the correct equipment, including a full-body harness with an accompanying energy absorber, will prevent arresting forces from exceeding the rating required by local legislation. Fall protection shall be rigged to limit free fall distance. Fall protection will always be required for employees working at heights of 6 feet or above. The fall protection system used will be appropriate for the specific work location or situation where it is required following the guidelines of §1926.502.

Wherever there is a likelihood of a free fall greater than 2' (0.61m), a full-body harness and energy absorbing lanyard shall be worn.

NOTE: Hazard identification and risk assessments shall be performed when working at any height, as falls from heights lower than 6' can also cause serious injury.

Personal fall arrest systems, when stopping a fall, will:

- Limit maximum arresting force on an employee to 1,800 pounds when used with a body harness.
- 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.
- Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet.
- Have sufficient strength to withstand twice the potential impact energy of an employee free falling 6 feet, or the free fall distance permitted by the system, whichever is less.

Dangerous Areas

Anytime an area contains hazardous conditions, it will be barricaded to prevent unauthorized or accidental entry. This includes an area where a person could unexpectedly encounter fall potential of 6' or greater. This also includes areas where items could fall from height. These

danger zones shall be barricaded and marked for authorized entry only.

Guardrails

Provide guardrail systems, when feasible where a fall hazard of 6 feet or greater in construction or 4 feet or greater in General Industry exists. Where guardrail systems are impractical, an alternative form of fall protection must be provided.

Guardrail systems must meet the following criteria:

- A standard guardrail shall consist of top rail, mid-rail or equivalent protection, and posts, and shall have a vertical height within the range of 42 inches to 45 inches from the upper surface of the top rail to the floor, platform, runway, or ramp level. Top rails must be capable of withstanding, without failure, a minimum force of 200 pounds in any outward or downward direction with no more than 3 inches of deflection.
- Mid-rails must be installed midway between top rail and toe board, and be capable of withstanding, without failure, a minimum force of 150 pounds in any outward or downward direction.
- The ends of the rails shall not overhang the terminal posts, except where such overhang does not constitute a projection hazard.
- Guardrails shall be designed for a live load of 20 pounds per linear foot applied either horizontally or vertically downward at the top rail.
- Ensure all guidelines for guardrails are followed based on the type of material the railing is made of.

Personal Fall-arrest Systems

All personal fall arrest systems will meet ANSI Standards for the specific system in use. Systems must meet the requirements in ANSI A10.14 American National Standard for Construction and Demolition Use or ANSI Z359.1 American National Standard Safety Requirements for Personal Fall Arrest Systems, Subsystems, and Components. The following provisions apply to personal fall arrest systems and their use:

- A permanent fall arrest system shall be installed where a work activity or procedure is considered scheduled maintenance (e.g., a task that is repeated at regular intervals up to 12 months apart) if the work is to occur within 6' (1.83m) of an exposed edge. (Refer to local inspection requirements.) Unscheduled tasks can be conducted using a temporary fall-arrest system.
- Body belts are not acceptable as part of a personal fall arrest system. However, the use of a body belt in a positioning device system is acceptable.
- The attachment point of the body harness shall be in the center of the wearer's back near shoulder level or above the wearer's head.

Positioning System

Positioning device systems will be rigged such that an employee cannot free fall more than 2 feet, will be inspected prior to each use for wear, damage, and other deterioration, and defective components shall be removed from service. Non-locking snap hooks are prohibited. Anchorage points for positioning device systems shall be capable of supporting two times the intended load or 3,000 pounds, whichever is greater.

Connectors

- Connectors shall be drop-forged, pressed or formed steel or made of equivalent

materials.

- Connectors shall have a corrosion-resistant finish, and all surfaces and edges shall be smooth to prevent damage to interfacing parts of the system.

D-rings and Snap hooks

- D-rings and snap hooks shall have a minimum tensile strength of 5,000lbs (22.2kN).
- D-rings and snap hooks shall be proof-tested to a minimum tensile load of 3,600lbs (16kN) without cracking, breaking, or taking permanent deformation.
- Snap hooks shall be a locking-type snap hook designed and used to prevent disengagement of the snap hook, which may occur when the connected member has contact with the snap hook keeper.
- Snap hooks shall not be engaged unless they are a locking type and designed for the following connections:
 - Directly to webbing, rope, or wire rope.
 - To other snap hooks.
 - To a D-ring to which another snap hook or other connector is attached.
 - To a horizontal lifeline.
 - To any object that is incompatibly shaped or dimensioned in relation to the snap hook such that unintentional disconnection may occur.

Lifelines

On suspended scaffolds (or similar work platforms with horizontal lifelines that may become vertical lifelines), the devices used to connect to a horizontal lifeline shall be capable of locking in both directions on the lifeline.

- Horizontal lifelines shall be designed, installed, and used under the supervision of a qualified person as part of a complete personal fall-arrest system that maintains a safety factor of at least two.
- Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000lbs (22.2kN).
- When vertical lifelines are used, each person shall be attached to a separate lifeline.
- Lifelines shall be protected against cuts or abrasions.
- Self-retracting lifelines and lanyards that automatically limit free-fall distance to 2' (0.61m) or less shall be capable of sustaining a minimum tensile load of 3,000lbs (13.3kN) applied to the device with the lifeline or lanyard in the fully extended position.
- Self-retracting lifelines and lanyards that do not limit free-fall distance to 2' (0.61m) or less, rip stitch lanyards, and tearing and deforming lanyards shall be capable of sustaining a minimum tensile load of 5,000lbs (22.2kN) applied to the device with the lifeline or lanyard in the fully extended position.
- Ropes and straps (webbing) used in lanyards, lifelines and strength components of body belts and body harnesses shall be made from synthetic fibers.

Anchorage

Anchorage for personal fall-arrest equipment shall be independent of any anchorage used to support or suspend platforms. Anchorages shall be capable of supporting at least 5,000lbs (22.2kN) per person attached or shall be designed, installed, and used as a part of a complete personal fall-arrest system that maintains a safety factor of at least two and under the supervision of a qualified person.

Operation and Rescue

When stopping a fall, personal fall-arrest systems shall:

- Limit the maximum arresting force on a person to 1,800lbs (8kN) when used with a body harness.
- Be rigged such that a person can neither free fall more than 6' nor contact any lower level.
- Bring a person to a complete stop and limit maximum deceleration distance a person can travel to 3.5'.
- Have sufficient strength to withstand twice the potential impact energy of a person free falling 6' or the free-fall distance permitted by the system, whichever is less.

The SSO will verify (confirm and document) for prompt rescue of employees in the event of a fall or will assure the employees are able to rescue themselves. All materials and equipment purchased and used at E-Corp for fall protection will comply with ANSI and ASTM standards required for that material or equipment. Fall arrest equipment shall only be used as a last resort due to the difficulty of a timely rescue. Temporary access and fall restraint or arrest equipment must be suitable for the intended use and shall be taken out of use in case of damage. New fall arrest equipment shall be provided before a new work task commences.

Body Belts

Body belts shall not be used to hoist materials or for fall arrest. They shall only be used for personnel protection as part of a positioning-device system.

The attachment point of the body belt shall be in the center of the wearer's back. Body belts shall be at least 1-5/8" (4.1cm) wide.

Inspection

Personal fall-arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for protection of personnel until inspected by a competent person and determined to be undamaged and suitable for reuse.

Personal fall-arrest systems shall be inspected prior to each use for wear, damage and other deterioration, and defective components shall be removed from service. Use the E-Corp Fall Protection Inspection Checklist to document this inspection.

Personal fall-arrest systems shall not be attached to guardrail systems, nor shall they be attached to hoists.

When a personal fall-arrest system is used at hoist areas, it shall be rigged to allow the movement of the personnel only as far as the edge of the walking/working surface.

Emergency Response

An appropriate emergency rescue plan shall be in place for the rescue of a fallen person in an emergency as follows:

- Rescue within five minutes shall be confirmed. For most work, this shall necessitate a full-time safety watch.
- If a rescue cannot be performed within five minutes, the fall-arrest system shall have a device that automatically lowers the person to the ground safely.
- If compliance with the above cannot be achieved, a safe and alternative working procedure shall be used.
- Emergency rescue procedures shall consider the need for:
 - A plan and time frame to carry out the rescue.

- The immediate rescue of a person after an arrested fall without the need to rely on emergency services or appropriately trained and competent standby rescue teams as detailed in the Emergency Response Plan.

Preventing Suspension Trauma

- Workers shall never work alone when using a harness for fall protection.
- Suspension-trauma safety straps shall be used. They are an effective way to prevent the effects of suspension trauma after a fall because they allow the worker who is suspended to stand up in the harness to relieve pressure.
- Workers spending time hanging in a harness shall use a 'sit-type' harness, which allows legs to be kept at least partially horizontal.
- The length of time a worker spends in suspension after a fall should be limited to five minutes. When suspension is longer than five minutes, foothold straps or a way of placing weight on the legs shall be provided.
- Workers shall try to use their legs and push against any footholds when these movements are possible.
- Workers shall try to place the legs as high as possible and the head as horizontal as possible.
- Harnesses shall be selected for specific applications with consideration given to comfort, potential injuries, and suspension trauma.
- If a person falls, he or she shall be moved by a person who is trained in rescue procedures from suspension in stages. (i.e., the procedure should take 30-40 minutes with the victim moved first into kneeling position, then sitting and finally horizontal; sudden movement to a horizontal position can be potentially fatal).

Accessing Heights Above 6'

A Site-Specific Fall Protection Work Plan must be completed at each E-Corp job site where workers will be accessing heights greater than 6'. This Fall Protection Work Plan must be developed by a qualified person.

Working Within 6' of an Exposed Edge

An exposed edge is any edge from which a fall of over 6' (1.83m) can occur. Whenever work is to occur within 6' (1.83m) of an exposed edge (e.g., working within 6' [1.83m] of a roof edge or edge of excavation), a fall-arrest system shall be installed and used.

Parapets or handrails along exposed edges shall be at least 42" (106.7cm) high. Handrails shall have toe (fender) boards and intermediate rails to prevent personnel from sliding underneath the top rail.

ANSI approved personal fall arrest, personal fall restraint, or positioning systems must be worn by employees whose work exposes them to falling more than 7.5 feet from the perimeter of a structure, unprotected sides or edges, leading edges, through shaft ways and openings, sloped roof surfaces steeper than 7:12, or other sloped surfaced steeper than forty (40) degrees not otherwise adequately protected.

When Controlled Access Zones are used to control access to areas where leading edge and other operations are taking place, the controlled access zone must be defined by a control line or other means that restrict access such as barricades or barriers.

Accessing Heights with Elevated Work Platforms

Numerous methods and types of equipment are used to lift people off the ground to enable

access to heights and safely conduct work. These are typically referred to as Elevated Work Platforms (EWP), which can be mobile or fixed. Types of EWPs include personnel or man baskets, personnel lifts, scissor lifts, articulated-boom lifts, and telescopic-boom lifts. Refer to the E-Corp Powered Industrial Truck Program for details.

Safety Monitoring System

E-Corp will implement a safety monitoring system where no alternative measure is feasible. In the event a conventional fall protection system is deemed inappropriate, the SSO will designate the work area a controlled access zone and will assign a Competent Person to monitor the safety of other employees and will ensure that the safety monitor complies with the following requirements. The assigned safety monitor will:

- Be competent to recognize fall hazards.
- Warn the monitored employee(s) when it appears they are unaware of a fall hazard or is acting in an unsafe manner.
- The safety monitor shall be on the same walking/working surface and within visual sighting distance of the employee(s) being monitored.
- The safety monitor shall be close enough to communicate orally with the employee(s) being monitored.
- The safety monitor will have no other responsibilities that could take his/her attention from the monitoring function.
- The safety monitor will comply with the Fall Protection Plan

Scaffolding

Prior to use of scaffolding on a job site, a scaffolding competent person that meets applicable regulatory requirements must be designated who will be responsible for the following activities throughout the duration of the project:

- Design
- Erection
- Moving
- Dismantling
- Certification for use

Scaffolding shall be erected by competent persons in accordance with local legislative or regulatory requirements. Routines for certification, inspection and documentation shall be established wherever scaffolding takes place. All scaffolding work shall be subject to these routines, and a skilled scaffolder shall approve it. An inspection shall be performed in compliance with local regulations.

General

Prior to use of scaffolding each day, an inspection of the scaffolding must be completed for unsafe conditions, missing or broken parts, etc. by a competent person who has been trained in scaffold erection and use.

- Prior to use, certification that scaffold components can support at least 4 times the intended load must be obtained.
- Scaffolds shall be plumb and level.
- Standard guardrails and toe boards must be present on all open sides of the scaffold.
- The platform must be tightly planked for the full width of the scaffold.
- Planks must extend over the end supports between 6 inches and 12 inches.
- Cleats must be used on the bottom edges to prevent slippage.

- Planking must be scaffold grade (planks must be stamped on the end).
- Scaffold must be adequately tied into structure.
- Climbing on frame members or braces for access is prohibited.
- An access ladder or equivalent safe access shall be provided.
- Where a built-in ladder is part of a scaffold system, it shall conform to the requirements for ladders.
- Legs or uprights of scaffolds must be plumb and rigidly braced to prevent swaying.
- Overhead protection must be provided on scaffolds exposed to overhead hazards.
- Shore or lean-to scaffolds should never be used.
- When a scaffold materially changes its direction, the platform planks shall be laid to prevent tipping.
- Work platforms shall be securely fastened to the scaffold.
- When the scaffold height exceeds four times the minimum scaffold base dimension (including the width added by outriggers, if used), the scaffold shall be secured to the wall or structure.

Work Practices

- Scaffolds shall be cleaned off upon completion of work by the personnel using the scaffold.
- A toe board should never be used to aid access to a working platform. Grab bars should be used instead.
- Require that tools, materials, and debris do not accumulate in quantities that create a hazard.
- Remove any snow, ice, or slippery conditions prior to access by employees.
- Prohibit scaffold use during high winds and storms.
- Modifications or alterations are to be performed only by competent persons.
- Competent persons who have been trained in scaffold erection and use shall inspect scaffolding daily prior to use.
- If any deficiencies are found during inspection, access to scaffolds must be denied until all deficiencies are corrected.

Specific Scaffold Requirements

Scaffolds and their components must be designed and constructed in accordance with all applicable regulations, including OSHA 29 CFR 1926, EM 385 1-1, and ANSI A10.8, Scaffolds. Refer to these standards for the specific type of scaffolding to be used.

Handrails, Mid-rails and Decking

To eliminate fall exposure, scaffolds shall have complete handrails, mid-rails and decking.

Fall-arrest equipment shall be used only as a last resort as a substitute for complete handrails, mid-rails and decking. Never use cross braces as substitutes for handrails or mid-rails.

Erecting, Modifying and Dismantling Scaffolds

Only trained workers under the supervision of a competent person may erect, modify, or dismantle scaffolds. Unauthorized workmen are subject to disciplinary action for modifying scaffolding.

Fall-arrest systems shall be used while erecting, modifying, or dismantling scaffolds.

Before erecting and during dismantling scaffolds, trained scaffold craftsmen shall inspect that all components are straight and free from bends, kinks, dents, and severe rusting. Components found with defects shall be discarded and replaced immediately.

Footing or Anchorage

The footing or anchorage for all scaffolds shall be sound, rigid, and capable of supporting the loaded scaffold without settling or displacement.

The total load on a scaffold base consists of the sum of the weight of the workers, tools, equipment, and materials on a scaffold added to the weight of the scaffold.

All welded tubular frame scaffolds must be equipped with 6" (15.2cm) x 6" (15.2cm) minimum steel base plates with an internal fixing spigot.

Barrels, boxes, kegs, loose bricks, concrete blocks or similar unstable objects shall never be used as work platforms or to support scaffolds.

Adjusting Screws

Install adjusting screws only between the baseplate and the vertical frame section. When installing adjusting screws:

- Never use adjusting screws together with casters. Rolling scaffolds need to be leveled.
- Do not extend adjustment screws beyond 12".

When the height of a scaffold exceeds three times the smallest width of the base, secure it to the building or structure at every other lift and every 30' (9.1m) horizontally.

Scaffold-working Platforms

Equip scaffold-working platforms with 42" high handrails, mid-rails and toe boards and secure rigidly.

Working platforms should be completely decked with safety planks, manufactured scaffold decking, or laminated wooden planks.

All scaffolds shall be at least two planks wide. No personnel may work from a single plank. Scaffold planks shall be secured from movement using #9 wire or the equivalent.

Scaffold Ladders

Access ladders shall be provided for each scaffold.

Climbing off the end frames is prohibited unless their designs incorporate approved ladders. To allow access to the working platform in this manner, the ladder built into the end frames may be used if uniform rung spacing between frames can be achieved.

Tube frames that do not provide uniform rung spacing shall be equipped with offset ladders for platform access. When portable straight or extension ladders are used for access to tube-and-coupler scaffolds, the proper four-vertical-units-to-one-horizontal-unit slope shall be maintained to avoid a horizontal tube interfering with the use of the ladder.

Ladders used for access to a scaffold shall also extend at least 3' above the landing. Scaffold users should be able to step off the scaffold-access ladder directly onto the working platform. Entry gates shall be installed on scaffolds to eliminate the need for users to climb over handrails.

If scaffolds are incomplete (which is indicated by a yellow tag), a hand hold above the platform elevation shall be provided to allow a safe transition from the access ladder to the working platform. (Refer to Identification Tagging below for the definition of a yellow tag). Toe boards do not qualify for this requirement.

Scaffolds shall not be loaded more than their rated capacity. Materials should be brought up as needed.

Where persons are required to work or pass under a scaffold, a screen of 18-gauge, ½" wire mesh is required between the toe board and the guardrails.

Rolling Scaffolds

The following requirements apply to the use of rolling scaffolds:

- All caster brakes shall be locked when the scaffold is not in motion.
- Remove all loose materials and equipment from the deck before moving a scaffold.
- When moving the rolling scaffolds:
 - Get assistance.
 - Verify that the route is clear of obstructions.
 - Watch for holes and overhead obstructions.
- No one is allowed to ride on rolling scaffolds.
- Re-level the scaffold after each move.

Suspended Scaffolds

Approved personal fall protection is required for all occupants of a suspended scaffold. Suspended scaffolds shall be anchored to a fixed, safe point of anchorage, which shall be independent of the scaffold and protected against sharp edges and abrasion. All suspended scaffolds or platforms shall be equipped with a separate vertical lifeline anchored independent of the scaffold system. Workers shall tie off onto this lifeline.

Overhead Protection

Overhead protection is required if personnel are working on scaffolds exposed to overhead hazards. Such protection shall be a 2" plank or the equivalent.

Scaffold Inspection

Scaffolding shall be inspected and tagged after erection or modification by a competent person. Scaffolding shall be inspected at the beginning of each shift by a designated competent person.

Inspection shall include these components at a minimum:

- Foundation or mudsill for stability.
- Missing and/or damaged handrails, mid-rails, cross-bracing and steel tubing.
- Weld zones on the scaffold frame for cracks.
- The ends of tubing for splits or cracks.
- Manufactured decks for loose bolts or rivet connections and bent, kinked, or dented frames.
- Plywood surfaces for softening due to rot or wear and for peeling at the edges.
- Safety planks for rot, cracks, cuts, and other external damage.
- Tie rods or bolts and angle iron cleats.
- Cams, springs, threaded connections, toggle pins or other quick-connecting devices.
- Casters for rough rolling surfaces, 'sticky' swivels and defective locking mechanisms.

- Cups/rings/rosettes, wedge pins and other system-scaffold components.

The competent person inspection and the daily inspection shall be documented by signatures in the spaces provided on the back of the scaffold tag.

Identification Tagging

All scaffolds shall be tagged to properly identify their usage and in accordance with a color-coded system as follows:

- Green Tag – Signifies that the scaffold was built to meet scaffolding regulations and is complete and safe to use.
- Yellow Tag – Signifies that the scaffold was not built to meet scaffolding standards and adequate fall protection is required.
- Red Tag – Signifies that the scaffolding is incomplete and/or unsafe. It shall not be used except by personnel erecting/modifying/dismantling scaffolding under the supervision of a competent person.

NOTE: Scaffolding should be used to access areas that are protected by a fall-arrest system and should be part of a fall-arrest system.

Selecting Fall Protection Equipment for Scaffolds

Prior to selecting fall protection, a hazard identification and risk assessment shall be performed to identify the hazards associated with specific tasks. The Site-Specific Fall Protection Work Plan shall then be used to select the appropriate fall protection that will be used. Additional information pertaining to fall protection equipment and procedures is presented in the following sections:

Scaffold Training

- Training of all employees that work on scaffolds is conducted by "Qualified" persons.
- Each E-Corp employee who performs work erecting, disassembling, moving, or working with scaffolds in any way is trained under the supervision of the SSHO. The SSHO will designate qualified personnel as the Competent Person for each E-Corp project, to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards.
- Retraining is required when scaffold application, type of scaffold used, or when job conditions change.
- The training program, at a minimum, addresses the following hazards:
 - Assessment of any electrical hazards, fall hazards, and falling object hazards in the work area.
 - The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the scaffolding and fall protection systems and falling object protection systems being used.
 - Proper use of the scaffold, and the safe handling of materials on the scaffold.
 - Maximum intended loads and the load carrying capacities of the scaffolds used.
 - The nature of scaffold hazards.
 - The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold being used.

- The design criteria, maximum intended load carrying capacity, and intended use of the scaffold.
- Any other safety topics deemed pertinent to the worksite, scaffold system, or fall protection systems being used.
- Unsafe equipment or conditions will be tagged out by the SSHO, and mandatory employee compliance is required. Instructions for and examples of tagging systems used by E-Corp are provided to all employees.
- All scaffolding systems, components, and fall protection systems used will be inspected by the SSHO or other designated competent person prior to use, before each work shift begins, after erecting or moving, and periodically through the workday to ensure the system is erected properly, that there is no damage to components of the system, and that the system is being used properly and safely.
- Modifications of scaffold by non-qualified employees is prohibited. Only qualified and competent personnel are allowed to modify scaffolding systems. Disciplinary action for non-qualified modifications will be enforced.
- Any system or component of a system which is found to have a defect in manufacturing or design, damage, excessive wear, weathering, or corrosion, will be immediately removed from service and tagged to indicate that it is not to be used with a prominent tag.
- Any repairs or modifications to a scaffold system or component of a system must be approved by the designated competent person prior to implementation.
- Any violation of the above policy, misuse of scaffolds, or misconduct while working on scaffolds will be subject to disciplinary action within the scope of Company policy, up to and including termination of employment.

Ladders

Ladders can be hazardous if they are not correctly used or maintained.

The following safety elements shall be considered:

- Ladders are for access or light work of short duration, and then only for areas protected by a fall arrest system.
- Ladders should only be used after a risk assessment and if it is not possible to undertake the task using other control measures that would allow the task to be done in a safer manner.
- Ladders should be properly stored and inspected before and after each use.
- Ladders shall be secured before use. The first user will tie the ladder to the ladder-fixing point.
- The following safety checks shall be confirmed and documented before using a ladder:
 - No damaged or loose or missing parts.
 - Secured against movement and supported from a firm, level, and nonslip surface.
 - Projects at least 3.28' above the landing place.
 - Placed at a slope no steeper than four vertical units to one horizontal unit.
 - Rated for 'industrial,' not 'domestic,' use.

Ladder Access

Any materials or tools (other than those secured on the worker's tool belt) should be transported to the work area separately.

- Always have both hands free (at least three points of contact) for climbing.
- Always face the ladder while climbing.

- Never place feet higher than 3' from the top of the ladder.
- Never overreach from the ladder.
- Never work from a ladder above another person.
- Never have more than one person on a ladder at any one time.
- Do not use a ladder in an access way or where it may be hit by a door unless the access way or door has been isolated and entry prevented.
- Do not use a ladder to perform work that requires restricted vision, welding or cutting metal.
- A nonmetallic ladder shall be used when near electrical hazards.

The SSHO will ensure the following requirements are adhered to concerning the use of all ladders:

- When portable ladders are used for access to an upper landing surface, the ladder side rails will extend at least 3 feet above the upper landing surface to which the ladder is used to gain access; or, when such an extension is not possible because of the ladder's length, then the ladder will be secured at its top to a rigid support that will not deflect, and a grasping device, such as a grabrail, will be provided to assist employees in mounting and dismounting the ladder. In no case will the extension be such that ladder deflection under a load would, by itself, cause the ladder to slip off its support.
- Ladders will be maintained free of oil, grease, and other slipping hazards.
- Ladder rungs, cleats, and steps will be parallel, level, and uniformly spaced when the ladder is in position for use.
- Extension ladders shall be placed at a 4:1 incline. When placing your ladder, for every four feet of height you must climb, move the base one foot away from the wall.
- Ladders will not be loaded beyond the maximum intended load limit for which they were built or beyond their manufacturer's rated capacity.
- Ladders will be used only for the purpose for which they were designed.
- Non-self-supporting ladders will be used at an angle such that the horizontal distance from the top support to the foot of the ladder is approximately one-quarter of the working length of the ladder (the distance along the ladder between the foot and the top support).
- Homemade ladders will not be used.
- Fixed ladders will be used at a pitch no greater than 90 degrees from the horizontal, as measured to the back side of the ladder.
- Ladders will be used only on stable and level surfaces unless secured to prevent accidental displacement.
- Ladders will not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement. Slip-resistant feet will not be used as a substitute for care in placing, lashing, or holding a ladder that is used upon slippery surfaces, including flat metal or concrete surfaces that are constructed so they cannot be prevented from becoming slippery.
- Ladders placed in any location where they can be displaced by workplace activities or traffic, such as in passageways, doorways, or driveways, will be secured to prevent accidental displacement, or a barricade will be used to keep the activities or traffic away from the ladder.
- The area around the top and bottom of ladders will be kept clear.
- The top of a non-self-supporting ladder will be placed with the two rails supported equally unless it is equipped with a single support attachment.

- Ladders will not be moved, shifted, or extended while occupied.
- Ladders will have nonconductive side-rails if they are used where the employee or the ladder could contact exposed energized electrical equipment.
- The top or top step of a stepladder will not be used as a step.
- Cross-bracing on the rear section of stepladders will not be used for climbing unless the ladders are designed and provided with steps for climbing on both front and rear sections.
- Ladders will be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.
- Portable ladders with structural defects, such as broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty or defective components, will either be immediately marked in a manner that readily identifies them as defective, or be tagged with "**DO NOT USE**" or similar language, and will be withdrawn from service until repaired.
- Fixed ladders with structural defects, such as broken or missing rungs, cleats, or steps, broken or split rails, or corroded components, will be withdrawn from service until repaired. The defective ladder will be withdrawn from service in the following manner:
 - Immediately tagged with "Do Not Use" or similar language.
 - Marked in a method that readily identifies it as defective.
 - Blocked from further use, such as with a plywood attachment that spans several rungs.
- Before damaged or defective ladder may be returned to service, repairs will be made that restore the ladder to its original design specifications.
- Single-rail ladders will not be used.
- When ascending or descending a ladder, the user will face the ladder.
- Each employee will use at least one hand to grasp the ladder when progressing up and/or down the ladder.
- An employee will not carry any object or load that could cause the employee to lose balance and fall.

Stairways

The SSHO will ensure the following requirements are applied to all stairways:

- Stairways that will not be a permanent part of the structure on which construction work is being performed will have landings of not less than 30 inches in the direction of travel and extend at least 22 inches in width at every 12 feet or less of vertical rise.
- Stairs will be installed between 30 deg. and 50 deg. from horizontal.
- Riser height and tread depth will be uniform within each flight of stairs, including any foundation structure used as one or more treads of the stairs. Variations in riser height or tread depth will not be over ¼-inch in any stairway system.
- Where doors or gates open directly on a stairway, a platform will be provided, and the swing of the door will not reduce the effective width of the platform to less than 20 inches.
- Metal pan landings and metal pan treads, when used, will be secured in place before filling with concrete or other material.
- All parts of stairways will be free of hazardous projections, such as protruding nails.
- Slippery conditions on stairways will be eliminated before the stairways are used to reach

other levels.

- Except during stairway construction, foot traffic is prohibited on stairways with pan stairs where the treads and/or landings are to be filled in with concrete or other material later, unless the stairs are temporarily fitted with wood or other solid material at least to the top edge of each pan. Such temporary treads and landings will be replaced when worn below the level of the top edge of the pan.
- Except during stairway construction, foot traffic is prohibited on skeleton metal stairs where permanent treads and/or landings are to be installed later, unless the stairs are fitted with secured temporary treads and landings long enough to cover the entire tread and/or landing area.
- Treads for temporary service will be made of wood or other solid material and will be installed the full width and depth of the stair.
- Stairways having four or more risers or rising more than 30 inches, whichever is less, will be equipped with:
 - At least one handrail.
 - One stair rail system along each unprotected side or edge.
- Winding and spiral stairways will be equipped with a handrail offset sufficiently to prevent walking on those portions of the stairways where the tread width is less than 6 inches.
- The height of stair rails will be as follows: will be not less than 36 inches from the upper surface of the stair rail system to the surface of the tread, in line with the face of the riser at the forward edge of the tread.
- Mid-rails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members will be provided between the top rail of the stair rail system and the stairway steps.
 - Mid-rails will be located at a height midway between the top edge of the stair rail system and the stairway steps.
 - Screens or mesh will extend from the top rail to the stairway step, and along the entire opening between top rail supports.
 - When intermediate vertical members, such as balusters, are used between posts, they will be not more than 19 inches apart.
 - Other structural members will be installed such that there are no openings in the stair rail system that are more than 19 inches wide.
- Handrails and the top rails of stair rail systems will be capable of withstanding, without failure, a force of at least 200 pounds applied within 2 inches of the top edge, in any downward or outward direction, at any point along the top edge.
- The height of handrails will be not more than 37 inches or less than 30 inches from the upper surface of the handrail to the surface of the tread.
- When the top edge of a stair rail system also serves as a handrail, the height of the top edge will be not more than 37 inches or less than 36 inches.
- Stair rail systems and handrails will be so surfaced as to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing.
- Handrails will provide an adequate handhold for employees grasping them to avoid falling.
- The ends of stair rail systems and handrails will be constructed so as not to constitute a projection hazard.
- Handrails that will not be a permanent part of the structure being built will have a minimum clearance of 3 inches between the handrail and walls, stair rail systems,

and other objects.

- Unprotected sides and edges of stairway landings will be provided with guardrail systems.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/03/21
02	Stacy Maxfield	Annual Review/Update	09/21/22



Fall Protection Inspection Checklist

Check boxes as appropriate during fall protection inspection. Findings and corrective actions should be filled out in the bottom section, use back of form if necessary.

Inspector: _____ Inspection Date: _____

Job #: _____

Pass	Fail	N/A	General
			All fall protection equipment is inspected before use.
			All fall protection is in good condition (clean, free of defects).
			All employees using fall protection equipment have been trained in proper use of equipment.
			Fall protection equipment is worn when there is potential fall of 6 feet or greater.
			Harness is properly worn.
			Shock absorbing lanyard is being used and properly attached to harness.
			Lanyard is properly attached to a secure anchor point.
			Shock absorbing lanyard is in good condition and has not been exposed to any fall.
			Total rope and lanyard length is less than potential falling distance.
			Components of the fall protection system are properly stored when not in use.
			Proper access is provided to the work area (ladder, stairs, etc.).
			Fall protection equipment has been inspected and determined safe for use.

Findings: (Failed Items and Safe Observations)

Corrective Action Taken:

Date Corrective Action Complete: _____

Signature of Competent Person Completing Inspection: _____

***Note: If unsafe conditions are found, fall protection equipment must be removed from service until items are corrected.**



Scaffolding Inspection Checklist

Check boxes as appropriate during the scaffolding inspection. Findings and corrective actions should be filled out in the bottom section, use back of form if necessary.

Competent Person: _____ Inspection Date: _____

Job #: _____

Pass	Fail	N/A	General:
			All portions of scaffolding are present as required by the manufacturer.
			Check for any loose, missing, or broken parts of scaffolding.
			Scaffold is plumb and level.
			Standard guardrails are present on all sides of scaffolding.
			Scaffold has toe boards as required.
			Platform is tightly planked for the full width of the platform.
			Planks are scaffold grade.
			Safe access is provided by a ladder or equivalent.
			Cleats are on bottom edges of scaffolding to prevent slippage.
			Legs or uprights are plumb and rigidly braced to prevent swaying.
			If the scaffold height exceeds 4 times the base, the scaffold is secured to the wall or structure.
			Remove snow, ice, or slippery conditions prior to access.
			Use of scaffolding is prohibited during high winds and storms.
			No tools or equipment have been left on the scaffold by workers.
			Scaffolding has been inspected by a competent person and determined safe to use today.

Findings: (Failed Items and Safe Observations) _____

Corrective Action Taken: _____

Date Corrective Action Complete: _____

Signature of Competent Person Completing Inspection: _____

***Note: If unsafe conditions are found, scaffold equipment must be removed from service until items are corrected.**



Ladder Inspection Checklist

Check boxes as appropriate during the scaffolding inspection. Findings and corrective actions should be filled out in the bottom section, use back of form if necessary.

Competent Person: _____ Inspection Date: _____

Job #: _____

Pass	Fail	N/A	General:
			Ladders have been inspected and found in good condition before use.
			Ladders are free of oil grease and other slipping hazards.
			Area around the top and bottom of the ladder are free of debris.
			The ladder is properly secured to prevent falling.
			Unused ladders are properly stored out of the walkways and protected from damage.
			Extension ladders are maintained and locking mechanism is working.
			All ladders are equipped with slip resistant bases.
			Ladders are secured at the proper angle (abide by the 1:4 rule).
			Stepladders are properly used; spreaders are locked and the feet are level.
			Ladders extend at least 3 feet above the platform on which they are secured.
			Ladders are placed on a level, firm surface.
			Ladders have been inspected and determined safe for use.

Findings: (Failed Items and Safe Observations) _____

Corrective Action Taken: _____

Date Corrective Action Complete: _____

Signature of Competent Person Completing Inspection: _____

***Note: If unsafe conditions are found, ladder must be removed from service until items are corrected.**



Fall Protection Permit

Revised 06/03/21

Permit Number: _____

This permit may be issued for up to seven (7) consecutive days with appropriate revalidation prior to each shift.

Date:	
Site Location and Description:	

Describe Fall Potential Scenario:

Fall Prevention Methods
<input type="checkbox"/> Minimize Fall Exposure: Which technique will be used to prevent the fall? Please describe: <ul style="list-style-type: none"> <input type="checkbox"/> Permanent guardrails or handrails <input type="checkbox"/> Temporary guardrail / scaffold system _____ <input type="checkbox"/> Aerial Lifts _____ <input type="checkbox"/> Travel restriction systems or barriers _____ <input type="checkbox"/> Rated hole / floor covers: _____ <input type="checkbox"/> Skylight / scuttle guarding: _____ <input type="checkbox"/> Fall restraint system _____ <input type="checkbox"/> Other: _____
<input type="checkbox"/> Fall Arrest System: To be used if a fall hazard cannot be prevented or minimized. These items may reduce the risk of injury or minimize the consequence to the workers after they fall. Please select the equipment to be used: <ul style="list-style-type: none"> <input type="checkbox"/> Lanyard <ul style="list-style-type: none"> <input type="checkbox"/> Retractable Lanyard <input type="checkbox"/> Shock Absorbing Lanyard <input type="checkbox"/> Harness with D rings <input type="checkbox"/> Approved anchor point (capable of withstanding 5000 lbs. of force per person) <input type="checkbox"/> 100% Tie Off requirement (i.e., Double lanyard system) <input type="checkbox"/> Lifelines <ul style="list-style-type: none"> <input type="checkbox"/> Vertical <input type="checkbox"/> Horizontal <input type="checkbox"/> Net <input type="checkbox"/> Other: _____

If fall arrest system is used, determine Total potential fall distance:

Post Fall Emergency Response – Rescue Plan

<i>Type of Rescue</i>	<i>Describe Method and Equipment</i>
<input type="checkbox"/> Self-Rescue	
<input type="checkbox"/> Peer Rescue	
<input type="checkbox"/> 3 rd Party Onsite Rescue	



Fall Protection Permit

Revised 06/03/21

Permit Number: _____

Does the rescue plan account for suspension trauma and limiting time suspended to 5 minutes?	<input type="checkbox"/> Yes Describe: _____ <input type="checkbox"/> No. Do not proceed.
Please verify that the Emergency Response Plan includes Post Incident Treatment for the suspended worker.	<input type="checkbox"/> Yes <input type="checkbox"/> No. Do not proceed.

AUTHORIZATION BY PERMIT SUPERVISOR

I certify that I have reviewed the permit, all required precautions have been taken, and necessary equipment is provided and inspected for this permitted work.

Name: _____ Signature: _____ Date: _____ Time: _____

PERMIT REVALIDATION

I confirm that the conditions under which the permit was originally issued remain unchanged, that work is allowed to continue, and that the revalidated permit has been reviewed with the work team.

Name: _____ Signature: _____ Date: _____ Time: _____

PERMIT CANCELLATION BY PERMIT SUPERVISOR

I attest that the Permitted Work is complete, and permit is closed.

Name: _____ Signature: _____ Date: _____ Time: _____

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Fit For Duty / Fatigue Management / Medical Surveillance Program

Practice Statement

E-Corp has adopted this practice to ensure a Fit for Duty workforce to reduce the number of incidents and safety issues at our worksites which ensures the safety and health of the employees.

E-Corp Administration, Human Resources (HR), and Management are responsible for ensuring that the following policy is enforced and implemented.

Roles and Responsibility

E-Corp Management

In the scope of this practice, E-Corp management shall:

- Identify personnel that carry out duties or tasks which require periodic medical exams or precautionary fitness for duty self-assessments to assure suitable care and/ or work assignments.
- Observe and record, when necessary, the attendance, performance, and behavior of the E-Corp employees they supervise.
- Follow this practice fairly and consistently when presented with circumstances or knowledge that indicates an E-Corp employee may be unfit for task by contacting the Health and Safety Manager and a HR representative as appropriate.
- Consider an E-Corp employee's personal assessment of their own fitness for task.
- Always keep any information of medical conditions or records strictly confidential.
- Communicate to all E-CORP employees the content of this practice and other applicable safety policies.

HR and HSSE

HR and HSSE shall assist in the administration of this program and verify that all responsible departments implement the requirements of this practice.

Workforce

Each member of the E-Corp workforce shall:

- Seek to maintain good health to enable the safe performance of their job, tasks, and responsibilities.
- Arrive to work fit for task and fit to perform their job, tasks, and responsibilities in a safe, secure, productive, and effective manner during the entire duration of the work.
- Refrain from behavior that could impair safety in the workplace.
- Notify their line manager, supervisor or HR manager when they are not fit for task, are taking any prescribed or over the counter medication that may adversely affect their fitness for task or face other situations or concerns that may adversely impact their ability to perform their work.
- Notify their line manager immediately if the fit for duty condition changes during the workday.

- Notify their line manager or supervisor when they observe a co-worker acting in a manner that indicates the co-worker may be unfit for task.
- Adhere to any restrictions placed on them as part of a rehabilitation program following an injury or illness (such as restricted movement, diet restrictions, etc.).
- Adhere to any restrictions placed on them because of an individual's personal circumstances or medical status identified during the medical surveillance program (such as driving, work hours, etc.).

If a supervisor's behavior is the focus of a concern, a member of the E-Corp workforce should:

- Stop work immediately and, if appropriate or able to do so, raise the concern with the supervisor.
- If talking with the supervisor is not possible or was not successful, discuss the concern directly with the supervisor's line manager to see if the situation can be rectified.
- If the above actions do not resolve the concern, inform a senior manager, HSM, or a HR representative.
- E-Corp does not tolerate retaliation against any employee for raising a fitness for task complaint or concern, or for participating in an investigation of anyone's fitness for task.

Description and Requirements

Physically Fit

E-Corp will ensure that all employees are physically fit to perform the job duties assigned.

Training

E-Corp will ensure that all employees will be properly trained for their assigned task. Before any employee starts a new assigned task, the employee must receive specific training. Examples might include:

- Basic first aid training (mandatory for all field workers).
- Forklift operation.
- Instrumentation.
- Heavy equipment operation.
- Scaffold building.
- Tiredness management session and/or fatigue management training, etc.

All training (in-house or third party) shall consist of a documented process that includes an appropriate curriculum and verification by means of individual examination. Documentation shall include the date and name of the E-Corp employees or Contractors attending the training. In addition, all training programs shall be reviewed and audited annually and evaluated for effectiveness by management.

Substance Abuse

Refer to the E-Corp Drug and Alcohol Testing Policy for requirements regarding substance abuse. No employees are allowed to be under the influence of alcohol or drugs while performing their work duties. The following restrictions apply to employee use of prohibited substances:

- No employee shall manufacture, distribute, dispense, possess, or use prohibited substances while on the job or on E-Corp premises.
- No employee shall report to work, be on the job, or be on E-Corp premises while under the influence of prohibited substances.
- No employee who has tested positive for the presence of prohibited substances in amounts equal to or exceeding the cut-off levels adopted by E-Corp will be allowed on the

job site. The Drug and Alcohol Testing policy will be followed.

E-Corp is committed to providing a safe and healthy work environment; thus drugs and alcohol are prohibited on E-Corp premises. If there is a situation where alcohol or drug misuse is being observed this unsafe condition must be reported.

Prescription and Over-the-Counter Medications

It is the policy of E-Corp that all employees must notify their supervisor when taking any prescription or over-the-counter medication that could impair their ability to work safely. Over-the-Counter medications such as allergy or cold and flu medications could also impair one's ability to perform safely and must be reported to their supervisor.

E-Corp Workforce

Supervisors as well as line managers shall identify personnel that carry out duties or tasks which require periodic medical exams or precautionary fitness for duty self-assessments to assure suitable care and/ or work assignments.

Fitness for task of a member of the E-Corp workforce shall be evaluated by a supervisor when the workforce member:

- Is involved in a workplace incident or accident.
- Displays difficulty performing work duties in a manner that is safe for the employee, the employee's co-workers, the company, or the public as determined by the supervisor.
- Poses an imminent and serious safety threat to self or others.
- Is issued restrictions as part of a rehabilitation program following an injury or illness.
- Is issued restrictions because of an individual's personal circumstances and medical status identified during the medical surveillance program.

Employee Monitoring

To determine if an employee should be removed from the work site, E-Corp Administration will monitor employee behaviors and activities based on employee attendance, performance, and behavior which may be observed and recorded at their supervisor's discretion.

On a project specific basis, medical examinations are required prior to employment and pre-site entry. The medical exam shall determine the medical suitability for the expected tasks and define any restrictions required to protect the health and safety of the employee and others (such as driving restrictions while on medication). Employees are subject to regular or periodic medical exams to verify fitness for task, and to check either blood or urine levels for potential exposure to contaminants in the air.

Employee Responsibility

Employees are responsible for notifying their supervisors if they are fatigued, stressed, injured, or otherwise impaired to the point of not being able to perform their duties safely. Supervisors shall take reasonable and practicable actions to reduce the risks of physical, emotional, and psychological injuries or illnesses by encouraging open communication and providing a professional work environment.

Employees shall notify their manager or supervisor when they observe a co-worker acting in a manner that indicates the co-worker may be unfit for task. Employees are also responsible for ensuring they are physically and mentally fit to perform their job function safely, they must take

responsibility for their own safety as well as not reporting to work in a condition that could endanger their fellow workers. Employees shall follow the self-assessment process to determine their fitness for duty and must inform their supervisor if they are incapable of performing their work scope. Employees shall refrain from behavior that could impair safety in the workplace.

Self-Assessment Process

E-Corp will ensure that employees are given a self-assessment process to determine their fitness for duty that is modified to ensure maximum effectiveness pertaining to the employee's scope of work. The Fit for Task Self-Assessment form is used for this self-assessment. This form is for the employees use only and is not to be turned in to E-Corp.

Limitations

Employees are prohibited from working more than 14 hours in a day, including the time allotted for commute. Employees are prohibited and shall not be scheduled to work more than 12 consecutive days without at least one day off.

Fatigue Management

Breaks, Annual Leave, and Extended Working Hours

The following conditions are applicable:

- Workforce members shall not engage in risk-taking situations when they are in a fatigued state (i.e., driving or operating machinery, equipment, and vehicles).
- No employees shall accrue unnecessary annual leave.
- E-Corp shall verify that adequate rest breaks are taken for specific working conditions. The appropriate frequency of rest breaks will be identified in each respective Site Health and Safety Plan.
- All employees shall comply with the requirements in the E-Corp Employee Handbook when performing work.
- Every employee shall be rested and alert whenever driving a vehicle while working and not driving when overly tired or fatigued.
- Callouts and after-hours work are assigned at the discretion of the project manager.
- All employees shall comply with the requirements in the Working Alone & Remote Travel Program and the Driving Safety Program.

All E-Corp employees will be entitled to annual leave or vacation in accordance with the local contracts and HR policies.

Annual leave or vacation is an important time for E-Corp employees to unwind and relax, time to spend with family and friends and to build and nurture these important personal relationships. Time off from work improves health, family life, productivity, creativity, and personal well-being.

All E-Corp employees shall use their full annual leave entitlement each calendar year. It is the responsibility of the employee and their team leader to confirm that they do so. This means that employees shall not accrue unnecessary annual leave, since annual leave is provided for their well-being and to provide sufficient rest and recreation. Any exceptions to the policy of not utilizing the full year entitlement require approval.

Consider the following regarding annual leave or vacation planning:

- Take earned or accrued annual leave or vacation days.

- Schedule enough time away to unwind and relax.
- Take advantage of the time to build and strengthen personal relationships.
- Be safe.
- Leave business distractions (e.g., laptops, mobile or cell phones and the internet) at the office.

Studies suggest that the positive effects annual leave and vacation have in reducing heart attack risks may only occur when at least a two-week block at a time is taken.

Stress Awareness

E-Corp management and supervisors shall maintain an awareness of the pressures that the employees which he or she supervises are under and seek solutions to relieve any excessive stress arising from or during work. Employees shall notify their manager, supervisor, or team leader of stress that may adversely affect the employee's own fitness for task or ability to perform work, or a work colleague's fitness for task or ability to perform work. It is the responsibility of the employee to seek assistance if feeling stressed. This includes stress generated outside work which could adversely affect the employee while at work.

The requirements and responsibilities for reducing workplace stress apply to the following three levels of the E-Corp workforce.

E-Corp Management

E-Corp management shall:

- Take reasonable and practicable actions to reduce the risks of physical, emotional, and psychological injuries or illnesses.
- Confirm that E-Corp work activities do not adversely affect the health of E-Corp employees.

Supervisor

The supervisor shall:

- Verify that E-Corp work activities do not adversely affect the health of the employees that he or she supervises.
- Maintain an awareness of the pressures that the employees which he or she supervises are under and seek solutions to relieve any excessive stress arising from or during E-Corp work.

Employees

The employees shall:

- Notify their line manager, supervisor or team leader of stress that may adversely affect the employee's own fitness for task or ability to perform work, or a work colleague's fitness for task or ability to perform work.
- Each employee should seek assistance if feeling stressed (family, team leader, work colleagues, HR, HSM).

Driver Requirements

Whenever operating a vehicle on E-Corp business, every employee shall be rested and alert and shall not operate any vehicle when overly tired or fatigued.

All drivers should take adequate rest breaks when driving, especially on long distance trips, to prevent the risk of becoming fatigued or overly tired. In addition, excessive hours spent travelling to and from work and while performing fieldwork can extend the length of the working day and

reduce the time available for sleep and recovery.

Requirements for Light-vehicle Drivers

All E-Corp employees that drive on company business shall attend a tiredness management session and/or fatigue management training. The following requirements for working and driving will apply to light-vehicle drivers:

- Stop driving if you are tired.
- Avoid driving during dusk and dawn hours on long trips.
- Adhere to the maximum length of driving time:
 - 14 hours work in a rolling 24 hours.
 - 60 hours work in a rolling seven days.
 - 10 hours driving per day maximum (excludes commuting time).
 - Stop every two hours for 5-15 minutes at a safe location.
- Take at least one 24-hour continuous break per rolling seven days.

Medical Surveillance Program and other Medical Exams

E-Corp sites and specific jobs may require regular or periodic medical exams to verify an employee's fitness for task or to check blood or urine levels for potential exposure to contaminants in the air. Periodic medical exams that may be required for E-Corp work include, but are not limited to:

- Blood and/or urine testing for exposure to heavy metals, volatile organic compounds, or other chemicals.
- Fitness for driving roles, including transport of dangerous goods, forklift driver, occasional driver, and professional driver.
- Fitness to wear respirators. (Refer to the Personal Protective Equipment and Respiratory Protection Programs)
- Fitness for field work (environmental remediation/hazardous waste operations).

Note that medical surveillance forms are provided by the doctor or other medical professional.

Medical Case Management

Employees must immediately inform their direct supervisor (or designated alternate) of any injury or illness that they suffer that might be work related so that action can be taken to correct, prevent, or control the condition. The E-Corp Incident Investigation program will be followed.

Each E-Corp project site shall have a pre-identified local Occupational Medical Case Management process that conforms to local legal requirements.

All information regarding employee medical conditions or records shall be kept strictly confidential. Access to medical records shall only be given according to the policies laid out in §1910.1020.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/08/21
02	Stacy Maxfield	Annual Review/Update	09/27/22



Fit for Task – Self-Assessment

Job safety is influenced by many factors, but the most important factor is a fit for duty workforce. Your physical and emotional/mental health is just as important as good tools, good practices and procedures, and good job planning and should be considered in the assignment, performance, and planning of job tasks.

This form is designed to help you do a quick self-assessment of your physical and emotional/mental health. Any concerns resulting from your assessment regarding the ability to carry out your job responsibilities safely and healthily should be discussed with your on-site supervisor and communicated to your E-Corp representative immediately.

This form is voluntary and for your use only.

General Assessment

Am I feeling good today and ready to work at my routine assigned level of physical activity and responsibility?

- If not, why not? _____
- Do I have any sprains / strains? (Any injury / area of pain should be reported to your supervisor or the HSM) _____

Activities Review

- Am I well hydrated? _____
- Any strenuous activities recently (chores, sports, hobbies)? _____
- Am I rested or fatigued? _____
- My energy level is: high medium low
- My last full meal was: _____

Medication Review

- Am I taking any medications that can make me drowsy or adversely affect my safe job performance?
- Any cuts / scrapes are clean and bandaged?
- Did I remember to bring with me my health maintenance medications (high blood pressure, diabetes, cholesterol, heart etc.)?

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General Safety Awareness Program

Purpose

This practice describes the E-Corp General Safety Rules and safe practices for mitigating potential hazards and addressing risks encountered by E-Corp employees, contractors, and sub-contractors, who provide services to, or on behalf of, E-Corp on E-Corp premises and worksites. To ensure all new employees are trained on general safety topics prior to beginning work on any E-Corp project sites, all employees will be trained on General Safety topics.

Training

General Safety training will include, but not be limited to the material contained in this procedure. Trainer should refer to other E-Corp Health and Safety Management Systems (HSMS) as appropriate. This procedure may be used as a training guide during General Safety Training, or a General Safety presentation may be used.

Training provides the following benefits:

- Makes employees aware of job hazards
- Teaches employees to perform jobs safely
- Promotes two-way communication
- Encourages safety suggestions
- Creates interest in the safety program
- Fulfills OSHA requirements

Employee training will be provided at the following times:

- All new employees will receive a safety orientation their first day on the job.
- All new employees will be given a copy of the Code of Safe Practices and required to read and sign for it.
- All field employees will receive training at tailgate or toolbox safety meetings held at the job site.
- All employees given a new job assignment for which training has not been previously provided will be trained before beginning the new assignment.
- Whenever new substances, processes, procedures or equipment that represent a new hazard are introduced into the workplace.
- Whenever E-CORP is made aware of a new or previously unrecognized workplace hazard.
- Whenever management believes that additional training is necessary.
- After all serious accidents.
- When employees are not following safe work rules or procedures.

Code of Safe Practices

E-Corp will maintain a “Safety and Health Program” conforming to the best practices of organizations of this type. To be successful, such a program must embody the proper attitudes toward injury and illness prevention on the part of supervisors and employees. It also requires cooperation in all safety and health matters, not only between supervisor and employee, but also between each employee and his or her co-workers. Only through such a cooperative effort

can a safety program in the best interest of all be established and preserved. Safety and health in our business must be a part of every operation.

The Company Safety & Health Program includes:

- Providing mechanical and physical safeguards to the maximum extent possible.
- Conducting a program of safety and health inspections to find and eliminate unsafe working conditions or practices, to control health hazards, and to comply fully with the safety and health standards for every job.
- Training all employees in good safety and health practices.
- Providing necessary personal protective equipment and instructions for its use and care.
- Developing and enforcing safety and health rules and requiring that employees cooperate with these rules as a condition of employment.
- Investigating, promptly and thoroughly, every accident to find out what caused it and to correct the problem so that it will not happen again.
- Setting up a system of recognition and awards for outstanding safety service or performance.

We recognize that the responsibilities for safety and health are shared:

- **E-CORP** accepts the responsibility for leadership of the safety and health program, for its effectiveness and improvement, and for providing the safeguards required to ensure safe conditions.
- **Supervisors** are responsible for developing the proper attitudes toward safety and health in themselves and in those they supervise, and for ensuring that all operations are performed with the utmost regard for the safety and health of all personnel involved, including themselves.
- **Employees** are responsible for wholehearted, genuine cooperation with all aspects of the Safety and Health Program including compliance with all rules and regulations – and for continuously practicing safety while performing their duties.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program.	06/02/21
02	Stacy Maxfield	Annual Review/Update	09/21/22



General Safety Awareness Rules and Code of Safe Practices

E-Corp employees shall follow these safe practice rules, render every possible aid to safe operations, and report all unsafe conditions or practices to their supervisor.

Failure to abide by the Code of Safe Practices may result in disciplinary action up to and including termination.

Supervisors shall insist that employees observe and obey every rule, regulation, and order necessary to the safe conduct of the work and shall take such action necessary to obtain compliance.

If you are unsure of the safe method to do your job, STOP and ask your supervisor.

Ignorance is no excuse for a safety violation.

All employees shall be given frequent accident prevention instructions.

No one shall knowingly be permitted to work while the employee's ability or alertness is impaired by fatigue, illness, and prescription or over the counter drugs. Employees who are suspected of being under the influence of illegal or intoxicating substances, impaired by fatigue or an illness, shall be prohibited from working.

Anyone known to be under the influence of alcohol and/or drugs shall not be allowed on the job while in that condition. Persons with symptoms of alcohol and/or drug abuse are encouraged to discuss personal or work-related problems with the supervisor/employer.

Employees should be alerted to see that all guards and other protective devices are in proper places and adjusted, and shall report deficiencies. Approved protective equipment shall be worn in specified work areas.

Horseplay, scuffling, fighting and other acts that tend to have an adverse influence on the safety or wellbeing of the employees are prohibited. Do not run on the job site or in the shop or office area.

Work shall be well-planned and supervised to prevent injuries when working with equipment and handling heavy materials. When lifting heavy objects, employees should bend their knees and use the large muscles of the legs instead of the smaller muscles of the back. Back injuries are the most frequent and often the most persistent and painful type of workplace injury.

Workers shall not handle or tamper with any electrical equipment, machinery, or air or water lines in a manner not within the scope of their duties, unless they have received instructions from their supervisor. Do not operate equipment that you are not familiar with. Do not attempt to use such equipment until you are fully trained and authorized.

Keep your work area clean, free of debris, electrical cords and other hazards. Immediately clean up spilled liquids.

Always notify all other individuals in your area who might be endangered by the work you are doing.

A red tag system identifies equipment that is NOT to be operated, energized or used. All lock-out/tag-out notices and procedures must be observed and obeyed.

Do not block exits, fire doors, aisles, fire extinguishers, first aid kits, emergency equipment, electrical panels, or traffic lanes.

Do not leave tools, materials, or other objects on the floor that might cause others to trip and fall.

Do not distract others while working. If conversation is necessary, make sure eye contact is made prior to communicating.

Employees shall not enter manholes, underground vaults, chambers, tanks, silos, or other similar places that receive little ventilation, unless it has been determined that it is safe to enter. Confined space protocols will be followed.

Materials, tools, or other objects shall not be thrown from buildings or structures until proper precautions are taken to protect others from the falling objects.



General Safety Awareness Rules and Code of Safe Practices

Employees shall cleanse thoroughly after handling hazardous substances and follow special instructions from authorized sources.

Gasoline or other flammable liquids shall not be used for cleaning purposes.

No burning, welding, or other source of ignition shall be applied to any enclosed tank or vessel, even if there are some openings, until it has first been determined that no possibility of explosion exists, and authority for the work is obtained from the foreman or superintendent.

Any damage to scaffolds, false work, or other supporting structures shall be immediately reported to the foreman and repaired before use.

Possession of firearms, weapons, illegal drugs or alcoholic beverages on Company or customer property or the job site is strictly prohibited.

All injuries shall be reported promptly to your supervisor so that arrangements can be made for medical and/or first-aid treatment.

Employees shall verify and document that the work site is in a safe condition upon completion or interruption of work.

Specific Safety Rules

Electrical Safety

Only trained, qualified, and authorized employees are allowed to make electrical repairs or work on electrical equipment or installations.

All electrical equipment and systems shall be treated as energized until tested or otherwise proven to be de-energized.

All energized equipment and installations will be de-energized prior to the commencement of any work. If the equipment or installation must be energized for test or other purposes, special precautions will be taken to protect against the hazards of electric shock.

All equipment shall be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy-isolating device bearing a lock.

Safety grounds shall always be used where there is a danger of shock from back feeding or other hazards.

Polyester clothing or other flammable types of clothing shall not be worn near electrical circuits. Cotton clothing is much less likely to ignite from arc blast. Employees working on live circuits shall be provided Nomex or equivalent fire-resistant clothing.

Suitable eye protection must be always worn while working on electrical equipment.

Always exercise caution when energizing electrical equipment or installations. Take steps to protect yourself and other employees from arc blast and exploding equipment in the event of a fault.

All power tools will be grounded or double insulated. Tools with defective cords or wiring shall not be used.

Metal jewelry should not be worn around energized circuits.

Extension and temporary power cords must be heavy duty and grounded. Frayed or defective cords shall not be used.

Suitable temporary barriers or barricades shall be installed when access to opened enclosures containing exposed energized equipment is not under the control of an authorized person.

Electrical installations must be protected from accidental contact by enclosures or tight-fitting covers.

GFCI's are required on all power outlets.

Circuits shall not be overloaded with equipment or extension cords.



General Safety Awareness Rules and Code of Safe Practices

Metal measuring tapes, fish tapes, ropes or other metal devices are prohibited where they may contact energized parts of equipment or circuits.

Personal Protective Equipment (PPE)

Use the correct PPE for each job assignment. If you do not know, ask.

PPE shall be maintained in good condition and cleaned regularly.

PPE shall be stored properly when not in use to protect it from damage.

Damaged or broken PPE must be returned to your foreman for replacement.

Hard hats must be always worn on job sites.

ANSI approved safety glasses must be worn when working with power tools, compressed air or gasses, chemicals, or any other item that creates an eye injury hazard.

Face shields with safety glasses are recommended when grinding or working with hazardous chemicals.

Employees must wear industrial work shoes in the shop and on the job site. The shoes must have complete leather uppers and skid resistant soles and be in good condition. Steel toe protection is recommended and may be required at some job sites.

Athletic style shoes, tennis shoes, open toe shoes, plastic or vinyl shoes or shoes with decorative accessories are not allowed.

Hearing protectors must be worn when working with loud equipment such as cut off saws, chain saws, air hammers or grinders.

Be sure the protective clothing you wear will not hamper or restrict freedom of movement due to improper fit.

Long pants of heavy-duty material must be worn. No shorts or sweatpants are allowed.

Do not wear loose, torn or frayed clothing, dangling ties, finger rings, dangling earrings, jewelry items, or long hair unless contained in a hair net, while operating any machine that could cause entanglement.

If required, wear NIOSH approved respirators when applying adhesives, paint, welding, grinding or working with chemicals. Read the applicable SDS to find out which types of respirators are required. Facial hair may not be permitted in certain circumstances. Prior to wearing a respirator, personnel must complete training, medical evaluation, and fit testing.

Hazardous Materials and Chemicals

Read all warning labels and Safety Data Sheets (SDS) before using any chemicals. SDS contain personal protective equipment and safety information and are available from your foreman.

Hazardous materials shall be handled in accordance with the SDS and label. If protective equipment is required, use it.

Eye protection must be worn when working with hazardous materials or chemicals.

Mixing of chemicals is always prohibited unless required by the label. Before you mix -review all SDS.

Always wash your hands thoroughly after handling chemicals and before eating or smoking, even if you were wearing protective gloves.

Never use solvents for hand cleaning. Use the non-toxic hand cleaners provided.

Store all hazardous materials properly in suitable containers that are properly labeled.

Use chemicals only in well-ventilated areas.

When using secondary containers, ensure that they are labeled as to their contents and hazards.



General Safety Awareness Rules and Code of Safe Practices

Do not disturb any asbestos. STOP work and tell your foreman. If you are not sure, STOP and ask.

Do not cut or weld stainless steel or galvanized metal without respiratory protection. These items create toxic fumes.

Work with lead, asbestos, cadmium and other toxic compounds require special precautions. Do not attempt to perform this work without special equipment and training.

Fire Prevention and Housekeeping

Always take precautions to prevent fires which may be started, particularly from oily waste, rags, gasoline, flammable liquids, acetylene torches, improperly installed electrical equipment and trash.

Fire-fighting equipment is to be inspected on a regular basis. All discharged, damaged or missing equipment is to be immediately reported to a supervisor. Tampering with fire equipment is prohibited.

Access to fire extinguishers must be always kept clear. Make note of the location of fire-fighting equipment in your work area.

Never use gasoline or flammable solvents for cleaning purposes.

Smoking is prohibited within 20 feet of where flammable substances are present.

In case of fire, employees shall consider the safety of themselves and other individuals before saving property.

Keep your work areas free of debris. Remove combustible material from the work area as fast as required to help reduce tripping hazards.

Maintain awareness of potential hazards when walking about the job site.

Keep tools, materials, and equipment out of walkways and stairways at all times.

Sharp wires or protruding nails must be kept bent.

Place tools and equipment so they will not slide off the roof.

Tie material down at day's end so the wind will not blow it off the roof.

No smoking is allowed. Smoke only in designated smoking areas.

No smoking is allowed in E-CORP vehicles.

Fall Protection

Fall protection, such as standard railings or a safety harness and lanyard, shall be always used, when working 6 feet or more above the level below.

Floor and wall openings, unfinished balconies, elevator shafts and similar areas must be railed, covered or barricaded to prevent falls.

Never remove fall protection such as rails, covers, or barricades without permission from your foreman and special precautions. Always replace these items when finished with your task.

All safety harnesses shall be the full body type with a shock-absorbing lanyard attached to a substantial anchorage capable of supporting twice the maximum load. Lanyards shall be attached at the wearer's upper back. Body belts are not to be worn as fall protection.

Read and obey all manufacturers' instructions relating to your fall arrest system (safety harness and lanyard).

Inspect all components of your harness and lanyard prior to each use and after a fall.

Defective equipment is not to be used. Lanyards must be destroyed after a fall and never reused.

Safety harnesses and lanyards should limit free fall distance to less than 4 feet and prevent contact with any level or objects below you.



General Safety Awareness Rules and Code of Safe Practices

Never use any part of a fall arrest system, such as a harness or lanyard, to hoist materials or for any other purpose.

Safety harnesses and shock absorbing lanyards are required to be always worn while in boom lifts.

Ladder Safety

Inspect the ladder before using it. If it is broken, throw it out. Never repair a broken ladder, get a new one. Keep portable stairways, ladders and step stools in good condition and use them only in a safe manner.

Use the proper ladder for the job. Do not use "A" frame ladders as straight ladders. Make sure the ladder is tall enough to reach the work area. Do not use metal ladders for electrical work.

Do not place ladders in passageways, doorways, or any location where they might be hit or jarred, unless protected by barricades or guards.

Ladder rungs and steps must be kept free of grease, oil, mud, or other slippery substances.

Ladders should only be placed on hard level surfaces. Make sure the ladder feet are not placed on sandy, slippery, or sloping surfaces. Clean or sweep the area where the ladder feet will be and make sure the rubber feet are in good shape.

Arrange your work so you can face the ladder and use both hands while climbing. Do not carry tools or equipment while climbing a ladder. Climb the ladder, and then hoist the tools or equipment with a line or a hoisting device.

Avoid temporary ladders. Always use a commercially made, construction grade ladder of the proper length for the work being performed.

Secure portable ladders in place and at a pitch so the leveling indicator is in alignment or the distance from the wall to the base of the ladder is at least 1 foot for every 4 feet of height.

Straight ladders shall be tied off the top of the ladder to prevent slipping.

Be aware of objects below you, move or cover sharp objects in case you fall. Cap or bend all rebar.

Do not stand on or work from the 2nd rung from the top or above. Also do not reach too far from the ladder. Keep your belt buckle between the side rails.

Extension ladders shall extend at least 36" above the level being accessed.

On all ladders, do not step on cross bracing that is not intended to be used for climbing.

Scaffolds

Scaffolds are to be erected, dismantled, altered, or repaired by the Company competent person or the scaffold contractor ONLY.

Inspect scaffolds prior to use and report any damage immediately to your foreman. Do not use damaged scaffolds.

You are not permitted to ride on rolling scaffolds being moved.

At least 2 people are required to move rolling towers. Secure or remove all tools and materials before moving.

Always use guard railings on all scaffolds regardless of height.

Use only high-quality planking on scaffolds and be sure the planks are secure to prevent shifting.

Always apply caster brakes and use outriggers when scaffolds are stationary.

Do not use planks or guard rails as a temporary means of obtaining greater height.

Be aware of the objects below you; move or cover sharp objects in case you fall. Cap or bend all rebar.



General Safety Awareness Rules and Code of Safe Practices

Lockout/Tagout

Only Lockout/Tagout certified personnel who have completed Lockout/Tagout training shall perform any lockout/tagout.

All machinery and electrical equipment shall be locked out and tagged prior to repair, cleaning, or adjustment unless power is necessary to perform the work. If so, other precautions, specified by your foreman, will be taken.

Use your own lock and key. No one else should have a key for your lock. Destroy all duplicate keys.

Always maintain control of your key to prevent unauthorized use.

Never remove another employee's lock or energize tagged equipment.

If multiple employees are working on the same equipment, each employee should install their own lock.

Notify all affected employees that lockout/tagout is required and reasoning.

If the equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.).

Operate the switch, valve or other energy isolating devices so that the energy source(s) (electrical, mechanical, hydraulic, etc.) is disconnected or isolated from the equipment.

Stored energy, such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas or water pressure, etc. must also be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.

Lock-out all energy isolation devices with an individual lock.

After ensuring that no employees are exposed and as a check of having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate. Caution: Return operating controls to neutral position after the test. The equipment is now locked out. Install red lock-out tag on operating controls.

After repair is complete and the equipment is ready for testing or normal operation, check the equipment to see that all cover plates and safety devices have been reinstalled.

When the equipment is clear, remove all locks and tags. The energy isolating devices may be operated to restore energy to the equipment.

Boom and Scissor Lifts

Only trained and authorized employees are allowed to use boom or scissor lifts. If you are not trained, stay off.

Read and obey all manufacturers' instructions and safety precautions.

Inspect all lifts prior to use. Defective equipment shall not be used.

A safety harness with shock absorbing lanyard or a safety belt positioning device must be worn while using boom lifts. Harnesses are not required for scissor lifts, provided guardrails are adequate and you do not leave the work platform.

Always stay inside the platform railing. Do not use planks or ladders to extend your reach.

Always lower the lift before moving.

Never use scissor lifts on uneven ground. They are designed primarily for use on concrete floors.

Hand and Power Tools

Proper eye protection must be worn when using hand and power tools.

Know your hand and power tool applications and limitations. Always use the proper tool for the job.



General Safety Awareness Rules and Code of Safe Practices

Inspect cords and tools prior to use. Do not use tools that are faulty in any way. Exchange them for safe tools immediately.

Power tools must be grounded or double insulated. All power tools are to be plugged into a grounded GFCI outlet.

Do not use power tools in damp, wet or explosive atmospheres.

Do not lift, lower or carry portable electrical tools by the power cord.

Keep all safety guards in place and in proper working order.

Use clamps or vises to secure work pieces.

Do not force hand power tools. Apply only enough pressure to keep the unit operating smoothly.

Return all tools and other equipment to their proper place after use.

Unplug all power tools before changing bits and/or grinding disks.

Never leave chuck keys in the tool during operation.

Do not use a screwdriver as a chisel.

Before using sledges, axes or hammers, be sure the handles are securely fastened with a wedge made of sound material.

Do not use a handle extension or 'cheater" on any wrench.

Files shall be equipped with handles and should not be used as a punch or pry.

Trenching and Excavation

All excavations and trenches 5 feet deep or greater must be shored, sloped, or benched to protect workers from the hazards of moving earth. All trenching must be done in accordance with OSHA regulations.

Always locate underground utilities before digging. Also contact regional notification centers in advance.

Do not work under loads handled by lifting or digging equipment.

Ladders shall be provided for access to trenches and excavations 4' deep or greater. Use them.

Keep all spoil piles a minimum of 2 feet from the edge of the trench.

Barricade trenches or use caution tape to warn others of their presence.

All trenches and excavations must be inspected by the Company competent person each day, before work, to look for signs of shifting earth.

Cranes and Rigging

Only trained/certified personnel are allowed to operate cranes or attach rigging.

No employee is permitted to ride on loads, hooks, or slings of any crane, hoist, or derrick.

Do not work or stand under any suspended load. Crane operators shall avoid swinging loads over people.

Inspect all slings, chains, ropes, and hooks prior to use. Do not use defective slings, chains, or rigging.

Welding and Cutting

Make sure your welding equipment is installed properly, is properly grounded, and in good working condition.

Always wear protective clothing suitable for the welding or cutting to be done.

Always wear proper eye protection when welding, brazing, soldering or flame cutting.

Once you remove your welding helmet, put on safety glasses.



General Safety Awareness Rules and Code of Safe Practices

Keep your work area clean and free of hazards. Make sure that no flammable, volatile or explosive materials are in or near the work area.

Handle all compressed gas cylinders with extreme care. Keep caps on when not in use. Make sure that all compressed gas cylinders are secured to the equipment carriage, wall or other structural supports. When compressed gas cylinders are empty close the valve, install the cap and return to correct bottle storage area.

Store compressed gas cylinders in a safe place with good ventilation. Acetylene cylinders and oxygen cylinders should be kept at least 20 feet apart.

Do not weld or cut in confined spaces without special precautions and your foreman's authorization.

Do not weld on containers that have held combustibles or flammable materials.

Use mechanical exhaust ventilation at the point of welding when welding lead, cadmium, chromium, manganese, brass, bronze, zinc or galvanized metals. These metals are highly toxic, and their fumes should not be breathed.

Make sure all electrical connections are tight and insulated. Do not use cables with frayed, cracked or bare spots in the insulation.

When the electrode holder or cutting torch is not in use, hang it on the brackets provided. Never let it touch a compressed gas cylinder.

Dispose of electrode and wire stubs in proper containers since stubs and rods on the floor are a safety hazard.

Use weld curtains to shield others from the light rays produced by your welding.

Make sure all **compressed gas connections are tight** and check for leaks. Do not use hoses with frayed or cracked spots.

Keep your leads orderly and out of walkways. Suspend them whenever possible.

DO NOT WELD if leads or machine are in or near water.

Make sure a portable fire extinguisher is nearby.

Keep your work area clean and free of hazards. When flame cutting, sparks can travel 30-40 feet. Do not allow flame cut sparks to hit hoses, regulators or cylinders.

Use oxygen and acetylene or other fuel gases with the appropriate torches and tips only for the purpose intended.

Never use acetylene at a pressure in excess of 15 pounds per square inch. Higher pressure can cause an explosion.

Never use oil, grease or any other material on any apparatus or thread fitting in the oxyacetylene or oxy-fuel gas system. Oil and grease in contact with oxygen will cause spontaneous combustion.

Always use the correct sequence and technique for assembling and lighting the torch.

Always use the correct sequence and technique for shutting off a torch.

Check valves must be used on all compressed gas cylinders to prevent back flow of the gas.

No smoking is allowed. Smoke only in designated smoking areas.

Company Vehicles

Only authorized employees are permitted to operate Company vehicles. Do not let anyone else drive your Company vehicle.

Company vehicles are to be used for Company business only. Personal, off duty and family use is prohibited.

Drive defensively and obey all traffic and highway laws.

Always wear your seat belt, whether the driver or a passenger.

Report all accidents as soon as possible to your supervisor and obtain a police report.



General Safety Awareness Rules and Code of Safe Practices

Keys must be removed from all unattended vehicles and the vehicles must be locked unless parking inside the facility.

Do not jump from the cab or bed of Company vehicles.

Inspect your vehicle and report any defects or operating problems to your supervisor so that repairs can be made.

No smoking while refueling.

No smoking is allowed in E-CORP vehicles.

If your driver's license is revoked or expired, immediately notify your supervisor and do not drive or operate Company vehicles or equipment.

Traffic Safety

All employees exposed to traffic hazards are required to wear orange flagging garments (shirts, vests, jackets) at all times.

When possible, construction vehicles are to be placed between the employees and traffic to prevent vehicles from entering the work area and hitting members of the crew.

All traffic controls will be established in accordance with the Manual of Traffic Controls for Construction and Maintenance Work Zones.

Traffic controls are to be properly maintained throughout the workday. Signs and cones must be kept upright, visible and in their proper position always.



GENERAL SAFETY AWARENESS RULES and CODE OF SAFE PRACTICES RECEIPT

This is to certify that I have received a copy of the E-Corp General Safety Rules and Code of Safe Practices.

I have read these instructions, understand them, and will comply with them while working for E-Corp.

I understand that failure to abide by these rules may result in disciplinary action and possible termination of my employment with E-Corp.

I also understand that I am to report any injury to my foreman or superintendent immediately and report all safety hazards.

I further understand that I have the following "Safety Rights:"

- I am not required to work in any area I feel is not safe.
- I am entitled to information on any hazardous material or chemical I am exposed to while working.
- I am entitled to see a copy of the E-Corp Health and Safety Management Systems.
- I will not be discriminated against for reporting safety concerns.

Employee Name

Signature

Date

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Hazard Communication Program

Purpose

E-Corp has adopted this policy for Hazard Communication from OSHA regulation: §1910.1200 – Hazard Communication. E-Corp has implemented this program to ensure that employees are informed of any chemical hazards and hazardous or toxic substances in their workplace. This practice considers the applicable requirements of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

A written Hazard Communications Program (HCP) has been developed for all chemical substances, which present a physical, health, or environmental hazard in the workplace. Refer to the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), United Nations, New York and Geneva, 2011, ST/SG/AC.10/30/Rev.4 for determination methods to classify chemical substances or mixtures as hazardous. This procedure covers all hazardous chemicals without exception.

Roles and Responsibilities

HCP Administrator

The Health and Safety Manager (HSM) is the administrator of the Company Hazard Communication Program and is responsible for implementing and enforcing the requirements in this practice, assuring that E-Corp employees are complying with the requirements of the HCP program, and will document all necessary training of employees. The HSM or representative designated by HSM shall also validate that contractors have been notified of other subcontractors' chemicals and HCP programs on multi-employer worksites. E-Corp will provide employees and new hires at their initial assignment effective information and training on hazardous chemicals in their work area following the guidelines in the training section of this program.

Project Managers (PM)

The PM is responsible for ensuring that all materials imported, exported, or used on their site are properly labeled and the appropriate Safety Data Sheet (SDS) is provided with the material.

Site Safety and Health Officer (SSHO)

SSHO is responsible for ensuring that a SDS for every hazardous substance on site is contained in the SDS binder. If there is no SDS on site, the SSHO must obtain one. SSHO is responsible for ensuring that all employees on their site have been trained on HCP before beginning work on the site.

Employees

Employees are responsible for labeling containers that they possess and use in their duties. If they encounter an unlabeled or improperly labeled container for which the contents cannot be determined, they should notify their supervisor, the PM, or the HSM. They should also report to their supervisor if a container is encountered that is suspected to contain a material other than the one indicated on the label. The employee is accountable for following the site labeling procedure, set forth below, including labeling of new portable containers. The person who

unpacks new containers is responsible for labeling them.

Definitions

Carcinogen: Any substance that may cause cancer in the human body.

Contractor: An individual under a contractual relationship to supply E-Corp or one of its subsidiary companies with goods and/or services.

Consumer Products: Products that are used in the workplace in the same manner that a consumer would use them, i.e., where the duration and frequency of use (and therefore exposure) is not greater than what the typical consumer would experience.

Director: The Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

Distributor: a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.

Hazardous chemical: any chemical which is a physical hazard or a health hazard.

Hazard warning: any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects of the chemical(s) in the container(s).

Identity: any chemical or common name which is indicated on the SDS for the chemical. The identity used shall permit cross references to be made among the required list of hazardous chemicals, the label and the SDS.

Label: any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

Safety Data Sheet (SDS): written or printed material concerning a hazardous chemical which is prepared in accordance with SDS requirements, formerly Material Safety Data Sheet.

Permissible Exposure Limit (PEL): A time weighted average concentration under which most people can be exposed for eight hours per day, 40 hours per week, for a working lifetime without adverse health effects. These limits are published and enforced by OSHA as a legal requirement.

Pictogram: A graphical composition that may include a symbol plus other graphic elements, such as a border, background pattern or color that is intended to convey specific information.

Route of Entry: The way a chemical is taken into the human body. This includes inhalation, absorption through the skin, ingestion, and injection.

Symbol: A graphical element intended to succinctly convey specific information.

Threshold Limit Value (TLV) - A time weighted average concentration under which most people can be exposed for eight hours per day, 40 hours per week, for a working lifetime without adverse health effects. These limit values are published by the American Conference of Governmental Industrial Hygienists (ACGIH) and are only recommendations. They are often more stringent than the legally binding OSHA PEL values.

Toxicity: The property of a chemical that refers to the harmful effects on humans.

Hazard Communication Plan & Program

General Policy Statement

The management of E-Corp is committed to preventing accidents and ensuring the safety and health of our employees. We will comply with all applicable federal and state health and safety rules and provide a safe, healthful environment for all our employees. This written hazard-communication plan is available for review by all employees and will be kept at each jobsite by the foreman in charge, or in the office.

Employees will be notified of any hazardous substances used by any company other than E-Corp in the workplace and make SDS available to employees. This will be done on a project specific basis.

This practice covers all hazardous chemicals. It does not cover consumer products that are used in the same manner that a consumer would use them. Employees who are required to work with hazardous chemicals in a manner that results in a duration and frequency of exposure greater than what a normal consumer would experience have a right to know about the properties of those hazardous chemicals and they shall be included in the Hazard Communication Program and have a SDS.

Container Labeling

The purpose of a container warning label is to warn employees about the container's contents and to refer employees to an appropriate Safety Data Sheet for more information about the chemical's physical and health hazards. Manufacturers, importers, and distributors must ensure that each hazardous chemical product sold to you has a label that includes the chemical's identity, a hazard warning, and a name and address for additional information about the product. If you use hazardous chemicals at your workplace, you must ensure that each hazardous chemical container has a legible label, in English that identifies the chemical and warns of its hazards.

All chemical containers shall be procured with proper labels. The containers shall be delivered with a SDS unless a current SDS is on location. The labels shall be legible, in English. Labels shall be prominently displayed on the container or readily available in the work area throughout each work shift.

All containers used on the job will be labeled for content, and precautions if substance contained is hazardous. Materials will be left in their manufacturer's container, returned to the container immediately after use, or any unused portion disposed of properly. If labels become illegible for any reason, a new label will be affixed containing all required precautionary information, or the material disposed of properly.

The Site Safety and Health Officer (SSHO) will ensure that each container of hazardous chemicals in the workplace is labeled, tagged, or marked with the required information.

Content of a warning label

Labels provided by the manufacturer, importer or distributor shall include:

- Identity: The chemical or common name as it appears on the SDS.
- Hazard Warnings: Shall convey the physical and/or health hazards, including target organ effects associated with that chemical.
- Contact Information: The name and address of the chemical manufacturer or importer in case of spill or accident.
- Symbol: Visual representation of the hazard via pictogram.

- Signal word: Shall alert for a potential hazard and convey the potential severity of the hazard i.e., Danger, Warning.

If the provided container does meet these requirements additional labeling must be added that meets the same requirements as the label provided by the manufacturer, importer or distributor.

A label must be created for all containers on site. This includes bulk containers, containers for disposal or recycling, and intermediate containers. The labels must meet the same requirements as the label provided by the manufacturer, importer or distributor. Incomplete existing labels must be supplemented with the missing information.

Containers that must be labeled

Original containers of hazardous chemicals from a manufacturer, importer, or distributor must have warning labels. Do not remove or deface them. If you transfer a hazardous chemical from a labeled container to an unlabeled container, label the container. All storage tanks that contain substances regulated by the standard shall be labeled. In addition, employees must be informed of the chemical hazards of non-routine tasks and the hazards associated with chemicals in unlabeled pipes in their work areas.

An exception for portable containers

You do not need to put a warning label on a portable container if you use it to transfer a hazardous chemical from a labeled container. However, the chemical in the container must be for immediate use. This means “the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred”.

Safety Data Sheets (SDS)

Safety data sheets are readily available to all employees of E-Corp. E-Corp is required to have a SDS for each hazardous chemical used or stored at any E-Corp location. Employees can review safety data sheets for all hazardous chemicals used at the workplace. SDS are kept with the hazard communication plan at the office location or in binders in vehicles where applicable. The safety data sheets are updated and managed by the *SSHO*. If a SDS is not available for a hazardous chemical, before use, notify the *SSHO*, and a SDS will be obtained for the chemical to be used.

SDSs are not required for consumer products when the products are used in the workplace in the same manner that a consumer would use them, i.e., where the duration and frequency of use (and therefore exposure) is not greater than what the typical consumer would experience.

Information required on Safety Data Sheets

SDSs, that meet the GHS guidance, shall contain the following information in the order given below:

1. Identification
2. Hazard(s) identification
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/personal protection

9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

Employee Training

Before they start their jobs, new employees will receive hazard communication training that covers the following topics:

- An overview of the requirements in OSHA's 29CFR 1910.1200 hazard communication rules.
- Hazardous chemicals present in their workplace.
- The written hazard-communication plan, and where it may be reviewed.
- Physical and health effects of the hazardous chemicals, including target organ effects associated with chemicals or classes of chemicals in the work area.
- Methods used to determine the presence or release of hazardous chemicals in the work area including chemicals in unlabeled pipes.
- How to reduce or prevent exposure to these hazardous chemicals through use of control/work practices and personal protective equipment.
- Steps we have taken to reduce or prevent exposure to these chemicals.
- Emergency procedures to follow if an employee is exposed to these chemicals.
- How to read labels and review safety data sheets to facilitate recognition and understanding.
- Where to find and how to read the hazard-communication plan, the list of hazardous chemicals, and SDS.
- The meaning of warning labels on hazardous-chemical containers and on pipes that contain hazardous substances.
- How to use personal protective equipment.

After attending the training, each employee will sign a company training form verifying that they understand the above topics and how the topics are related to our hazard communication plan.

Hazardous Chemicals List

The Hazardous Chemicals list identifies all hazardous chemicals used at the workplace. This list is site specific. Detailed information about the physical and health effects of each chemical is included in the SDS; the identity of each chemical on the list matches the identity of the chemical on its safety data sheet. SDS's are readily available to employees in their work areas from the Site Superintendent or in the office.

Hazardous Non-Routine Tasks

Changes of job assignments, changes in materials used, or any non-routine tasks involving hazardous substances or conditions will require notification and/or retraining of effected employees. The SSHO will inform or retrain employees of any new or additional hazards, detail methods of hazard abatement or elimination, and provide proper personal protective equipment or engineering controls necessary for the job and what to do in an emergency.

Notifications and retraining will be documented as to name of employee, date, description of action taken, and verification by the SSHO.

Hazardous Chemicals in Pipes, Closed, or Hidden Systems

Before working in areas where hazardous chemicals are transferred through pipes (labeled or unlabeled) or where pipes are insulated with asbestos-containing material, employees will contact the SSHO for the following information:

- The chemicals in the pipes.
- The physical or health effects of the chemicals or the asbestos insulation.
- The safe work practices to prevent exposure.

Notification of Contractors

It is the responsibility of the assigned job foreman to provide any workplace associated contractors and their employees with the following information if they may be exposed to hazardous chemicals in our workplace:

- The identity of the chemicals, how to review safety data sheets, and an explanation of the container and pipe labeling system.
- Safe work practices to prevent exposure. This person will also obtain a safety data sheet for any hazardous chemical a contractor brings into the workplace to which an employee of E-Corp may be exposed.

The Hazard Communication Process

Hazard communication begins when chemical manufacturers and importers evaluate their products to determine each product's chemical hazards. Next, they prepare a SDS for each product. A SDS includes detailed information about the product's hazards. Manufacturers and importers must include a SDS and a warning label with each container of product that they ship to a customer.

Definition of a Hazardous Chemical

OSHA's hazard-communication rule, 1910.1200, defines a hazardous chemical as "any element, chemical compound, or mixture that is a physical hazard or a health hazard."

How to determine if a chemical is hazardous

A chemical is hazardous if it is listed in one of the following documents:

- OSHA Division 2, Subdivision Z safety and health rules, Toxic and Hazardous Substances; Division 3, Subdivision Z, Toxic and Hazardous Substances (Construction); Division 4, Subdivision Z, Chemical/Toxins (Agriculture)
- Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment (latest edition). Published by the American Conference of Industrial Hygienists (ACGIH)
- The Registry of Toxic Effects of Chemical Substances, published by the National Institute for Occupational Safety and Health (NIOSH)
- The container label of the product will issue a warning of hazardous effects.

Responsibilities of chemical manufacturers, importers, and distributors

Chemical manufacturers and importers must prepare a safety data sheet for each hazardous chemical product they produce. Distributors are responsible for ensuring that you have a safety

data sheet for each hazardous chemical product they sell to you.

Chemical manufacturers, importers or employers classifying chemicals shall identify and consider the full range of available scientific literature and other evidence concerning the potential hazards. Appendix A to § 1910.1200 shall be consulted for classification of health hazards, and Appendix B to § 1910.1200 shall be consulted for the classification of physical hazards.

What to do if you use hazardous chemical products at your workplace

You must have a current SDS for each product. Employees must be able to review safety data sheets in their work area at any time. SDSs can be available in a notebook or on a computer; however, employees must be able to obtain the information immediately in an emergency. The SSHO must ensure that the list of hazardous chemicals is current, that the identity of each chemical on the list matches its identity on its SDS, and that incoming hazardous-chemical containers have SDSs. Each SDS received should be forwarded to the SSHO at the work location.

What to do when you no longer use a hazardous chemical at your workplace










When a hazardous chemical is no longer used, its SDS must be maintained on file locally for 30 years from the date of the last known exposure. For more information about record-keeping requirements, see 1910.1020(d)(1)(ii)(B), "Access to employee exposure and medical records."

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/03/21
02	Stacy Maxfield	Annual Review/Update	09/27/22















Symbols and Pictograms

Following are GHS examples of Symbols and Pictograms that may be used:

GHS Pictograms and Hazard Classes		
 <ul style="list-style-type: none">• Oxidizers	 <ul style="list-style-type: none">• Flammables• Self Reactives• Pyrophorics• Self-Heating• Emits Flammable Gas• Organic Peroxides	 <ul style="list-style-type: none">• Explosives• Self Reactives• Organic Peroxides
 <ul style="list-style-type: none">• Acute toxicity (severe)	 <ul style="list-style-type: none">• Corrosives	 <ul style="list-style-type: none">• Gases Under Pressure
 <ul style="list-style-type: none">• Carcinogen• Respiratory Sensitizer• Reproductive Toxicity• Target Organ Toxicity• Mutagenicity• Aspiration Toxicity	 <ul style="list-style-type: none">• Environmental Toxicity	 <ul style="list-style-type: none">• Irritant• Dermal Sensitizer• Acute toxicity (harmful)• Narcotic Effects• Respiratory Tract Irritation

Source: A Guide to The Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Rev 6.0 – United Nations

Transport Pictograms

Transport "Pictograms"		
 <p>Flammable Liquid Flammable Gas Flammable Aerosol</p>	 <p>Flammable solid Self-Reactive Substances</p>	 <p>Pyrophorics (Spontaneously Combustible) Self-Heating Substances</p>
 <p>Substances, which in contact with water, emit flammable gases (Dangerous When Wet)</p>	 <p>Oxidizing Gases Oxidizing Liquids Oxidizing Solids</p>	 <p>Explosive Divisions 1.1, 1.2, 1.3</p>
 <p>Explosive Division 1.4</p>	 <p>Explosive Division 1.5</p>	 <p>Explosive Division 1.6</p>
 <p>Compressed Gases</p>	 <p>Acute Toxicity (Poison): Oral, Dermal, Inhalation</p>	 <p>Corrosive</p>
 <p>Marine Pollutant</p>	 <p>Organic Peroxides</p>	

Source: A Guide to The Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Rev 6.0 – United Nations

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Hazardous Materials Program

Purpose

E-Corp is committed to the safety and health of our employees and protection from Hazardous Materials at our project locations. Portions of this program will apply at all project sites. This program gives general guidelines for hazardous materials. Site specific requirements will be addressed in the Site Specific Health and Safety Plan (SSHSP) for the project.

This policy for the prevention of employee exposure to hazardous materials is adopted in accordance with the following OSHA regulations:

- OSHA Regulations 29CFR 1926
- USEPA Office of Solid Waste, NESHAP, and applicable state regulations
- US DOT Regulations, 49 CFR 100-185
- TSCA and relevant documentation
- USACE Safety Manual EM 385 1-1 and ER 385 1-92

Asbestos

Asbestos is the name that is used for a group of six different fibrous minerals (amosite, chrysotile, crocidolite, and the fibrous varieties of tremolite, actinolite, and anthophyllite) that occur naturally in soil and rocks in some areas. Asbestos fibers vary in length and may be straight or curled.

Asbestos fibers are resistant to heat and most chemicals. Because of this, asbestos fibers are used for a wide range of manufactured goods, mostly roofing shingles, ceiling and floor tiles, paper products, asbestos cement products, friction products (automobile clutch, brake, and transmission parts), textiles, packaging, gaskets, and coatings.

Breathing very high levels of asbestos may result in a slow buildup of scar-like tissue in the lungs and in the membrane that surrounds the lungs. This disease is called asbestosis and is usually found in asbestos workers and not in the general public. The Department of Health and Human Services has determined that asbestos is a known carcinogen. There are two types of cancer caused by exposure to high levels of asbestos: cancer of the lung tissue itself and mesothelioma, a cancer of the membrane that surrounds the lung and other internal organs. Both are usually fatal. These diseases do not develop immediately but show up only after many years.

Interactions between cigarette smoke and asbestos increase your chances of getting lung cancer. Studies of workers suggest that breathing asbestos can increase the chances of getting cancer in other parts of the body (stomach, intestines, esophagus, pancreas, kidneys), but this is not certain.

When asbestos is found on E-Corp project locations, Stop Work Authority will be issued, and asbestos will be contained. Where asbestos abatement is required, a site-specific asbestos abatement plan will be required.

E-Corp shall ensure that employees who may potentially be exposed to asbestos hazards are protected from those hazards. When acting as a general contractor, E-Corp will determine whether the asbestos subcontractor follows applicable EPA and OSHA regulations regarding asbestos work. Any asbestos work performed within a regulated area must be supervised by a competent person. Any asbestos work performed must comply with federal, state, and local requirements. All asbestos containing material will be properly disposed of as a hazardous waste following all applicable local, state, and federal regulations.

Health Effects Summary

Acute: No reliable data are available on the acute toxic effects from short-term exposures to asbestos. No Health Advisories have been established for short-term exposures.

Chronic: Asbestos has the potential to cause lung disease from a lifetime exposure at levels above the PEL.

Cancer: Existing health data indicate that the risk of developing cancers associated with asbestos exposure increase proportionately with increasing exposure. A safe level of exposure, below which cancer will not occur, has not been established. Because asbestos is a confirmed human carcinogen, and a safe exposure level has not been determined, exposures should be maintained as low as reasonably achievable (ALARA).

Initial Exposure Assessment

An exposure assessment and plan will be completed for each project in which asbestos abatement work will be completed.

Prior to beginning work with Asbestos Containing Material (ACM) or Presumed Asbestos Containing Material (PACM), a competent person shall conduct an exposure assessment immediately before or at the initiation of the operation to ascertain expected exposures during that operation. This is usually completed by the client.

Monitoring

Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures.

Permissible exposure limit (PEL)- Air samples shall be performed to ensure no employee is exposed to an airborne concentration of asbestos more than 0.1 fiber per cubic centimeter (f/cc) of air as an 8-hour TWA.

Excursion limit- no employee shall be exposed to an airborne concentration of asbestos more than 1.0 f/cc as averaged over a sampling period of thirty minutes.

Representative PEL employee exposure shall be determined based on one or more samples representing full-shift exposure for employees in each work area. Representative 30-minute short-term employee exposures shall be determined based on one or more samples representing 30-minute exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each work area.

Work Practices

Where feasible, engineering controls will be used to reduce exposure to ACM and PACM. These include but are not limited to the following:

- Vacuum cleaners equipped with HEPA filters must be used to collect all debris and dust containing ACM and PACM.
- Wet methods or wetting agents to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup.
- Prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers.
- Local exhaust ventilation equipped with HEPA filter dust collection systems.
- Enclosure or isolation of processes producing asbestos dust.
- Ventilation of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter.

The following work practices and engineering controls **shall not be used** for work related to asbestos or for work which disturbs ACM or PACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

- High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.
- Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.
- Dry sweeping, shoveling or other dry clean-up of dust and debris containing ACM and PACM.
- Employee rotation as a means of reducing employee exposure to asbestos.

Class I, II, III, and IV Asbestos work

Class I asbestos work- activities involving the removal of thermal system insulation (TSI) and surfacing ACM and PACM).

Class II asbestos work- activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing, siding shingles, and construction mastics.

Class III asbestos work- repair and maintenance operations, where ACM, including TSI and surfacing ACM and PACM, is likely to be disturbed.

Class IV asbestos work- maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

All Class I, II, III, and IV asbestos work shall comply with applicable federal, state, and local regulations.

Respirators

Use of respiratory protection must comply with all requirements of E-Corp Respiratory Protection Program including medical evaluation and fit testing. Respiratory protection will be selected on a job specific basis to ensure adequate protection. This will be included in the site-specific work plans and job hazard analysis.

At a minimum, respirators must be used during:

- Class I asbestos work.
- Class II asbestos work when ACM is not removed in a substantially intact state.
- Class II and III asbestos work that is not performed using wet methods, except for removal of ACM from sloped roofs when a negative-exposure assessment has been conducted and ACM is removed in an intact state.
- Class II and III asbestos work for which a negative-exposure assessment has not been conducted.
- Class III asbestos work when TSI or surfacing ACM or PACM is being disturbed.
- Class IV asbestos work performed within regulated areas where employees who are performing other work are required to use respirators.
- Work operations for which employees are exposed above the PEL or excursion limit.
- Emergencies.

Protective Clothing

Protective clothing such as coveralls or similar whole-body clothing, head coverings, gloves, and foot coverings must be used when airborne concentrations of asbestos that exceed the PEL and/or excursion limit or for which a required negative exposure assessment is not produced.

Laundering of contaminated clothing must be done in a way that prevents the release of airborne asbestos.

Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers and be labeled appropriately.

A competent person shall examine work suits at least once per work shift for rips or tears that may occur during performance of work.

When rips or tears are detected while an employee is working, they shall be immediately mended, or the work suit shall be immediately replaced.

Regulated Areas

All Class I, II and III asbestos work shall be conducted within regulated areas. Where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed a PEL, operations shall be conducted in regulated areas.

Regulated areas shall be demarcated with signs that minimize the number of persons exposed. Access to regulated areas shall be limited to trained, authorized persons.

Employees are not allowed to eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area.

Decontamination Area

A decontamination area must be established adjacent and connected to the regulated area for employee decontamination. The decontamination area shall consist of an equipment room, shower area, and clean room in series.

All employees involved in asbestos abatement activities must enter and exit the regulated area through the decontamination area.

The equipment room shall be supplied with impermeable, labeled bags and containers for the containment and disposal of contaminated protective equipment.

Shower facilities shall be provided which comply with 29 CFR 1910.141(d)(3) unless they are not feasible. The showers shall be adjacent both to the equipment room and the clean room, unless this location is not feasible.

If workers must leave the work area to shower, they must do one of the following:

- Remove asbestos contamination from their work suits in the equipment room using a HEPA vacuum before proceeding to a shower that is not adjacent to the work area.
- Remove their contaminated work suits in the equipment room, then don clean work suits, and proceed to a shower that is not adjacent to the work area.

Competent Person

On all construction work sites where asbestos abatement procedures are taking place, E-Corp shall designate a competent person, having the qualifications and authorities for ensuring worker safety and health required by Subpart C, General Safety and Health Provisions for Construction.

The competent person shall make frequent and regular inspections of the job sites. For Class I jobs, on-site inspections shall be made at least once during each work shift, and at any time at employee request. For Class II, III, and IV jobs, on-site inspections shall be made at intervals sufficient to assess whether conditions have changed, and at any reasonable time at employee request.

Duties of the competent person:

- Set up the regulated area, enclosure, or other containment.
- Ensure (by on-site inspection) the integrity of the enclosure or containment.
- Set up procedures to control entry to and exit from the enclosure and/or area.
- Supervise all employee exposure monitoring.
- Ensure that employees working within the enclosure and/or using glove bags wear respirators and protective clothing as required.
- Ensure through on-site supervision, that employees set up, use, and remove engineering controls, use work practices and personal protective equipment in compliance with all requirements.
- Ensure that employees use the hygiene facilities and observe the decontamination procedures.
- Ensure that through on-site inspection, engineering controls are functioning properly, and employees are using proper work practices.
- Ensure that notification requirements are met.

Labels

Warning signs that demarcate the regulated area shall be provided and displayed at each location where a regulated area is established.

The warning signs shall bear the following information.

**DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY**

Where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

RESPIRATORS AND PROTECTION CLOTHING ARE REQUIRED IN THIS AREA

Training

Training for asbestos abatement activities must follow EPA 40 CFR Part 763, Asbestos-Containing Material in Schools, Model Accreditation Plan. In addition, compliance with requirements specific to the state in which the asbestos abatement is being performed is required.

All personnel involved with asbestos abatement including inspectors, management planners, abatement project designers, project supervisors, and workers must complete accredited training programs specific to their discipline and hold current certifications. Many of these courses include hands on training and all require annual refresher training.

Medical Surveillance

All employees who for a combined total of 30 or more days per year are engaged in Class I, II and III work or are exposed at or above a permissible exposure limit must be enrolled in a medical surveillance program.

Recordkeeping

A copy of this program and applicable OSHA and EPA standards are available in the company's main office. They are available to all employees who wish to review them.

Training records, certifications, and fit testing records are maintained by the SSHO. These records will be updated as new employees are trained, as existing employees receive refresher training, and as new fit tests are conducted.

Copies of the medical surveillance records for all employees covered under the asbestos abatement program will be maintained. The completed medical questionnaire and the physician's documented findings are confidential and will remain at the physician's office. The company will only retain the physician's written recommendation regarding each employee's ability to perform asbestos abatement work.

When subcontractors are hired to complete asbestos abatement work, the subcontractor will retain copies of their training certifications, fit testing, and physician written opinion.

Records of required notifications will be maintained and archived on a project specific basis.

Hazardous Waste Operations and Emergency Response

E-Corp has implemented this policy to ensure that no employee is exposed to Hazardous Waste material at levels more than PELs. The Health and Safety Manager (HSM) is responsible for ensuring the following Company Policy, engineering controls, and safe work practices are enforced. This section will be applicable on RCRA sites which fall under the following regulation:

29 CFR §1910.120 – Hazardous Waste Operations & Emergency Response

General

The requirements of this section apply to clean up operations, including initial investigations and assessments, underground tank removal, or any other projects involving hazardous waste activities.

Any hazardous waste will be properly disposed of following all applicable OSHA and EPA regulations.

Hazardous waste activities shall be evaluated on a project specific basis to identify hazards specific to the project and to determine procedures appropriate for controlling employee exposure to those hazards.

Control procedures will be implemented prior to initiating site activities.

Employees who will be working with hazardous waste shall be informed of any risks that have been identified, including:

- Information concerning the chemical, physical, or toxicological properties of each substance known or suspected to be present on site that is available. Safety data sheets (SDS) will be used for hazard communication.
- A site-specific health and safety plan (SSHSP) will be developed to inform personnel engaged in waste activities of the nature, level, and degree of exposure likely, and the hazards of and controls for those exposures.
- All requirements of the SSHSP and emergency response procedures.
- An emergency response plan (ERP) shall be developed and implemented to handle anticipated emergencies prior to the commencement of hazardous waste activities.

Employees engaged in hazardous waste activities will be properly trained for their job requirements.

Prior to new or differing site activities, a briefing shall be conducted to ensure employees are knowledgeable about hazards and protective measures associated with the activity.

Medical surveillance shall be conducted in accordance with the E-Corp Medical Surveillance requirements.

Regular inspections shall be conducted by site safety personnel or site supervisor to determine the effectiveness of the SSHSP. Any deficiencies shall be corrected.

Drums and containers used during hazardous waste clean-up shall meet the appropriate DOT, OSHA, and EPA requirements.

Site Characterization and Initial Entry

A preliminary evaluation of the site shall be conducted to determine site specific hazards prior to initial entry of the site. The risks associated with those hazards shall be determined and appropriate control measures implemented. This is usually completed by the client prior to contract award.

Personal protective equipment (PPE) appropriate for the hazards shall be used during the initial entry of the site.

During initial site entry, monitoring shall be conducted to ensure the safety of personnel entering the site and will be determined by the preliminary evaluation.

Training

All personnel performing on-site work in which they may be exposed to safety or health hazards resulting from hazardous waste operations shall complete training in compliance with 29 CFR 1910.120.

E-Corp employees engaged in hazardous substance removal or other activities that expose, or potentially expose, workers to hazardous substances and health hazards will receive a minimum of 40 hours of instruction off the site, and a minimum of three days actual field experience under the direct supervision of a trained, experienced supervisor.

On-site supervisors directly responsible for, or who supervise employees engaged in, hazardous waste operations will receive 40 hours initial training and three days of supervised field experience. Supervisors will receive at least eight additional hours of specialized training at the time of job assignment.

All employees will receive eight hours of annual refresher training consisting of any critique of incidents that have occurred in the past year that can serve as training examples of related work, and other relevant topics.

Site specific training must also be completed prior to initial assignment, during safety meetings, and as deemed necessary by site safety personnel.

Personal Protective Equipment (PPE)

Chemical protective clothing and equipment to be used by personnel on site will meet OSHA requirements in §1910.120 – Appendix B.

Personal protective equipment will be selected based on site specific hazards and the performance characteristics of the equipment relative to:

- Requirements and limitations of the site.

- Task-specific conditions and duration.
- Hazards and potential hazards identified at the site.

The level of PPE required shall be increased when additional information on site conditions indicates increased protection is necessary to reduce exposure levels. All PPE used will follow the E-Corp PPE Program.

- Positive pressure self-contained breathing apparatus, or positive pressure air-line respirators equipped with an escape air supply will be used when chemical exposure levels present will create a substantial possibility of immediate death, immediate serious illness or injury, or impair the ability to escape.
- Totally encapsulating chemical protective suits (Level A) will be used in conditions where skin absorption of a hazardous substance may result in a substantial possibility of immediate death, serious illness or injury, or impair the ability to escape.
- The level of protection provided by PPE selection will be increased when additional information or site conditions show that increased protection is necessary to reduce employee exposures below permissible exposure limits.

Note: The level of protection may be decreased when additional information or site conditions show that such action will not result in hazardous exposures.

- PPE will be selected and used to meet the OSHA requirements of §1910.132 – Personal Protective Equipment, and additional requirements specified in Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations.

E-Corp's PPE program will meet requirements in §1910.120 – Appendix B and address the following:

- PPE selection based upon site hazards.
- PPE use and limitations of the equipment.
- Work mission duration.
- PPE maintenance and storage.
- PPE decontamination and disposal.
- PPE training and proper fitting.
- PPE donning and doffing procedures.
- PPE inspection procedures prior to, during, and after use.
- Evaluation of the effectiveness of the PPE program.
- Limitations during temperature extremes, heat stress, and other appropriate medical considerations.

Monitoring and Sampling

A monitoring and sampling program shall be established as part of the SSHSP to identify:

- Frequency and types of personal and air monitoring and environmental sampling techniques and instrumentation to be used.
- Methods of maintenance and calibration of monitoring and sampling equipment.
- Initial and periodic monitoring shall be conducted as required by site specific conditions.

Drum / Container Handling

Manual handling of drums and containers shall be kept to a minimum wherever possible. Refer to the Material Handling section of the Construction Safety Program for appropriate material handling techniques.

Prior to handling or opening a drum or other container, efforts shall be made to identify their contents. Unlabeled drums and containers shall be considered to contain hazardous substances and handled accordingly until the contents are identified and labeled.

Drums and containers containing hazardous waste shall be inspected prior to being moved and as required by applicable regulations.

Decontamination

Decontamination procedures shall be developed, communicated to employees, and implemented prior to any employee entering areas where potential exposure to hazardous substances exist.

All employees leaving a contaminated area shall be decontaminated appropriately. All contaminated clothing and equipment leaving the contaminated area shall be appropriately disposed of or decontaminated.

Decontamination shall be planned and located as to minimize exposure of uncontaminated equipment or employees to contamination.

Decontamination will be performed in geographical areas that minimize the exposure of uncontaminated employees or equipment to contaminated employees or equipment. All equipment and solvents used for decontamination will be decontaminated or properly disposed of.

PPE required for the decontamination area will be one level below that required in HAZWOPER hot zone area.

Labeling

- All containers of hazardous waste must be labeled with the words “hazardous waste”. Additional labeling may be required depending upon the characteristics of the hazardous waste. Labeling of hazardous waste containers shall be done under the supervision of a hazardous waste or environmental professional.
- An accumulation start date must be listed on the container.
- The contents of the container must be clearly identified.
- Prior to shipping, hazardous waste must be properly labeled and identified with applicable DOT labels.
- A Hazardous waste manifest shall be completed, and a copy retained in the project records prior to disposal of hazardous wastes.

Accumulation and storage

Hazardous waste accumulation time is dependent upon the type of vendor but is generally 90 days. Prior to storage of hazardous waste, accumulation time shall be considered to ensure disposal within the required time frame.

Hazardous wastes must be stored in designated hazardous waste storage locations.

Satellite accumulation is an alternate set of regulations for generator’s accumulation of hazardous waste. Accumulation will follow the regulations specific to the state.

Waste Disposal

All hazardous wastes generated during cleanup operations shall be properly disposed of as hazardous waste following all applicable OSHA and EPA guidelines. Disposal shall be monitored by an experienced hazardous materials or environmental professional to ensure compliance with all applicable laws and regulations.

During routine construction activities, hazardous wastes may be generated. Employees will be instructed during safety meetings in the proper disposal methods of these wastes on a site-specific basis. These include but are not limited to:

- Used Oil

- Used batteries containing battery acid
- Mercury containing lamps
- Paint
- Solvent

Lead in Construction

Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead is scattered in the air as a dust, fume or mist it can be inhaled and absorbed through your lungs and upper respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion.

There are many ways in which humans are exposed to lead: through air, drinking water, food, contaminated soil, deteriorating paint, and dust. Airborne lead enters the body when an individual breathes in or swallows lead particles or dust once it has settled. Before it was known how harmful lead could be, it was used in paint, gasoline, water pipes, and many other products.

Old lead-based paint is the most significant source of lead exposure in the U.S. today.

Most homes built before 1960 contain heavily leaded paint. Some homes built as recently as 1978 may also contain lead paint. This paint could be on window frames, walls, the outside of homes, or other surfaces. Do not burn painted wood since it may contain lead. Lead paint in good condition is usually not a problem except in places where painted surfaces rub against each other and create dust (for example, opening a window).

Health Effects Summary

Acute: Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short-term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible.

Chronic: Overexposure to lead may result in severe damage to your blood-forming, nervous, urinary, and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity, and colic. In lead colic there may be severe abdominal pain.

Damage to the central nervous system in general and the brain (encephalopathy) is one of the most severe forms of lead poisoning. Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Chronic overexposure to lead impairs the reproductive systems of both men and women. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood.

Overexposure to lead also disrupts the blood-forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor, and fatigability as a result of decreased oxygen carrying capacity in the blood.

Harmful Effects on Children

Health problems from exposure to lead can include profound developmental and neurological impairment in children. Lead poisoning has been linked to mental retardation, poor academic performance, and juvenile delinquency. The effects of lead exposure on fetuses and young children can be severe. They include delays in physical and mental development, lower IQ levels, shortened attention spans, and increased behavioral problems.

General Requirements

E-Corp shall ensure that employees who may potentially be exposed to lead hazards are protected from those hazards.

When acting as a general contractor, E-Corp shall ascertain whether the lead subcontractor is in compliance with applicable EPA and OSHA regulations regarding lead work.

Any lead work performed within a regulated area must be supervised by a competent person.

All surfaces shall be maintained as free as practicable of accumulations of lead.

All lead containing material will be properly disposed of as a hazardous waste following all applicable local, state, and federal regulations.

Prior to Beginning a Project E-Corp will:

- Determine whether any surface to be disturbed or altered contains lead or has a surface coating that contains lead.
- If any surface to be disturbed or altered contains lead, proper procedures for training, removal, protective measures, exposure assessment, and disposal must be included in the hazard analysis for the project.

All employees potentially exposed to lead must:

- Be in the medical surveillance program for lead.
- Have received training in proper procedures for removal, protective measures, exposure assessment, and disposal.

Monitoring

Air samples shall be performed to ensure no employee is exposed to an airborne concentration of lead in excess of $50 \mu\text{g}/\text{M}^3$ as an 8-hour TWA which is the PEL for occupation lead exposure.

If an employee is exposed to lead for more than 8 hours in any workday the employees' allowable exposure, as a time weighted average (TWA) for that day, shall be reduced according to the following formula:

Allowable employee exposure ($\mu\text{g}/\text{M}^3$) = $400 / \text{hours worked in the day}$.

The Action Level for occupation lead exposure is $30 \mu\text{g}/\text{M}^3$ TWA, based on an 8-hour workday. The action level initiates several requirements, such as exposure monitoring, medical surveillance, training, and education.

Monitoring for the initial determination may be limited to a representative sample of the exposed employees who are exposed to the greatest airborne concentrations of lead in the workplace.

Data obtained within the past 12 months during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the current operations, may be used as representative monitoring results.

Objective data demonstrating that a particular product or material containing lead or a specific process, operation or activity involving lead cannot result in employee exposure to lead at or

above the action level during processing, use, or handling may be used instead of initial monitoring. This data will be documented.

Initial Exposure Assessment

Any employee who may be exposed to lead at or above the action level will be included in the requirements of the lead program. Employee exposure is that exposure which would occur if the employee were not using a respirator.

While completing the exposure assessment, if employee exposure will be assumed to be above the PEL, but not more than ten times the PEL, appropriate protective measures shall be implemented.

If it is established that employees may be exposed to 10 times the PEL, employees will wear appropriate respiratory protection.

If it is established that employees may be exposed to 25 times the PEL, employees will wear appropriate respiratory protection for this level of exposure.

Exposure assessment shall include the following whenever relevant:

- Initial determinations on employee exposure monitoring.
- Information, observations, or calculations that would indicate employee exposure to lead.
- Previous measurements of airborne lead.
- Employee complaints of symptoms that may be attributable to exposure to lead.

Negative initial determination is made when no employee is exposed to airborne concentrations of lead at or above the action level. Written documentation of this determination will be made, including the date of determination, location within the worksite, and the name and social security number of each employee monitored.

If the initial determination or subsequent determination reveals employee exposure to be at or above the action level but at or below the PEL, monitoring must be completed at least every 6 months until at least two consecutive measurements, taken at least 7 days apart, are below the action level. Monitoring will be discontinued until additional exposure assessments are required.

If the initial determination reveals that employee exposure is above the PEL, monitoring will be performed quarterly until at least two consecutive measurements, taken at least 7 days apart, are at or below the PEL but at or above the action level.

Additional exposure assessments are required whenever there has been a change of equipment, process, control, personnel, or a new task has been initiated that may result in additional employees being exposed to lead at or above the action level or PEL.

Within 5 working days after completion of the exposure assessment the employer shall notify each employee in writing of the results representative of that employee's exposure.

Work Practices

Where feasible, engineering controls will be used to reduce exposure to lead. These may include but are not limited to the following:

- Vacuum cleaners equipped with HEPA filters.
- Prompt clean-up and disposal of wastes and debris contaminated with lead.
- Local exhaust ventilation equipped with HEPA filter dust collection systems.
- Enclosure or isolation of processes producing lead dust.
- Ventilation of the area.

Lead Compliance Plan

Exposures above the PEL of 50 $\mu\text{g}/\text{M}^3$ 8-hour TWA require that a lead compliance plan be developed. The compliance plan must include the following topics:

- Description of work activities that expose personnel to lead.
- Equipment to be used and procedures to be followed during lead exposure activities.
- Employee job responsibility and crew size during lead exposure activities.
- Maintenance practices to be followed for servicing and cleaning equipment and disposing of waste.
- Specific instructions on how to set up engineering controls (ventilation, containment, etc.).
- Air monitoring data from initial assessment.
- A detailed work schedule for implementation.
- A description of arrangements made among contractors on multi-contractor sites with respect to informing affected employees of potential exposure to lead.
- The name of the competent person for the site.

A competent person must be appointed who will be responsible for performing regular inspections of the job site, materials, and equipment during the job.

The lead compliance plan must be reviewed and updated at least every 6 months to ensure it reflects the current status in exposure control.

Respiratory Protection

Use of respiratory protection must comply with all requirements of E-Corp Respiratory Protection Program including medical evaluation and fit testing.

Respiratory protection will be selected on a job specific basis to ensure adequate protection. This will be included in the site-specific work plans and activity hazard analysis.

Protective Clothing and Equipment

Personal protective equipment and clothing is required in addition to respiratory protection, including but not limited to the following:

- Full body covering will be required, either coveralls or long-sleeved shirts and long pants.
- Gloves, hats, and disposable shoe coverings will be required for workers in the area from which lead is being removed.
- Face shields, safety glasses, goggles, or other appropriate protective gear may be required.
- Any additional PPE as specified in the lead compliance plan.

Cleaning, laundering, and disposal of protective clothing will be provided at no cost to employees.

Protective clothing will be removed in change areas.

Decontamination Area

- A clean change room equipped with separate lockers for the storage of street clothes and work clothes will be provided.
- Shower and hand washing facilities will be provided.
- Lunch areas free from lead contamination will be provided.
- Contaminated clothing and equipment are prohibited outside of the lead work area.
- Lead workers are required to shower at the end of the shift and wash up before eating and drinking.
- Dirty or contaminated equipment must be segregated from clean work areas.
- All lead-contaminated surfaces must be vacuumed with a HEPA vacuum to reduce lead

exposure.

Competent Person

On all construction work sites where lead abatement procedures are taking place, E-Corp shall designate a competent person, having the qualifications and authorities for ensuring worker safety and health required by Subpart C, General Safety and Health Provisions for Construction (29 CFR 1926.20 through 1926.32). The competent person may be a subcontractor.

The competent person shall make frequent and regular inspections of the job sites and ensure employees have been properly trained for work duties.

Notification

Any subcontractors working near the lead contaminated area must be notified of lead abatement activities before work begins.

Labels

Mark the lead hazardous areas with boundary tape and signs.

The following warning sign shall be posted in each work area where an employee's exposure to lead is above the PEL:

**DANGER
LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK OR SMOKE IN THIS AREA**

Lead contaminated equipment and debris shall be marked with labels warning of the lead hazard.

Training

Training will be conducted in accordance with 29 CFR 1926.59, hazard communication standard.

Training will be conducted upon initial assignment to job classifications in which lead exposure could occur and in addition annually for employees exposed to lead at or above the action level.

The training program will include the contents of 29 CFR 1926.62, Lead.

Medical Surveillance

Initial medical surveillance is required for employees occupationally exposed on any day to lead at or above the action level. Initial medical surveillance consists of biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin (ZPP) levels.

Continued medical surveillance is required for all employees who are or may be exposed at or above the action level for more than 30 days in any consecutive 12 months.

Medical examinations and procedures must be performed by or under the supervision of a licensed physician.

Biological monitoring or blood lead and ZPP level sampling and analysis must be performed at least every 2 months for the first 6 months and every 6 months thereafter.

For each employee whose last blood sampling and analysis indicated a blood lead level at or above 40 µg/dl, at least every two months until two consecutive blood samples indicate blood lead level below 40 µg/dl.

For each employee who is removed from exposure to lead due to an elevated blood lead level at least monthly during the removal period.

Within five working days after the receipt of biological monitoring results, the employer shall notify each employee in writing of his or her blood lead level.

Medical examinations must be available at least annually for employees for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 µg/dl.

Medical evaluations must include:

- A detailed work history and a medical history, with particular attention to past lead exposure, personal habits, and past gastrointestinal, hematologic, renal, cardiovascular, reproductive, and neurological problems.
- A thorough physical examination.
- A blood pressure measurement.
- A blood sample and analysis which determines blood lead level, hemoglobin determinations, red cell indices, zinc protoporphyrin, blood urea nitrogen, and serum creatinine.
- A routine urinalysis.
- Any laboratory or other test relevant to lead exposure which the examining physician deems necessary by sound medical practice.

Employees may choose a second physician for medical evaluations.

A copy of a written medical opinion from each examining or consulting physician will be maintained in the employee's confidential medical files.

An employee may be temporarily removed from work duties due to elevated blood lead level. Elevated blood lead level includes any employee who has occupational exposure to lead at or above the action level whose blood lead level is at or above 50 µg/dl or a final medical determination from a physician that increases risk of lead exposure.

An employee shall be returned to his or her former job status when:

- Blood lead level is at or below 40 µg/dl.
- When a subsequent final medical determination shows the employee no longer has a medical condition which places the employee at increased risk from exposure to lead.

Employees shall retain their medical removal protection benefits for 18 months following removal.

Recordkeeping

A copy of this program and applicable OSHA and EPA standards are available in E-Corp's main office. They are available to all employees who wish to review them.

Training records, certifications, and fit testing records are maintained by the SSHO in the office. These records will be updated as new employees are trained, as existing employees receive refresher training, and as new fit tests are conducted.

Copies of the medical surveillance records for all employees covered under the lead abatement program will be maintained. The completed medical questionnaire and the physician's documented findings are confidential and will remain at the physician's office. The company will only retain the physician's written recommendation regarding each employee's ability to perform lead abatement work.

When subcontractors are hired to complete lead abatement work, the subcontractor will retain copies of their training certifications, fit testing, and physician written opinion.

Records of required notifications will be maintained and archived on a project specific basis.

Medical Surveillance

Medical surveillance is required for employees who:

- Are or may be exposed to hazardous substances or health hazards at or above the permissible exposure limits, without regard for the use of respirators, for 30 days or more per year.
- Wear a respirator for 30 days or more per year or as required by the Respiratory Protection Program.
- Become injured or ill or develop signs or symptoms due to possible over exposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation.
- Are members of a HAZMAT team.

Medical examinations must be completed:

- Prior to assignment of the employee.
- At least once every twelve months for each employee unless the attending physician believes a longer interval is appropriate.
- At the time of termination of employment or reassignment if the employee has not had an examination within the past six months.
- As soon as possible upon notification that an employee has developed signs or symptoms indicating possible over exposure.
- More frequently if the examining physician determines increased frequency is medically necessary.

Medical examinations and procedures must be performed by or under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine, and are provided at no cost to the employee at a reasonable time and place.

The following shall be provided to the physician:

- One copy of the standard applicable to the exposure.
- A description of the employee's duties as they relate to the employee's exposure.
- The employee's exposure level or anticipated exposure level.
- A description of any personal protective equipment used.
- Information from the employee's previous medical examinations which is not readily available to the physician.

Medical examinations shall include a medical and work history with special emphasis placed on symptoms related to the handling of hazardous substances and health hazards. Fitness for duty including the ability to wear any required personal protective equipment shall also be considered.

The content of the medical examinations shall be determined by the examining physician after review of applicable regulatory standards.

A written opinion shall be obtained from the examining physician. This written opinion shall contain the results of the medical examination and shall include:

- The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of health impairment from potential exposure.
- Any recommended limitations on the employee or on the use of personal protective equipment such as respirators.
- The results of the medical examination and tests if requested by the employee.
- A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions which require further examination or treatment.

The written statement obtained shall not reveal specific findings or diagnoses unrelated to occupational exposures or activities.

All employees required to wear a negative pressure respirator must be in the medical surveillance program under the Respiratory Protection Program.

All employees performing asbestos abatement must be under medical surveillance which follows the guidelines in 29 CFR 1926.1101, Asbestos.

All employees performing lead abatement must be under medical surveillance which follows the guidelines in 29 CFR 1926.62, Lead.

If employees are exposed to other hazardous materials which require specific medical surveillance per 29 CFR 1926 Subpart Z, Toxic and Hazardous Substances, those guidelines will apply.

No medical examination is required of any employee if adequate records show that the employee has been examined within the past 1-year period.

An accurate record of medical surveillance shall be retained in a confidential medical file and shall include at least the following:

- The name and employee ID number.
- The physician's written opinions, recommended limitations, and results of examinations and tests applicable to occupational exposure.
- Any employee medical complaints related to exposure to hazardous substances.
- A copy of information provided to the examining physician by the employer (except for applicable regulations).

Monitoring Equipment

Selection

Selection of monitoring equipment will be completed on a project specific basis and will be dependent upon the anticipated hazards of the project.

All reasonably anticipated hazards will be considered in selection of monitoring equipment. Anticipation of hazards will include any previous monitoring results, known contaminants, and contamination levels or hazardous levels of contaminants.

Air monitoring may be conducted using direct read instruments which can rapidly detect and quantify flammable or explosive atmospheres, oxygen deficiency, and certain gases and vapors. Where exact exposure levels are required, personal monitoring may be used to determine individual exposure levels or area monitoring to determine area levels.

All confined spaces will be monitored using direct read instruments at a minimum for oxygen deficiency, flammable gases and vapors, and any toxic gases and vapors reasonably anticipated to be present.

All monitoring equipment will be used in compliance with the manufacturer recommendations for the specific equipment.

Due to potential erroneous results because of filament fouling, the order of monitoring is as follows:

1. Oxygen level
2. Flammable gases and vapors
3. Toxic gases and vapors

Oxygen Meter

Oxygen meters will be used to detect oxygen concentrations in areas such as trenches, pits, confined spaces, tanks, etc. that could reasonably be oxygen-deficient or enriched.

Concentrations of less than 19.5% will be considered oxygen deficient. Ventilation will be provided when oxygen deficient atmospheres are present. Workers will enter oxygen deficient atmospheres only with air-supplying respirators and only when necessary.

Concentrations of more than 23.0% will be considered oxygen enriched. Oxygen enriched atmospheres may be explosive, therefore workers will not enter oxygen enriched atmospheres.

The operation of oxygen meters depends on the absolute atmospheric pressure. The concentration of oxygen in the atmosphere is a function of the atmospheric pressure which varies as a function of altitude. Therefore, it is necessary to calibrate the meter at the elevation it is going to be used.

Combustible Gas Indicator

Combustible gas indicators (CGI) will be used to detect flammable conditions in areas such as trenches, pits, confined spaces, tanks, etc. that could reasonably be expected to be flammable.

A CGI measures the concentration of a flammable vapor or gas in air, indicating the result as a percentage of the lower explosive limit (LEL) of the calibration gas.

The LEL of a combustible gas or vapor is the lowest concentration by volume in air that will explode, ignite, or burn in the presence of an ignition source and sufficient oxygen. The upper explosive limit (UEL) is the maximum concentration. Above the UEL, the atmosphere is too saturated to support combustion, so ignition is impossible. Below the LEL, there is insufficient fuel to support ignition.

Limitations of a CGI include:

- The reaction is temperature dependent. Therefore, the measurement is only as accurate as the incremental difference between calibration and ambient (sampling) temperatures.
- Instrument sensitivity is a function of physical and chemical properties of the calibration gas versus those of the unknown contaminant. Most combustible gas indicators are calibrated to read accurately for methane or pentane, but not all combustible gases and vapors will give the same response as the calibration gas. Because of the variation in the relative response of the flammable substance in the atmosphere to the calibration gas (e.g., methane), the instrument may not give an accurate indication of the flammable hazard. The read (percent LEL) may be higher or lower than the actual concentrations.
- There is no differentiation between petroleum vapors and combustible gases unless a charcoal pre-filter is employed.
- The unit is intended for use only in normal atmospheres, not atmospheres that are oxygen enriched or deficient. Oxygen concentrations that are less than or greater than normal may cause erroneous readings. Therefore, oxygen concentration should be tested prior to combustible gases when testing for multiple hazards.
- Leaded gasoline vapors, halogens, and sulfur compounds will foul the filament, decreasing its sensitivity. Compounds containing silicone will destroy the platinum filament.

Ionization Devices

Ionization devices are used to detect the presence of organic vapors in the atmospheres of work areas. The devices function by subjecting the test atmosphere to an energy source that causes the contaminant to ionize or break into charged particles (ions). The energy produced by these ions can be measured electrically to produce an indication on the scale of the device, measured in parts per million.

Noise

Sound level meters or personal noise dosimeters may be used to measure the intensity of sound during project phases suspected to have high noise levels. These phases may include excavation, drilling, use of power saws, etc. Measurements will be on the A-weighted scale and will be expressed in decibels (dB). Worker exposures will be calculated over an eight hour time weighted average (8-hour TWA). Workers exposed to high noise levels (over 85 dB 8-hour TWA) will be included in E-Corp's Hearing Conservation Program.

Personal Monitoring Equipment

Monitoring equipment used to determine personal exposure levels over a period will be calibrated both before and after use to ensure accurate measurement levels throughout duration of exposure. Personal monitoring will be done under the direction of an industrial hygienist.

Calibration Schedule

Instruments shall be calibrated in accordance with the manufacturer guidelines and recommendations.

Where required by the manufacturer, instruments will be serviced annually by personnel familiar with the instrumentation and service requirements. This will be done by the manufacturer or authorized service center.

Instruments that are calibrated before each use will be calibrated by personnel familiar with calibration procedures. Guidelines in the instrumentation manual will be followed.

Calibration Records

A record of each calibration shall be maintained for at least one year. For instruments that move from project to project, a calibration record shall be maintained by the HSM, and a record of the last calibration shall stay with the equipment.

Sample Handling and Storage

Sample Methods

Project specific sample handling and methods will be determined prior to beginning any project work. This will be included in the site-specific quality control procedures.

Field notes (field logbook or log sheet) will be used to record sample identification numbers and significant observations or events which occur during field sampling activities. Field notes shall be dated, legible, in ink, and contain complete and accurate documentation. The following information shall be present in the field notes:

- Project name and number
- Site location
- Date
- Sampling event information
- Name of person taking sample

A unique identification number will be assigned to each sample. Method of determining sample numbers will be project specific.

Sample supplies must be complete and checked prior to beginning sampling to ensure cleanliness.

Samples shall be labeled appropriately with field sample numbers.

Samples will be stored appropriately for the project. Where applicable, samples shall be stored in coolers to maintain appropriate temperatures.

Field blanks will be used whenever appropriate. Field blanks will be always stored with samples after collection.

Sample Handling and Custody

Sample custody must be maintained and documented from the time of sample collection to completion of analysis.

Samples will be accompanied to the laboratory by a chain of custody form. When samples are transferred from one party to another, everyone will sign, date, and record the time on the form. Sampling personnel will retain a copy of the form and a separate form will be submitted with the samples to the laboratory.

Analytical Methods

Samples will be analyzed by laboratories with good reputations that are familiar with the methods required for analysis.

Analytical methods used for sampling must be approved methods used in the industry and be accurate to levels required by the project specifications.

Appropriate statistical procedures and confidence limits will be followed by any laboratory completing analysis for E-Corp.

Transportation of Hazardous Materials

General

Materials are designated hazardous for transportation when the material in a particular amount and form may pose an unreasonable risk to health and safety or property. This may include but not be limited to materials with the following properties: explosive, radioactive, etiologic agent, flammable or combustible liquid or solid, poison, oxidizing, corrosive, or compressed gases.

Regulations for safe transportation of materials considered hazardous in intrastate, interstate, and foreign commerce have been established and must be followed by all E-Corp personnel.

Registration with the Secretary of Transportation is required for transporting specific types and quantities of material. See Department of Transportation (DOT) regulations, 49 CFR 100-185 for details on required registration.

Hazardous materials must be labeled in accordance with all DOT requirements for the material being transported. DOT marking, labeling, and placarding systems must be used to identify the hazardous properties of materials being transported.

Marking

Marking means putting the required information on the outer packages of hazardous materials. This includes a proper shipping name, identification (ID) number, specifications or UN labels and instructions and/or cautions.

All markings must be durable, in English, and printed on the package or affixed to the surface of the package. Markings must be placed on a sharply contrasting color. Packages containing limited quantities are not required to have ID numbers on the package.

If the reportable quantity (RQ) or larger amount of a material is being shipped, it must be designated on the package by the letters RQ.

With few exceptions, the name and address of the shipper and receiver must be marked on the package.

Labeling

Label refers to the prescribed hazard warning notice. Labels are applied to the outside shipping containers of hazardous materials. They identify the primary and subsidiary hazards specific to the materials.

Unless under an exemption, all packages of hazardous materials must be properly labeled. No labels may be displayed on hazardous materials packages that may be confused with or conflict with the labels required by regulation.

All labels must be durable, weather resistant, in English, and printed on the package or affixed to the surface of the package near the marked proper shipping name. Labels must be on a contrasting color background. If 2 labels are required, they must be next to each other.

Before offering to transport, transporting, or importing a means of containment that contains hazardous materials E-Corp will ensure each hazardous materials has the proper safety mark displayed upon it.

Placards

Placards must clearly communicate the hazard of material being transported and should have no visual competition.

Placards must be displayed on each side and each end of bulk packaging, freight container, or other transportation vehicle. Each placard must be readily visible from the direction it faces.

Refer to the two placarding tables in 172.504(e) for required placards. Always consult limitations in parenthesis when determining if placards are required. In addition, when determining placard requirements, always refer to exceptions in 172.504(f).

A shipper must offer proper placards to a carrier unless the carrier already has the required placards. A shipper is not allowed to transport until required placards are in place.

Placards must be placed so they are visible and at least three inches from other markings. Words and numbers must be shown horizontally.

DOT Emergency Response Guidebook

The DOT Emergency Response Guidebook was developed for use by firefighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving a hazardous material. The guidebook is updated every three years to accommodate new products and technology. It is primarily a guide to aid first responders in:

Quickly identifying the specific or generic classification of the material(s) involved in the incident.

Protecting themselves and the public during this initial response phase of the incident.

Shipping Paperwork

All shipping documentation must be kept for a period of no less than two years after the date it was prepared. Documentation must be made available upon request from an inspector.

Documentation for hazardous materials imported into the US must be kept for a period of no less than two years after the date E-Corp ensured that the carrier, on entry into the US, had a shipping document or was given an electronic copy of one. Documentation must be made available within 15 days of receipt of a written request from an inspector.

Each person offering for transportation in commerce hazardous material must provide the carrier shipping paperwork. Requirements for shipping paperwork are very specific and must include the following at a minimum:

- A description of the hazardous material, including the proper shipping name.
- The hazard class of the hazardous material.
- The identification number (UN/NA) of the hazardous material.
- Immediate first action emergency response information or a way for appropriate reference to the information (must be available immediately).
- A telephone number for obtaining more specific handling and mitigation information about the hazardous material at any time during which the material is transported.

Shipping paperwork must be kept on the vehicle transporting the material.

When an incident involving hazardous material being transported occurs, the person transporting the material shall immediately disclose to authorities information regarding the material.

Selecting Means of Containment

Before handling, offering to transport, transporting hazardous materials E-Corp will ensure the means of containment is designed, constructed, filled, closed, secured, and maintained in a way that, under normal conditions of transport, including handling, there will be no accidental release of hazardous materials that could endanger public safety.

Persons involved in the loading and securing of hazardous materials in a means of containment must load and secure hazardous materials in a way that, under normal conditions of transport, damage to the means of containment or to the means of transport will not lead to an accidental release of the hazardous materials.

Immediate Reporting

In the event of an accidental release of a quantity of hazardous materials or an emission of radiation that exceeds quantities set out for each Class of dangerous goods, the person in charge and in possession of the means of containment at the time of the accidental release must report the release immediately to the appropriate authority.

Training

All E-Corp employees involved in handling and transporting hazardous materials will be adequately trained and certified before being allowed to perform those activities. Untrained employees may perform those activities only in the presence or under the direct supervision of a person who is adequately trained and certified in those activities.

E-Corp will not direct or allow an employee to handle, offering to transport or transport hazardous materials unless the employee is adequately trained and certified or performs those activities in the presence and under the direct supervision of a person who is adequately trained and certified in those activities.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/17/21
02	Stacy Maxfield	Annual Review/Update	10/05/22

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Heat Illness Prevention Program

Purpose

E-Corp has implemented this program to ensure that no employee is exposed to “Heat Stress Illnesses” in the workplace and will evaluate if heat could be a problem on a particular day based on temperature and humidity levels, and then implement adequate controls, methods, or procedures to reduce the risk of Heat Illness.

Heat Stress shall be considered and addressed in project planning and risk assessment. The elements of this practice shall be documented in the Site-Specific Health and Safety Plan (SSHSP), when necessary. The project scope of work will be evaluated in the SSHSP and applicable HSMS programs determined. Elements from this Heat Illness Prevention Program shall be included in the SSHSP, as necessary. A site-specific control plan will be included in the SSHSP as necessary.

Recognizing and Avoiding Heat Stress

Heat Stress in Construction

Construction operations involving heavy physical work in hot, humid environments can put considerable heat stress on workers. Hot and humid conditions can occur either indoors or outdoors. Working conditions shall identify both heat stress conditions and UV exposure when work takes place outdoors during warm weather.

Outdoors

- Road building
- Residential construction
- Work on bridges
- Trenching
- Pouring and spreading tar or asphalt
- Roofing operations
- Steel Erection
- Excavation and grading
- Electrical vaults
- Interior construction and renovation

Indoors

- Steel mills and foundries
- Boiler rooms
- Pulp and paper mills
- Electrical utilities
- Petrochemical plants
- Smelters
- Furnace operations
- Oil and chemical refineries

Asbestos removal, work with hazardous wastes, and other operations that require workers to wear semi-permeable or impermeable protective clothing can contribute significantly to heat stress. Heat stress causes the body’s core temperature to rise.

When the Body’s Core Temperature Rises

The human body functions best within a narrow range of internal temperature. This “core” temperature varies from 96.8° F to 100.4° F. A construction worker performing heavy work in a hot environment builds up body heat. To get rid of excess heat and keep internal temperature below 100.4° F, the body uses two cooling mechanisms:

- The heart rate increases to move blood – and heat – from heart, lungs, and other vital

- organs to the skin.
- Sweating increases to help cool blood and body. Evaporation of sweat is the most important way the body gets rid of excess heat.

When the body's cooling mechanisms work well, core temperature drops or stabilizes at a safe level (around 98.6° F). But when too much sweat is lost through heavy labor or working under hot, humid conditions, the body does not have enough water left to cool itself. The result is dehydration. Core temperature rises above 100.4° F. A series of heat-related illnesses, or heat stress disorders, can then develop.

Recognizing Heat Stress Disorders

Heat stress disorders range from minor discomforts to life-threatening conditions:

- Heat Rash
- Heat Exhaustion
- Heat Cramps
- Heat Stroke

Heat Rash

Heat rash, also known as prickly heat, is the most common problem in hot work environments. Symptoms include:

- Red blotches and extreme itchiness in areas persistently damp with sweat
- Prickling sensation on the skin where sweating occurs.

Treatment: Cool shaded environment, cool shower, thorough drying. In most cases, heat rashes disappear a few days after heat exposure ceases. If the skin is not cleaned frequently enough, the rash may become infected.

Heat Cramps

Under extreme conditions, the body may lose salt through excessive sweating. Heat cramps can result. These are spasms in larger muscles – usually back, leg, and arm. Cramping creates hard painful lumps within the muscles.

Treatment: Shade, stretch and massage muscles; replace salt by drinking commercially available carbohydrate/electrolyte replacement fluids.

Heat Exhaustion

Heat exhaustion occurs when the body can no longer keep blood flowing to supply vital organs and send blood to the skin to reduce body temperature at the same time. Signs and symptoms of heat exhaustion include:

- Weakness
- Breathlessness
- Difficulty continuing work
- Nausea or vomiting
- Headache
- Feeling faint or actually fainting

Workers fainting from heat exhaustion while operating machinery, vehicles, or equipment can injure themselves and others.

Treatment: Heat exhaustion casualties respond quickly to prompt first aid. If not treated promptly, however, heat exhaustion can lead to heat stroke—a medical emergency.

1. Call 911

2. Help the casualty to cool off by:
 - Resting in a cool shaded place
 - Loosening clothing
 - Drinking cool water
 - Showering or sponging with cool water
 - Removing unnecessary clothing

It takes at least 30 minutes to cool the body down once a worker becomes overheated and suffers heat exhaustion.

Heat Stroke

Heat stroke occurs when the body can no longer cool itself and body temperature rises to critical levels.

WARNING: Heat stroke requires immediate medical attention. The primary signs and symptoms of heat stroke are:

- Confusion
- Lack of sweating
- Irrational behavior
- Hot, dry skin
- Loss of consciousness
- Abnormally high body temperature — for example, 104° F
- Convulsions

Treatment: For any worker showing signs or symptoms of heat stroke, Call 911.

- Provide immediate, aggressive, general cooling in a shaded area.
- Immerse casualty in tub of cool water, or
- Place in cool shower or spray with cool water from a hose, or
- Wrap casualty in cool, wet sheets and fan rapidly.
- Transport casualty to hospital.
- Do not give anything by mouth to an unconscious casualty.

WARNING: Heat stroke can be fatal even after first aid is administered. Anyone suspected of suffering from heat stroke should not be sent home or left unattended unless that action has been approved by a physician. If in doubt as to what type of heat-related disorder the worker is suffering from, call for medical assistance.

Heat Stress Risk Assessment Factors

Factors that should be considered in assessing heat stress include:

- Heat Index
- Personal Risk Factors
- Environmental Factors
- Job Factors

Heat Index

The Heat Index (HI) can be used as a first indicator of heat stress risk. Refer to the Heat Index Chart below:

Figure 1 Heat Index Chart

Temperature (° F)

RH (%)	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
90	119	123	128	132	137	141	146	152	157	163	168	174	180	186	193	199
85	115	119	123	127	132	136	141	145	150	155	161	166	172	178	184	190
80	112	115	119	123	127	131	135	140	144	149	154	159	164	169	175	180
75	109	112	115	119	122	126	130	134	138	143	147	152	156	161	166	171
70	106	109	112	115	118	122	125	129	133	137	141	145	149	154	158	163
65	103	106	108	111	114	117	121	124	127	131	135	139	143	147	151	155
60	100	103	105	108	111	114	116	120	123	126	129	133	136	140	144	148
55	98	100	103	105	107	110	113	115	118	121	124	127	131	134	137	141
50	96	98	100	102	104	107	109	112	114	117	119	122	125	128	131	135
45	94	96	98	100	102	104	106	108	110	113	115	118	120	123	126	129
40	92	94	96	97	99	101	103	105	107	109	111	113	116	118	121	123
35	91	92	94	95	97	98	100	102	104	106	107	109	112	114	116	118
30	89	90	92	93	95	96	98	99	101	102	104	106	108	110	112	114
25	88	88	90	91	92	94	95	96	98	99	101	102	104	106	107	109
20	87	87	88	89	91	92	93	94	95	97	98	100	101	102	104	105
15	86	86	87	88	89	90	91	92	94	95	96	97	98	100	101	102
10	86	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
5	85	84	85	86	86	87	88	89	90	91	92	93	94	95	96	97

Note: Exposure to full sunshine can increase HI values by up to 15° F

Extreme Danger	≥ 130°F (≥ 54°C)	Heat stroke or sunstroke likely.
Danger	105 - 129°F (41 - 54°C)	Sunstroke, muscle cramps, and/or heat exhaustion likely. Heatstroke possible with prolonged exposure and/or physical activity.
Extreme Caution	90 - 105°F (32 - 41°C)	Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity.
Caution	80 - 90°F (27 - 32°C)	Fatigue possible with prolonged exposure and/or physical activity.

RH = Relative Humidity

The HI can be obtained by directly measuring the dry bulb temperature and relative humidity. The dry bulb temperature and relative humidity forecast can be obtained by checking the local weather station information or measured by using a wet bulb thermometer. A direct reading of HI can be obtained by placing a heat stress monitor in full shade at the workplace.

The HI does not consider acclimation, clothing, or nature of work; therefore, if the HI is at 80°F (26.7°C) or above, further evaluation is required to adjust workload, acclimation, and clothing.

Personal Risk Factors

It is difficult to predict just who will be affected by heat stress and when, because individual susceptibility varies. There are, however, certain physical conditions that can reduce the body's natural ability to withstand high temperatures:

E-Corp will ensure that prior to assigning a task where heat related illness may occur, the following most common personal factors that contribute to heat related illness will be taken into consideration:

Weight – Workers who are overweight are less efficient at losing heat.

Poor physical condition – Being physically fit aids your ability to cope with the increased demands that heat places on your body.

Previous heat illnesses – Workers are more sensitive to heat if they have experienced a previous heat-related illness.

Age – As the body ages, sweat glands become less efficient. Workers over the age of 40 may therefore have trouble with hot environments. Acclimatization to the heat and physical fitness can offset some age-related problems.

Heart disease or high blood pressure – In order to pump blood to the skin and cool the body, the heart rate increases. This can cause stress on the heart.

Recent illness – Workers with recent illnesses involving diarrhea, vomiting, or fever have an increased risk of dehydration and heat stress because their bodies have lost salt and water.

Alcohol consumption – Alcohol consumption during the previous 24 hours leads to dehydration and increased risk of heat stress.

Medication – Certain drugs may cause heat intolerance by reducing sweating or increasing urination. People who work in a hot environment should consult their physician or pharmacist before taking medications.

Lack of acclimatization – When exposed to heat for a few days, the body will adapt and become more efficient in dealing with raised environmental temperatures. This process is called acclimatization. Acclimatization usually takes 6 to 7 days.

Benefits include:

- Lower pulse rate and more stable blood pressure
- More efficient sweating (causing better evaporative cooling)
- Improved ability to maintain normal body temperatures

Acclimatization may be lost in as little as three days away from work. People returning to work after a holiday or long weekend – and their supervisors – should understand this. Workers should be allowed to gradually re-acclimatize to work conditions.

Environmental Factors

Environmental factors such as ambient air temperature, air movement, and relative humidity can all affect an individual's response to heat. The body exchanges heat with its surroundings mainly through radiation and sweat evaporation. The rate of evaporation is influenced by humidity and air movement.

Radiant Heat

Radiation is the transfer of heat from hot objects through air to the body. Working around heat sources such as kilns or furnaces will increase heat stress. Additionally, working in direct sunlight can substantially increase heat stress. A worker is far more comfortable working at 80° F under cloudy skies than working at 80° F under sunny skies.

Humidity

Humidity is the amount of moisture in the air. Heat loss by evaporation is hindered by high humidity but helped by low humidity. As humidity rises, sweat tends to evaporate less. As a result, body cooling decreases and body temperature increases.

Air Movement

Air movement affects the exchange of heat between the body and the environment. If the air temperature is less than the worker's skin temperature, increasing air speed can help workers stay cooler by increasing both the rate of evaporation and the heat exchange between the skin surface and the surrounding air.

Job Factors

Clothing and Personal Protective Equipment (PPE)

Heat stress can be caused or aggravated by wearing PPE such as fire -or chemical- retardant clothing. Coated and non-woven materials used in protective garments block the evaporation of sweat and can lead to substantial heat stress. The more clothing worn or the heavier the clothing, the longer it takes evaporation to cool the skin. Remember that darker clothing absorbs more radiant heat than lighter-colored clothing.

Workload

The body generates more heat during heavy physical work. For example, construction workers shoveling sand or laying brick in hot weather generate a tremendous amount of heat and are at risk of developing heat stress without proper precautions. Heavy physical work requires careful evaluation even at temperatures as low as 75° F to prevent heat disorders. This is especially true for workers who are not acclimated to the heat.

Controlling Heat Stress

Heat stress can be controlled through education, engineering, and work procedures. Controls will:

- **Protect Health.** Illness can be prevented or treated while symptoms are still mild.
- **Improve Safety.** Workers are less likely to develop a heat-related illness and have an accident. Heat stress often creeps up without warning. Many heat-induced accidents are caused by sudden loss of consciousness.
- **Increase Productivity.** Workers feel more comfortable and are likely to be more productive as a result.

Training and Education

According to the National Institute of Occupational Safety and Health (NIOSH), heat stress training should cover the following components:

- Knowledge of heat stress hazards.
- Recognition of risk factors, danger signs, and symptoms.
- Awareness of first-aid procedures for, & potential health effects of, heat stroke.
- Employee responsibilities in avoiding heat stress.
- Dangers of using alcohol and/or drugs (including prescription drugs) in hot work environments.

Employee Training

Training in the following topics will be provided to all supervisory and non-supervisory employees:

- Environmental and personal risk factors for heat illness.
- Procedures for identifying, evaluating, and controlling exposures to the environmental and personal risk factors for heat illness.
- Importance of frequent consumption of water (up to 4 cups per hour).
- The importance of acclimatization.
- Different types of heat illness and common signs and symptoms of heat illness.
- The importance of immediately reporting to the employer or designee symptoms or signs of heat illness.
- 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 medical service personnel.
- How to provide clear and precise directions to the work site.

Supervisor Training

Prior to assignment to supervision of employees working in the heat, training on the following topics will occur:

- The information provided for employee training.
- Procedures the supervisor will follow to implement controls as determined by the employer.
- Procedures the supervisor will follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.
- Training on How to take WBGT measurements according to Heat Exposure Limits.

Engineering Controls

Engineering controls are the most effective means of preventing heat stress disorders and should be the first method of control. Engineering controls seek to provide a more comfortable workplace by using:

- Reflective shields to reduce radiant heat.
- Fans and other means to increase airflow in work areas.
- Mechanical devices to reduce the amount of physical work.

Given the constantly changing nature of construction sites, engineering controls are not usually feasible. Proper work procedures are therefore required to prevent heat stress disorders.

Administrative Controls

The risks of working in hot construction environments can be reduced if management and labor cooperate to help control heat stress.

Management

- Give workers frequent breaks in a cool shaded area away from heat (cooling period no less than 5 minutes). The area should not be so cool that it causes cold shock – around 75° F is ideal.
- Increase air movement by using fans where possible. This encourages body cooling through the evaporation of sweat.
- Provide unlimited amounts of conveniently located potable drinking water.
- Allow sufficient time for workers to become acclimated. A properly designed and applied acclimatization program decreases the risk of heat-related illnesses. Such a program exposes employees to work in a hot environment for progressively longer periods. NIOSH recommends that for workers who have had previous experience in hot jobs, the regimen should be:
 - 50% exposure on day one
 - 60% on day two
 - 80% on day three
 - 100% on day four
- For new workers in a hot environment, the regimen should be 20% on day one, with a 20% increase in exposure each additional day.
- Make allowances for workers who must wear personal protective clothing and equipment that retains heat and restricts the evaporation of sweat.
- Schedule hot jobs for the cooler part of the day; schedule routine maintenance and repair work in hot areas for the cooler seasons of the year.
- Consider the use of cooling vests containing ice packs or ice water to help rid bodies of excess heat.

Employees

- Wear light, loose clothing that permits the evaporation of sweat.
- Drink plenty of water or sports beverages to keep hydrated. Do not wait until you are thirsty.
- Avoid beverages such as tea, coffee, energy drinks, or beer that make you pass urine more frequently.
- Where personal PPE must be worn:
 - Use the lightest weight clothing and respirators available.
 - Wear light-colored garments that absorb less heat from the sun.
 - Use PPE that allows sweat to evaporate.
- Avoid eating hot, heavy meals. They tend to increase internal body temperature by redirecting blood flow away from the skin to the digestive system.
- Do not take salt tablets unless a physician prescribes them. Natural body salts lost through sweating are easily replaced by a normal diet.

Avoiding Dehydration

The best time to consume fluids is **before** you are thirsty. Thirst is not an adequate indicator of dehydration. By the time you are thirsty, your body is already dehydrated. It is best to drink on a schedule when working in the heat. Avoid drinks that contain caffeine or alcohol while in the sun or heat. These types of drinks stimulate the production of urine, thereby promoting dehydration. The best drink is water. Electrolyte drinks can be used when you are performing heavy work and

losing body salts. To calculate the right amount of water you should drink on a normal day, divide your body weight in half (using pounds), then drink that many ounces of water. This amount will increase when you are in hot environments and doing strenuous work.

Adults need 17 to 20 ounces of fluid before beginning activity as well as an additional 7 to 10 ounces every 10 to 20 minutes during heavy work activities. You should consume *24 ounces of fluid* within the first 2 hours after activity in the heat.

Dehydration is preventable. You can typically treat mild to moderate dehydration by drinking more fluids or an electrolyte drink. Mild symptoms of dehydration include:

- Dry lips and tongue
- Dry, sticky mouth
- Headache
- Weakness, dizziness, or extreme fatigue
- Concentrated urine that appears darker than normal
- Nausea

Seek immediate medical attention if you experience the following severe symptoms of dehydration:

- Severe diarrhea or moderate diarrhea for 24 hours or more
- Bloody or black stool
- Inability to keep fluids down
- Appears disoriented, is irritable or has extreme fatigue
- Little to no urination
- Very dry mouth, skin, and mucous membranes
- Rapid breathing or heart rate
- Sunken eyes

Workplace Responsibilities Regarding Heat Stress

Employers

- Adjust work practices as necessary when workers complain of heat stress.
- Control exposures through engineering controls wherever possible.
- Oversee heat stress training and acclimatization for new workers and for workers who have been off the job for a while.
- Provide worker education and training, including periodic safety meetings on heat stress during hot weather or during work in hot environments.
- Monitor the workplace to determine when hot conditions arise.
- Determine whether workers are drinking enough water.
- Determine a proper work/rest regimen for workers.
- Arrange first aid training for workers.
- Ensure that the program and procedures are documented and available to all employees.

Workers

- Follow instructions and training for controlling heat stress.
- Be alert to symptoms in yourself and others.
- Avoid consumption of alcohol, illegal drugs, and excessive caffeine.
- Find out whether any prescription medications you are required to take can increase heat stress.

- Get adequate rest and sleep.
- Drink small amounts of water regularly (up to 4 cups per hour) to maintain fluid levels and avoid dehydration.
- All onsite workers who could be exposed to hot weather conditions are required to go through an acclimation process, as necessary.
- Workers are forbidden from consuming energy drinks while working in warm environments. All commercial drinks must be diluted with water on at least a one- to-one ratio.

Emergency Medical Response

E-Corp will have a written plan to provide emergency medical services. E-Corp will ensure the availability of a suitable number of appropriately trained persons to render first aid and will inform all employees of the procedure to follow in case of injury or illness. Emergency procedures will consider distance from Emergency Medical Services. Emergency response procedures will be developed on a site-specific basis.

Worker Monitoring

Heat stress may be monitored using a WBGT system when normal work clothing is being worn. WBGT monitoring will be done by qualified personnel trained in use of WBGT equipment. Results will be compared to ACGIH WBGT monitoring tables by qualified personnel.

Medical Monitoring shall be practiced when employees wear semi-permeable or impermeable clothing at temperatures above 70°F (21°C) or with heavy work rates

The medical monitoring program shall be planned with the assistance of a medical or industrial hygiene professional. The monitoring program shall specify the leading indicators to be used (such as heart rate, body temperature, blood pressure, respiration rate, etc.) and the frequency of measurements to be performed. Monitoring shall only be conducted by a person competent in the monitoring technique and allowable measures.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/10/21
02	Stacy Maxfield	Annual Review/Update	10/05/22

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Heavy Equipment Operation Program

Purpose

This practice for the prevention of employee accident/injuries while operating heavy equipment has been adopted by E-Corp from the following OSHA regulations:

§1910.178 – Powered Industrial Trucks

Description and Requirements

In the scope of this practice, the Competent Operator (CO) shall have the appropriate training to operate equipment safely, including protecting themselves, the workforce, the project/site and the equipment. The CO has the authority to declare the job or equipment unsafe and utilize the 'Stop Work' authority.

E-Corp will ensure that each heavy equipment CO is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of training and evaluation as specified below:

- Only trained and certified operators, including supervisors, are allowed to operate heavy equipment. E-Corp will certify all authorized employees regarding competency on all types of equipment that may be utilized. Contractors will be required to certify their own employees.
- Operators shall be physically fit to perform their job.
- The Health and Safety Manager (HSM) will be responsible for training of heavy equipment operators for E-Corp, and will ensure that all trainers are knowledgeable, experienced, and capable of operator competency evaluations.
- The written training program will include lecture, discussion, written material, and hands-on training and evaluations.
- The Site Safety and Health Officer (SSHO) will verify and document that a potential Qualified Inspector has demonstrated competency in inspecting equipment.
- Formal instruction includes lecture, discussion, interactive computer learning, videos, and written materials. Practical training involves instructor demonstrations and trainee exercises. Operator evaluation critiques will be conducted. Training program content will include, but not be limited to the following prescribed topics:

Truck-related topics:

- COs shall have knowledge and understanding of the operating instructions, warnings, and precautions for the types of heavy equipment the operator will be authorized to operate, including the following:
 - Differences between the heavy equipment and the automobile.
 - Heavy equipment controls and instrumentation: where they are located, what they do, and how they work.
 - Engine or motor operation.
 - Steering and maneuvering.
 - Visibility (including restrictions due to loading).
 - Fork and attachment adaptation, operation, and use limitations (forklifts only).
 - Vehicle capacity.
 - Vehicle stability.
 - Any vehicle inspection and maintenance that the operator will be required to

- perform.
- Refueling and/or charging and recharging of batteries.
- Operating limitations.
- Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicles that the employee is being trained to operate.

Workplace-related topics:

- COs shall have knowledge and understanding of the following:
 - Surface conditions where the vehicle will be operated.
 - Composition of loads to be carried and load stability.
 - Load manipulation, stacking, and unstacking.
 - Pedestrian traffic in areas where the vehicle will be operated.
 - Narrow aisles and other restricted places where the vehicle will be operated.
 - Hazardous (classified) locations where the vehicle will be operated.
 - Ramps and other sloped surfaces that could affect the vehicle's stability.
 - Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust.
 - Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.
- Refresher training in relevant topics will be required for operators when:
 - The operator has been observed to operate the vehicle in an unsafe manner.
 - The operator has been involved in an accident or near-miss incident.
 - The operator has received an evaluation that reveals that the operator is not operating the truck safely.
 - The operator is assigned to drive a different type of truck.
 - A condition in the workplace changes in a manner that could affect safe operation of the truck.
- Heavy equipment operators at E-Corp are required to be evaluated and recertified every three years.
- An example of the operator certification is included in this section.
- Heavy equipment operators are required to do an inspection of the equipment to be operated and the condition of the workplace environment in which the equipment will be operated prior to operation of the vehicle. An example of the inspection sheets is provided in this section.
- Operators will verify trailer chocks, supports, and dock plates prior to loading or unloading. The condition and securing of dock plates and boarding ramps must be inspected prior to use.
- The brakes of highway trucks must be set, and wheel chocks placed under the rear wheels by the operator to prevent the trucks from rolling while they are boarded with forklifts.

General Safety Requirements

The SSHO will verify and document that all on-road, local governing authority and applicable safety requirements are followed in the operation of heavy equipment. Note that all applicable safety requirements for a given site shall be specified in the site-specific health and safety plan. The procedure shall consist of:

- Identifying and documenting the types of heavy equipment to be used.
- Reviewing and documenting safety requirements as specified by the manufacturer.
- Reviewing and documenting site-specific safety requirements.
- Completing a Risk Assessment (RA) for each project task, based in the identified on-

road, local governing authority, and applicable safety requirements.

The HSO shall ensure that all site and workforce requirements are met. The SSHO will verify and document that inspections are conducted according to the following:

- All operators shall conduct a walk around inspection and an operations self-check before any start up and operation.
- Inspections shall be documented on a daily log.
- Alarms shall be checked and operational before startup.
- Defective equipment shall be reported immediately to the appropriate personnel and a thorough check of the equipment shall be conducted.
- The Qualified Inspector shall confirm that equipment maintenance is completed. If any defects are found, the Qualified Inspector has the authority to shut down the equipment and render the equipment unusable.
- Unsafe equipment shall be removed from service immediately until it is repaired and verified safe for use.
- Documentation of inspections will be made available upon request.

These site and workforce safety requirements shall be met before any task can be performed safely and properly:

- All operations shall be in accordance with Standard Operating Procedures (SOPs) and ground disturbance operations shall comply with the Trenching, Shoring, and Excavation Program.
- Requirements of work affecting posture shall be considered in the design of work procedures and selection of equipment.
- The work site around equipment shall be clear prior to moving equipment. The operator shall be attentive to people and any vehicles that may have entered the area during the walk-around inspection.
- Proper working distances shall be maintained when operating equipment that is near electrical lines, as defined in the Overhead Utilities Program.
- Employees shall not get on or off a vehicle or piece of equipment while it is moving.

To become a competent heavy equipment operator, the following qualifications shall be met or exceeded:

- Completion of the appropriate training program specific to the equipment to be operated.
- Operators shall be physically fit to perform the job. (Refer to the Fit for Duty Program.)
- Operators shall be competent to operate the specific piece of equipment. If certifications are necessary, certificates shall be readily available for verification.

Heavy Equipment

Equipment Safety

Equipment safety requirements that shall be met before any task can be safely and properly performed are:

- The qualified trainer shall identify and train certified operators on all applicable governing authority rules related to driving and ensure that the operators follow them while driving heavy equipment on public roads.
- The SSHO shall implement and document new traffic rules as conditions or project changes dictate.
- General Traffic Requirements shall be documented in the daily job log and hazard assessment.

- All road construction and maintenance shall be conducted and documented.
- Contractors must provide proof of operator qualification to E-Corp, the Client Representative or the jobsite supervisor and document it before being allowed to operate heavy equipment.
- Guard belts, gears, shafts, pulleys, fly wheels and other reciprocating, rotating, or moving parts shall be guarded to protect workers from becoming caught on, in or between machinery.
- Vehicles and equipment shall be kept in the appropriate gear or drive range when in motion, specifically when ascending or descending a grade. Freewheeling or coasting is prohibited.
- Steps, handrails and grab irons shall be used, and equipment shall be faced when mounting or dismounting. When climbing onto or from equipment a 3-point contact shall be maintained. Steps, handrails, and grab rails shall be kept maintained, clean and free from slip, trip and fall hazards. Allow extra time in winter or rainy conditions to clean ice, snow, and mud from equipment.
- Before dismounting, the operator shall secure the equipment from movement by lowering all ground-engaging attachments, if so equipped (i.e., setting the parking brake, placing the transmission in park, disabling the hydraulics and activating any other elements of the equipment per the operator's manual).
 - Wheeled equipment, without ground-engaging attachments, shall be chocked immediately following dismount with chock blocks that are adequate for the wheel size and equipment weight.
 - Blades, buckets and other materials shall be in contact with the ground before the operator dismounts the equipment.
- Equipment should not be left unattended while the engine is running. If conditions exist that make it necessary for equipment to be left running in an unattended state (i.e., cold weather and certain start-ups), do not allow public entrance to the area unless the area can be clearly delineated. If the area cannot be clearly delineated to preclude casual entrance by the public, unattended equipment shall not be left running.

Specifications

The following specifications shall apply to all heavy equipment used on an E-Corp worksite:

- Manufactured equipment that comes with enclosed glass shall be maintained and in place with no visible distortion affecting the safe operation of the vehicle. A risk analysis shall be done on heavy equipment that has the potential (by its operation) to have objects that could be slung into the cab. If necessary, a metal screen should be installed instead to provide additional protection to the operator.
- Cabs with enclosed glass shall be equipped with adequate air conditioning in the summer and heat in the winter.
- Heavy equipment shall be equipped with mirrors or cameras to enhance operator visibility and lessen ergonomic risk factors.
- All bi-directional heavy equipment shall be equipped with an audible back-up alarm, which shall be checked daily. If the alarm is not working, the equipment shall be tagged out-of-service until a repair is made.
- Guard belts, gears, shafts, pulleys, fly wheels and other reciprocating, rotating, or moving parts shall be guarded to prevent workers from becoming caught on or in the machinery.
- All heavy equipment shall be equipped with approved seatbelts, except those designed for stand-up operations or those not requiring Roll Over Protection System (ROPS).
- All heavy equipment shall have appropriate ROPSs or Falling Object Protective Structures (FOPSs) as required by the governing authority for the location.

- Modification or repair of the ROPS or FOPS without the manufacturer or a professional engineer's written approval shall void all certifications and shall not be used on a work site.
- Cabs of heavy equipment should be enclosed, and doors and windows should be closed to reduce noise.
- Periodic maintenance shall be conducted to reduce noise caused by heavy equipment that is not well-tuned or working properly. Maintenance records shall be stored by the Contractor and made available to E-Corp for review upon request.
- If repetitive maintenance issues or maintenance identifies a safety issue, the equipment shall be taken out of service. The Client Representative shall be informed, and a plan to return the equipment to service shall be agreed upon by the Contractor and E-Corp.
- Where equipment has noise levels above the action level of the applicable exposure limit for noise, a hearing protection program that meets regulatory requirements, including training, shall be implemented.

Additional specific heavy equipment requirements shall be determined based on site-specific risks, such as utilizing equipment that is intrinsically safe or equipment with a damper (positive air shut-off).

Inspection

Inspection requirements shall be met before any task can be safely and properly performed. Documentation of these requirements shall be made available upon request. Inspection requirements are as follows:

- All operators shall conduct a walk-around inspection and operations self-check before any start-up and operation.
- Inspections shall be documented on a daily log.
- Alarms shall be checked and operational before startup.
- Defective equipment shall be reported immediately to the appropriate responsible person (usually the SSHO or Site Superintendent), and a thorough check of the equipment shall be conducted.
- The qualified inspector shall confirm that equipment maintenance is completed. If any defects are found, the qualified inspector has the authority to shut down the equipment and render the equipment unusable.
- Unsafe equipment shall be removed from service immediately until it is repaired and verified safe for use.

Heavy equipment inspections shall be conducted and documented daily by a qualified inspector prior to operating the equipment on any work site premises.

Maintenance Requirements

The following maintenance requirements shall be met or exceeded on all heavy equipment used on a worksite:

- Equipment shall be removed from service and tagged out-of-service according to the Control of Hazardous Energy/Lockout Tagout Program requirements whenever an unsafe condition is detected. It shall not be returned to service until the problem is resolved.
- Equipment shall be shut down while repairs or adjustments are conducted unless operation is essential to making the adjustments or repairs.
- Equipment or its parts that are suspended or held aloft by cables, hydraulic cylinders, slings, ropes, hoists, or jacks shall be blocked, cribbed or lowered to a supporting surface

prior to permitting employees to work in, under, or between them. A risk assessment shall be performed before work of this kind is conducted.

- If equipment that needs repair is left unattended for any period, the equipment shall be tagged out of service in accordance with the Control of Hazardous Energy/Lockout Tagout Program.
- Mechanics or other personnel who work on equipment at 6' (1.8m) or greater above the working surface shall use fall protection where fall hazards are present, in accordance with the Fall Protection Program. Local regulatory requirements may require fall protection for personnel working at less than 6' [1.8m] above the working surface.
- Only qualified personnel shall repair the equipment.
- Maintenance should follow the manufacturers' recommendations.

General Traffic Requirements

General traffic requirements are:

- Operators shall understand and adhere to the site traffic right-of-way rules.
- Speed limits, dependent on the risk associated with the site, shall be posted for the location, and shall always be observed. Violation of speed limits shall result in disciplinary actions, which shall be posted and discussed with the workforce.
- Appropriate signage shall adequately communicate haul roads and traffic hazards.
- Vehicles and equipment shall follow at a safe distance as determined by road conditions, the specific vehicle and loading. The site shall define a minimum following distance.
- Passing shall be limited to areas of adequate clearance, visibility and as marked accordingly. Passing may be prohibited completely on some sites or areas.
- Lights should be used to direct equipment at night; work zone lighting shall be sufficient for the work being performed.
- Adequate equipment spotters and ground employees should be deployed in conjunction with the job zone and traffic control plan. Spotters shall be trained for the necessary spotting duties and a risk assessment shall be performed for those operations, spotters shall not be in the path of equipment travel while equipment is backing into a dump or loading area. Spotters shall wear bright, reflective clothing and be competent in directing and signaling equipment. Spotters and operators shall have a clear understanding of signal protocol for the site.
- A communications plan shall be developed by the site to allow the workforce to have communications with operators and spotters. A direct communication technique such as radio communication is preferred. If noise may impede operators to hear radios, then visual alerts (e.g., warning lights) inside the cab that are visible to the operator shall be considered.

Posture and Health

The following shall be considered to relieve strain on the body while regularly operating heavy equipment:

- Operators shall be mandated to take defined breaks at the intervals defined during the task risk assessment to prevent fatigue and repetitive motion injuries.
- Seat belts shall always be worn.
- Operators should not drive with objects (e.g., a wallet) in their back pockets. Even relatively thin objects could put the spine out of alignment and exert pressure on the sciatic nerve, which can lead to back and leg pain.
- Maintain proper posture, which is important to good back health. Backrests are designed to support the natural curves in the spine, especially the low back lumbar curve. A backrest (lumbar support) will improve the seat's shape and the operator's posture. The correct

backrest will depend on the operator's build and the size and shape of the equipment seat. If a back support is not available, a rolled-up towel placed in the small of the back can help.

- Avoid lifting immediately after driving. The first two to three minutes after the operator exits the vehicle is a high-risk time for injury. The muscles are tired, the ligaments are stretched and unable to support the spine properly and the spinal discs are at risk of injury. The operator shall take a couple of minutes to stretch and rest before trying to lift anything heavy. A standing back bend, slowly and easily, will help reduce the stress on the spine from sitting.
- If possible, adjust the seat and steering wheel so that the pedals can be used comfortably, and the lower back maintains contact with the seat back.
- When driving for long periods, shift positions occasionally.

Entering and Exiting Heavy Equipment

The following shall be considered upon entering and exiting heavy equipment:

- Visually inspect the surrounding area prior to entering and exiting.
- Before entering or exiting the cab, slide the seat back. This will provide more room and prevent the need to twist. Try to keep the back straight to avoid twisting when getting in and out of the vehicle. Bend at the hips and knees rather than at the back.
- Operators shall avoid jumping down from the vehicle. The impact of jumping creates additional stress and shock on the spine. Over time, this can result in lower back injury. Jumping down from vehicles could also cause knee and ankle injuries.
- Always face the vehicle when exiting and maintain three-point contact. A major number of back and other injuries to heavy equipment operators are caused by improper exiting of the vehicle.

Heavy Equipment Best Practice

Heavy equipment shall contain three mirrors for backing operations. It is advisable for back-up cameras to be installed on equipment to provide the operator with an adequate view of the work area behind the equipment while it is in operation. This will also prevent twisting of the operator's back and neck which lessens back and neck ergonomic issues.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/10/21
02	Stacy Maxfield	Annual Review/Update	10/05/22



Certification of Operator Training for Heavy Equipment

E-CORP certifies that the following employee has been trained and has demonstrated competence in the following areas of powered industrial truck operations:

Truck-related topics:

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

Workplace-related topics:

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

Employee Name: _____

Name of Trainer: _____

Signature of Trainer: _____

Date of Training: ___/___/___ **Date of Evaluation:** ___/___/___/



Performance Evaluation for Equipment Operators

Employee: _____ Date: _____ Time: _____

Evaluator: _____ Equipment Type: _____

Yes	No	
		Shows familiarity with controls.
		Gave proper signals when turning.
		Slowed down at intersections.
		Sounded horn at intersections.
		Obedied signs.
		Kept a clear view of direction of travel.
		Turned corners correctly - was aware of rear end swing.
		Yielded to pedestrians.
		Drove under control and within proper traffic aisles.
		Approached load properly (if applicable).
		Lifted load properly (if applicable).
		Maneuvered properly (if applicable).
		Traveled with load at proper height (if applicable).
		Lowered load smoothly/slowly (if applicable).
		Stops smoothly/completely.
		Load balanced properly (if applicable).
		Forks under load all the way (if applicable).
		Carried parts/stock in approved containers.
		Checked bridge-plates/ramps.
		Did place loads within marked area (if applicable).
		Did stack loads evenly and neatly (if applicable).
		Did drive backward when required (if applicable).
		Did check load weights (if applicable).
		Did place forks on the floor when parked, controls neutralized, brake on set, power off (if applicable).
		Followed proper instructions for maintenance - checked both at beginning and end.

Comments: _____

Total Rating: Excellent Good Fair Poor Fail

 Evaluator's Signature Date

 Operator's Signature Date



Heavy Equipment Daily Inspection Checklist

Inspection Date: ____ / ____ / ____ Time: _____ Equipment Type: _____ Unit# _____

Required Daily and Prior to Use on Site:

	Good	Needs Repair	N/A
Tires or tracks			
Hydraulic oil Hose condition			
Oil leak/lube			
Cab, mirrors, seat belt and glass			
Horn and gauges			
Lights			
Turn signals			
Backup lights and alarm			
Brake Condition (dynamic service, park, etc.)			
Fire extinguisher condition			
Engine oil Transmission fluid			
Brake fluid			
Cooling system fluid			
Windshield wipers and fluid			
Coupling devices and connectors			
Exhaust system			
Blade/Boom/Ripper condition			
Ground engaging attachments			
Frame, ladder(s) and walkway			
Hand grabs and steps			
Power cable and/or hoist cable(s)			
Steering (standard and emergency)			

Additional Inspection Required Prior to Use on Site:

	Yes	No
Does equipment emit noise levels above 85 decibels?		
If yes, has an 8-hour noise dosimetry test been performed?		
Document results of noise dosimetry:		
Maintenance Completed (where applicable):		
Defects and repairs needed:		
General Safety Condition:		
CO Signature:		



Excavator Training Quiz

Name: _____ Signature: _____

Date: _____ Score: _____

- 1) The excavator operator is to have read and understood the operator's manual prior to operating the machine.
 - a. True
 - b. False

- 2) At the start of each shift, the operator should _____.
 - a. Check all fluid levels
 - b. Test all controls for proper function
 - c. Complete a written inspection
 - d. All the above

- 3) When excavating a trench, the spoil pile needs to be placed a minimum of _____ feet from the edge of trench.
 - a. 1 foot
 - b. 2 feet
 - c. 3 feet
 - d. 4 feet

- 4) A fire extinguisher should always be in the cab of the excavator.
 - a. True
 - b. False

- 5) If any part of the excavator encounters a live power line, what should the operator NOT do?
 - a. Immediately climb off the machine
 - b. Stay seated and avoid touching any part of machine until power is turned off
 - c. Signal others to stay away from the machine
 - d. Jump from the machine only if it's on fire

- 6) Before excavating where utilities are likely to be buried, the operator is responsible for ensuring underground utilities have been located and marked.
 - a. True
 - b. False

- 7) When lifting a load with an excavator, who is authorized to be under it at any given time.
 - a. Only those in the trench are allowed
 - b. Only those wearing hardhats
 - c. No one is allowed
 - d. Only people who rigged the load

- 8) List at least 3 hazards associated with working in or around an excavator.



- 9) When entering and exiting equipment always _____.
- Go headfirst
 - Carry tools and materials
 - Maintain 3 points of contact
 - None of the above
- 10) Which of the following DO NOT cause trench cave-ins?
- Weather
 - Vibration
 - Weight
 - Shoring and Sloping
- 11) When are riders allowed on equipment?
- Never
 - Only when they wear seatbelts
 - If there is enough room
- 12) When operating in a congested area, who is responsible for establishing a safety barrier around the machine?
- Site Safety Officer
 - Operator
 - Workers in the area
 - A safety barrier is not needed
- 13) The joystick controls on an excavator should always return to a _____ position once they are released.
- Forward
 - Back
 - Neutral
 - Rollover
- 14) When trenching in previously filled areas, cave-ins are
- More likely to occur
 - Less likely to occur
 - Not a concern to the operator
 - Only possible if temperature is below 60°
- 15) When an excavator is crossing a slope, the machine is more susceptible to a rollover.
- True
 - False
- 16) The lifting capacity of the excavator can be determined by _____.
- Making a test lift
 - Lifting as much as you can until the excavator begins to tilt
 - Consulting the load chart in the operator's manual
 - There is no way of knowing



Heavy Equipment Practical

Name: _____ Signature: _____

Date: _____ Signature of Trainer _____

Industrial Truck Type: _____

NOTE: Hands-On Operator Training must be completed for each type of aerial lift utilized.

<u>Step</u>	<u>Evaluation</u>	<u>N/A</u>	<u>Pass</u>	<u>Fail</u>
1. Pre-use equipment inspection	Including but not limited to: safety devices, air/hydraulic/fuel system for leaks, cable/wiring harnesses for damage, loose/missing parts, tires and wheels, placards/warnings/and control markings, outriggers/stabilizers and other structures, guardrail system, other items as specified in owner's manual.			
2. Inspect Worksite	Including but not limited to: drop-offs or holes, slopes, bumps and floor obstructions, debris, overhead obstructions and electrical hazards, inadequate surface and support to withstand all load forces, wind and weather conditions, presence of bystanders, other unsafe conditions.			
3. Machine Entry	Face the machine. Maintain 3-point contact with ladder/hand rails (two hands, one foot OR two feet, one hand).			
4. Function test of controls.	Done to determine if there are any malfunctions.			
5. Drive industrial truck.	Have the employee drive the truck through straight area and around a corner.			
6. Deploy outriggers	Follow manufacturer's guidance. Refer to owner's manual.			
7. Operate Powered Industrial Truck.	Complete a task typical of the job. Describe what the operator did:			
8. Park and shutdown.	Lower lifting mechanisms. Minimum disturbance of aerial platform. Verify unit balance and stability.			
9. Dismount safely. Face the machine when dismounting.	Maintain 3-point contact with ladder/handrails (two hands, one foot OR two feet, one hand)			
15. Comments	<i>Must be included for all "Failed" tasks. If task is failed the evaluator must explain what was done incorrectly and have the trainee repeat the task until it is completed correctly.</i>			
Trainee Signature				
Evaluator Signature				

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Incident Reporting and Investigation Program

Policy Statement

E-Corp is committed to investigating all accidents/incidents. The E-Corp Health and Safety Manager (HSM) is responsible for ensuring that the Incident Investigation and Reporting policy is followed. E-Corp will investigate all lost-time injuries. Fatalities and catastrophes must be reported to OSHA within 8 hours. Serious accidents must be reported to OSHA within 24 hours. OSHA requires reporting of work-related incidents resulting in the death of an employee or the inpatient hospitalization, amputation, or loss of an eye. Owner clients require all incidents to be reported including, but not limited to, injuries, spills, property damage, fires, explosions, and vehicle damage.

Accidents and near hit incidents that result in personal injury, property damage, chemical spill, or other emergency situations will be immediately reported to the assigned supervisor at the time of the event and Emergency Medical Service, Fire Department, or Hazmat Services will be immediately summoned. All forms will be fully completed and submitted to the E-Corp HSM for review and for discussion at the next scheduled Safety meeting.

Accident/Incident Causes

Accidents occur when hazards escape detection during preventive measures, such as a job or process safety assessment, when hazards are not obvious, or as the result of combinations of circumstances that were difficult to foresee. A thorough accident investigation may identify previously overlooked physical, environmental, or process hazards, the need for new or more extensive safety training, or unsafe work practices.

The primary focus of any accident investigation should be the determination of the facts surrounding the incident and the lessons that can be learned to prevent future similar occurrences. The focus of the investigation should NEVER be to place blame. The process should be positive and thought of as an opportunity for improvement.

When Accident/Incident Investigations are Required

As a general rule, investigations should be conducted for:

- All injuries (even the very minor ones).
- Property and/or product damage situations.
- All accidents with potential for injury.
- All "Near Hits" where there was potential for serious injury.
- Fires, explosions, Spills

Near Hit and incident reporting and investigation allow you to identify and control hazards before they cause a more serious incident. Accident/incident investigations are a tool for uncovering hazards that either were missed earlier or hazards where controls were defeated. However, it is important to remember that the investigation is only useful when its objective is to identify root causes. In other words, every contributing factor to the incident must be uncovered and recommendations made to prevent recurrence.

Reporting Requirements

For Injuries

If a fatal injury, serious injury, illness, or inpatient hospitalization occurs, the project manager will immediately notify the following persons and agency:

- Health and Safety Manager
- E-Corp Office Manager
- Regional Manager (or any superior in this level)
- E-Corp President

If applicable, the HSM will notify the area OSHA office. The following notifications to OSHA are required:

Within 8 hours:

- All work-related fatalities

Within 24 hours:

- All work-related inpatient hospitalizations
- All amputations
- All losses of an eye

Report to OSHA by one of the following methods:

- Calling OSHA's free and confidential number at 1-800-321-OSHA (6742).
- Calling your closest OSHA Area Office during normal business hours [OSHA Offices by State | Occupational Safety and Health Administration](#)
- Report Online, Visit <https://www.osha.gov/report>

Involving the Environment

If an environmental incident occurs that is required to be reported to local, state and/or federal agencies, the following persons should be notified:

- Health and Safety Manager
- Regional Manager (or any superior in this level)
- Appropriate local, state and/or federal agency

Time elements of when incident should be reported

E-Corp personnel must report injuries/incidents as soon as possible to the Site Safety and Health Officer (SSHO). The SSHO will report the incident to the PM, HSM and Office Manager. Incidents should be reported prior to the close of business on the day of the incident. E-Corp is required to verbally report some incidents to OSHA within 8 hours of discovery. Incidents must be reported to owner client as soon as possible (within 24 hours when possible).

Reportable Incidents

- Injury, illness, death, hospitalization of employees
- Spills, property damage, fires, explosions, vehicle damage

Sequence of Events:

- Secure the Accident/Incident Scene

- On site first response – get EMS when needed
- Prevent further loss (i.e., check integrity of building etc.)
- Gather Information
- Document Evidence
- Develop a Sequence of Events
- Analyze the Accident/Incident (surface and root causes)
- Follow the Incident Reporting Procedure at the end of this Program
- Complete applicable Incident Investigation and Report forms
- Follow up on Corrective Action Items

Root Causes

The root causes for accidents are the underlying system weaknesses that have somehow contributed to the existence of hazardous conditions and unsafe behaviors that represent surface causes of accidents. Root causes always pre-exist surface causes. Inadequately designed system components have the potential to feed and nurture hazardous conditions and unsafe behaviors.

Root causes may be separated into two categories:

- System design weaknesses — missing or inadequately designed policies, programs, plans, processes, and procedures will affect conditions and practices generally throughout the workplace. Defects in system design represent hazardous system conditions.
- System implementation weaknesses — Failures to initiate, carry out, or accomplish safety policies, programs, plans, processes, and procedures. Defects in implementation represent ineffective management behavior.

Corrective Actions

This is the most important piece of any investigation. All the work done to this point culminates with recommendations to prevent similar accidents from happening in the future. Recommendations should relate directly to the surface and root causes of the accident. All corrective actions will be completed in a timely manner and completion date recorded. Lessons learned should be reviewed and communicated. Changes to processes must be placed into effect to prevent recurrences or similar events.

Written Incident report

Written incident reports should be prepared and include an incident report form and a detailed narrative statement concerning the event. The E-Corp incident reporting forms are included at the end of this program. The final incident report should include photographs, witness statements, drawings, etc. where applicable.

E-Corp Supervisor's Employee Incident Report Form

The Supervisor's Employee incident report form should be instigated by the supervisor of any injured employee. This form should be completed as soon as practical by the supervisor of the injured employee and forwarded to the HSM. This form is for injuries only and does not apply to property damage or near hit incidents.

E-Corp Incident Investigation Form

The Incident Investigation Form must be filled out by the assigned incident investigation team. The Incident Investigation form should be completed and finalized by the investigation team as soon as feasible following the incident. Property damage incidents and Near Hits may require completion of the Incident Investigation Form as well.

Training

All personnel will receive, as part of their training in avoiding and preventing accidents and injuries, instruction concerning their roles and responsibilities in the event of an accident or incident. This training will be used to communicate the Medical Case Management Plan to the workforce. The training will also include instructions regarding accident and incident management. This training should include:

- What qualifies as reportable accidents or incidents (and near-misses/near hits).
- Who should be contacted in the event of a reportable incident.
- An explanation of the accident/incident investigation plan.
- Incident investigation techniques and employee responsibilities during and after an incident/accident.

Supervisors who will be required to conduct incident investigations will be trained in the incident investigation process.

Medical Case Management

The intent of the Medical Case Management process is to verify the appropriate care for injured or ill employees to facilitate recovery and to prevent work-related aggravation of injuries and illnesses.

Occupational Injury or Illness (E-Corp Employee)

E-Corp employees are required to immediately inform their supervisor or designated alternate of any injury or illness they suffer that might be work related so that steps can be taken to correct, prevent or control the condition. Supervisors must immediately inform the E-Corp PM, HSM, and Office Manager.

In situations of an obviously severe injury or illness, local emergency plans to summon an ambulance or other means to immediately transport the injured or ill employee to an appropriate healthcare facility are to be implemented. E-Corp field employees are trained in basic CPR and First Aid. Trained personnel should provide first aid consistent with their training. If it is necessary to transport the injured or ill employee for medical care, the supervisor or designated alternate shall accompany the injured or ill employee to the selected healthcare provider or emergency facility.

If an injured or ill employee does not return to work following the initial assessment, the supervisor or designated alternate shall maintain contact with the employee.

In less severe situations (first aid, soft tissue injury, twisted ankle, etc.) supervisors will respond immediately to determine whether medical attention is indicated. Assistance from local medical resources should be used to confirm appropriate response. Prompt first aid care is often critical to reduce the impact of injuries, speed recovery and minimize the probability of recordable medical treatment.

Recordkeeping

It is the policy of *E-Corp* to keep records of fatalities, injuries, and illnesses that:

- Are work related,
- Is a new case, and
- Meets one or more of the general recording criteria.

The HSM will enter each recordable injury or illness on an OSHA 300 Log and 301 incident report, or other equivalent form, within seven (7) calendar days of receiving information that a recordable injury or illness has occurred. At the end of each calendar year the Office Manager must examine the OSHA 300 Log and certify that, based on the knowledge of the process by which the information was recorded, that the annual summary is correct and complete. The OSHA 300A log will be posted in each facility from February 1 of the year following the year covered by the records until April 30.

E-Corp will save the OSHA 300 Log, the privacy case list (if one exists), the annual summary, and the OSHA 301 Incident Report Forms for five (5) years following the end of the calendar year that these records cover.

Occupational Medical Case Management

To effectively manage occupational injuries, an organized approach, or process, should be followed. These seven steps outline such a process:

1. Ensure that initial treatment is provided. Immediately following an injury, provide necessary first aid and send the employee to a medical provider as required. Document all details of the date and time of the injury, the type of first aid provided and the name of the physician, clinic or hospital where the employee received treatment.
2. Notify Claims. Contact your Claims Office immediately following an injury.
3. Provide information to the treating physician. (Job description, injury report, return to work policy)
4. Contact the employee. Within 24 hours, contact the employee in person or by phone to:
 - Reassure the employee of your company's commitment to their well-being
 - Assess the employee's understanding of the treatment he or she received
 - Ask if the employee has any specific questions about plans, treatment, etc.
5. Follow up with the physician. Within 24 hours of initial treatment obtain details regarding recommended additional treatment, return-to-work expectations and specific job restrictions. Discuss a specific timetable for the employee's return to work.
6. Maintain contact with the employee, physician and insurance company. During the employee's absence from work, you should continue to monitor progress:
 - Contact the employee at least once every week to inquire about their recovery and express your concern for their return to good health.
 - Contact the physician periodically to discuss recovery progress and any changes in the timetable for the employee's return to work.
 - Keep your insurance claims representative informed about the employee's return to work status.
7. Establish an injury management record. For each case involving lost time and/or follow-up medical treatment, establish an injury management record. At a minimum, this record should include:
 - A copy of the injury report
 - Documentation of initial treatment
 - Copies of medical bills
 - A log of all phone conversations with the employee, physician and Claims
 - Progress reports from the physician

All activities regarding treatment and recovery should be logged and documented whenever possible. Explain any progress toward return to work and discuss this with your claims representative, and the physician or other parties involved. Indicate the date the employee returned to work and in what capacity (full duty, part-time, limited physical activity, etc.).

All information can be filed in a confidential file to be kept by the Human Resources representative.

Return to Temporary Modified Work Program

In the event of a workplace injury where the employee has been given medical restrictions, employees may be eligible for modified work positions. The purpose of this program is to provide a mechanism for affected employees to return to work as soon as reasonably possible after an accepted Workers Compensation claim.

Eligibility: Eligibility for Temporary modified work will depend on the treating physician providing some medical clearance for an employee to resume employment. Until such clearance is provided, an employee with an accepted Workers Compensation claim will not be eligible for the Return to Temporary Modified Work Program.

In addition to the physician providing work restrictions, a position which meets the restrictions given by the physician must be available at E-Corp. The Temporary Modified Work Assignments will primarily take place within the affected employee's department but if no such alternate or modified duty assignments are available within the department, the affected employee may be assigned duties in a different department.

E-Corp management will try to accommodate work restrictions given by the physician, however positions are not always available which meet medical restrictions.

Duration: All modified or alternate duty assignments are **temporary** in nature and will not be considered a permanent job duty. The duration of these assignments is not to exceed 90 calendar days.

The duration of the assignment may cease prior to 90 calendar days if the position is no longer available, or the affected employee reaches Maximum Medical Improvement and can either return to Full Duty status or has been assigned Permanent Work Restrictions by their treating physician. Employees must inform the Human Resources Department immediately if their work status or medical restrictions from the treating physician change.

Temporary Modified Work Agreement

A temporary modified work agreement between the employee and E-Corp must be completed and may be shorter in duration. Temporary modified work agreements should be no more than 30 days in duration. Upon expiration of the work agreement, the work agreement shall be reviewed and may be extended or removed. Extensions may be applied for through the Human Resources Department. Rate of pay will be determined based upon the position available. This may be less than the employee's normal rate of pay.

Definitions:

Full Duty Work Status: A return to full and regular duty with no restrictions.

Modified Duty: A work status that includes the employee with an accepted Workers Compensation claim having the ability to return to work performing the essential functions of the employee's job classification but does have medical restrictions prohibiting tasks within the job classification.

Alternate Duty: A work status that prohibits the employee with an accepted Workers Compensation claim from returning to work within his/her job classification but allows the employee to be gainfully employed in other assignments. This may include assignments within the affected employee's department or through other departments within E-Corp.

Temporary Total Disability: A work status that prohibits the employee with an accepted Workers Compensation claim from returning to work in any capacity.

Non-Occupational Injury or Illness (E-Corp Employee)

E-Corp employees shall report any non-work-related injuries/illnesses to their supervisor if the injuries/illnesses could impact their fitness for duty or if it impairs their ability to report to work (see the Fit for Duty Program). The HSM or supervisor shall consult with medical personnel. Measures required to minimize or eliminate impact of the injury or illness on other employees and to ensure that work conditions will not aggravate the injury or illness must be determined and implemented.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/09/21
02	Stacy Maxfield	Annual Review/Update	10/10/22



E-CORP INCIDENT/INJURY REPORTING PROCEDURE

1. **Injured personnel report accident to immediate supervisor immediately.**
2. **IF IT IS A MEDICAL EMERGENCY SEND THE INJURED PERSONNEL TO THE HOSPITAL RIGHT AWAY. Minor injuries** should be treated at the nearest **Industrial Clinic Location. Supervisor or company representative should accompany the person to the initial medical visit.**
3. **Contact the Regional Manager, Project Manager, Health and Safety Manager and Office Manager by phone/email.**
4. **Follow requirements of the Drug and Alcohol Policy if applicable.**
5. **Supervisor complete:**
 - A. Supervisors Employee Injury Report (Form Attached) and forward within 24 hours to Health and Safety Manager and Office Manager via email. HSM and Office Manager will complete their designated sections of report once received.
 - B. Supervisor/ Manager along with Incident Investigation team complete Incident Investigation Report as soon as feasible and forward via email.
6. **SEND the Supervisors Employee Injury Report within 24 hours by email to Health and Safety Manager, copy Office Manager.**
7. As soon as possible, Supervisor/manager along with assigned Incident Investigation team shall complete the **Incident Investigation Report**. Focus on root cause of the incident and corrective actions required. Ensure corrective action items are complete and completion date is filled out. If corrective action items are not yet complete when form is forwarded to corporate office list reasons why and forward a completed report after all corrective action items have been completed. **Send Incident Investigation Report** to Health and Safety Manager by **email**.
8. **Doctor release paperwork** shall be **emailed** to Health and Safety Manager. Injured personnel must follow doctor's orders. If personnel are given work restrictions from the doctor, follow the **Medical Case Management Return to Work Procedures**.



Supervisor's Employee Injury Report

Supervisor's Employee Injury Report

This report is to be initiated by the employee's supervisor. Please answer all questions completely, shaded area to be completed by corporate office. This report must be forwarded to the appropriate Corporate Safety / HR Department within **24 HOURS** of the injury/illness.

EMPLOYEE	Name of Injured Employee		
	Home Address		Home Phone
	City	State	Zip
	Job Title	Employee usually works ___ hours/day ___ days/week ___ total weekly hours	

SUPERVISOR	Date of Incident	Time of Incident	Time Reported	Reported to Whom?	
	Project/Location Name/Address			Were there any witnesses? <input type="checkbox"/> No <input type="checkbox"/> Yes	
				Witness Name / Phone	
				Statement Attached? <input type="checkbox"/> No <input type="checkbox"/> Yes	
	Project No.	Time Shift Began	Did the Employee Leave Work? <input type="checkbox"/> No <input type="checkbox"/> Yes When?		
	Has employee returned to work? <input type="checkbox"/> No <input type="checkbox"/> Yes When?		Did employee miss a regularly scheduled shift other than the injury date? <input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, When?		
	Doctor/Hospital Name / Address / Phone		Nature of Injury (i.e., strain, contusion, foreign body)		
			Injured Body Part (exact, i.e., left ankle)		
	Medical Attention: <input type="checkbox"/> None <input type="checkbox"/> First Aid On Site <input type="checkbox"/> Doctor's Office <input type="checkbox"/> Hospital ER <input type="checkbox"/> Hospitalized				
	Job Assignment at Time of Incident		Location where incident occurred	County	State
	Equipment, materials and chemicals the employee was using when the event occurred.				
	Is safety equipment required for this job? <input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, was safety equipment provided? <input type="checkbox"/> No <input type="checkbox"/> Yes Was safety equipment used? <input type="checkbox"/> No <input type="checkbox"/> Yes				
	Describe Incident (Sequence of events, specify object or exposure which directly produced the injury/illness):				
	What unsafe condition and/or acts contributed to the Incident?				
What Corrective Action has been taken to prevent Recurrence?					
Supervisor:					

(Print Name)

(Date)



Supervisor's Employee Injury Report

MANAGER

Comments on Incident and Corrective Action	
Project/Location Mgr. :	
(Print Name)	(Date)

HUMAN RESOURCES

Name of Injured Employee	Sex	S.S. No.	Birth Date
Marital Status <input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Divorced / Separated			Number of Dependents
Job Class Code	Hire Date	Hourly Wage	
Company	Employment Status <input type="checkbox"/> Regular Full Time <input type="checkbox"/> Part Time <input type="checkbox"/> Temporary		
Human Resources Representative			
(Print Name)		(Date)	

HEALTH AND SAFETY

OSHA Classification: <input type="checkbox"/> First Aid <input type="checkbox"/> Recordable, No Lost/Restricted Workdays <input type="checkbox"/> Recordable, Restricted Activity <input type="checkbox"/> Recordable, Lost Workdays <input type="checkbox"/> Fatality		
Days away from Work	Days Restricted Work	Workers' Compensation Claim Number (if applicable)
Health and Safety Representative:		
(Print Name)		(Date)



INCIDENT INVESTIGATION REPORT

MUST BE COMPLETED AS SOON AS POSSIBLE

Investigation Date:	Date of Incident:	
Name of Personnel Involved in Incident/ Employee Name		
Supervisor Name		
Project Name / Number		
Location of Incident		
Incident Classification <input type="checkbox"/> Injury <input type="checkbox"/> Near Hit <input type="checkbox"/> Property Damage <input type="checkbox"/> Other		
Description (provide facts, describe how incident occurred, provide diagram [on back] or photos)		
What unsafe acts or conditions contributed to the incident?		
What systematic or management deficiencies contributed to the incident?		
Were any company safety policies violated at the time of the injury? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, what was the violation?		
Corrective Actions		
Authorized by:	Completed by:	Completion Date:
Witnesses (attach statements or indicate why unavailable)		
Investigated by:		
Print Name		Date
Project/Location Manager		
Print Name		Date

Attach Additional Pages, if needed, and Photos, where appropriate

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Job Zone Control and Traffic Management Program

Purpose

This section describes the job zone control and traffic management practices which contribute to an incident and injury free workplace. The purpose of traffic control is to provide safe and effective work areas and to warn, control, protect and expedite vehicular and pedestrian traffic. Additional safety measures could be required by the operating site, by job-specific requirements or by local or government legal and regulatory requirements.

Approved traffic control signs will be used to direct traffic. Personnel directing traffic will wear appropriate orange vests. Personnel performing traffic control will be trained in traffic control techniques. Traffic control will be used if traffic must be disrupted during roll off bin/drum pick up.

The Site Safety and Health Officer (SSHO) has been identified as the E-Corp supervisor who, under the direction of the Client Representatives is responsible for the implementation and enforcement of the following safety rules. In the scope of this practice, the supervisor shall:

- Identify and plan the operations that require job zone control and traffic management.
- Identify and coordinate boundaries of work zones, safe work zones, traffic patterns, safe haul routes, load cycles and reach of equipment attachments.
- Verify that the established controls are adequate and provide the necessary margin of protection.
- Coordinate changes in work scope with the Project Manager (PM).

The PM and SSHO shall be responsible for early identification and planning for operations that require job zone control and traffic management, including Simultaneous Operations (SIMOPS). Sites with SIMOPS include:

- Sites with both E-Corp and non-E-Corp Operations.
- Off-site activities affecting the public (e.g., roads, sidewalks, utilities, homes and businesses).
- Sites with neighbors that can affect workers during normal operations or emergencies.
- Confirmation of the planned sequence and site layout, detailing work zones and delivery and storage areas. It is necessary to confirm planned delivery schedules.

Pre-Job Planning

Job zone control and traffic management are necessary when SIMOPS or third parties or both could be at risk of injury by entering the work zone, or when the work crew is at risk of injury by other operations. In these cases, the PM, SSHO, and Site Supervisor shall assess the job for its risk level and site-specific hazards. Pre-job work zone planning shall be documented and include site description, access, traffic patterns (both vehicle and pedestrian), other operations, communications, and work zones. During the design phase, job zone control shall be considered to eliminate as much of the risk as feasible for the life of the project and/or site.

Site Entrances and Exits

Identification of all work performed at or near entrances and exits to sites and personnel

entrances to on-site buildings shall be conducted. However, all efforts should be taken to avoid work in entrances or exits at all times, especially during peak rush-hour times. Once identified, work shall be evaluated to determine:

- The best position for the equipment: Is there a better location to perform work that is not an entrance or exit?
- The best time of day to do the work.
- If the entrance or exit needs to be completely closed during the work.

Traffic Patterns

Evaluation of traffic patterns includes evaluation for light duty vehicles, heavy-duty vehicles and pedestrian traffic. Evaluation of these conditions shall be conducted for:

- The type of site: controlled, remote, enclosed with controlled access or in a public access area (such as a retail station, residential yard or roadway).
- High pedestrian traffic areas.
- Peak periods.
- Daily deliveries or SIMOPS known.
- Heavy equipment traffic volume on-site.
- Light duty traffic volume on-site.

Traffic Control

The following Traffic Control General Safety Measures for safe coexistence of traffic and employees shall be considered. Additional work practice considerations include, but are not limited to:

- Alternate walkways where possible.
- Use of the local police to direct traffic in emergencies.
- Use of workers with flagger certification to direct work when applicable.
- Use of an air horn to alert drivers or other workers.
- Maintain good housekeeping and clean the area as work is completed.
- Use the 'buddy' or 'watchperson' system while performing work.
- Use a spotter for backing, tight maneuvers and bin/tank/equipment drop-offs.
- Use traffic control devices, field vehicles and barricades and avoid the use of caution tape.
- Park all vehicles (with wheels in a safe direction away from fieldwork) to block traffic with a flashing yellow light. Also, park so that access to the vehicle is away from oncoming traffic while you are working.
- When parking a vehicle and equipment, utilize a 'first move forward' driving practice.
- Work in an upright position, facing traffic when possible.
- Make eye contact with vehicle drivers so that they can recognize your presence.
- Minimize work time in traffic.
- Establish a "Stop Work" hand signal.

Traffic Control for Public Sites

If public sites, such as public roads, bicycle paths or footpaths, are closed or rerouted, local and regulatory requirements shall be followed, and traffic control permits shall be put in place. Use the proper traffic guiding equipment such as, but not limited to:

- Stop/Slow paddle signs.
- Flaggers.
- Flashing lights.

- Directional signs.

Hazard Identification

Hazards of other operations and traffic disruption or interferences on project risk registers and risk assessments throughout the project shall be identified. Also, the appropriate mitigations shall be planned and implemented to eliminate or minimize the risks to persons, property, environment or reputation.

Decontamination

Where required because of hazardous chemicals, a site map showing, or otherwise describing, the location of the Exclusion Zone, the Contamination Reduction Zone, decontamination line(s), the Support Zone, pertinent topography and means of ingress and egress shall be attached to the Job Zone and Traffic Management Plan. Additionally, eating and smoking (if allowed) areas shall be identified and established within the Support Zone.

Work Areas and Levels of Protection

All work zones and necessary levels of protection shall be determined based on the risk assessment and pre-job planning. In areas where traffic control is required, personnel will be required to wear reflective clothing as part of the personal protective equipment.

Work Area Isolation

There are legal and regulatory requirements associated with work area isolation:

The supervisor shall:

- Coordinate and verify safe work zones, traffic patterns, haul routes, load cycles and reach of equipment attachments.
- Define boundaries of work zones around plants, equipment and range of failed systems, such as cable whips.
- Traffic rules shall be established where zones intersect and overlap.
- Large equipment entering work zones on controlled sites shall use a standard operating procedure to enter the work zone, which includes eye contact and two-way communication.
- Pedestrian traffic shall be separate from vehicle traffic where practical.
- Visitors shall always be escorted while in the work zone.

Level of Protection for Job Zones

Levels of protection shall be established where a site is not controlled. Levels of protection are determined by the level of risk on a site. An appropriate number of controls shall be in place to confirm a continuous separation of the work activity from anyone not involved in the work on-site. It is the responsibility of the supervisor to verify that the established controls are adequate and provide the necessary margin of protection. If adequate controls cannot be established, work activities shall not begin.

Each site shall have a documented risk assessment and control plan. Table 1 represents the levels of protection from low risk to high risk controls; Level I being the lowest risk and Level IV being the highest.

Table 1 Levels of Protection

Level	Controls	When to Use
I	High visibility traffic cones with flags and delineators (total minimum height = 42" [1 meter]), the use of a field vehicle to block any potential traffic flow.	<ul style="list-style-type: none"> • No or low flow traffic areas. • Temporary protection of small tripping hazards. • Single worker areas for location by others, such as field, terminal or refinery areas. • Rural or agricultural areas such as fields or crop areas (need elevated flags).
II	Barrier Tape on Posts at 42" (1 meter) delineators and the use of field vehicles (with a flashing yellow light) and other lane control devices. A-frame (plastic molded) blockades with flashers should also be used in conjunction with Level II.	<ul style="list-style-type: none"> • Low to moderate flow traffic conditions. • Temporarily securing off an area (for gauging/sampling ground water and hand digging). • Temporary isolation of an area for storing or moving equipment/supplies.
III	Plastic security fencing and traffic blockades. Use a flashing yellow light on the vehicle for additional visibility.	<ul style="list-style-type: none"> • Use of heavy equipment and power tool areas near electrically energized or rotating equipment. • Protection for workers or public near slow moving traffic or with high traffic volume, driveways, tripping hazards and control of third-party foot traffic. If there is no third-party potential of traffic, Level III is not required based on the task or equipment. • Verify that you are not directing pedestrian traffic into harm's way.
IV	Closed Chain Link Fence	<ul style="list-style-type: none"> • When open excavations or trenches cannot be covered, and potential public interaction exists.

Job Zone Control and Traffic Management Plan

The procedures for developing a Job Zone Control and Traffic Management Plan (to be included in each site-specific Health and Safety Plan [SSHSP]) are as follows:

1. Contact information for all onsite contractors and all subcontractors shall be obtained by the SSHO and provided to the Project Manager.
2. The SSHO shall confirm that all site personnel have received site specific training.
3. Worker and visitor parking areas shall be designated on a Site Plan and delineated.
4. A procedure for orienting independent truck drivers to the workspace (e.g., staging area) shall be developed under the supervision of the Project Manager.
5. Areas around specific pieces of equipment and operations where workers on foot are prohibited (e.g., equipment turn around areas, swing radius areas) shall be delineated.
6. Designated locations for storing and servicing materials and equipment shall be identified.
7. A description of internal signs and all internal traffic control devices shall be posted.

8. Anticipated traffic volume, speed and a speed limit for operation within the workspace shall be determined and included in the SSHSP.
9. Specifications for lighting in the workspace as required by night work activities shall be documented.
10. Interface between internal and external traffic control plans shall be determined.
11. A Communications Plan that includes the following shall be developed:
 - a) Designated channels of communication regarding changes.
 - b) A means for workers on foot to talk with equipment operators, truck drivers, and other personnel in charge of controlling or coordinating the flow of traffic vehicles and equipment entering and leaving the workspace and the movement of heavy equipment within the workspace.
 - c) A means for grader operators, dozer operations, truck drivers and scraper operators to communicate with each other and with the general contractor and subcontractors.
 - d) Personnel responsible for monitoring on-site communications between vehicle and equipment operators.
12. An inspector shall be designated by the SSHO to inspect the work site during the normal work zone inspections.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/09/21
02	Stacy Maxfield	Annual Review/Update	10/05/22

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Overhead Utilities Program

Purpose

This program describes minimum requirements for work near overhead hazards which contribute to an incident and injury free workplace. Work near overhead hazards and guy wires may be considered a hazardous activity, and a permit to work may be required. Additional safety measures could be required by the operating site, by job-specific requirements or by local or government legal and regulatory requirements.

Roles and Responsibilities

Health and Safety Manager

In the scope of this practice, the Health and Safety Manager (HSM) shall:

- Cooperate fully with the Person in Charge (PIC) and other Health and Safety Managers.
- Communicate with Site Safety and Health Officers regarding the presence of other operations on site.
- Identify and manage the risks associated with the host operations and the additional risks associated with any other work.

Site Safety and Health Officer

In the scope of this practice, the Site Safety and Health Officer (SSHO) shall:

- Conduct or supervise work.
- Be accountable for the safe execution of the work.
- Communicate with the HSM and the site workforce.
- Conduct the daily toolbox meeting.
- The SSHO shall be trained and competent.
- The SSHO in charge of the work can be a Contractor.

Types of Overhead Hazards

All overhead hazards shall be identified by type. When working under or near utility lines, distances from those lines shall be taken into consideration. These distances shall be documented in the Overhead Utilities Permit.

Electrical Hazards

There are four types of hazards associated with work on or near energized electrical equipment:

- Upset or shutdown of an operating area.
- Shock and burn due to contact or flashover.
- Electrical flash burn from electrical arcs.
- Blast injuries from electrical arcs.

An electrically hazardous task shall be analyzed by considering two primary hazards: flash and shock. These hazards are identified by using boundaries based on energy levels (i.e., the amount of energy carried by the electrical lines). Performing work inside these boundaries requires training, planning, procedures and personal protective equipment. When work is undertaken near electrical lines, the distance maintained from those lines shall also meet

the minimum distances for electrical hazards as defined in Table 1: Minimum Radial Clearance Distances below. In instances where utility companies specify more stringent safe distances, those distances will be observed.

NOTE: This practice primarily focuses on electrical overhead utilities; however, all other hazards shall be taken into consideration when performing work.

Table 1: Minimum Radial Clearance Distances	
Normal System Voltage	Required Minimum Radial Clearance Distances
0-50kV	10' (3.05m)
51-100kV	12' (3.66m)
101-200kV	15' (4.57m)
201-300kV	20' (6.1m)
301-500kV	25' (7.62m)
501-750kV	35' (10.67m)
751-1000kV	45' (13.72m)

Guy Wires

In order to prevent damage, guy wires shall be visibly marked, and work barriers or spotters provided. Additionally, when working around guy wires, the minimum radial clearance distances for electrical power shall be observed.

Safe Work Conditions

When working around overhead utilities and guy wires, one or more of the following four conditions shall be met:

- The utility company shall confirm, preferably in writing, that power is de-energized.
- Minimum radial clearance distances shall be established and maintained according to Table 1 unless there is an exceptions process completed. (Refer to the Exceptions Process section of this Program.)
- Where utilities voltages cannot be verified, use Figure 1: Example Voltages of this section as guidance. However, voltages can be higher than those depicted in Figure 1.
- If insulating blankets are used to isolate a power line, they shall be placed by a utility company. The utility company shall also determine the minimum safe operating distance and provide the information in writing.

Figure 1: Example Voltages



Safe Work Practices

When working around overhead utilities and guy wires, the following safe work practices shall be observed:

- Before work starts:
 - A Risk Assessment (RA) shall be conducted to identify hazards and controls. (Refer to the Risk Assessment Program.) If the risk is classified as a ‘substantial’ risk level or higher, a permit shall be required.
 - A daily toolbox meeting shall be completed with the involvement of the SSO at the location of the overhead hazard or guy wire.
 - The power or utility authority shall be notified of the work, and the utility shall give permission, where required. Permissions shall be as required by local regulations.
- Even if the lines have been de-energized, controls shall be maintained to prevent damage to lines.
- Appropriate personal protective equipment will be used by all personnel. Operators and personnel handling tag lines or attaching or disconnecting loads shall wear rubber footwear and tested lineman’s gloves of adequate voltage rating with protectors.
- Operators shall also have a rubber blanket or equivalent protection to use (e.g., sit).
- All operators shall be instructed to stay on equipment when there is contact with any electrical line.
- As applicable, spotters, physical barriers or markings shall be used to maintain the appropriate minimal radial clearance distances from overhead utilities.
- A spotter is required where work is conducted directly outside of the minimal radial clearance distance, and it is difficult for the operator to maintain the required clearances by visual means or physical barriers. If a spotter is utilized, the spotter’s sole function shall be to verify that the minimum clearance distance is maintained and to give timely warning to the operator if that distance is violated. The work area shall be free of nonessential personnel and equipment.
- All equipment used in the vicinity of utilities shall be equipped with grounding chains.
- No equipment shall be transported with the boom or dump-bed up. Equipment shall be positioned so that it is parallel to the direction of travel.
- In order to minimize the possibility of the box of the truck traveling into power lines, a truck shall only off-load material if the truck is facing away from the power lines or parallel to those lines.
- Cranes or other equipment shall not be parked directly under any high voltage lines during suspension of work, overnight or over a weekend.
- Equipment shall not be serviced or refueled under overhead utilities.
- Tag lines shall be of a nonconductive type when used near energized lines.

Overhead Utilities Permit

Before starting work around overhead utilities, a RA that identifies hazards and provides mitigations shall be performed. The hazards and mitigations shall be documented.

A permit shall be required if the RA conducted classifies the residual risk as ‘substantial’ risk

level or higher. If a permit is required, the Overhead Utilities Permit, or equivalent, (at the end of this section) shall be completed. At a minimum, the Overhead Utilities Permit section shall:

- Indicate preliminary planning work has been completed that describes, in part, all overhead utility hazards and guy wires.
- Link the work to other permits and appropriate activities.
- Address every hazard identified in the RA.
- Be developed and communicated at the location of the work to all potentially affected workforce immediately prior to implementing the work.
- Contain the proper signatures and signoffs.
- The Project Manager shall authorize and the SSHO and person(s) doing the work shall accept and sign the Overhead Utilities Permit. The Project Manager and SSHO shall also sign.

Utility Company Notification

A designated individual shall verify that the appropriate utility companies have been notified of all planned work activities around overhead utilities, hazards and guy wires.

The SSHO shall contact the local owning power utility to determine the power line voltages and obtain all applicable permits.

Exceptions Process

A Change form, including a RA and an action plan, is necessary to vary from any requirement contained in this practice or listed on the Overhead Utilities Permit. An E-Corp Regional Manager or designated alternate and the HSM or designated alternate shall approve any changes. The following items, at a minimum, shall be considered as part of managing change:

- Regulatory or legal requirements.
- Voltages.
- Proximity and impact to personnel, public dwellings and other developed areas such as buildings, roadways or parks. Unless explicitly addressed, all other provisions and requirements in this practice shall apply. A proposal to reduce a requirement of this practice shall be given careful consideration and follow the process outlined above.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/15/21
02	Stacy Maxfield	Annual Review/Update	10/10/22



Overhead Utilities Permit

Revised 6/15/21

Permit Number: _____

Overhead Utilities Permit

This permit may be issued for up to seven (7) consecutive days with appropriate revalidation prior to each shift.

Date:	
Site Location and Description:	

Overhead Utility Information

Type of overhead utility in work area:	
Utility Company Name and Phone No.:	
Type of work equipment being used:	
Are guy wires present? If so, describe:	
Approximate working distance from power lines and guy wires:	

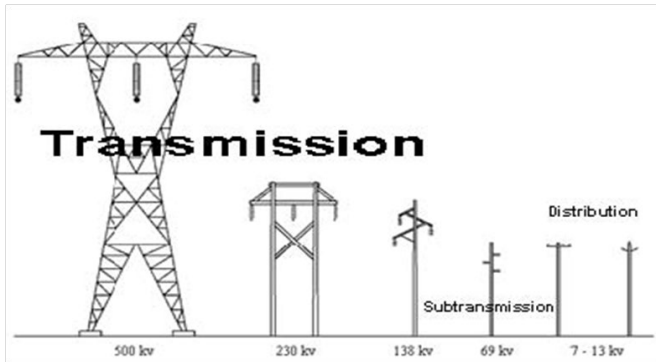


Table 1: Minimum Safe Working Distances*

Line Voltage	Required Minimum Safe Working Clearance Distances
0-50kV	10' (3.05m)
51-100kV	12' (3.66m)
101-200kV	15' (4.57m)
201-300kV	20' (6.1m)
301-500kV	25' (7.62m)
501-750kV	35' (10.67m)
751-1000kV	45' (13.72m)

*For those locations where utility companies specify more stringent safe distances, those distances shall be observed.

Voltage of power lines (if not determined, maximum clearance will be used):	
Physical hazards present (e.g. traffic & poles):	

Check measures used to prevent contact (Check boxes when completed)

Outside Minimum Clearance Distance:		Proximity Warning Devices:	
Boom-cage Guard:		Install Insulating Sleeves:	
Line Spotter's Name: _____		Ground Safety Stops:	
Insulated Links and Polypropylene Tag Lines:		De-energize Power Lines:	

Indicate status of items 1-7. For any item answered NO, a Management of Change shall be completed before work can proceed.

1. Have all relevant utility companies been contacted?	Yes	No	NA
2. Have the voltages been verified?	Yes	No	NA
3. Is work being done outside the Minimum Safe Working Distance?	Yes	No	NA
4. Have telephone, cable, and other overhead utilities been considered and addressed above?	Yes	No	NA



Overhead Utilities Permit

Revised 6/15/21

Permit Number: _____

5. Has a pre-job safety meeting been conducted with employees immediately prior to work around overhead utilities or guy wires?	Yes	No	NA
6. Has everyone involved in the work reviewed the specific emergency response procedures to be undertaken in the event of electrical contact, and are these procedures available for review?	Yes	No	NA
7. Are visible barriers, markings, or a spotter provided?	Yes	No	NA

AUTHORIZATION BY PERMIT SUPERVISOR

I certify that I have reviewed the permit, all required precautions have been taken, and necessary equipment is provided and inspected for this permitted work.

Name: _____ **Signature:** _____ **Date:** _____ **Time:** _____

PERMIT REVALIDATION

I confirm that the conditions under which the permit was originally issued remain unchanged, that work is allowed to continue, and that the revalidated permit has been reviewed with the work team.

Name: _____ **Signature:** _____ **Date:** _____ **Time:** _____

PERMIT CANCELLATION BY PERMIT SUPERVISOR

I attest that the Permitted Work is complete, and permit is closed.

Name: _____ **Signature:** _____ **Date:** _____ **Time:** _____

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Permit Required Confined Space Program

Purpose

E-Corp has adopted this policy for entry and work within permit required confined spaces derived from the following OSHA regulations:

§1910.146 – **Permit-Required Confined Spaces**
§1926.Subpart AA – **Confined Spaces in Construction**

Scope

This policy has been prepared by E-Corp to ensure that proper safe work practices and procedures are followed to protect employees from the hazards associated with confined spaces. Contractors, and subcontractors, who provide services to, or on behalf of, E-Corp are required to meet the requirements in this practice. Contractors may use their own policies and procedures to meet the requirements in this practice if, prior to commencing work, they obtain written approval from E-Corp to do so.

If any requirements or recommendations herein conflict with legal and regulatory requirements, it is necessary to comply with the legal and regulatory requirements. If this practice creates a higher obligation, it shall be followed, if full compliance with legal and regulatory requirements is achieved.

The scope of work for each project shall be evaluated to determine what elements of the Health and Safety Management Systems (HSMS) program are applicable.

The Permit Required Confined Space Program will be reviewed annually to ensure all procedures are being followed by E-Corp personnel.

Roles and Responsibilities

Health and Safety Manager

The Health and Safety Manager (HSM) is responsible for managing and supervising the Permit Required Confined Spaces Program. Permit Required Confined Spaces shall be identified in the Site-Specific Health and Safety Plan (SSHSP).

The HSM will ensure that all employees with access to, or duties within, confined spaces are trained in the understanding, knowledge, and skills necessary for the safe performance of duties assigned in those areas.

Site Safety and Health Officer

The Site Safety and Health Officer (SSHO) will identify and classify permit-required confined spaces in E-Corp's workplaces. Prior to entry, the SSHO will assess the conditions and hazards, and decide if workers will enter a permit space. The SSHO, or the assigned entry supervisor, will be responsible for testing and monitoring atmospheric conditions as required.

Personnel involved in confined space activities will be designated as attendant, entry supervisor, or authorized entrant, and assigned specific duties relating to confined entry procedures. A First Aid/CPR Provider will also be identified.

Attendant

An attendant will be designated for each area for the purpose of testing and monitoring conditions and personnel anytime employees are assigned to confined spaces.

Authorized attendants are those who monitor entrants' activities from outside the space. Attendants have the following duties and responsibilities:

- Knowing the permit-space hazards, including the symptoms and consequences of exposure.
- Continuously maintains an accurate count of authorized entrants in the permit spaces and ensures that the means used to identify authorized entrants accurately identifies who is in the permit space.
- Remains outside the permit spaces during entry operations until relieved by another attendant anytime it is occupied by workers.
- Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space.
- Monitors activities inside and outside the spaces to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit spaces immediately under any of the following conditions if the attendant:
 - Detects a prohibited condition.
 - Detects the behavioral effects of hazard exposure in an authorized entrant.
 - Detects a situation outside the spaces that could endanger the authorized entrants.
 - Cannot effectively and safely perform all the duties required.
 - Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.
- Ordering an evacuation for a hazardous condition.
- Keeping unauthorized persons away from the space.
- Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
- **Attendant will monitor only 1 confined space at a time.**

Authorized Entrants

Authorized entrants are those permitted by an employer to enter a permit space. Entrants have the following duties and responsibilities:

- Knowing the permit-space hazards, including the symptoms and consequences of exposure.
- Using equipment properly.
- Communicating regularly with the attendant.
- Notifying the attendant immediately of hazardous conditions.
- Leaving the space immediately during a hazardous condition or when the attendant orders an evacuation.

Entry Supervisor

The entry supervisor makes sure attendants and entrants follow entry-permit procedures. The

entry supervisor may be a Site Supervisor, SSHO or HSM. The entry supervisor is responsible for the following:

- Knowing the permit-space hazards, including the symptoms and consequences of exposure.
- Verifying that the entry permit is accurate and current.
- Verifies, by checking, that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted, and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.
- Verifies that rescue services are available and that the means for summoning them are operable.
 - Removing any unauthorized person who enters the space.
 - Ensuring that entry operations are consistent if another authorized person must replace an attendant or an entrant.
 - Stopping entry operations and canceling the entry permit when permit-space work is done or during a hazardous condition. Ensuring that all personnel have exited the space, that equipment, tools, and materials have been removed, and that no condition which might create a hazard has been left unresolved.
 - Terminates the entry and cancels the permit as required. The entry supervisor will mark the permit cancelled, sign the space provided for cancellation, and present the cancelled permit to the SSHO for filing in records.

If third party persons are used to perform confined space rescue, the entry supervisor shall:

- Inform the rescue team of the hazards they may confront.
- Provide the rescue team with access to all permit spaces from which rescue may be necessary so that they can develop appropriate plans and practice rescue operations.

CPR / First Aid Provider

At least 1 employee on site who has been designated to provide permit space rescue shall be trained in CPR and basic first aid. In the scope of this practice, the first aid provider(s) shall:

- Be familiar and competent with all foreseeable aspects of confined space rescue.
- Could provide treatment to personnel who may be affected by operations associated with a confined space entry.
- Be adequately trained in the performance of first aid.

Competence Requirements

Personnel are trained in the relevant aspects of assigned duties regarding confined spaces when:

- They are first assigned confined space duties.
- There is a change in assigned duties.
- There is a change in confined space operations that presents a hazard for which an employee has not previously been trained.
- The HSM believes there are deviations from acceptable entry conditions, or an employee demonstrates a lack of training in the confined space entry procedures.

The training shall include, at a minimum:

- Proficiency in the specific duties assigned.
- The type of confined space to be entered.
- Chemical or physical hazards involved.
- Work practices and techniques.
- Atmospheric testing procedures.

- PPE required.
- Rescue procedures.

The SSHO will certify that the required training has been accomplished. The certification will include employee name, trainer signature/initials, dates of training, and will be made available to employees and their authorized representative.

Employees must demonstrate proficiency in the following duties of entry into, or work within, confined spaces to complete and receive documented certification of training:

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure.
- Properly use equipment as required.
- Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space if required.
- Alert the attendant whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation or detects a prohibited condition.
- Exit from the permit space as quickly as possible when an order to evacuate is given by the attendant or the entry supervisor, the entrant recognizes any warning sign or symptom of exposure to a dangerous situation, the entrant detects a prohibited condition, or an evacuation alarm is activated

Definitions

Confined Space - a space that:

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

Note: if a space does not match all three criteria listed above; it is **NOT** a confined space. The term “bodily enter” means a space large enough that a person’s entire body can enter the space to perform work. Small spaces and restricted workspaces not considered to be “confined spaces” MAY still pose hazards that must be risk assessed and controlled.

Entry - The action by which a person passes through an opening **into a permit-required confined space**. Entry includes ensuing 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.

Hazardous Atmosphere - An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (escape unaided), injury or acute illness from one or more of the following causes:

- Flammable gas, vapor, or mist in excess of 10 percent of the Lower Explosive Limit (LEL).
- Airborne combustible dust concentration at or above the LEL. NOTE: This concentration may be approximated as a condition in which the dust obscures vision at 5 feet (1.52 m) or less.
- Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent.
- Atmospheric concentration of any substance with an exposure limit as published by a regulatory agency (e.g., permissible exposure limit published by the Occupational Safety and Health Administration [OSHA]) that could result in employee exposure more than the exposure limit. NOTE: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.

- Any other atmospheric conditions that are immediately dangerous to life or health.

Immediately Dangerous to Life or Health (IDLH) - Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse effects or that would interfere with an individual's ability to escape unaided from a permit space.

Isolation The process to remove a permit required confined space from service and completely protect against the release of energy and material into the space by:

- Blanking or blinding.
- Misaligning or removing sections of lines, pipes, or ducts.
- Lockout or tagout of all sources of energy.
- Blocking or disconnecting all mechanical linkages.

Lower Explosive Limit - The minimum concentration (percentage) of a flammable gas that will propagate a flame in the presence of an ignition source. The more explosive the gas, the lower the LEL. LEL is usually expressed as a percentage (from zero to 100 percent explosive) and is often used interchangeably with LFL (Lower Flammability Limit).

Oxygen Deficient Atmosphere - An atmosphere containing less than 19.5% oxygen by volume.

Oxygen Enriched Atmosphere - An atmosphere containing more than 23.5% oxygen by volume.

Non-Permit Required Confined Space - a confined space that meets the definition of a confined space but does not meet the requirements for a permit-required confined space.

Permit-Required Confined Space - a confined space where Employee entry shall be regulated because one or more of the following characteristics exist:

- Contains or has the potential to contain a hazardous atmosphere.
- Contains a material that has the potential for engulfment.
- Has an internal configuration such that an entrant could be trapped or asphyxiated or that tapers downward to a smaller cross-section.
- Contains job-introduced hazards
- Contains any other recognized serious safety or health hazard.

NOTE: Excavations and trenches deeper than 4ft (1.2m) shall be risk assessed if personnel will be entering the space. This risk assessment is conducted to identify hazards.

Description and Requirements

Prior to entry into a confined space, a risk assessment must be performed, and controls implemented to eliminate the hazards of inert gas, temperature extremes, and other applicable hazards. Should residual sources of hazardous fluid or vapors exist within the confined space, the SSHO shall meet with competent personnel and develop a process to remove the fluid or vapors. Atmospheric testing shall be performed to determine if the space is safe for entry if the gases cannot be removed. No personnel will be allowed to enter a space containing a hazardous atmosphere. See the Procedure for Permit Required Confined Space Entry section of this program for details.

When entrance covers are removed, the opening must be immediately 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. Before an employee enters the space, the internal atmosphere must be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order.

No employee will enter a permit-required confined space without first completing an entry permit and having the entry supervisor sign the permit.

All proposed entrants, attendants, and entry supervisors will participate in the review of the initial atmospheric monitoring, and the completion and review of the entry permit.

If a permit is required, the Confined Space Entry Permit shall be completed. The SSHO will identify and classify permit-required confined spaces in E-Corp's workplaces. Employees will be required to obtain a permit to enter and/or work in those spaces. Prior to entry, The SSHO will assess the conditions and hazards, and decide if workers will enter a permit space. The SSHO, or the assigned entry supervisor, will be responsible for testing and monitoring atmospheric conditions as required.

The Permit-Required Confined Space Process will be reviewed in the event of an accident/injury, near miss, if employee protection is deemed inadequate, any unauthorized entry, employee complaints, or at least annually using the cancelled entry permits as reference. Revisions will be made to the program as necessary to ensure the safety of our employees.

Signage

If a location or site contains permit spaces, permanent signs must be positioned at the location(s) of entry to the confined space to inform employees. Signage must state: **DANGER: PERMIT REQUIRED CONFINED SPACE. DO NOT ENTER.** Signs shall be positioned at the location(s) of potential entry into the confined space.

Equipment

E-Corp will provide and maintain the following equipment at the location of the confined space prior to entry at no cost to employees, and ensure that employees use the equipment properly:

- Testing and monitoring equipment required for atmospheric conditions.
- Ventilating equipment.
- Communications equipment.
- Personal protective equipment where engineering controls do not eliminate hazards, or threat of hazards.
- Lighting equipment.
- Barriers, barricades and shields as required,
- Equipment, such as ladders, needed for safe ingress and egress by authorized entrants.
- Rescue and emergency equipment, except to the extent that the equipment is provided by rescue services.
- Any equipment listed in the Confined Space Entry Practice.
- Any other equipment necessary for safe entry into and rescue from permit spaces. Only a competent person shall conduct equipment measurements.

Removal or Isolation of Hazards

The removal or isolation of hazards in confined space entry shall be performed in accordance with the Risk Assessment and may include the following activities:

- Isolate all connected pipe work.
- Blind all flanges that affect the confined space and surrounding area.
- Disconnect all pumps that may be connected to the confined space.
- Disconnect all lines that may carry harmful agents.
- Confirm that no vapors or fluids can leak into the confined space area.
- Disconnect or drain extraneous sources of harmful agents such as sight glasses, level

- bridles, and gauges.
- Double block and bleed equipment to it. This method may only be used if no other operation is available.
- Identify other forms of energy such as electrical and radioactive sources and implement appropriate isolation or control measures.

Residual Hazards

There may be residual hazardous fluid or vapor within the confined space, which shall be removed by cleaning from outside the space, as much as possible.

The following are examples of residual hazards that should be removed prior to entry:

- Solid deposits.
- Hazardous liquids.
- Scale and sludge, as they may release hydrocarbons or toxic gases when disturbed.

If a residue cannot be removed, it is considered hazardous until appropriate gas tests are performed, and the confined space is declared safe for entry. Once the confined space is safe for entry, the first task shall be to remove the residual hazards including residue.

Control of Atmospheric Hazards

Atmospheric Testing

To determine whether the atmosphere is safe, the space shall be tested before entry, as follows:

- Calibrate and operationally check all equipment and instruments following the manufacturers' guidelines prior to atmospheric testing.
- Shut down the forced air ventilation and test the atmosphere to determine that it is safe.
- Test oxygen content. Safe oxygen content is equal to a concentration between 19.5 percent and 23.5 percent oxygen.
- Test combustible gas level. Safe combustible gas level is equal to or less than 10 percent of the LEL.
- Test for toxic vapors and gases.
- Test naturally occurring radioactive material, where applicable.

Actionable Test Levels

To validate actionable test levels:

- Verify that the percentage of oxygen for unprotected entry into a confined space is no less than 19.5 percent and no greater than 23.5 percent.
- Monitor the oxygen level before the flammability test is conducted.
- Deny entry if the LEL of the atmosphere is at or above 10 percent LEL.
- Deny entry if measurements of toxic materials exceed the Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) or other applicable governmental authority regulatory standards.
- Direct questions for measurements of toxic materials to the HSM.
- Use direct reading instruments, as they are the only units approved for confined space entry jobs.
- Document the results when measurements are taken on the Confined Space Permit.

Combustible and Toxic Gas Testing

Take the following precautions when confined space entry is required to test the atmosphere:

- Continuously monitor confined spaces for toxic gases and LEL of combustible gases that may be released during work. Continuous monitoring is mandatory for all confined space

work, regardless of the respiratory protection provided.

- Evacuate the area if the combustible gases rise above 10 percent LEL and implement a “Stop Work.”
- Ventilate confined space to reduce the LEL below 10 percent before reentry is permitted.
- When atmospheric change is likely, perform additional monitoring to assess potential hazards.

Atmospheric hazards may be controlled by adhering to the following practices:

- Preventing access to the space until ventilation has eliminated any hazardous atmosphere.
- Providing ventilation in the immediate area where entrant(s) will be located until all entrants have left the space. Movement of fresh air in the confined space may be achieved by the following:
 - Mechanical ventilation – an exhaust or blower (air mover) that is driven by an electric or air- or water-powered motor, suitable for the hazardous location in which it is used, and grounded, electrically bonded, or intrinsically safe to prevent static sparks. Note that if the air mover is steam-powered, do not allow steam exhaust to enter the confined space.
 - Directed Airflow – when natural ventilation is insufficient, an airflow may be established by wearing a breathing apparatus, using a ducted fan, ducting airflow to ‘dead spots’ within the confined space, allowing air to exit via a manhole (where it can be sampled), and using a breathing apparatus until the ventilation is established and sampling shows acceptably low residual gas or fume hazards.
 - Forced Ventilation – if a ducted fan is unavailable, a compressed air line may be used (but note that service air in most production plants is not of breathing air quality, so additional filtration may be required to get Grade D breathing air) or forced ventilation may be established at least two hours before entry, the atmosphere may be re-tested to verify the space is safe for entry. Document the results of the re-test on the permit. Note that under no circumstances shall the atmosphere in a confined space be ‘sweetened’ by using an oxygen hose, due to the significant additional fire risks arising from oxygen enrichment.
 - Hydrocarbon Systems Ventilation – when a hydrocarbon system is shut down, nitrogen or inert flue gas may be introduced to prevent the formation of a flammable gas and air mixture. The inert gas shall then be displaced by air before safe entry can be made to such a confined space.
- Providing air supplies for ventilation from clean sources, while not increasing the hazards.
- Performing periodic tests to verify that the ventilation prevents the accumulation of a hazardous atmosphere.

Communication System

The attendant shall keep in direct, constant communication with the entrant(s) using the following forms of communication:

- Verbal and visual communication
- Hand signals, if the entrant is in constant view of the attendant.
- ‘Intrinsically safe’ portable radios.
- ‘Intrinsically safe’ portable radios or cellular telephones for summoning help from a rescue or emergency service.

The appointed rescue team should be informed of every confined space entry task, including the exact location, both immediately prior to work commencing, and before and after work breaks.

Emergency Rescue

Prior to beginning any work at a new jobsite, the SSHO, or the entry supervisor will verify the closest emergency medical and rescue service's ability to respond to a confined space emergency. The number for the verified emergency service will be prominently posted on the permit at the permit entry portal. In the event of an emergency requiring emergency service response, the assigned attendant will notify the entry supervisor, who is responsible for contacting emergency services. Communication between the attendant and rescue services will be immediate to ensure prompt rescue. Emergency services will be contacted by either two-way radio or cell phone.

This service will be determined by the SSHO to be qualified to provide emergency rescue and medical services in the event of a confined space emergency. The attendant will remain on station to assist in evacuating the space and prevent the entry of unauthorized rescue personnel.

Rescue Team Preparation

E-Corp will ensure that a rescue team is immediately available prior to entry of a permit required confined space. E-Corp will evaluate a prospective Rescue and Emergency Service's ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified in the Risk Assessment. What will be considered timely will vary according to the specific hazards involved in each entry. For example, §1910.134, Respiratory Protection, requires that standby person(s) be provided that are capable of immediate action to rescue employee(s) wearing respiratory protection while in work areas defined as IDLH atmospheres. This means rescue services must be on site during any IDLH Confined Space Entry.

The SSHO will evaluate a prospective rescue service's ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the permit space or types of permit spaces identified.

The SSHO will select a rescue team or service from those evaluated that:

- Has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified.
- Is equipped for and proficient in performing the needed rescue services.

The SSHO will inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site.

The SSHO will provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations.

E-Corp employees who have been designated to provide permit space rescue and emergency services will be instructed in and adhere to the following measures:

- The SSHO will provide affected employees with the personal protective equipment (PPE) needed to conduct permit space rescues safely and train affected employees, so they are proficient in the use of that PPE, at no cost to those employees. PPE includes, but is not limited to, the following:
 - Hardhats
 - Breathing apparatus sets or air lines
 - Harnesses or lanyards
 - Line rescue
- The SSHO will train affected employees to perform assigned rescue duties and ensure that such employees successfully complete the training required to establish proficiency as an authorized entrant.

- The SSHO will train affected employees in basic first aid and cardiopulmonary resuscitation (CPR) and will ensure that at least one member of the rescue team or service holding a current certification in first aid and CPR is available.
- The SSHO will ensure that affected employees practice making permit space rescues at least once every 12 months, by means of simulated rescue operations in which they remove dummies, manikins, or actual persons from the actual permit spaces or from representative permit spaces. Representative permit spaces will, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed.

Non-Entry Rescue

To facilitate non-entry rescue, retrieval systems or methods will be used whenever an authorized entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. Retrieval systems will meet the following requirements:

- Each authorized entrant will use a chest or full body harness, with a retrieval line attached at the center of the entrant's back, above the entrant's head, or at another point which presents a profile small enough for the successful removal of the entrant.
- The other end of the retrieval line will 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. A mechanical device will be available to retrieve personnel from vertical type permit spaces more than 5 feet (1.52 m) deep.
- If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS) or other similar written information is required to be kept at the worksite, that SDS or written information will be made available to the medical facility treating the exposed entrant.
- The medical personnel treating the exposed entrant shall be provided with the safety data sheet or written information.

Multi-Employer Worksites

Procedures for coordinating entry operations for multiple employers working simultaneously as authorized entrants in a permit space, so that employees of one employer do not endanger the employees of any other employer include the following:

When E-Corp makes arrangements to have another contractor perform work that involves permit space entry, E-Corp will:

- Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with E-Corp's permit space program.
- Apprise the contractor of the elements, including the hazards identified and E-Corp's experience with the space, that make the space in question a permit space.
- Apprise the contractor of any precautions or procedures that E-Corp has implemented for the protection of employees in or near permit spaces where contractor personnel will be working.
- Coordinate entry operations with the contractor, when our Company's personnel and the contractor's personnel will be working in or near permit spaces.
- Debrief the contractor at the conclusion of the entry operations regarding any hazards confronted or created in permit spaces during entry operations.

In addition to complying with the permit space requirements that apply to our Company, each contractor who is retained to perform permit space entry operations will:

1. Obtain any available information regarding permit space hazards and entry operations from the entry supervisor.

2. Coordinate entry operations with the entry supervisor.
3. Inform our entry supervisor of any hazards confronted or created in permit spaces, either during the entry operation or through a debriefing.

Third party persons shall be competent and shall meet the same requirements as internal rescue teams.

Alternative Entry

The following conditions shall be met to qualify for alternative entry procedures:

- The only hazard posed by the confined space is a potentially hazardous atmosphere,
- Visual inspection and air monitoring tests confirm that the only potential hazard is a hazardous atmosphere.

Alternative Entry Process

The alternative entry process shall only be used when the only hazard in the space is a potentially hazardous atmosphere. Mechanical ventilation shall be used to control the hazardous atmosphere to safe levels. Entry to the confined space using alternative entry does not require a permit, but the following requirements apply:

- Eliminate any unsafe conditions for removing an entrance cover prior to removal.
- Guard the opening promptly and effectively when entrance covers are removed.
- Test the internal atmosphere prior to entry with a calibrated direct reading instrument at the working level for the subsequent conditions, in the following order:
 - Oxygen content between 19.5-23.5 percent by volume.
 - Flammable gases and vapors less than or equal to 10 percent of LEL.
 - Potential toxic air contaminants exceeding the OSHA permissible exposure limit.
- Verify that there is no hazardous atmosphere within the space whenever an employee is inside the space.
- Monitor the atmosphere within the space continuously to confirm that ventilation is adequate.
- If a hazardous atmosphere is detected during entry:
 - Evacuate the space immediately.
 - Evaluate the space to determine how the hazardous atmosphere occurred before any subsequent entry.
 - Notify a responsible individual that entry is being made and the intended duration of the entry.
 - Inform the responsible individual that work is complete.
 - Maintain documentation of pre-entry monitoring for all confined spaces entered.

Procedure for Permit Required Confined Space Entry

All workplace locations that are Permit Required Confined Spaces shall be identified as specifically as possible. Entry into these spaces (including, but not limited to, placing of head or face into the opening of a confined space) shall be subject to the provisions of the Permit-Required Confined Space Defined Practice.

Special Considerations: A) Electrical Pits shall be considered Permit Required Confined Spaces unless all internal hazards can be eliminated before entry; B) Steam Pits shall be considered Permit Required Confined Spaces unless all internal hazards can be eliminated before entry.

The Procedures for Permit-Required Confined Space Entry are as follows:

1. **Notifications of Entry** - Prior to entry of a confined space, the attendant or entrant shall notify the SSHO of the planned entry.

- a. Notification shall include exact location of the space, name of the personnel involved and estimated duration of entry.
 - b. Upon completion of the work, the attendant or entrant shall notify the SSHO of completion of the work in the confined space.
- 2. Obtain Entry Permit** - No employee will enter a permit-required confined space without first completing an entry permit and having the entry supervisor sign the permit. The steps of the entry-permit procedure include the following:
- a. Accomplish all pre-permit activities required for entering the space, including atmospheric testing, controlling hazards, having required equipment on hand, and providing for emergency services (refer to Hazard Evaluation below).
 - b. Complete all items on the entry permit.
 - c. Have the entry supervisor authorize and sign the permit. If any item on the permit is checked "NO" (meaning not yet completed or available), the permit will not be signed.
 - d. Attach a copy of the entry permit outside the entry portal of the confined space. Keep it there until the entry operations are completed and the supervisor cancels the permit.
 - e. A copy of the actual permits must then be sent to the HSM for record keeping purposes.
- 3. Hazard Evaluation** - Prior to entry into a confined space, a risk assessment must be performed, and controls implemented to eliminate the hazards of inert gas, temperature extremes, door release, and other applicable hazards. Atmospheric testing shall be performed to determine if the space is safe for entry if the gases cannot be removed. Should residual sources of hazardous fluid or vapors exist within the confined space, the entry supervisor, authorized entrant, attendant, and SSHO shall meet with competent personnel and develop a process to remove the fluid or vapors. The HSM, authorized entrant, attendant, and any rescue services must be competent to recognize hazards that may be associated with a confined space.
- 4. Monitoring (atmosphere)** - Atmospheric monitoring will be performed regularly during confined space operations to ensure that conditions do not exist, or change, to threaten employee's safety. Ventilation of confined spaces is required before entry, during monitoring, and throughout the operation. Monitoring or re-evaluation of conditions may be requested at any time during the operation by any employee, or their representative, who suspects that changes have occurred which might present a hazard to personnel. Be aware: the elimination of atmospheric hazards does not occur solely through forced air ventilation.
- 5. Ventilation** - Fresh air shall be provided to the confined space (i.e., end to end or bottom to top where possible). Movement of fresh air in the confined space may be achieved using the following methods:
- a. Mechanical ventilation using an exhaust or blower (air mover) that is:
 - i. Driven by an electric or air- or water-powered motor.
 - ii. Suitable for the hazardous location in which it is used.
 - iii. Grounded, electrically bonded or intrinsically safe to prevent static sparks.
 - iv. NOTE: If the air mover is steam-powered, do not allow steam exhaust to enter the confined space.
 - b. Directed airflow when natural ventilation is insufficient. Entrants follow these requirements:
 - i. Wear a breathing apparatus.
 - ii. Use a ducted fan.
 - iii. Duct the flow to 'dead spots' within the confined space.
 - iv. Allow the air to exit via a manhole, where it can be readily sampled.
 - v. Entrants shall continue to use a breathing apparatus until the ventilation is

established and sampling shows acceptably low residual gas or fume hazards.

6. If, During Any Entry, A Hazardous Atmosphere Is Detected:

- a. All Employees Shall Leave the Confined Space IMMEDIATELY.
- b. Then notify the SSHO.
- c. The space shall then be evaluated by the Person In Charge or SSHO to determine how the hazardous atmosphere developed. All necessary steps, including corrective action, continuous forced ventilation, and atmospheric monitoring, shall be taken to protect employees prior to re-entry.
 - i. If the source of the contaminant cannot be determined, precautions shall be adequate to deal with the worst possible condition within the confined space.
 - ii. If there is a possibility that the confined space could become unacceptable, while personnel are working, procedures and equipment including: tripod, safety harness, telephones or portable radios shall be provided.

7. Terminating a Confined Space Entry

- a. The HSM, or the entry supervisor shall terminate the entry permit upon completion of the assigned task, upon finding unsuitable conditions or preparation, or if unsuitable conditions develop. Upon termination of entry and suspension of the Confined Space Entry Permit, the entry supervisor or HSM shall, where applicable:
 - i. Ensure that all personnel have exited the space,
 - ii. Ensure that equipment, tools, and materials have been removed, and that no condition which might create a hazard has been left unresolved.
 - iii. Restore entry portals to operating conditions.
 - iv. Restore inlet and outlet piping to service.
 - v. Restore safety and automation systems to normal service.
 - vi. Mark the permit cancelled, sign the space provided for cancellation, and present the cancelled permit to the SSHO for filing in records.
 - vii. Debrief affected workforce personnel to identify any deficiencies or hazards encountered during the entry.
 - viii. Document the debriefing and any deficiencies identified on the canceled permit for future review.

8. Permit Space Reclassification

- i. A permit space may be reclassified as a non-permit space if:
 - 1. No actual or potential atmospheric hazards are present.
 - 2. Hazards within the permit space are eliminated without entry.
- ii. Eliminate hazards by:
 - 1. Purging tanks and vessels of contaminants or rendering contaminants inert.
 - 2. Emptying material from hoppers, bins, and kibbles.
 - 3. Referring
- iii. A confined space may not be reclassified to non-permit required where a hazardous atmosphere exists or has the potential to exist regardless of ventilation.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/08/21
02	Stacy Maxfield	Annual Review/Update	10/11/22



Confined Space Employee Training Certification

E-Corp certifies that the following employee has been trained in the understanding, knowledge, and skills necessary for the safe performance of duties assigned in permit required confined spaces.

Employee Name: _____ has demonstrated proficiency in the following duties of entry into, or work within confined spaces to complete and receive documented certification of training:

- Knowledge of the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure.
- Proper use of the following equipment as required:
 - Testing and monitoring equipment required for atmospheric conditions.
 - Ventilating equipment
 - Communications equipment
 - Personal protective equipment
 - Lighting equipment
 - Barriers and shields as required
 - Equipment, such as ladders, needed for safe ingress and egress by authorized entrants.
 - Rescue and emergency equipment
 - Any other equipment necessary for safe entry into and rescue from permit spaces.
- Communication with the attendant, as necessary, to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space, if required.
- Alert the attendant whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation or detects a prohibited condition.
- Exit from the permit space as quickly as possible when an order to evacuate is given by the attendant or the entry supervisor, the entrant recognizes any warning sign or symptom of exposure to a dangerous situation, the entrant detects a prohibited condition, or an evacuation alarm is activated.

Employee Name

Trainer Name

Signature of Trainer

Date

Employee Signature

Date



Permit Number: _____

Date of Last Revision: 06/08/21

Confined Space Entry Permit

General Information

Space to be Entered:	Purpose of Entry:
Location:	Authorized Duration of Permit: From – Date/Time: To – Date/Time:

PERMIT SPACE HAZARDS

- Oxygen Deficiency (< 19.5%)
- Oxygen Enrichment (> 23.5%)
- Flammable gases or vapors (> 10% of LEL)
- Airborne combustible dust (\geq LEL)
- Toxic gases or vapors (greater than PEL)
- Mechanical Hazards
- Electrical Shock
- Materials harmful to skin
- Engulfment
- Other:

PREPARATION FOR ENTRY

- Notification of affected employees/clients of service interruption.
- Isolation Methods:**
- | | |
|---|---|
| <input type="checkbox"/> Purge/clean | <input type="checkbox"/> Atmospheric Test |
| <input type="checkbox"/> Lockout/tagout | <input type="checkbox"/> Inert |
| <input type="checkbox"/> Barriers | <input type="checkbox"/> Blank / Blind |
| <input type="checkbox"/> Ventilate | <input type="checkbox"/> Other: |
- Pre-entry briefing on specific hazards
 - Notify contractors of permit and hazards
- Additional permits required:

Is a chemical reaction possible inside the space that could use up oxygen or generate a toxic compound?
Yes / No

Specific Equipment Isolated: _____

EQUIPMENT REQUIRED FOR ENTRY AND WORK

Personal Protective Equipment: _____
Atmospheric Testing/Monitoring: _____
Communication: _____
Rescue Equipment: _____
Other: _____

ENTRY PERSONNEL (List by name)

Entry Supervisor: _____
Authorized Entrants: _____
Authorized Attendants: _____
Rescue Service: _____

TESTING RECORD

Acceptable Conditions	Time	:	:	:	:	:	:
Oxygen-min. >19.5%							
Oxygen-max. <23.5%							
LEL <10%							
Toxic Gases (specify)							
Heat							
Other (specify)							

AUTHORIZATION BY PERMIT SUPERVISOR

I certify that I have reviewed the permit, all required precautions have been taken, and necessary equipment is provided and inspected for this permitted work.

Name: _____ **Signature:** _____ **Date:** _____ **Time:** _____

PERMIT CANCELLATION BY PERMIT SUPERVISOR

I attest that the Permitted Work is complete, and permit is closed.

Name: _____ **Signature:** _____ **Date:** _____ **Time:** _____



Permit Number: _____

Date of Last Revision: 06/08/21

Permit Required Confined Space Reclassification Form

Location of Space:	Date:	Name of Evaluator:	
Potential Hazards of Space:			
Must space be entered to remove hazards? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Permit procedures must be followed			
Have hazards been eliminated? <input type="checkbox"/> Yes <input type="checkbox"/> No If No, Permit procedures must be followed. If Yes, Explain how hazards have been eliminated:			
Atmospheric Testing Results (if applicable)	Oxygen	%LEL	Toxic Gases (specify)
Time:			
Comments:			
I certify that all required precautions have been taken and this permit required confined space can be reclassified as non-permit required because hazards have been eliminated.			
Evaluator Signature:			

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Personal Protective Equipment Selection and Use

Purpose

E-Corp has adopted this Personal Protective Equipment (PPE) program to ensure safety of our employees. The program has been adopted from the following OSHA regulation:

§1910 Subpart I – Personal Protective Equipment

Roles and Responsibilities

E-Corp has implemented this safety program to ensure the protection of personnel from hazards on the job which may be safeguarded against by the proper use of PPE. The Health and Safety Manager (HSM) is the supervisor responsible for ensuring the work practices are enforced.

- The HSM will verify that PPE is considered and addressed in project planning and risk assessment and will evaluate the project scope of work and determine applicable PPE based on the risks and hazards.
- The HSM will verify that the PPE has been documented in the Site-Specific Health and Safety Plan (SSHSP), as necessary.
- The HSM will ensure that if employee-owned PPE is used, it will be adequate for the application, properly maintained, and kept in sanitary condition.

Selection of PPE

PPE selection will be done on a project specific and activity specific basis. A discussion of PPE required for specific job tasks can be found on the hazard analysis for each project site.

Engineering controls (source and pathway) will be used whenever feasible to control workplace exposure. Since engineering controls are not always feasible, PPE will be used to protect employee health and safety when appropriate.

PPE will be selected based on levels of exposure and potential hazards to be encountered in the workplace. This determination will be made by the Project Manager (PM) with input from the Site Safety and Health Officer (SSHO) and HSM.

Prior to determination of levels of exposure, PPE will be used to protect against the worst-case scenario for reasonably anticipated exposures. For example, if levels of air contaminants are not determined, respiratory protection will be required that provides protection from the highest air contamination levels anticipated. This level of PPE will be required until monitoring indicates a lower level of protection is required.

The HSM will utilize the results of direct read instruments and personal monitoring to recommend modifying work practices and to determine levels of PPE. As a guide, predetermined contaminant levels used to make these changes called action levels will be used. Action levels for some chemicals are found in the OSHA standard specific for the chemical.

Hazard Assessment

The SSHO and PM will do a hazard assessment of each jobsite prior to commencement of work to ascertain if hazards are present or likely to be encountered, what engineering controls may be implemented to minimize hazards, and what PPE is necessary for the performance of the job. The hazard assessment will include the certifier's name, signature, date(s), and identification of assessment documents. Affected employees will be notified of hazards, engineering controls needed, and PPE required. The PM/SSHO shall document the hazard identification and risk assessment (refer to the Risk Assessment Program).

When considering PPE needs, the PPE shall match the hazard. Additionally, the following list shall be considered:

- Impact.
- Penetration.
- Compression (roll-over).
- Chemical.
- Heat.
- Harmful dust.
- Light (optical) radiation.
- Energy sources.

Additionally, the process for the selection of PPE shall include:

- Familiarity of hazards and available PPE.
- Comparison of PPE with the environment.
- Selection of PPE to ensure protection is greater than the required protection for protection against the hazard.
- Fitting the user with the PPE and providing training and instruction of care and use.
- Re-assessing PPE for applicability where hazards change.

The SSHO will provide information that validates that the PPE matches the hazard where the hazard assessment identifies a need for PPE as a mitigation. Hazards and associated PPE shall be documented on a PPE matrix.

General PPE Requirements

- PPE will be provided for all work required by E-Corp and employees are required by company policy to always use only proper PPE when required on the job or on company property. Failure to use PPE will result in disciplinary action against the violating employee.
- PPE will be issued and fitted to each affected employee individually. Employees must demonstrate proficiency in donning and doffing equipment, and proper techniques of cleaning and maintaining their respective equipment.
- Visual inspection of PPE shall be conducted before each use.
- Defective or damaged PPE will NOT be used. Defective or damaged PPE will be immediately tagged "OUT OF SERVICE", removed from service, and replaced with serviceable equipment.
- PPE must be used, stored, and maintained in a sanitary condition. All PPE must be cleaned and/or disinfected and stored according to manufacturer's recommendations.
- The PPE required shall consist of:
 - Safety-toed shoes.
 - Hard hats.

- Approved safety glasses with side shields, as appropriate for the task.
- Long pants and shirt with sleeves.
- Appropriate gloves for the task.
- Highly visible clothing shall be worn in any traffic areas. The clothing should be of any highly visible color and be reflective for night wear and foul weather conditions.
- Suitable insect repellent shall be provided by E-Corp and worn by employees if during the task risk assessment, it is determined that insects might be present.
- Required body and skin protection shall be determined per the SDS and PPE risk assessment.

Limitations of PPE

Limitations of PPE can reduce or eliminate the protective properties of the equipment and cause employee exposure. Proper selection, training, maintenance, and supervision of PPE use is necessary to ensure adequate protection.

Foot Protection

Safety-toed boots shall always be worn and shall meet the requirements of American Society for Testing and Materials (ASTM) F2412, Standard Test Methods for Foot Protection, and ASTM F2413, Standard Specification for Performance Requirements for Foot Protection, and American National Standards Institute (ANSI) Z41.1, Personal Protection-Protective Footwear. Composite hard-toed shoes shall be considered.

Safety boots must be laced with a minimum of 4" (101.6mm) leather or rubber uppers ankle support with a distinctive heel.

When working with electricity or where one may be exposed to electrical currents, electrical shock resistant footwear shall be considered. Some projects will require steel toes boots.

Eye Protection

Safety glasses with side impact protection or goggles shall meet the requirements of ANSI Z87.1, Occupational and Educational Personal Eye and Face Protection Devices. Eye protection shall have designated markings showing compliance with the applicable standard.

Operations that require additional eye protection (i.e., welding) shall be assessed on an individual basis. Chemical handling might require the use of specific safety glasses or goggles per the Safety Data Sheet (SDS) or PPE Risk Assessment. During the assessment, consideration shall be given regarding the correct type of eye protection for the task. If safety sunglasses are worn, the wearer shall check that his or her vision is not obstructed.

Face Protection

During all operations where material can separate and become a projectile, a face shield shall be worn in conjunction with safety glasses and goggles or per the PPE risk assessment. Operations that require additional face protection shall be assessed based on SDSs and risk assessment. Welding, cutting, and grinding require a face shield to be worn over safety glasses.

Hand Protection

Personnel shall use hand protection when performing jobs that expose the hands to the

absorption of harmful substances, cuts or lacerations, abrasions, punctures, chemical burns, thermal burns, harmful temperature extremes or other hazards. Selection of hand protection shall be based on the PPE risk assessment.

Chemical Protective Gloves

Chemical protective gloves should be selected specifically for the chemicals they will be used for. While considering glove selection, the following criteria shall be considered:

- Breakthrough time – lag time before chemical can be measured inside the glove or membrane.
- Permeation rate – steady state condition after breakthrough affected by glove thickness, quality, liquid temperature etc.
- Penetration – entrance into glove from the open end, i.e., the top, holes from damage or wear, or cross contamination of hands or gloves when donning and doffing. Chemicals accumulate in the glove and transfer to the skin of the wearer.
- Chemical degradation – material swelling, softening, or cracking which causes a decrease in breakthrough time, or an increase in permeation and/or penetration.
- Exposure pattern – intermittent or infrequent contact will be limited by breakthrough time; frequently repeated or continuous contact will be limited by permeation rate.
- Non-chemical glove selection factors such as:
 - Size of hand and glove.
 - Dexterity and tactile sense.
 - Adequate cut or tear resistance.
 - Comfort (heat and sweat accumulation, allergies, etc.)

Skin barrier creams may also be used for skin protection against certain types of exposure. Skin barrier creams are categorized by protection against water- or water-soluble agents (hydrophobic creams) or against oil or oil soluble agents (hydrophilic creams). Most creams require regular reapplication and must be suitable for the specific task.

Head Protection

Hard hats shall meet the requirements as outlined below. ANSI Z89.1, Standard for Industrial Protective Helmets:

- ANSI Z89.1 provides minimum performance requirements to reduce the forces of impact and penetration from falling objects and, where applicable, to provide protection from electrical shock hazards.
- Headwear classification is categorized in terms of impact type and electrical class.
- All helmets shall meet requirements for impact Type I or Type II.
 - Type I is for risk of impact to the crown of the head only. The standard kind of hard hat is called a Type I helmet, which provides protection for the top of the head.
 - Type II is for impacts to the crown and sides of the head. Helmets that provide some degree of top and off-center protection are called Type II helmets.
- The risk assessment shall be used to decide whether the Type I (top impact) helmet meets requirements or if work conditions warrant a Type II (top and lateral impact) helmet.
- Further, if the member of the E-Corp workforce has the potential to be exposed

- to electrical current, the hard hat must meet the appropriate Electrical Class.
- Electrical Classes, G, E or C further categorize each Type (1 or 2). The three classes, E, G or C, refer to the electrical ratings.
 - Class E to reduce danger from higher voltages and proof tested at 20,000 V
 - Class G to reduce danger with lower voltages and be proof tested at 2,200 V
 - Class C provides no protection against electrical current.
 - Markings on the product shall include the name or identification of the manufacturer, date of manufacturing, standard designation and head size range.
 - User Information shall include the manufacturer's instructions, application and expected useful life, care and adjustment instructions.
 - Hard hat liners, when used, shall be designed to fit under the hard hat. Ball caps shall not be worn under hard hats. Hard hats may be worn backwards when the hard hat is designed to be turned backwards and when required by the risk assessment. When hard hats are worn backwards, the inner hard hat band shall be installed correctly, which requires removing, turning and reinstalling the band per the manufacturer directions.
 - Users shall visually inspect their hard hats prior to each use per the manufacturer's recommendation. If a hard hat becomes brittle, cracked or damaged, it shall be replaced immediately. Painting hard hats is prohibited. Suspensions and shells shall be replaced per the manufacturer's recommendation.
 - A hard hat replacement program shall be developed based on work conditions. As a general guideline, **replace all employees' hard hats every five (5) years**, regardless of the hat's outward appearance.
 - **Where user environments are known to include higher exposure to temperature extremes, sunlight or chemicals, hard hats/caps should be replaced automatically after two (2) years of use.** In certain rare instances, a cap may need to be replaced within less than two (2) years.
 - If a cap has been struck by a forcible blow of any magnitude, both the hard hat shell and suspension shall be replaced immediately, even if no damage is visible.
 - Metal and cowboy-style hard hats shall not be worn.

Hearing Protection

Various forms of hearing protection are available and shall be worn when noise levels of 85 decibels [acoustic] on the A-Weighted Scale (dBA) exist. Where noise of an operation exceeds the 8-hour time weighted average (TWA) of 85 dBA, a hearing conservation program shall be implemented.

Hearing protection shall be available at locations where operations have a potential to reach 85 dBA and be sufficient to reduce the noise levels to an acceptable level. A general rule of thumb is hearing protection is required when you must shout at three (3) feet (arms-length distance) to be heard.

Signs shall be posted where continuous noise levels are at 85 dBA or greater. The risk assessment shall identify areas where hearing protection is necessary, and the type of hearing protection required.

Hearing protection zones shall be identified by signage. Follow the E-Corp Occupational Noise Exposure program for use of hearing protectors.

Flame Resistant Clothing (FRC)

Flame Resistant Clothing (FRC) shall be worn when any of the following apply:

- It is determined by risk assessment and included in the SSHSP requirements for the site.
- An employee, supervisor, or other member of the workforce identifies a site-specific job and/or area with potential exposure to flash or arc burn injuries (i.e., electrical circuits)
- Work is done at a production facility with hydrocarbon-containing equipment and is in a PPE-required area.
- FRC is required by the site owner.

FRC garments must comply with the following requirements:

- FRC material weight is more than 4 oz./yd² (150 g/m²)
- FRC materials comply with National Fire Protection Association (NFPA) 2112
- Optional reflective stripes conform to the International Safety Equipment Association (ISEA) 107, Level 2.

FRC shall be worn and maintained accordingly:

- Personnel shall wear FRC as the outer-most garments except when other personal protective clothing is required (e.g., chemical-resistant suits, welder's leather and Personal Flotation Devices [PFDs]).
- External protective garments shall be made of flame-retardant material.
- Personnel shall not wear synthetic blends such as nylon, polyester, rayon or polyethylene under FRC. Natural fibers such as cottons and wools shall be worn under FRCs.
- Only long-sleeved FRCs shall be worn in designated FRC areas or jobs. FRC shall cover the torso, arms and legs (sleeves rolled down and body fully zipped or buttoned up).
- FRC shall be laundered, repaired and taken out of service per the manufacturer's recommendations.

Fall Protection

Fall arrest equipment shall be suitable for the planned tasks, used only by medically suitable and competent persons and subject to documented regular inspection. Fall arrest equipment shall be used only as a last resort due to the difficulty of a timely rescue.

Temporary access (i.e., scaffolds, ladders) and fall restraint or arrest equipment shall be suitable for the intended use and taken out of use in case of damage.

In addition to regularly planned inspections, all fall arrest equipment shall be checked by the user immediately before use. If it is damaged, the equipment should immediately be labeled as faulty and taken out of use. New fall arrest equipment shall be provided before the work task commences. For additional information regarding fall arrest equipment, refer to the *Fall Protection Program*.

Electrical Protection

By far, the best way to prevent an electric arc flash is to always de-energize and lockout/tagout all electrical equipment prior to performing servicing and maintenance activities. Live parts to which an employee may be exposed shall be de-energized before the employee works on or near them, unless the employer can demonstrate that de-energizing introduces additional or increased hazards or is infeasible due to equipment design or operational limitations. **E-Corp personnel will not work on live electrical parts.** For additional information regarding electrical protection, refer to the *Control of Hazardous Energy Lockout/Tagout and Overhead*

Utilities Programs.

Personal Flotation Devices (PFDs)

When employees are working over or near water, they will be provided with a U.S. Coast Guard-approved life jacket or buoyant work vest when the danger of drowning exists.

- Wear Coast Guard approved work vests.
- Inspect work vests before each use. Defective units must not be used.
- Do not use recreational boating PFDs such as ski jackets for work applications.
- PFDs used as work vests may be Type I, II, III, or V PFDs. A Type V PFD, including Type V Hybrid PFDs, is acceptable only if it is U.S. Coast Guard approved and marked for use as a work vest, for commercial use, or for use on commercial vessels.
- PFDs shall be fitted with a SOLAS (Safety of Life at Sea convention) compliant whistle or noise making device.
- When worn at night, PFDs shall have SOLAS rated reflective tape/materials affixed to the PFD.
- Safety nets or similar fall protection or positioning devices may be used in place of PFDs.
- The use of PFDs is generally NOT appropriate for entrapment hazards such as deep muds.
- In hypothermia conditions, PFDs should be insulated (e.g., “mustang suits”).
- Must have Safety of Life at Sea rated reflective tape or materials affixed to the PFD when worn at night.

All defective PFDs shall be removed from service and either repaired or replaced.

Chemical Protective Clothing

Chemical protective clothing shall be selected based on the following:

- Low permeation of expected chemicals.
- Fabricated with few openings for direct penetration.
- Resistance to chemical degradation that can increase either permeation and/or penetration.
- Informal parameters such as:
 - Sizes available.
 - Dexterity required by the task.
 - Cut and tear resistance both in the short and long terms.
 - Comfort (especially heat build-up as well as weight).
 - Styles available (number of pieces in ensemble, seam design, etc.)

Four-point approach to selecting CPC

1. Evaluate hazard
2. Evaluate exposure to hazard
3. Evaluate chemical resistance
4. Evaluate physical resistance

IMPORTANT NOTE:

No clothing material protects against all chemicals and combinations of chemicals. Furthermore, no currently available clothing material is an effective barrier to prolonged chemical exposure.

Employee Training

- All employees will be properly trained in the recognition and assessment of hazards and hazardous situations, the proper selection and use of PPE equipment required for the hazard and methods to avoid, prevent, or abate such hazards.
- PPE training will include:
 - When PPE is necessary.
 - What PPE is necessary.
 - How to properly don, doff, adjust, and wear PPE.
 - The limitations of PPE.
 - The proper care, maintenance, useful life, and disposal of PPE.
- Retraining of employees is required when the workplace changes making the earlier training obsolete, the type of PPE changes, or when the employee demonstrates lack of use, improper use, or insufficient skill or understanding.
- Employees will be trained on initial hiring to use, maintain, clean and disinfect, store, and service PPE properly.
- Employees will receive refresher training on PPE at least annually, or as work requirements, changing job assignments, changing equipment, or environment warrants it. Any employee who demonstrates a lack of knowledge or understanding of any aspect of PPE use or maintenance will be re-trained. An employee must verify his/her understanding of training content as a condition of employment.
- All training will be documented and will include the employee's name, the dates of training, and the certification subject.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/09/21
02	Stacy Maxfield	Annual Review/Update	10/12/22

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Respirable Crystalline Silica Exposure Control Program

Purpose

This Respirable Crystalline Silica Exposure Control Program was developed to prevent employee exposure to hazardous levels of Respirable Crystalline Silica that could result through construction activities or nearby construction activities occurring on worksites. Respirable Crystalline Silica exposure at hazardous levels can lead to lung cancer, silicosis, chronic obstructive pulmonary disease, and kidney disease. It 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).

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 construction sites include Crystalline Silica; including but not limited to – cement, concrete, asphalt, pre-formed structures (inlets, pipe, etc.), drywall and others. Consequently, this program has been developed to address and control these potential exposures to prevent our employees from experiencing the effects of occupational illnesses related to Respirable Crystalline Silica exposure.

Scope

This Respirable Crystalline Silica Exposure Control Program applies to all employees who have the potential to be exposed to Respirable Crystalline Silica when covered by the OSHA Standard. The Respirable Crystalline Silica Program applies to all occupational exposures to **Respirable Crystalline Silica in construction work, except where employee exposures will remain below 25 micrograms of Respirable Crystalline Silica per cubic meter of air (25 $\mu\text{g}/\text{m}^3$) as an ACGIH 8-hour time-weighted average (TWA) threshold limit value (TLV) under all foreseeable conditions.**

Responsibilities

Protecting the health and safety of our employees is everyone's responsibility. This responsibility begins with upper management providing the necessary support to properly implement this program. However, all levels of the organization assume some level of responsibility for this program including the following positions.

Project Manager/ Health and Safety Manager:

- Conduct job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an employee's exposure will be above 25 $\mu\text{g}/\text{m}^3$ as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

- Select and implement 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. NOTE: OSHA's Construction Standard Table 1 is a list of 18 common construction tasks along with acceptable exposure control methods and work practices that limit exposure for those tasks.
- Ensure that the materials, tools, equipment, personal protective equipment (PPE), and other resources (such as worker training) required to fully implement and maintain this Respirable Crystalline Silica Exposure Control Program are in place and readily available if needed.
- Ensure that Project 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.
- Maintain 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, as required.
- 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.
- Coordinate work with other employers and contractors to ensure a safe work environment relative to Silica exposure.
- Ensure all applicable elements of this Respirable Crystalline Silica Program are implemented on the project including the selection of a Competent Person.
- Assist in conducting job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments.
- Ensure that employees using respirators have been properly trained, medically cleared, and fit-tested in accordance with E-Corp's Respiratory Protection Program.
- 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.
- 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.

Competent Person and/or Site Superintendent

- Make frequent and regular inspections of job sites, materials, and equipment to implement the written ECP.
- Identify existing and foreseeable Respirable Crystalline Silica hazards in the workplace and take prompt corrective measures to eliminate or minimize them.
- Notify Management of any deficiencies identified during inspections in order to coordinate and facilitate prompt corrective action.
- Assist Management in conducting job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments.

Employees:

- 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.
- Use the assigned PPE in an effective and safe manner.
- Participate in Respirable Crystalline Silica exposure monitoring and the medical surveillance program, when applicable.
- Report any unsafe conditions or acts to the Project Manager/Site Superintendent and/or Competent Person.
- Report any exposure incidents or any signs or symptoms of Silica related illness.

Definitions

If a definition is not listed in this section, please contact your supervisor. If your supervisor is unaware of what the term means, please contact the Competent Person or your manager.

- TLV (Threshold Limit Value) means the employer shall ensure that no employee is exposed to an airborne concentration of Respirable Crystalline Silica in excess of 25 µg/m³, calculated as an 8-hour TWA.
- Competent Person means an individual who is capable of identifying existing any 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.
- 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.

Exposure Control Methods

Specified Exposure Control Methods

When applicable, management will conduct activities with potential Silica exposure to be consistent with OSHA's Construction Standard Table 1. Supervisors will ensure each employee under their supervision and engaged in a task identified on OSHA's Construction Standard Table

1 have fully and properly implemented the engineering controls, work practices, and respiratory protection following ACGIH TLV.

The task(s) being performed and identified on OSHA's Construction Standard Table 1 is/are:

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
1	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. 	APF 10	APF 10
2	Jackhammers and handheld powered chipping tools when used outdoors	<ul style="list-style-type: none"> 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	APF 10
3	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	<ul style="list-style-type: none"> 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. 	APF 10	APF 10
4	Handheld grinders for mortar removal (i.e., tuckpointing)	<ul style="list-style-type: none"> 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. 	APF 10	APF 25
5	Handheld grinders for uses other than mortar removal for tasks performed outdoors only	<ul style="list-style-type: none"> 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
6	Handheld grinders for uses other than mortar removal when used outdoors	<ul style="list-style-type: none"> 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. 	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
		<ul style="list-style-type: none"> 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. 		
7	Handheld grinders for uses other than mortar removal when used indoors or in an enclosed area	<ul style="list-style-type: none"> 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	APF 10
8	Walk-behind milling machines and floor grinders	<ul style="list-style-type: none"> 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
9	Walk-behind milling machines and floor grinders	<ul style="list-style-type: none"> 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
10	Small drivable milling machines (less than half-lane)	<ul style="list-style-type: none"> 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
11	Stationary Masonry Saws	<ul style="list-style-type: none"> 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
12	Handheld Power Saws (any blade diameter)	<ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> When used outdoors When used indoors 	None APF 10	APF 10 APF 10

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
13	Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	<ul style="list-style-type: none"> • For tasks performed outdoors only: <ul style="list-style-type: none"> ○ 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
14	Walk-behind saws	<ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> ○ When used outdoors ○ When used indoors 	None APF 10	None APF 10
15	Drivable saws	<ul style="list-style-type: none"> • For tasks performed outdoors only: <ul style="list-style-type: none"> ○ 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
16	Rig-mounted core saws or drills	<ul style="list-style-type: none"> • 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
17	Handheld and stand-mounted drills (including impact and rotary hammer drills)	<ul style="list-style-type: none"> • 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 HEPA-filtered vacuum when cleaning holes. 	None	None
18	Dowel drilling rigs for concrete	<ul style="list-style-type: none"> • For tasks performed outdoors only: <ul style="list-style-type: none"> ○ 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. 	APF 10	APF 10

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
19	Vehicle-mounted drilling rigs for rock and concrete	<ul style="list-style-type: none"> 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. <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> Operate from within an enclosed cab and use water for dust suppression on drill bit. 	None	None

When implementing the control measures specified in Table 1, E-Corp shall:

- For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;
- For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;
- For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:
 - Is maintained as free as practicable from settled dust;
 - Has door seals and closing mechanisms that work properly;
 - Has gaskets and seals that are in good condition and working properly;
 - Is under positive pressure maintained through continuous delivery of fresh air;
 - 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); and
 - Has heating and cooling capabilities.
- 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.

Alternative Exposure Control Methods

Alternative Exposure Control Methods apply for tasks not listed in OSHA’s Construction Standard Table 1, or where you cannot not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1.

E-Corp will assess the exposure of every employee who is, or may reasonably be expected to be, exposed to Respirable Crystalline Silica at or above the TLV in accordance with either the Performance Option or the Scheduled Monitoring Option. If exposures to crystalline silica cannot be reasonably estimated using objective methods prior to the exposure assessment, respiratory protection with a minimum APF of 25 will be worn until the exposure assessment has been completed.

- **Performance Option** – We will assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to Respirable Crystalline Silica
- **Scheduled Monitoring Option:**
 - We will perform initial monitoring to assess the TLV exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees in each work area. Where several employees perform the same tasks in the same work area, we will 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.
 - Where the most exposure monitoring indicates that employee exposures are below the TLV, we will discontinue monitoring for those employees whose exposures are represented by such monitoring, except when a reassessment is required. 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 TLV, or when we have any reason to believe that new or additional exposures at or above the TLV have occurred.

Respirable Crystalline Silica samples taken to satisfy the monitoring requirements of this program and OSHA will be collected by a qualified Industrial Hygienist and the samples evaluated by a qualified laboratory.

After completing an exposure assessment, each affected employee will be notified in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.

Whenever an exposure assessment indicates that employee exposure is above the TLV, written notification of the corrective action being taken to reduce employee exposure to or below the TLV will be provided.

Where air monitoring is performed, affected employees or their designated representatives will be provided 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.

Air monitoring results will be assessed for compliance based on the monitoring data. Control implementation will follow the hierarchy of controls.

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.

Control Methods

E-Corp 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.

Respiratory Protection

Where respiratory protection is required by this program, each employee will be provided an appropriate respirator that complies with the requirements of the E-Corp Respiratory Protection Program and the OSHA Respiratory Protection Standard (29 CFR 1910.134).

Respiratory protection is required where specified by the OSHA Construction Standard Table 1, for tasks not listed in Table 1, Situations requiring respiratory protection include but not limited to.

- Where exposures exceed the TLV during periods necessary to install or implement feasible engineering and work practice controls;
- Where exposures exceed the TLV during tasks, such as certain maintenance and repair tasks, for which engineering, and work practice controls are not feasible; and
- 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 TLV.

Housekeeping

E-Corp will 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.

Compressed air is not to be used to clean clothing or surfaces where such activity could contribute to employee exposure to Respirable Crystalline Silica.

Written Exposure Control Plan

When employee exposure on a construction project is expected to be at or above the TLV Level, a Written Exposure Control Plan (ECP) will be established and implemented. This ECP will contain at least the following elements:

- A description of the tasks in the workplace that involve exposure to Respirable Crystalline Silica;
- A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to Respirable Crystalline Silica for each task;
- A description of the housekeeping measures used to limit employee exposure to Respirable Crystalline Silica; and
- 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,

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.

The written ECP will be reviewed at least annually to evaluate its effectiveness and update it as necessary and will be readily available for examination and copying upon request to each employee covered by this program and their designated representatives.

Medical Surveillance

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. Medical surveillance (i.e. medical examinations and procedures) will be performed by a physician or other licensed healthcare professional (PLHCP) and provided at no cost to the employee at a reasonable time and place.

E-Corp 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:

- A medical and work history;
- A physical examination with special emphasis on the respiratory system;
- A chest X-ray
- A pulmonary function test
- Testing for latent tuberculosis infection (initial exam only); and
- Any other tests deemed appropriate by the PLHCP.

Follow up examinations will be offered at least every 3 years. E-Corp will obtain a written medical opinion from the PLHCP within 30 days of the medical examination. Exam records will be kept confidential and focused on information specific to potential exposures.

Employees will be provided examination results, explanations by the PLHCP, and be given an opportunity to ask questions and follow up with PLHCP including a written medical report within 30 days of the examination.

Hazard Communication

Respirable Crystalline Silica will be included in E-Corp's Hazard Communication Program. E-Corp will ensure that each employee has access to labels on containers of crystalline silica and safety data sheets and is trained in accordance with the provisions of the hazard communication standard. This training will cover concerns relating to cancer, lung effects, immune system effects, and kidney effects.

Training

All employees will be trained in accordance with the provisions of the Hazard Communication Standard and Silica Exposure Control Plan.

We will ensure that each employee with the potential to be exposed at or above the TLV Level for Respirable Crystalline Silica can demonstrate knowledge and understanding of at least the following:

- The health hazards associated with exposure to Respirable Crystalline Silica;
- Specific tasks in the workplace that could result in exposure to Respirable Crystalline Silica;
- Specific measures implemented to protect employees from exposure to Respirable Crystalline Silica, including engineering controls, work practices, and respirators to be used;
- The contents of the OSHA Respirable Crystalline Silica Construction Standard;

- The identity of the Competent Person designated by us; and
- The purpose and a description of the company's Medical Surveillance Program.

Training will be conducted via slide presentations, videos, classroom instruction, and written materials, or any combination of these.

Recordkeeping

We will make and maintain an accurate record of all exposure measurements taken to assess employee exposure to Respirable Crystalline Silica including air monitoring data, objective data, and medical surveillance data.

We will ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020. Medical records will be kept under lock and key for at least the duration of employment plus 30 years.

PROGRAM EVALUATION

This program will be reviewed and evaluated on an annual basis by the Corporate Safety Representative unless changes to operations, the OSHA Respirable Crystalline Silica Construction Standard (29 CFR 1926.1153), or another applicable OSHA Standard require an immediate re-validation of this program.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	09/12/22

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Respiratory Protection Program

Purpose

E-Corp has adopted this defined practice for Respiratory Protection from the following OSHA regulations:

§1910.134 – Respiratory Protection

E-Corp has implemented this practice to ensure that no employee is exposed to airborne hazards in the workplace exceeding Permissible Exposure Limits (PEL), or oxygen deficient atmospheres. E-Corp will provide respirators which are applicable and suitable for the purpose intended when such equipment is necessary to protect the health of our employees. This Respiratory Protection Program provides training, medical evaluations, and respirators at no cost to our employees.

Roles and Responsibilities

Health and Safety Manager

The Health and Safety Manager (HSM) is the Respiratory Protection Program administrator and will be responsible for recordkeeping, periodic evaluation of the program and updates as necessary to reflect changes in work-specific procedures. The evaluation will be based on results of the air quality monitoring program, medical evaluations, changing work environment, equipment changes, work requirements, and employee responses.

Respirator selection will be based on the hazards to which the worker is exposed and made by the HSM based on identified and potential hazards, estimated exposures, and contamination information. Only NIOSH-certified respirators will be provided. For no exposure estimate or data, the exposures will be addressed as Immediately Dangerous to Life & Health (IDLH) and NIOSH-approved respirators for full-faced, pressure demand 30-minute Self Contained Breathing Apparatus (SCBA), or Supplied Air Respirator (SAR) with auxiliary air supply will be provided.

Site Safety and Health Officer

The Site Safety and Health Officer (SSHO) will be the responsible for on site administration of the Respiratory Protection Program under the direction of the HSM. The SSHO will perform exposure assessments and continue to perform them as necessary to verify proper respirator selection under the direction of the HSM.

The SSHO will be responsible for:

- Ensuring that all filters, cartridges and canisters used in the workplace are labeled and color coded with the NIOSH approval label and that the label remains legible and is not removed.
- Proper respiratory equipment, replacement elements, and any parts or equipment necessary for the functioning of the respiratory equipment will be available to employees at no cost.
- Ensuring all respiratory protection equipment will be maintained, cleaned, stored, and serviced per manufacturer's recommendations.

General Program Requirements

Respiratory protection will be utilized where E-Corp employees' exposure to a concentration of airborne contaminant cannot be controlled through engineering or other controls (specified in the Site Specific Health and Safety Plan (SSHSP), while controls are being installed or repaired, or for emergency use.

The SSHSP writer shall be competent in respiratory protection or have consultation with the respiratory protection administrator, who is competent in respiratory protection, with knowledge of the requirements within the respiratory protection plan. The SSHSP writer is responsible for evaluating the project scope of work and determining applicable controls for respiratory health hazards including respirators, where needed, based on the risks and hazards. The SSHSP writer shall also verify that respiratory protection matches the hazards documented in the risk assessment and include specific requirements of the respiratory protection written plan in the SSHSP, as necessary.

Hazard evaluation is based on the estimate of employee exposures, type of contaminant, physical form, and chemical state. The HSM is responsible for ensuring that respiratory hazards in the workplace are identified and evaluated.

Air monitoring for personal exposure shall be collected utilizing accepted industrial hygiene practices and shall be documented. The results of these samples will identify areas where respiratory protection is required.

Exposure conditions shall be reviewed periodically, or as conditions change, to determine if respiratory protection is adequate or if additional respiratory protection is required.

Where possible, ventilation will be required for all enclosed work areas to ensure that airborne hazards do not exceed permissible limits.

The least hazardous or toxic materials which will allow the job required to be accomplished will be used in the performance of work.

The Respiratory Protection Program includes the following elements:

- Procedures for selecting respirators for use in the workplace.
- Medical evaluations of employees required to use respirators.
- Fit testing procedures for tight-fitting respirators.
- Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations.
- Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators.
- Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators.
- Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations.
- Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance.
- Procedures for regularly evaluating the effectiveness of the program.

Employees who choose to wear respirators when not required will be provided the basic information on respirators in the OSHA Standard 29 CFR 1910.134 Appendix D.

Workplace evaluations will be conducted as necessary to ensure that the provisions of the current Respiratory Protection Program are being effectively carried out and that it continues to be effective.

The SSHO will maintain appropriate surveillance, and ensure employees leave the area to

wash, change cartridges, or if they detect break-through or resistance.

Employees required to use respirators will be regularly consulted to assess their views on program effectiveness and to identify any problems. Any problems that are identified during this assessment will be corrected. Factors to be assessed include, but are not limited to:

- Respirator fit, including the ability to use the respirator without interfering with effective workplace performance.
- Appropriate respirator selection for the hazards to which the employee is exposed.
- Proper respirator use under the workplace conditions the employee encounters.
- Proper respirator maintenance.

Training

The HSM will ensure that effective training is provided to all employees who are required to use respirators. The training will be comprehensive, conducted in a manner that is understandable to our employees, and recur annually or more often if necessary. Before being allowed or required to wear breathing protection, each of our employees will be able to demonstrate knowledge of at least the following:

Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.

- What the limitations and capabilities of the respirator are.
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
- How to inspect, put on and remove, use, and check the seals of the respirator.
- Procedures for cleaning, maintenance, and storage of respirators.
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
- The general requirements of §1910.134 – Respiratory Protection.

Retraining will be administered annually or when the following situations occur:

- Changes in the workplace or the type of respirator render previous training obsolete.
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill.
- Any other situation arises in which retraining appears necessary to ensure safe respirator use.

Respirator Inspection

The SSHO will ensure that respirators are inspected as follows:

- All respirators used in routine situations will be inspected before and after each use and during cleaning.
- All respirators maintained for use in emergency situations will be inspected at least monthly and in accordance with the manufacturer's recommendations and will be checked for proper function before and after each use.
- Emergency escape-only respirators will be inspected before being carried into the workplace for use.
- The inspection will test for the proper function of regulators, alarms and other warning systems.

The SSHO will ensure that respirator inspections include the following:

- A check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters or filters. A full inspection checklist is provided.
- A check of elastomeric parts for pliability and signs of deterioration.

In addition to the requirements above, self-contained breathing apparatus will be inspected monthly. Air and oxygen cylinders will be maintained in a fully charged state and will be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. The SSHO will determine that the regulator and warning devices function properly.

For respirators maintained for emergency use, the SSHO will:

- Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator.
- Provide this information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information will be maintained until replaced following a subsequent certification and shall be retrievable on demand.
- Do monthly inspections of emergency respirators to verify that regulator and warning devices function properly and that cylinders have been hydrostatically tested (once every three years for composite cylinders and once every five years for steel and aluminum cylinders).

The SSHO will ensure that respirators that fail an inspection, or are otherwise found to be defective, are removed from service and are discarded, repaired, or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators will be made only by persons appropriately trained to perform such operations and will use only the respirator manufacturer's NIOSH-approved parts designed for the respirator.
- Repairs will be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed.
- Reducing and admission valves, regulators, and alarms will be adjusted or repaired only by the manufacturer, or a technician trained by the manufacturer.
- The Respirator Protection Competent Person (or designated alternate) shall be contacted immediately before any item is replaced or repaired.
- Respirator cartridges shall be discarded and replaced after a full shift of use, or if they exhibit any warning signs, such as the presence of any odors while the respirators are worn. Respirator cartridges will be changed following appropriate change schedules.

Medical Exams

A medical examination for E-Corp employees required to use respiratory equipment is required before use of the equipment and will be provided at no cost to the employee.

To be medically cleared for respirator use, contract employees shall also complete an OSHA-mandated, confidential, medical evaluation questionnaire.

The physician or other licensed health care professional (PLHCP) shall provide a medical recommendation (i.e., physician's clearance letter), and E-Corp shall make the final decision whether to approve or not approve the employee to wear a respirator.

The designated PLHCP shall review the questionnaire according to the state or region licensing requirements.

E-Corp 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. E-Corp may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.

Medical evaluation procedures will include:

- E-Corp will identify a PLHCP to perform medical evaluations using a medical questionnaire

or an initial medical examination that obtains the same information as the medical questionnaire.

- The medical evaluation will obtain the information requested by the questionnaire in Sections 1 and 2, Part A of Appendix C of §1910.134.

Follow-up medical examination will include:

- E-Corp will ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix C or whose initial medical examination demonstrates the need for a follow-up medical examination.
- The follow-up medical examination will include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

Administration of the medical questionnaire and examinations will include:

- The medical questionnaire and examinations will be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire will be administered in a manner that ensures that the employee understands its content.
- E-Corp will provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP.

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

- The type and weight of the respirator to be used by the employee.
- The duration and frequency of respirator use (including use for rescue and escape).
- The expected physical work effort.
- Additional protective clothing and equipment to be worn.
- Temperature and humidity extremes that may be encountered.

E-Corp will provide the PLHCP with a copy of the written respiratory protection program and a copy of §1910.134 when required.

Fit Testing Requirements

Fit testing of the equipment to individual employees will follow OSHA guidelines listed in §1910.134 (f)(1-8) and is required before use of the equipment.

- E-Corp will ensure employees pass OSHA-accepted qualitative fit test (QLFT) or quantitative fit test (QNFT) of tight-fitting face pieces before initial use, if a different respirator is used, and annually. Supplied Air Respirators (SARs) require fit testing as well.
- For quantitative fit testing, a Portacount, Quantifit or other similar item shall be the preferred method.
- Facial hair, glasses, etc. which might affect the seal of the respirator face piece are prohibited, and seal will be checked each time equipment is donned. Facial hair shall not be permitted that may interfere with the functioning of the respirator. Fit testing will only be performed on E-Corp employees who do not have facial hair that comes between the sealing surface and the respirator face piece or that interferes with the respirator valve function.
- Workforce members who need corrective lenses while wearing full-face respirators shall be provided contact lenses or request spectacle kits.

Respirator Selection

Respirators shall be selected based on potential hazards to which the workforce might be exposed. Specifically, respirator selection shall be based on the physical and chemical properties of workplace contaminants, contaminant concentration levels likely to be encountered by the workforce and other workplace factors.

Respirator selection shall follow the written respiratory protection program and site-specific requirements documented in the SSHSP. Respirator selection shall be made following the procedures set forth in National Institute for Occupational Safety and Health (NIOSH)/Occupational Safety and Health Administration (OSHA) Respirator Decision Logic and American National Standards Institute Z88.2. Assigned protection factors (APFs), as shown in Table 1: APFs shall assist in determining the proper respirator type.

The respiratory protection competent person shall use the APF listed in Table 1 to select a respirator that meets or exceeds the required level of employee protection. When using a combination respirator (e.g., airline respirators with an air-purifying filter), employers must verify that the APF is appropriate to the mode of operation in which the respirator is being used.

Table 1: Assigned Protection Factors ^{e,f}						
Type of Respirator ^{a,b}	Quarter Mask	Half Mask	Full Facepiece	Helmet /Hood	Loose-Fitting Facepiece	
Air Purifying Respirator	5	10 ^c	50	----	----	
Powered Air-Purifying Respirator (PAPR)	----	50	1,000	25 ^d /1,000	25	
AR or Airline Respirator:	<ul style="list-style-type: none"> • Demand mode • Continuous flow mode • Pressure-demand or other positive-pressure mode 	----	10	50	----	----
		----	50	1,000	25 ^d /1,000	25
		----	50	1,000	----	----
SCBA:	<ul style="list-style-type: none"> • Demand mode • Pressure-demand or other positive-pressure mode (e.g. open / closed circuit) 	----	10	50	50	----
		----	----	10,000	10,000	----

Notes:

^aEmployers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration.

^bThe APFs in Table 1 are only effective when the employer implements a continuing, effective respirator program as required by this practice including training, fit testing, maintenance, and use requirements.

^cThis APF category includes filtering facepieces and half masks with elastomeric facepieces.

^dThe employer shall have evidence provided by the respirator manufacturer that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a Workplace Protection Factor (WPF) study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators, and receive an APF of 25.

^eThese APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by OSHA 29 Code of Federal Regulations (CFR) 1910 subpart Z for Toxic and Hazardous Substances, employers must refer to the appropriate substance-specific standards in that subpart. Escape respirators for other Immediately Dangerous to Life or Health (IDLH) atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

^fThe allowable concentration of constituent for breathing times the APF of the selected respirator is equal to the concentration of constituent that employee may enter wearing the selected respirator.

Respirator Use in Hazardous Atmospheres

SCBAs may be required for emergency use in hazardous atmospheres or IDLH atmospheres.

Only trained, medically qualified employees will use SCBAs when it is necessary to enter a hazardous atmosphere.

Prior to entering hazardous or IDLH areas, respiratory protection equipment shall be tested in an uncontaminated atmosphere, including positive- and negative-pressure tests or fit checks, and positive- and negative-pressure user seal checks.

Employees shall not work alone with respiratory protection equipment in hazardous atmospheres.

At least one additional employee who is suitably equipped with a similar breathing apparatus shall be in contact with the first employee and shall be available to render assistance if necessary.

SCBAs shall be operated in the positive-pressure flow mode for all activities.

Immediately Dangerous to Life or Health Atmospheres

If employees are required to work in Immediately Dangerous to Life or Health (IDLH) atmospheres, the following procedures and controls will be in place:

- At least one employee is located outside the IDLH atmosphere.
- Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere, and the employee(s) located outside the IDLH atmosphere.
- Facility-specific procedures for standby personnel to follow during an IDLH atmosphere entry shall be identified in a written program.
- The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue.
- The HSM is notified before personnel enter the IDLH atmosphere, or before employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue.
- Employee(s) located outside the IDLH atmospheres will be equipped with:
 - Pressure demand or other positive pressure SCBA.
 - Appropriate retrieval equipment for removing the employees who enter these hazardous atmospheres
- A means for how to maintain communication between the standby personnel and those inside the IDLH atmosphere shall be identified.
- Specific training for IDLH standby persons shall be facilitated.
- The persons to be notified prior to entrance into an IDLH atmosphere shall be identified.
- Retrieval equipment to be used shall be identified, as appropriate.
- Respiratory protection to be used by standby personnel shall be identified.

IDLH atmospheres involving permit-required confined spaces shall follow the Permit- Required Confined Space Program.

IDLH atmospheres involving uncontrolled releases of hazardous substances shall follow specific hazardous waste operations emergency procedures.

IDLH atmospheres, or atmospheres with the potential to be IDLH, not covered in this section shall require the following:

Compressed Air Systems

When a supplied air respirator is used, the following requirements apply:

Grade D Breathing Air

SAR and SCBA equipment will only be filled by certified refilling facilities using grade D or better air. Oxygen will not be used in compressed air units and all cylinders will meet DOT requirements. Compressor will in a "clean" atmosphere, with in-line purification, and tagged to indicate date of change out. A carbon monoxide monitor will be in place and set to alarm at 10 PPM or monitored frequently. All line fittings will be incompatible for non-respirable gases and containers.

Special precautions shall be taken to verify breathing air quality. The air shall meet the specifications for Grade D Air established by the Compressed Gas Association as stated in the American National Standards Institute Commodity Specification for Air (G-7.1), 1989 (refer to Table 2: Grade D Breathing Air Specifications). Compressed breathing air cylinders shall be clearly labeled to identify what they are. When air is from cylinders, check oxygen content of each cylinder before use.

Airline couplings shall be incompatible with outlets for other gas systems in order to prevent inadvertent servicing of airline respirators with non-respirable gases or oxygen.

Only compressed breathing air cylinders shall be used.

Compressed breathing air cylinders shall always be monitored by a designated workforce member while equipment is in use.

All compressed breathing air cylinders shall be properly secured in an upright position.

If a backup person is deemed necessary due to the work environment, the backup person shall use a separate breathing air cylinder.

Compressed breathing air cylinder regulators shall be set to maintain a normal operating pressure of 125 psi and oxygen content shall be validated prior to use.

Table 2 Grade D Breathing Air Specifications

Component	Specification
Carbon Monoxide (maximum)	<10 parts per million (ppm)
Carbon Dioxide (maximum)	1,000 ppm
Oxygen	19.5-23.5% by volume
Oil Mist (condensed hydrocarbon) (maximum)	5 mg/m ³
Odor	Lack of Noticeable odor
Water	Line pressure dew point should be at least 10°F (5.56°C) below the minimum ambient temperature for that location.

Respirator Storage

After cleaning, inspection or repair, respirators shall be stored in a clean, dry plastic bag or airtight container to protect them from damaging chemicals, dust, sunlight, heat, cold and excessive moisture. Respirators shall not be stored in places such as lockers or toolboxes unless they are in sealed carrying cases, bags or cartons.

Air-supplied respirators placed at stations and work areas for emergency use shall be stored in compartments built for that purpose, always be quickly accessible and be clearly marked. Respirators shall be packed or stored with the face pieces and exhalation valves resting in positions that do not damage or impair the elastomer face pieces.

Breathing air cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90 percent of the manufacturer's recommended pressure level.

Respirator Program Review

The HSM will perform an annual review/audit of the Respiratory Protection Program. The SSHO or other designated competent person shall review and audit employees who use respirators on project sites daily while in use. E-Corp shall verify that periodic consultations with employees shall identify any problems or deficiencies in the specific respiratory protection program. Elements of the respirator program to be addressed shall include:

- Respirator fit.
- Respirator selection that is appropriate to the hazard.
- Use of the respirator and any interference with effective workplace performance.
- Proper respirator use and storage.
- Proper respirator maintenance.

For each deficiency identified, corrective action to be taken shall be noted and any follow-up actions recorded and implemented.

Recordkeeping

E-Corp will maintain written records and information regarding medical evaluations, fit testing, and the Respiratory Protection Program. These records will promote employee involvement in the respirator program, assist in auditing the adequacy of the program, and provide a record for OSHA compliance. Records will be retained at the main office and be made available upon request to affected employees and to OSHA. Written records include the following:

- Required medical evaluations will be retained and made available in accordance with §1910.1020.
- Qualitative and quantitative fit tests administered to an employee including:
 - The name or identification of the employee tested.
 - Type of fit test performed.
 - Specific make, model, style, and size of respirator tested.
 - Date of test.
- The pass/fail results for qualitative fit tests or the fit factor and strip chart recording or other recording of the test results for quantitative fit tests.
- Fit test records will be retained for respirator users until the next fit test is administered.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/12/21
02	Stacy Maxfield	Annual Review/Update	10/12/22



Respiratory Protection Program Employee Acknowledgment

By my signature below, I acknowledge that I have received instruction in the E-Corp Respiratory Protection Program. I have been given the opportunity to ask questions and have received answers, instruction, and clarification to my questions. I understand the contents of and agree to follow E-Corp company policy regarding this Respiratory Protection Program.

Respiratory Protection Program received on _____, 20 ____

Printed Name of Employee

Signature of Employee

Date

Printed Name of Trainer

Signature of Trainer

Date



Half Face Respirator Field Inspection Checklist

Straps

- Check connections to facepiece.
- Check for continued elasticity.
- Check connections for neck and top of head.

Valve Cover

- Check for presence of exhalation valve cover.
- Check exhalation valve cover for cracks.

Gaskets Face piece

- Check overall shape for deformities.
- Check all metal pieces for bending.
- Check sealing surfaces for elasticity.
- Assure that there are no tears, scratches or other damage to the sealing surface.

Valves

- Check inhalation valves for presence, flexibility and proper seating.
- Check exhalation valve for presence, flexibility, and proper seating.
- Assure that exhalation valve sealing surfaces are smooth and undamaged.
- Check cartridge holders for gasket presence.
- Check gasket surface for smoothness.
- Check cartridge fitting/housing for cracks or anything preventing proper cartridge seating.

Cartridges

- Check that cartridge is correct cartridge for the task/job.
- Check that cartridge edge or bead that seats against the cartridge holder gasket is smooth and undamaged.
- Check that cartridge has just been removed from sealed packaging or has adequate remaining use time for intended task/job.

Overall

- Check whole assembly for damage or wear



Full Face Respirator Field Inspection Checklist

Straps

- Check connections to face piece.
- Check for continued elasticity.
- Check connections for neck and top of head.
- Check cartridge fitting/housing for cracks or anything that would prevent proper cartridge seating.

Face piece

- Check overall shape for deformities.
- Check all metal pieces for bending.
- Check sealing surfaces for elasticity.
- Assure that there are no tears, scratches, or other damage to the sealing surface.

Lens

- Check lens for flaws or cracks.
- Check lens holder for cracks and deformities.
- Check lens holder for secure seal against lens edge.

Valves

- Check inhalation valves for presence, flexibility and proper seating, if accessible on this model respirator.
- Check exhalation valve for presence, flexibility, and proper seating, if accessible on this model.
- Assure that exhalation valve sealing surfaces are smooth and undamaged, if accessible.

Valve Cover

- Check exhalation valve cover for presence, if accessible on this model respirator.
- Check exhalation valve cover for cracks, if accessible on this model respirator.

Amplifier

- If equipped with voice amplifier, check for continued function.

Gaskets

- Check cartridge holders for gasket presence.

Cartridges

- Check that cartridge is correct cartridge for the task/job.
- Check that cartridge edge or bead that seats against the cartridge holder gasket is smooth and undamaged.
- Check that cartridge has just been removed from sealed packaging or that the use log on these cartridges reflects adequate remaining use time for the intended task/job.

Canister hose

- Check canister hose assembly for flexibility and wear.
- Check canister hose connections for damage and wear.

Canister belt

- Check canister belting and harness assembly for damage and wear.
- Check all connections for smooth operation.

Canister

- Check that canister is correct canister for the task/job.
- Check that the canister connection point is smooth and not damaged.
- Check that the canister seal has just been removed or that the log on this canister reflects adequate remaining use time for the intended task/job.
- If Type N canister, check that the window shows the catalyst is still working.

Overall

- Check whole assembly for damage or wear.
- Check gasket surface for smoothness.



Air Purifying Respirator Fit Test Form

Employee Name: _____ Date: _____

Fit Test Conducted By: _____ Respirator Type: Full Face
 Half Face

Respirator Brand and Model: _____

Additional Comments: _____

Has a description of the fit test exercises given to the employee? Yes / No

Has a sensitivity screening check been performed taking care to minimize the test subjects exposure to the smoke? Yes / No

QUALITATIVE FIT TEST ELEMENTS

	PASS	FAIL
User Seal Check (positive/negative fit check)	<input type="checkbox"/>	<input type="checkbox"/>

Administer irritant smoke at a rate of 200 ml/minute for each step. Administer smoke at even intervals around mask. Initially make a pass around the mask while directing the smoke from at least 12 inches from the employee, gradually making two more passes moving to within 6 inches before starting the exercise regimen.

	PASS	FAIL
Normal Breathing	<input type="checkbox"/>	<input type="checkbox"/>
Deep Breathing	<input type="checkbox"/>	<input type="checkbox"/>
Turning Head from Left to Right (pausing at extremes)	<input type="checkbox"/>	<input type="checkbox"/>
Tilting Head Up and Down (pausing at extremes)	<input type="checkbox"/>	<input type="checkbox"/>
Counting Backwards from 100 slowly and loud	<input type="checkbox"/>	<input type="checkbox"/>
Grimace (smiling or frowning for 15 seconds)	<input type="checkbox"/>	<input type="checkbox"/>
Bending Over	<input type="checkbox"/>	<input type="checkbox"/>
Normal Breathing	<input type="checkbox"/>	<input type="checkbox"/>

Irritant Smoke Sensitivity Check Reaction No Reaction
(If all tests are passed)

Employee Signature: _____

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Risk Assessment Program

Purpose

E-Corp has adopted this program to describe ways of identifying hazards, assessing risk, and developing appropriate risk-reduction measures for work conducted by or on behalf of E-Corp. An adequate Risk Assessment (RA) meeting the requirements stated in this practice shall be performed on a project specific basis.

Roles and Responsibilities

Health and Safety Manager

The Health and Safety Manager (HSM) is responsible for ensuring the following, under the supervision of the Client Representative:

- Verify that any required RA meets the requirements set in this practice or those of the client requirements.
- Verify that hazards are identified, and risks are determined, assessed, reduced, and controlled in consultation with the relevant workforce.
- Verify that the identified hazards and risks of each project are documented.
- Verify that the competencies of all members of Hazard Identification, Risk Assessment and Management Teams have been assessed by their employer and the teams meet the requirements set in this practice.

Site Safety and Health Officer

The Site Safety and Health Officer (SSHO) is responsible for on site supervision of the risk assessment process. The SSHO shall:

- Be responsible for supervising hazardous work RAs for any jobs classified as having a risk lower than a Moderate risk level.
- Be responsible for supervising and participating in hazardous work RAs for any jobs classified as having a risk level of High or Extreme.
- Be responsible for consulting with the relevant members of the workforce to identify whether there are new hazards requiring attention.
- Ensure employees and subcontractors participate in the process of hazard identification, RA and the determination of controls.

E-Corp workforce

The E-Corp workforce is responsible for participating in the process of hazard identification, RA and the determination of controls.

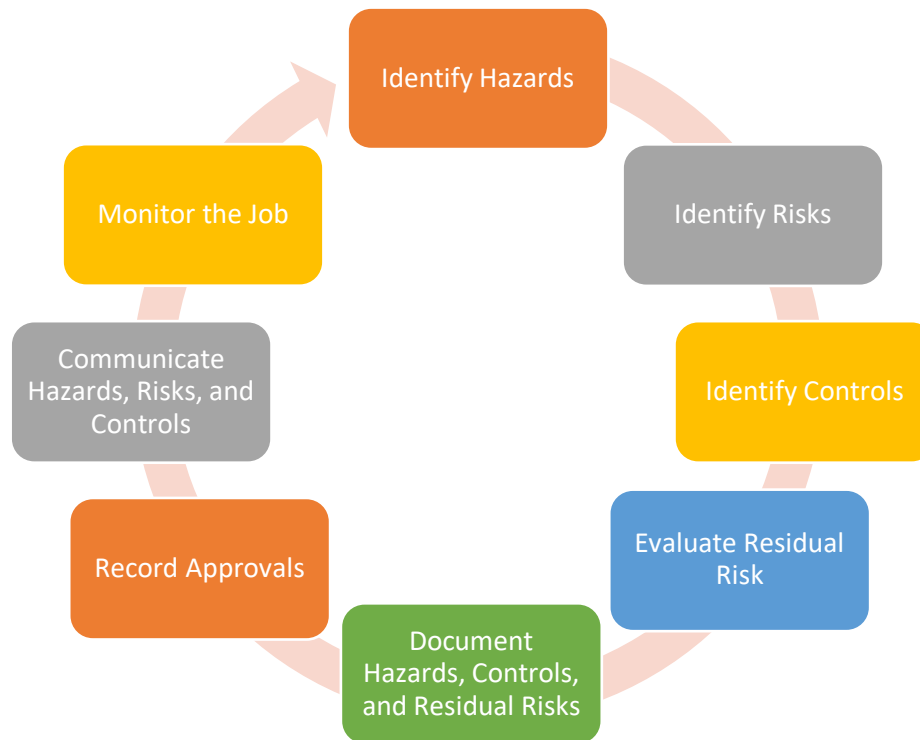
Risk Assessment Procedure

Each Health and Safety Plan shall implement this program to assess and control work risks, including the following activities:

- Hazard identification and documentation.
- Assessment of risks for site, project, and job.
- Assessment of risks for tasks.
- Development of a risk mitigation action plan (when required).

- Monitoring and review of hazards and control measures during work.
- Permitted activities shall be classified as a minimum in the High-Risk category.

The risk assessment procedure can best be illustrated in the following way:



Hazard Identification

The identification of hazards in the workplace is mandatory and shall consider all work associated with the Job and Task phases. Personnel shall be trained and competent in the use of a formal process of hazard recognition. Hazard identification shall also consider the following:

- Past injuries, incidents, near misses and illnesses associated with the company, site, project, jobs, and tasks.
- Past injuries, incidents, near misses and illnesses associated with similar operations.
- The way work is organized, managed, and performed.
- The design of the workplace, work processes, materials, processes, and equipment.
- The fabrication, installation, demolition, commissioning, handling and disposal of materials, workplaces, mechanical system processes and equipment.
- The purchasing of goods and services.
- The contracting of mechanical system processes, equipment, services, and labor, including contract specification and responsibilities to and by Contractors.
- The inspection, maintenance, testing, repair and replacement of mechanical system processes and equipment.

Hazard Identification Process

Under the direction of the HSM and in consultation with the E-Corp workforce and subcontractors, the following process shall be used to identify risks:

- Past incidents/accidents shall be examined to see what happened and whether the incident/accident could happen again.
- Employees shall be consulted to find out what they consider are safety issues, e.g. “How could an employee be exposed to this hazard?”
- Work areas or work sites shall be examined to find out what is happening now.
- Information about equipment (i.e., plant, operating instructions) and Safety Data Sheets shall be reviewed to see what is said about safety precautions.
- Some creative thinking about what could go wrong takes place, (i.e., what hazardous event could take place here)?
- Root sources of hazards shall be considered (as described in the following section).

Root Sources of Hazards

The health, safety and security of employees, subcontractors, or visitors; the environment in which they operate; and the quality of their products and services shall be considered when undertaking hazard identification. At a minimum, there are thirteen basic root causes of hazards that may be associated with an activity or within a workplace and that shall be considered in any suitable hazard identification process. The basic hazard types are classified as follows:

- Biological (e.g., viruses, plants, insects, reptiles, animals, human behavior).
- Body Mechanics (e.g., bending, lifting, strength)
- Chemical (e.g., cleaning agents; inks; dust; asbestos; toxins to air, water, or ground).
- Electrical (e.g., wiring, motors, transformers, underground utilities, electrical storms).
- Gravity (e.g., falling objects, people falling, lifting).
- Mechanical (e.g., rotating equipment, unwanted movement over surfaces, wind energy, traffic).
- Noise (e.g., high noise area, noisy tools, or equipment)
- Pressure (e.g., hydraulic pressure, air pressure, gas pressure, oil pressure, sound waves [noise]).
- Radiation (e.g., ultraviolet radiation, ionizing, electromagnetic radiation).
- Thermal (e.g., cold weather, hot weather, cold pressure lines, hot or cold product lines or equipment, heat, or cold stress).
- Weather (e.g., lightning, snow, rain, high winds).
- Human Factors (personal or health conditions).
- SIMOPS (separate work activities occurring at the same time).

Assessment of Risks

Once a hazard has been identified, the Risk Assessment Team in consultation with employees (and/or the Client Representative), determine how likely it is that someone could be harmed by the hazard and what the consequence of the resulting injury or illness could be. Upon completion of the hazard identification process, a RA shall be implemented to document the potential risks that shall be considered prior to the execution of work. The RA process shall consider the inherent RA, the risk control actions identification, and Residual risk control.

Risk Assessment Process

E-Corp will use the Risk Assessment form at the end of this program. At some projects, other formats may be required by the client. E-Corp will follow client risk assessment format when necessary.

The following Risk Assessment process will occur:

- For each phase of the project, identify the Work Activity Sequence or Task Steps.
- Identify Hazards associated with those work activities. Use Severity and Probability resulting in a Risk Assessment Code (RAC).
- Implement Controls for those hazards following the Hierarchy of Controls.
- Evaluate the Residual Risk after controls have been implemented.
- If there is a significant risk (i.e., it is a high or extreme level risk) that is not under control, then further action is required. This would be:
 - Identifying other possible controls or barriers or combinations of controls that would manage the risk - with an emphasis on applying the control hierarchy.
 - Making a Recommendation for Action. This recommendation would include:
 - Selecting the most appropriate control
 - Identifying how the control measure would be monitored, evaluated, and maintained
 - Identifying any training / in-servicing that needs to be undertaken
 - Considering the use of health surveillance measures
- Once risk reduction mitigation actions have been identified that reduce risk to an acceptable level and the approval authority has granted approval to proceed with work, a risk control action plan shall be developed.
- The plan shall document the nomination of the person responsible for completing the action and the date by which the action is to be completed, and progress of completion shall be monitored.

If there is an immediate risk to health or safety, stop the process/activity until measures are taken to remove the immediate risk!

Risk Control Action Plan

The RA process will be implemented to document potential risks to consider prior to work execution. The RA shall also perform the following:

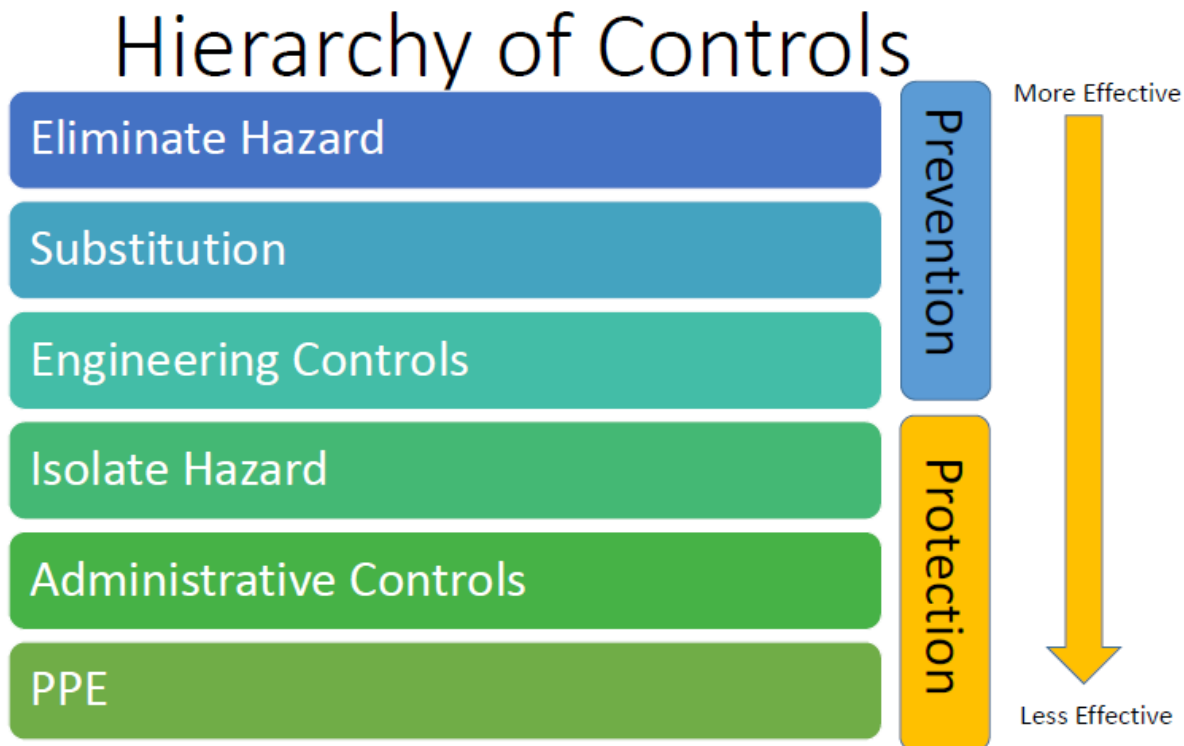
- Record and quantify inherent risks prior to consideration of mitigating actions.
- Identify risk control actions.
- Consider residual risk control.
- Establish a hierarchy of controls.

Control Measures

After reviewing the list of identified hazards, consider what control measures will eliminate or reduce them. The most effective controls are engineering controls that physically change a machine or work environment to prevent employee exposure to the hazard. The more reliable or less likely a hazard control can be circumvented, the better. If this is not feasible, administrative controls may be appropriate. Control measures are to be implemented in the following order:

- Elimination – Eliminate the hazard (e.g., discontinue use of a machine or chemical).
- Substitution – Substitute the hazard for a lower-risk hazard (e.g., use a safer machine to achieve the same outcome).
- Isolation – Isolate a noisy piece of equipment by placing it in a room.
- Engineering Controls – Install engineering controls (e.g., guarding) to reduce the risk.
- Administrative Controls – Implement administrative controls such as training, signage, and shift rotation to reduce the level of risk.
- Personal Protective Equipment – Provide personal protective equipment (e.g., goggles, helmet, gloves) to reduce the exposure to the risk.

Implementation of control measures may involve changing how employees do their jobs. Discuss recommendations with all employees who perform the job and consider their responses carefully. If it is planned to introduce new or modified job procedures, be sure they understand what they are required to do and the reasons for the changes.



Monitor and Review

Once the new risk control measures are in place, the control measures shall be monitored to verify that they are implemented and maintained. Members of the workforce shall be consulted to identify whether there are new hazards requiring attention. Note that all members of the workforce have the authority and responsibility to stop work if any new hazard is identified.

The above responsibilities are attributed to the SSHO for work classified as medium and low risk and to the HSM or E-Corp Regional Manager for work classified as High Risk or above, and permitted work.

If there are any issues or identified gaps, the hazard identification, RA and risk control processes shall be repeated. RAs shall be reviewed and updated as needed, or in accordance with regulatory or client requirements.

Non-routine Work

Work that varies in work scope, execution or risk assessment is classified as non-routine work.

The appropriate Risk Assessment shall be completed for non-routine work. ***In addition, work that requires a permit to work shall always be classified as non-routine.***

The following are required for all work performed for the first time and for non-routine work:

- A plan for the work scope shall be developed and documented.
- The work plan shall be risk-assessed according to the requirements of the *Risk Assessment Program*.
- Controls to eliminate or mitigate the risks to an acceptable level shall be identified, approved, and implemented.
- After work has been completed, it shall be reviewed for lessons learned and continuous improvement.

Routine Work

Work that does not vary in work scope, execution or risk assessment can be classified as routine work. An evaluation of future work scope, execution or risk assessment should be conducted to confirm that these factors will not vary and that work can be done the same way every time with the same identified tasks, hazards and associated risks. If the evaluation shows that the work does not vary, then previously prepared and authorized RA for that work can be used.

The first time it is conducted, all work shall meet the required steps for non-routine work as described in the Risk Assessment Procedure above.

- All tasks classified as routine shall be easily identifiable and shall have documented RAs.
- Documented RAs and associated routine procedures shall be formally recorded and controlled.
- All documented RAs and associated procedures shall be subject to a program of regular review.
- Members of the E-Corp workforce who carry out activities controlled by a documented RA shall be trained, competent and authorized to perform the work.
- A Standard Operating Procedure with the attached RA should be developed for routine work.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/12/21
02	Stacy Maxfield	Annual Review/Update	10/20/22



ACTIVITY HAZARD ANALYSIS

Activity Hazard Analysis (AHA)

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Onsite Safety Meeting Attendees: (Signature)	Print Name	Contact Info

Acceptance Authority (digital signature): _____

Acceptance Authority SSHO (digital signature): _____

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Simultaneous Operations Program

Purpose

This program describes the requirements for the facilitation of safe operations during Simultaneous Operations (SIMOPS) to verify that hazards resulting from SIMOPS shall be identified and risks shall be managed.

This practice has been prepared for the E-Corp workforce and applies to work carried out by and on behalf of E-Corp at E-Corp and client premises. It is the responsibility of those carrying out E-Corp work to understand and comply with legal and regulatory requirements. If any requirements or recommendations in this practice would conflict with applicable legal and regulatory requirements, it is necessary to comply with the legal and regulatory requirements. If this practice creates a higher obligation, it shall be followed, if full compliance with applicable legal and regulatory requirements is achieved. Consideration shall also be given by the E-Corp workforce to the requirements of specific sites, jobs and business entities ('hosts'). If this practice creates a higher obligation, it shall be followed, if conformance with the site, job or host specific requirements is achieved.

Roles and Responsibilities

Client Representative

In the scope of this practice, the Client Representative shall:

- Carry out all duties specified in the Control of Work Program.
- Where an E-Corp operation occurs on a site controlled by a non-E-Corp operation, coordinate with representatives of the non-E-Corp operation, the schedule, plan, Person in Charge (PIC) and agreement on terms and methods for safe operations.
- Where an E-Corp operation occurs on a site controlled by E-Corp, establish communications as needed with neighboring non-E-Corp operations.
- Verify that the SIMOPS work plan is prepared, reviewed and agreed upon with affected stakeholders.
- Where a site is controlled by E-Corp, designate the PIC for site activities.

NOTE: The Client Representative's responsibilities, as indicated in the Control of Work Program, can be delegated to the E-Corp Administrator/Technical Manager role.

Person in Charge (PIC)

The PIC is responsible for coordinating SIMOPS to confirm safe, responsible and reliable delivery of all work activities. The PIC shall have knowledge of all work activities being performed by all groups/personnel working on location. The PIC may be an E-Corp employee, a contractor employee, a 'host' business unit employee or third party representative. He or she may be a Client Representative, Health and Safety Manager (HSM), Site Safety and Health Officer (SSHO) or none of these. In the scope of this practice, the PIC shall:

- Facilitate communication between stakeholders with the objective of safe operations.
- Coordinate among multiple HSMs and SSHOs.
- Coordinate among multiple operations at the site to confirm safe delivery of all work activities.
- Identify and verify all SIMOPS, including all other potential interactions with other permits being issued.

- Determine if conflicts exist between permits or work and, after consultation with all affected parties, decide the order of E-Corp work to be performed in consideration of and with agreement of the affected parties.
- As delegated by the Client Representative, verify compliance with policies, practices and procedures for E-Corp work.

NOTE: It is understood that the PIC authority does not extend to third parties. The E-Corp PIC uses influence and negotiation to establish safe coordination of SIMOPS with third parties. Where safe mitigation of SIMOPS risk cannot be achieved, “Stop Work” authority shall be used.

Health and Safety Manager

In the scope of this practice, the HSM shall:

- Cooperate fully with the PIC and other HSMs.
- Communicate with SSHOs regarding the presence of other operations on site.
- Identify and manage the risks associated with the host operations and the additional risks associated with E-Corp and any other work.

Site Safety and Health Officer

In the scope of this practice, the SSHO is responsible for communicating with the HSM and the site workforce.

E-Corp Administrator/Technical Manager

The E-Corp Administrator/Technical Manager is a person, usually independent of the Contractor(s) performing the work, who is determined as competent in E-Corp Control of Work Permit Program and the E-Corp Health and Safety Management System. In the scope of this practice, the E-Corp Administrator/Technical Manager may be delegated Client Representative Responsibilities as defined in this practice by the Client Representative. An example of this may be the third-party oversight on some projects.

Description and Requirements

Site Phase Planning

The Client Representative and Subcontractor are responsible for early identification and planning for operations with SIMOPS at the following locations:

- Sites with E-Corp operations and non-E-Corp operations.
- Off-site activities affecting the public (e.g., roads, sidewalks, utilities, homes, businesses)
- Sites with neighbors who can affect E-Corp workers during normal operations or emergencies.

Where E-Corp operations occur on a site controlled by another contractor operation, the Client Representative is responsible for preparing a bridging document that reconciles the requirements of the E-Corp operation, and the Contractor. Issues should be resolved by adopting the most protective requirements while minimizing duplication.

Hazard Identification

Hazards of SIMOPS shall be identified on risk assessments throughout projects. Appropriate mitigations shall be planned and implemented to eliminate or minimize the risks to persons, property, environment or reputation (refer to the Risk Assessment Program).

Mitigation Strategies

Activities to mitigate the risks of SIMOPS include, but are not limited to:

- Eliminating the SIMOPS via the scheduling or permitting process.
- Substituting work processes with less hazardous processes.
- Separating the SIMOPS by distance.
- Separating the SIMOPS by barricades, signage, isolation or engineering controls.
- Implementing controls such as:
 - Integrated schedules.
 - Training or practicing the planned work in a controlled environment.
 - Communicating effectively.
- Utilizing personal protective equipment.
- Invoking “Stop Work” authority (e.g., unexpected events).

Planning

Planning, scheduling, cooperation and communication among all work groups at SIMOPS sites are crucial to safe operations. Training should cover the status of cooperation and communication with other operations and the appropriate response (up to and including “Stop Work”) if an unexpected event occurs. Any conflicts of management systems, rules, PPE requirements or other matters are to be resolved in a manner that addresses the hazards and risks of all operations. Resolutions of conflicts are to be recorded in a Health and Safety Plan (HASP) or SIMOPS work plan and communicated to all parties.

Field Communication

Communication is the key to excellent health, safety, security and environment performance and safe SIMOPS. Every work group shall be aware of other groups’ activities. Communication measures shall include at a minimum:

- Coordination meetings, which shall be held prior to scheduled SIMOPS occurring on the property or as agreed upon by the representatives of the affected operations. The meetings shall be used to communicate plans and integrate schedules to prevent potential work conflicts among the various groups, which could create unacceptable residual risks.
- Verification of contact information.
- Communication of information from coordination meetings by meeting participants to the affected HSM, SSHO and workforce in their respective operations.
- Where required, placement of warning signage indicating the presence of workers.
- Identification of additional mitigation measures in the risk assessment and SIMOPS work plan when formal communication meetings cannot be arranged (e.g., unattended operation).

Work Permits

The Control of Work Defined Practice and associated work permits will normally be used for E-Corp work (refer to the Control of Work Defined Practice). On sites operated by others, the Client Representative shall make an agreement establishing the required roles in the work permit process. The HSM shall be competent in identifying and managing the risks associated with the host operations and the additional risks associated with E-Corp and any other work. The PIC shall determine if conflicts exist among permits or work and, after consultation with all affected parties, shall decide the sequence of work to be performed.

Simultaneous Operations Work Plans

SIMOPS within the scope of E-Corp operations that do not affect any non-E-Corp operations shall be coordinated through work planning and work risk assessment at all phases of work. SIMOPS work plans shall be developed for any work group's activity that directly or indirectly affects non-E-Corp operations that continue to operate. The SIMOPS plan shall be in place and agreed upon prior to starting any SIMOPS work. The Client Representative shall verify that the SIMOPS work plan is prepared, reviewed and agreed upon with affected non-E-Corp stakeholders. The SIMOPS work plan shall include, but is not limited to, the following key points:

- A description of the job, project, operation or activity to be conducted, including the number of personnel involved, equipment involved, and site resources required.
- Contact details for the selected representatives of each stakeholder operation.
- Agreement on site access and egress.
- Expected duration of the work.
- Hazard analysis profile for the job and agreed mitigations.
- Work permit plan for the given job or jobs.
- Agreements for security arrangements.
- Clear identification of activities that cannot occur simultaneously or that require special controls if they are to take place simultaneously.

NOTE: SIMOPS plans shall be documented in the HASP. If an unanticipated SIMOP is encountered in the field, after implementation of "Stop Work" Authority, the SIMOPS work plan in the HASP shall be amended and implemented.

Emergency Preparedness and Response

Emergency preparedness and response plans included in the HASP shall reflect scenarios that could result from SIMOPS, including events or emergencies originating in neighboring operations. Alarm and warning systems should be arranged to give crews adequate warning before they experience adverse consequences. When applicable, plans shall include arrangements and communication with response organizations such as police and fire departments.

"Stop Work" Authority

E-Corp workforce has the duty to stop the job at any time the SIMOPS plan is not, or cannot be followed, if the SIMOPS plan is not clear or if unanticipated SIMOPS occur which have not been accounted for in planning. The "Stop Work" authority applies to work that may be unsafe (including health and security) or which could result in a loss of containment resulting in environmental damage. Instances of work being stopped shall be investigated, records kept of the instance and investigation results and lessons learned shared.

Competence Requirements

Personnel shall be properly trained in the HSMS that are applicable to their job scope. When permits are required, training for the applicable permit is required.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/16/21
02	Stacy Maxfield	Annual Review/Update	10/18/22

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Trenching Shoring and Excavations Program

Purpose

E-Corp has adopted this defined practice for the safety of employees when working in or around trenches and excavations from the following OSHA regulations:

§1926 Subpart P –**Excavations**

Roles and Responsibilities

The E-Corp Health and Safety Manager (HSM) is designated as the person in authority over all excavation operations. Under the direction of the E-Corp HSM, the Site Safety and Health Officer (SSHO) will ensure that all safety measures and systems are in place and correctly installed, all safety procedures are adhered to, and make regular inspections of excavations, trenches, and the general work site.

The Regional Manager shall review and authorize Ground Disturbance (GD) related changes for unusual ground disturbance operations.

Site Safety and Health Officer

The SSHO shall have the responsibility of ensuring a safe operation of ground disturbance activities. At a minimum, the SSHO shall be trained and competent under the requirements of a ground disturbance practice and shall also be knowledgeable, experienced and/or trained and can identify existing or predictable hazards and has the authority to initiate prompt corrective action.

For ground disturbance activities 4' (1.22m) or more that require shoring, the SSHO shall also be a Trenching and Shoring Competent Person (CP) who has the following training and competencies in addition to the E-Corp requirements:

- Soil classification competence, which allows the individual to be able to recognize potential hazards associated with possible cave-ins using visual and manual tests for use in classifying soils.
- Sloping and benching competence, which allows the individual to be able to know what types of mitigation efforts are needed to provide methods of protecting employees working in excavations from cave-ins.
- Timber shoring for trenches (as well as the alternatives) competence, which allows the individual to be able to know what types of mitigation efforts are needed to provide a method of protection from cave-ins in trenches that do not exceed 16' (4.88m) in depth.
- Selection of protective systems to be able to know what types of mitigation efforts are needed to provide protective measures.

Qualified Equipment Operator

The Qualified Equipment Operator (QEO) is an individual who, through experience or training, and with the endorsement of his or her employer, is competent to operate equipment used in GD or excavation activities. The SSHO shall verify that the QEO is identified on the permit prior to beginning work activity. The SSHO shall certify that all equipment operators have QEO credentials.

Qualified Line Finder

The Qualified Line Finder (QLF) is an individual who, through experience or training, and with the endorsement of his or her employer, is deemed competent to operate line-finding equipment used to locate buried facilities prior to GD or excavation activities. Before work activity begins, the SSHO shall verify the QLF credentials.

General Requirements for Permit Applicability

The SSHO shall verify that the proposed dig or drill zones are adequately marked or staked prior to the locators site visit, and that the appropriate Line Location Organization/ Contractor has been notified (a minimum of 72 business hours in advance) of all planned ground disturbance activities and a request for line location has been registered with the applicable One Call or dial Before You Dig organization when applicable. The SSHO shall affirm that responses have been received from all known underground facility operators/owners. The SSHO shall confirm that qualified equipment operators, drillers and spotters involved with a ground disturbance have reviewed and signed the Ground Disturbance Permit.

When in doubt, the SSHO shall verify additional investigations and research regarding the possibility of underground lines and contact appropriate parties as needed for verification. At a minimum, notifications to any appropriate party or concern that the excavation is still in progress, shall be made once every ten days, or when re-marking and/or flagging of lines that are no longer visible is needed.

General Excavation Procedures

E-Corp will implement and enforce the following engineering controls, procedures, and work practices to ensure that no employee is exposed to hazards from excavations being performed or existing at the jobsite:

- SSHO will ensure that all employees are trained in and familiar with required work practices and excavation procedures to safeguard personnel involved in trenching operations or who work in the vicinity of excavation operations.
- Employees conducting trenching and excavation operations will be protected from cave-in hazards through benching, sloping, shoring, scaling loose material, or trench shields/boxes. Refer to Protection of Employees in Excavations section below.
- Utility operators will be contacted at least 72 hours before work is to begin and underground installations located prior to the commencement of any excavation work. When excavations are approaching any located utility line, equipment operations will be stopped no closer than 3 feet from the suspected location, and the utility will be positively located by careful hand digging, prior to the resumption of machine operations. In cases where the line locator information is inconclusive, employees will check for proximity and common right-of-way agreements. The line locator shall be qualified and competent.
- Any utilities which are uncovered as a result of excavation operations will be protected and suitably supported during work progress, prominently marked for location and hazard, and will be carefully backfilled as soon as possible.
- Trench excavations will have access and egress ladders, ramps, or stairs provided for employees on any excavation which is 4 feet or more in depth. Ladders will be located within 25 feet of the workers and will extend to a height of at least 3 feet above the excavation. Lateral travel along the wall of a trench to a ladder or other means of egress will not exceed 25 feet.
- Walkways will be provided where employees or equipment are required or permitted to cross over excavations. Regulation guardrails will be installed where walkways are

- elevated 6 feet or more above lower levels.
- Employees exposed to public vehicular traffic will be provided with and will wear warning vests or other suitable garments marked with or made of reflectorized or high visibility material. Barricades will be provided where possible to separate personnel from traffic patterns.
 - Employees are not permitted underneath loads handled by lifting or digging equipment. Personnel will be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any equipment, spillage, or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped with adequate overhead protection for the operator during loading and unloading operations.
 - Tests will be conducted for hazardous atmospheres and air contaminants (oxygen, flammable gases, etc.) and provide ventilation where necessary.
 - In excavations where a hazardous atmosphere, to include an oxygen deficient atmosphere, exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation will be tested before employees enter excavations greater than 4 feet in depth.
 - Proper respiratory protection will be provided where necessary for personnel exposed to hazardous atmospheres above Permissible Exposure Limits (PEL). Where ventilation is used to control exposure to hazardous atmospheres, continued testing will be used to monitor levels of hazardous atmospheres.
 - Employees are not permitted to work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions such as special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline have been taken to protect employees against the hazards posed by water accumulation.
 - An adequate system of shoring, benching, or sloping in accordance with specifications in §1926.652 and appendices A and C of OSHA standards for excavation operations will be provided for any excavation over 5 feet in depth, or any excavation which has been inspected and is believed unsafe to enter without a protective system. Inspections and determination of the type of protective system used shall be done by the HSM, or designated alternative, and based on soil type, density, moisture content, and other factors which might affect the performance of protective systems.
 - E-Corp shall confirm and document that qualified equipment operators, drillers and spotters involved with a ground disturbance have reviewed and signed the ground disturbance permit.
 - Protection of employees regarding soil classifications includes:
 - The determination of soil types and special considerations.
 - Shoring, sloping, and/or shielding will be installed as needed.
 - Shoring equipment will not be subjected to excessive forces and will be installed to protect employees from lateral loads.
 - Timber shoring or aluminum hydraulic shoring will be determined according to appendices A & C of the OSHA standard.
 - The devices used will be properly maintained and in good repair. If inspection reveals damage or defect, shoring equipment will be tagged and immediately removed from service.
 - Employees will be protected from hazards of falling, rolling, or sliding materials or equipment.
 - Personnel are prohibited from being within the shield when installing or removing the shield.

- All shields used will be designed to resist calculated forces.

Inspections by Competent Person

- The SSHO or other designated competent person will conduct an inspection of worksites daily, prior to any employee entering an excavation to ensure that safety measures are in place and proper procedures for safety are being observed. Inspections of the excavation site will be made daily prior to commencement of work, regularly during work operations, in the event an occurrence takes place (such as inclement weather) which might pose a hazard to commencing, and at the cessation of work to ensure barricades and appropriate safety measures are in place before leaving the site (Excavation Inspection Checklist).
- In the event an inspection reveals the possibility of a cave-in, failure of a protective system, hazardous atmosphere, or any threat to the safety of personnel, the excavation will immediately be evacuated until corrections are made to the satisfaction of SSHO.

Locating Underground Utility Installations

- E-Corp will not excavate, trench, drill, or otherwise disturb the ground subsurface at any location without having first ascertained the location of all underground facilities of a public or private utility in the proposed area of excavation. It is the SSHO's responsibility to confirm that all known available sources of information have been obtained and cross-referenced to verify, as far as is reasonable and practicable, the existence of known facilities/pipelines and underground utilities is understood. Sources of information, including but not limited to, the following shall be referenced when applicable to the job:
 - Consult Local Operations Personnel – Plot plans, pipeline or facilities maps, or lease drawings (as available) shall be obtained and discussed with area operations personnel. Business units or other operator personnel familiar with area operations may have knowledge of facilities/pipelines and abandoned lines not otherwise documented.
 - Line Location Documentation – Line location documentation (or appropriate regional agency or company) provides a listing of companies who registered buried facilities in the proposed work area. In order to give line operators sufficient time to respond to a request to locate, a minimum of a 72 business-hour waiting period is required prior to beginning work. Some areas require written permission, or work and emergency situations may require less waiting time. Local laws should be researched and incorporated in local practices.
 - Visible Company Markers – Check the work area for facilities/pipelines or utility markers and verify the company named has been contacted to supply any additional information regarding underground facilities. Never rely solely on company markers for location purposes. Markers may have been knocked down or removed at some point in the past and may have been repositioned inaccurately.
 - Visible Indicators – Visible indicators are evidence of utilities or underground facilities (previously disturbed soils, nearby lines, service pits, propane tanks, gas meters, electric service risers, buildings with no visible evidence of service, etc.) within the proposed work area, including the search zone. This may include facilities/pipelines, power lines, natural gas providers, utility cables, new clearings, spoil piles, road construction, pipeline signs, settlement, vegetation color changes or growth. If there is any visual sign of activity that is not reflected on the plot plan, the plan shall be updated.
 - Landowner Conversations - Landowner and/or tenant may also have additional

- knowledge of buried utilities not documented elsewhere and should be contacted when reasonable and practical. All conversations should include a discussion on the possibility of previous horizontally installed underground facilities in the area.
- Ground disturbance activities shall not proceed without an updated plot plan or drawing clearly indicating the number of facilities/pipelines or utilities, line sizes, locations and alignments. Available plot plans or drawings shall be reviewed and cross referenced with other sources of information to verify that they are accurate and complete. Plot plans shall be retained with the Ground Disturbance Permit. Plot plans shall be updated to reflect “as built” underground facilities and maintained for future reference. If a plot plan or drawing is not available, a hand drawn map shall be made during the preplanning phase prior to field activities and shall reflect all available information as accurately as possible.
 - Upon receiving the information from the public utility, E-Corp personnel will exercise reasonable care when working near the underground utilities. All underground utilities within the dig zone shall be exposed to verify location. Only hand digging, vacuum drill, or equivalent methods will be employed in such circumstances and any support reasonably necessary for protection of the utilities will be provided on the construction site.
 - When any contact with or damage to any pipe, cable, or any other underground utility occurs, E-Corp will immediately notify the utility company. If an energized electrical cable is severed, an energized conductor is exposed, or dangerous fluids or gases are escaping from a broken line, SSHO (or designated alternative) will evacuate personnel from the immediate area until the utility company representative arrives.
 - While an excavation is open, underground utilities will be protected, supported, or removed as necessary to safeguard employees.

Surface Encumbrances

- All surface encumbrances such as trees, boulders, rock fragments, or other obstructions whose movement could cause injury to an employee will be removed or supported.
- Excavations that personnel are required to enter will have spoil piles and other material stored and retained not less than 2 feet from the excavation edge.
- When a shoring system is used, the system will be designed and used to resist the added pressure when heavy equipment, material handling equipment, or material is located near an excavation.
- When mobile equipment is utilized or permitted adjacent to an excavation where the operator’s vision is restricted, stop logs, barricades, or a signal person will be used.

Mechanical excavation equipment shall not be used to dig or drill within 2 feet (0.61m) of an energized UGF.

When digging in proximity to energized underground facilities, every effort shall be made to limit people in the immediate dig vicinity to spotter and operator only.

An equipment spotter shall be in place for all excavations within 10 feet (3.05m) proximity to any underground utility.

Environmental/Archaeological Evaluation

Trenching, shoring, excavating, and/or drilling activities in certain areas may require specific environmental/archaeological permits or plans. Ground disturbance activity projects such as remediation, location restoration and site development shall normally need Ground Disturbance Permits. Items such as wetland disturbance permits, dredging or filling permits, storm water

discharge permits and critical or sensitive habitat determination and pollution prevention plans may be required. Archaeological sites may also be present. Each location should be evaluated, and permits obtained as applicable. These issues shall be discussed during project pre-planning activities. Refer to the relevant regulations regarding these matters.

Access and Egress

- Lateral travel along the wall of a trench to a ladder or other means of egress will not exceed 25 feet.
- An excavation four feet or more in depth and occupied by an employee will be provided with either a ladder extending not less than 3 feet above the top as a means of access or with a ramp meeting the following requirements:
 - Structural ramps that are used solely by employees as a means of access or egress from excavations will be designed by a competent person. Structural ramps used for access or egress of equipment will be designed by a competent person qualified in structural design and will be constructed in accordance with the design.
 - Ramps and runways constructed of two or more structural members will have the members connected to prevent displacement. Structural members used for ramps and runways will be of uniform thickness.
 - Cleats or other appropriate means used to connect runway structural members will be attached to the bottom of the runway or will be attached in a manner to prevent tripping.
 - Structural ramps used in lieu of steps will be provided with cleats or other surface treatments on the top surface to prevent slipping.
- An earth ramp may be used in place of a ladder if:
 - The ramp material will be stable.
 - The sides of the excavation above the ramp will be maintained to the maximum allowable slope or sheeted or shored along the means of egress.
 - The degree of angle of the ramp will not be more than 45 degrees.
 - Vertical height between the floor of the trench and the toe of the ramp will not exceed 30 inches.

Exposure to Vehicle Traffic

- Employees exposed to public vehicular traffic will be provided with, and be required to wear, warning vests or other suitable garments marked with or made of reflectorized or high visibility material.
- A sidewalk will not be undermined unless it is shored to support a live load of at least 125 pounds per square foot.
- Employees who are routed from a sidewalk or walkway into a roadway to detour excavations will be protected on all sides by regulation guardrails or barricades.
- If an employee or equipment is required or permitted to cross a trench or ditch, a walkway, ramp, or bridge will be provided and will have a designed capacity of not less than 3 times the imposed load. Regulation guardrails will be installed.
- If equipment is routed across or onto a roadway, protection will be provided using regulation signals, signs, or barricades.
- An open cut into a roadway will be provided with a regulation barricade on all sides.

Warning lights will be provided during hours of darkness.

Walkways

- Walkways will be provided where employees or equipment are required or permitted to cross over excavations. Regulation guardrails will be provided where walkways are 6 feet or more above lower levels.
- A walkway or sidewalk will be kept clear of excavated material and other obstructions.
- The walkways and sidewalks will be lighted if used during hours of darkness.
- A walkway or sidewalk that is adjacent to an excavation will be separated from the excavation and protected by an appropriate guardrail.

Exposure to Falling Loads

Personnel will not be permitted under loads handled by lifting or digging equipment. Employees will be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped with regulation protection for the operator during loading and unloading operations.

Mobile Equipment Warning Systems

When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system will be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.

Hazardous Atmospheres

To prevent exposure to hazardous atmospheres and to assure acceptable breathing conditions, all the following requirements will apply:

- Where an oxygen deficiency (an atmosphere that contains less than 19.5% oxygen) or a hazardous atmosphere exists, such as in excavations in areas where hazardous substances are stored nearby, the atmosphere in the excavation will be tested before employees enter excavations that are more than 4 feet deep.
- Precautions will be taken to prevent employee exposure to atmospheres that contain less than 19.5% oxygen and any other hazardous atmosphere. These precautions include providing regulation respiratory protection or ventilation.
- Precautions will be taken, such as providing ventilation, to prevent employee exposure to an atmosphere that contains a concentration of a flammable gas in excess of 10% of the lower flammable limit of the gas.
- When using controls intending to reduce levels of atmospheric contaminants to acceptable PEL, testing will be conducted as often as necessary to ensure that breathing air remains safe.
- Emergency rescue equipment, such as breathing apparatus, safety harness and line, or a basket stretcher, will be readily available where hazardous atmospheric conditions exist or could develop during work in an excavation. This equipment will be attended when in use.
- Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, will wear a harness with a lifeline securely attached to it. The lifeline will be separate from any line used to handle materials and will be individually attended at all times while employee wearing it is in the excavation.
- Whenever internal combustion engine-driven equipment is operated inside, a ventilation system shall be provided and operated as appropriate.

Protection from Water Accumulation Hazards

- Employees will not work in excavations where water has or is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by such water accumulation. Precautions necessary to protect employees vary with each situation and will include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.
- If water is controlled or prevented from accumulating using water pumps, the pumping equipment and operations will be monitored by a competent person to ensure proper operation.
- If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means will be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person.
- An ongoing inspection of an excavation or trench will be made by a qualified person. After every rainstorm or other hazard-producing occurrence, an inspection will be made by a competent person for evidence of possible slides or cave-ins. Where these conditions are found, all work will cease until additional precautions, such as additional shoring or reducing the slope, have been accomplished.

Stability of Adjacent Structures

- Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees will not be permitted except when:
 - A support system, such as shoring, bracing, or underpinning, is provided to ensure the safety of employees and the stability of the structure.
 - The excavation is in stable rock.
 - A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity or that such excavation work will not pose a hazard to employees.
- Sidewalks, pavements, and appurtenant structure will not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.
- The shoring, bracing, and underpinning will be inspected daily or more often, as conditions warrant, by a competent person.

Unattended, Open Excavations

Adequate physical barrier protection shall be provided at all excavations to protect workers, the public, livestock and wildlife. All wells, pits, shafts, etc., shall be barricaded or covered. Upon completion of exploration and similar operations, temporary wells, pits, shafts, etc., shall be backfilled.

Employee Protection from Loose Rock or Soils

- Adequate protection will be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection will consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material or other means

that provide equivalent protection.

- Employees will be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection will be provided by placing and keeping such materials or equipment at least 2 feet from the edge of excavations, or using retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.
- If different textured soils are encountered in the side of an excavation, each soil type of the excavation will be cut to the proper maximum allowable slope, except that the slope will not steepen between the toe of the slope and the ground level where soft clay or running soil is encountered in the lower cut.
- If the excavation is a trench, a trench shoring system will be used, or the sides will be properly benched or sloped to protect against a cave-in.
- An excavation that is cut into a rock formation will be scaled to remove loose material.
- When installed forms, walls, or similar structures create a trench between the form, wall, or structure and the side of the excavation, it will be treated as a trench.

General Classification of Soil and Rock Deposits

- Each soil and rock deposit will be classified by a competent person as Stable Rock, Type A, Type B, or Type C in accordance with OSHA definitions.
- The classification of the deposits will be made based on the results of at least one visual and at least one manual analysis. Such analyses will be conducted by a competent person using approved methods of soil classification and testing.
- The visual and manual analyses will be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify properly the properties, factors, and conditions affecting the classification of the deposits.
- Layered systems will be classified according to its weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer.
- If after classifying a deposit, the properties, factors, or conditions affecting its classification change in any way, the changes will be evaluated by a competent person. The deposit will be reclassified as necessary to reflect the changed circumstances.

Protection of Employees in Excavations

- Employees in an excavation will be protected from cave-ins by an adequate protective system designed in accordance with OSHA requirements, except when:
 - Excavations are made entirely in stable rock.
 - Excavations are less than 4 feet deep and examination of the ground by a competent person provides no indication of a potential cave-in.
- Protective systems will have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

The slopes and configurations of sloping and benching systems will be selected and constructed by E-Corp and will be in accordance with OSHA requirements, or the following alternative options:

Option 1 -Allowable configurations and slopes.

- Excavations will be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal), unless E-Corp uses one of the other options listed below.
- Specified slopes will be excavated to form configurations that are in accordance with the slopes shown for Type C soil.

Option 2 -Maximum allowable slopes, and allowable configurations for sloping and benching systems, will be determined in accordance with the conditions and requirements set forth in §1926 Subpart P – Appendices A and B.

Option 3 -Designs using other tabulated data.

- Designs of sloping or benching systems will be selected from and in accordance with tabulated data, such as tables and charts.
- The tabulated data will be in written form and will include all the following:
 - Identification of the parameters that affect the selection of a sloping or benching system drawn from such data.
 - Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe.
 - Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.
- At least one copy of the tabulated data which identifies the registered professional engineer who approved the data, will be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data will be made available to OSHA upon request.

Option 4 -Design by a registered professional engineer.

- Sloping and benching systems not utilizing previous Options 1, 2, or 3 will be approved by a registered professional engineer.
- Designs will be in written form and will include at least the following:
 - The magnitude of the slopes that were determined to be safe for the project.
 - The configurations that were determined to be safe for the project.
 - The identity of the registered professional engineer approving the design.
- At least one copy of the design will be maintained at the jobsite while the slope is being constructed. After that time, the design need not be at the jobsite; but a copy will be made available to OSHA upon request.

Protection of Employees Procedure

Under the direction of the CP and SSHO, employees in an excavation will be protected from cave-ins by adhering to the following procedure:

1. Document and ensure that all risks to employees in an excavation have been identified.
2. When possible, the sides of the trench or excavation will be sloped. Sloping and benching will be approved by the CP and documented in the Ground Disturbance Permit and Excavation Inspection Checklist forms included at the end of this practice.
3. A trench box shall be used for excavations and trenches greater than 4 feet in depth. Timber may be used for trenches that do not exceed 16' in depth.
4. The trench/excavation shall be inspected as described in the Inspections section of this program.
5. Before any employee may enter a trench/excavation, a CP approved protective system must be in place.

Design of Support Systems

Designs of support systems, shield systems, and other protective systems will be selected and constructed by E-Corp and will be in accordance with OSHA requirements, or the following alternative options:

Option 1 -Designs for timber shoring in trenches will be determined in accordance with the conditions and requirements set forth in §1926 Subpart P – Appendices A and C. Designs for aluminum hydraulic shoring will be in accordance with Option 2 below, but if manufacturer's

tabulated data cannot be utilized, designs will be in accordance with Appendix D.

Option 2 -Designs Using Manufacturer's Tabulated Data.

- Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data will be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer.
- Deviation from the specifications, recommendations, and limitations issued or made by the manufacturer will only be allowed after the manufacturer issues specific written approval.
- Manufacturer's specifications, recommendations, and limitations, and manufacturer's approval to deviate from the specifications, recommendations, and limitations will be in written form at the jobsite during construction of the protective system. After that time this data may be stored off the jobsite, but a copy will be made available to the Secretary upon request.

Option 3 -Designs using other tabulated data.

- Designs of support systems, shield systems, or other protective systems will be selected from and be in accordance with tabulated data, such as tables and charts.
- The tabulated data will be in written form and include the following:
 - Identification of the parameters that affect the selection of a protective system drawn from such data.
 - Identification of the limits of use of the data.
 - Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.
- At least one copy of the tabulated data, which identifies the registered professional engineer who approved the data, will be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data will be made available to OSHA upon request.

Option 4 -Design by a registered professional engineer.

- Support systems, shield systems, and other protective systems not utilizing previous Options 1, 2, or 3 will be approved by a registered professional engineer.
- Designs will be in written form and will include the following:
 - A plan indicating the sizes, types, and configurations of the materials to be used in the protective system.
 - The identity of the registered professional engineer approving the design.
- At least one copy of the design will be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design will be made available to OSHA upon request.

Protective Systems Materials and Equipment.

- Materials and equipment used for protective systems will be free from damage or defects that might impair their proper function.
- Manufactured materials and equipment used for protective systems will be used and maintained in a manner that is consistent with the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.
- When equipment used for protective systems is damaged, a competent person will examine the equipment and evaluate its suitability for continued use. If the competent person cannot assure the equipment is able to support the intended loads or is otherwise suitable for safe use, then equipment will be removed from service to be evaluated and approved by a registered professional engineer before being returned to service.

General installation and removal of support systems:

- Support systems will be securely connected to prevent sliding, falling, kickouts, or other predictable failure.
- Support systems will be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system.
- Individual members of support systems will not be subjected to loads exceeding those which those members were designed to withstand.
- Excavation of material to a level no greater than 2 feet below the bottom of the members of a support system will be permitted, but only if the system is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system.
- Installation of a support system will be closely coordinated with the excavation of trenches.
- Before temporary removal of individual members begins, additional precautions will be taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system.
- Removal will begin at, and progress from, the bottom of the excavation. Members will be released slowly to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation.
- Backfilling will progress together with the removal of support systems from excavations.
- Employees will not be permitted to work on the faces of sloped or benched excavations at levels above other employees except when employees at the lower levels are adequately protected from the hazard of falling, rolling, or sliding material or equipment.

General shield systems requirements:

- Shield systems will not be subjected to loads exceeding those which the system was designed to withstand. Shields will be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.
- Employees will be protected from the hazard of cave-ins when entering or exiting the areas protected by shields.
- Employees will not be allowed in shields when shields are being installed, removed, or moved vertically.
- Excavations of earth material to a level not greater than 2 feet below the bottom of a shield will be permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the shield.

Regulation guardrails or barricades will be provided at all remotely located excavations.

All wells, pits, and shafts, temporary or otherwise, will be barricaded or covered. Temporary wells, pits, and shafts will be backfilled when exploration and similar operations are completed.

In addition to the above requirements, Company Safety Policy regarding excavation operations shall adhere to the requirements of OSHA regulation **§1926.651 – Specific Excavation Requirements**.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/15/21
02	Stacy Maxfield	Annual Review/Update	10/18/22



Excavation Inspection Checklist

Check boxes as appropriate during the excavation inspection. Findings and corrective actions should be filled out in the bottom section, use back of form if necessary.

Competent Person: _____ Inspection Date: _____ Time: _____ Job # _____

Soil Type: A - Undisturbed stable rock B - Previously disturbed cohesive C - Non-cohesive silt/sand

Reason for inspection: Daily After storm Change of conditions (list hazard) _____

Pass	Fail	N/A	General:
			Prior to beginning excavation, underground utilities have been located and marked by appropriate personnel.
			Employee protective systems (shoring, sloping, etc.) is provided in excavations deeper than 5 feet.
			Protective systems in excavations deeper than 20 feet are designed and stamped by a registered engineer.
			The sides of excavations in which personnel may be exposed to danger from moving ground must be guarded by a support system.
			No personnel may work on the face of sloped excavations above other personnel unless lower personnel are adequately protected.
			All spoils piles, equipment, etc. is at least 2 feet from the edge of the excavation.
			Personnel entering excavations classified as Permit Required Confined Spaces must follow APM's Confined Space Entry Program including atmospheric testing.
			Structures adjacent to the excavation are stable and do not pose a hazard to personnel.
			In excavations deeper than 4 feet, safe access is provided by a ladder or equivalent within 25 feet of every location in the excavation.
			At least 2 means of exit are provided if the excavation is deeper than 4 feet.
			Ladders used as access extend from the bottom of the excavation to at least 3 ft above the surface.
			No water has accumulated or is accumulating in the excavation.
			If vehicles or mobile equipment are near the excavation, barricades or stop logs are installed for protection of personnel in the excavation.
			Sloping and benching are following 29CFR 1926.652, Appendices A, B, and C for maximum allowable slopes [vertical to horizontal, Type A ¾ to 1, Type B 1 to 1, Type C ½ to 1].
			Support systems comply with 1926.652 and are appropriate for the type of soil the excavation is in.
			Support systems are installed and removed in a manner that protects employees from cave-ins and extend at least 1 foot above top of excavation.
			Any hazard present in the excavation has been properly addressed including sloping, benching, or support systems if excavation is deep enough to entrap, bury, or otherwise injure or immobilize someone.
			Excavation has been backfilled as soon as feasible. If left overnight, excavation has been barricaded or secured to ensure unauthorized personnel cannot enter.
			Competent person is physically located at the excavation while work is in progress.
			Excavation has been inspected by a competent person and determined safe for access today.

Findings: (Failed Items and Safe Observations): _____

Corrective Action Taken: _____

Date Corrective Action Complete: _____

Signature of Competent Person Completing Inspection: _____

*Note: If unsafe conditions are found, excavation must not be accessed until items are corrected.



Ground Disturbance Permit

Revised 6/15/21

Permit Number: _____

Ground Disturbance Permit

This permit may be issued for up to seven (7) consecutive days with appropriate revalidation prior to each shift.

Site Location and Description:		Date:
Name of Person requesting Line Locate:	Signature:	Phone:
Name of Qualified Line Finder (QLF):	Signature:	Phone:

Ground Disturbance (GD) Checklist

<i>Indicate status of Items 1-18. For any item answered "NO," a Management of Change must be completed before work can proceed.</i>			
1. Within the last 10 days, and no less than 72 hours from the initiation of this task, contacts were notified that a "One Call" was made to confirm the existence and location of underground facilities near the work area.	YES	NO	N/A
2. Available records have been referenced, and a plot plan indicating the location of all underground facilities (including those installed horizontally) has been provided and is available for reference at the work site.	YES	NO	N/A
3. All approvals, notifications and agreements have been obtained and are attached to this document.	YES	NO	N/A
4. A Competent Person (CP) has conducted a pre-job safety meeting, including a risk assessment.	YES	NO	N/A
5. The proposed ground disturbance area(s) have been identified, and the QLF has correctly marked all underground facilities in the dig zone and the search zone.	YES	NO	N/A
6. Competency of the line locator and a calibration of the relevant equipment have been verified. Proof of competencies and calibration records are available for review.	YES	NO	N/A
7. Approved techniques for exposing underground facilities within 2' (0.61m) of GD areas have been (or will be) used to verify the location of all known underground facilities.	YES	NO	N/A
8. Precautions have been taken to prevent contact with overhead or below-ground power lines.	YES	NO	N/A
9. Possible environmental and archeological issues have been conducted and addressed.	YES	NO	N/A
10. New nonmetallic underground facilities have been installed with line-locating capability.	YES	NO	N/A
11. All personnel involved with the excavation have reviewed and discussed the Trenching, Shoring, and Excavations Defined Practice. The valid certifications of the qualified equipment operator have been reviewed and are available for further review.	YES	NO	N/A
12. The excavation design and construction checklist for trenching has been completed for the initial ground disturbance.	YES	NO	N/A
13. An excavation inspection checklist shall be completed each day prior to the start of work.	YES	NO	N/A
14. All personnel involved in drilling have reviewed and discussed the Environmental Drilling Practice.	YES	NO	N/A
15. Risk has been adequately assessed, and provisions have been or will be made to address unattended open excavations to verify the safety of the general public, livestock, and wildlife until the site is remediated.	YES	NO	N/A

Utility Locate and Site Walk

COMPLETED SITE WALKOVER		
With site manager or designated alternate or owner or tenant representative		

APPLICABLE? YES NO

SITE MANAGER NAME: _____ SITE MANAGER SIGNATURE: _____

PROPERTY OWNER OR TENANT REPRESENTATIVE NAME: _____ PROPERTY OWNER OR TENANT REPRESENTATIVE SIGNATURE: _____

BUILDING UTILITY SERVICE LINE CONNECTIONS IDENTIFIED: YES NO CLEARED: YES NO

Hand-sketch the proposed boring locations and most likely utility trench location(s) on the site map. (Refer to the following page.)



Ground Disturbance Permit









Revised 6/15/21

Permit Number: _____

Plot Plan

NOTE: A drawing or plot plan depicting the locations of marked and unknown underground utilities must either be drawn here or attached for all to review before, during, and after the excavation. Mechanical ground disturbance may not proceed until facilities have been identified and plotted on a current drawing and communicated to all personnel involved in the ground disturbance task. Do not forget to consider horizontally installed facilities that may be poorly identified.

UTILITIES KEY

BRIDGE: 	FENCE LINE: 	POWER LINE: 	WATER: 
CABLE LINE: 	FLOW LINE: 	POWER POLE: 	WATER LINE: 
DIG ZONE: 	NORTH DIRECTION: 	RAILROAD CROSSING: 	WELL-HEAD: 

US COLOR KEY EXAMPLE

COMMUNICATION – ORANGE	ELECTRICAL – RED	POTABLE WATER – BLUE
NON-POTABLE WATER – PURPLE	OIL AND GAS – YELLOW	TEMPORARY SURVEY MARKINGS – PINK
SEARCH ZONE PERIMETER – WHITE	SEWERS AND DRAINAGE – GREEN	



Ground Disturbance Permit

Revised 6/15/21

Permit Number: _____

BELOW-GROUND SERVICES

UTILITY	NAME	DEPTH (IN FEET)	TELEPHONE NUMBER	NOTIFIED		DATE	MARKED	
				YES	NO		YES	NO
Cable				YES	NO		YES	NO
Electric				YES	NO		YES	NO
Gas				YES	NO		YES	NO
Others				YES	NO		YES	NO
Pipeline Companies				YES	NO		YES	NO
Possible horizontally installed facilities				YES	NO		YES	NO
Sanitary/Sewer				YES	NO		YES	NO
Steam				YES	NO		YES	NO
Storm Water				YES	NO		YES	NO
Telephone				YES	NO		YES	NO
Underground Storage Tank System				YES	NO		YES	NO
Water				YES	NO		YES	NO

AUTHORIZATION BY PERMIT SUPERVISOR

I certify that I have reviewed the permit, all required precautions have been taken and necessary equipment is provided and inspected for this permitted work.

Name: _____ **Signature:** _____ **Date:** _____ **Time:** _____

PERMIT REVALIDATION

I confirm that the conditions under which the permit was originally issued remain unchanged, that work is allowed to continue, and that the revalidated permit has been reviewed with the work team.

Name: _____ **Signature:** _____ **Date:** _____ **Time:** _____

PERMIT CANCELLATION BY PERMIT SUPERVISOR

I attest that the Permitted Work is complete and the permit is closed.

Name: _____ **Signature:** _____ **Date:** _____ **Time:** _____

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Welding Cutting and Hot Work Program

Purpose

E-Corp has adopted this program for the prevention of employee exposure to hazards resulting either directly or indirectly from “Hot Work” (welding, cutting, and brazing) in the workplace from the following OSHA regulations:

§1910 Subpart Q – Welding, Cutting, and Brazing

E-Corp has implemented this practice to ensure that employees are properly trained, aware of hazards associated with hot work, and correctly informed of Company policies, practices, and procedures to prevent, or if possible, eliminate these hazards.

Roles and Responsibility

Health and Safety Manager

In the scope of this program, the Health and Safety Manager (HSM) shall:

- Perform all duties as specified in the Control of Work Program.
- Cooperate fully with the PIC and other Health and Safety Managers.
- Communicate with personnel performing work regarding the presence of other operations on site.
- Identify and manage the risks associated with the host operations and the additional risks associated with E-Corp and any other work.

Site Safety and Health Officer

In the scope of this program, a Site Safety and Health Officer (SSHO) is defined as an E-Corp employee or individual Contractor who has been given Health and Safety responsibilities on site and who receives and authorizes a permit. The SSHO is responsible for ensuring that everyone working under a specific permit adheres to the permit’s documented conditions. In the scope of this practice, the SSHO shall:

- Perform all duties as specified in the Control of Work Permit Program.
- Be responsible for communicating with the HSM and the site workforce.

Definitions

Class 1 Area: Any area in which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures.

Guidance to identify Class 1 can be provided by area classification diagrams and by standards such as the following:

- American Petroleum Institute, API Recommended Practice 500, *Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2*, 2nd ed., November 1997.
- National Fire Protection Association 70™ National Electric Code®

Hot Work: Any work that could produce a source of ignition or temperatures high enough to cause the ignition of flammable gases and combustible materials.

Primary Source Ignition (PSI) Hot Work: Any work with equipment and tools that is likely to ignite a flammable or combustible atmosphere, solid materials and liquids when used in a normal manner. Primary Source Ignition (PSI) hot work is often referred to as 'naked flame' hot work. High energy is present in the form of a flame, electric arc or incandescent sparks.

Examples of PSI hot work include, but are not limited to, the following:

- Welding and burning.
- Grinding and cutting with discs.
- Torch cutting and soldering.
- Explosives.
- Surface temperatures greater than 200 deg C (390 deg F).

Secondary Source Ignition (SSI) Hot Work: Any work with equipment and tools that may create low-energy sparks and ignite a flammable or combustible atmosphere when used in a normal manner or due to errors or malfunction. Secondary source ignition (SSI) hot work is also referred to as 'spark potential' hot work.

Examples of SSI hot work include, but are not limited to, the following:

- Sandblasting.
- Using electrical and electronic equipment that is not intrinsically safe or explosion-proof (e.g., most electronic communication devices, flashlights).
- Using internal combustion engines (including vehicles).
- Using a rotating steel brush.
- Electrical isolation testing.
- Producing a friction spark, typically from a rusty surface.
- Soldering

Description and Requirements

The HSM is the supervisor responsible for ensuring the following engineering controls, work practices, and safety procedures are enforced:

- The SSHO will ensure that welders, cutters, and their supervisors involved in the performance of hot work operations are properly trained in the safe operations of any equipment required, the safe use of the process, proper PPE, and safety procedures which will be followed.
- Before cutting or welding processes are permitted, the area will be inspected and cleared by the SSHO before authorization to proceed is granted.
- Written "Hot Work" permits will be utilized to ensure appropriate safe work practices are observed.
- The Hot Work Permit has five purposes:
 - To serve as written permission to do the work.
 - To provide a safety checklist to address common hazards.
 - To show the steps necessary for making the work site safe for conducting hot work.
 - To alert operating personnel to the work in progress.
 - To provide a record of safety steps taken for contract work.
- A Hot Work Permit is valid for up to 7 consecutive days with proper revalidation prior to each work shift. If hot work is suspended during a shift, the permit shall be revalidated before further hot work can continue. Revalidation involves inspecting the hot work area for any change in previous conditions and conducting air monitoring if the hot work is performed in a Class 1 area.
- Hot work permits may not be issued where the following are applicable:
 - Building sprinkler is impaired (unless NFPA 25 compliant)

- The atmosphere contains greater than or equal to 10% of the LEL
 - Tanks that have contained flammable materials which could be exposed to ignition sources are present
 - Areas not authorized for hot work by management
- The Hot Work Permit shall be posted at the work site until the hot work is completed or the permit expires.
- All personnel involved in a hot work operation have the authority and responsibility to stop any work that they consider to be unsafe, likely to cause loss of containment causing damage to the environment, or outside the scope of the hot work described on the Hot Work Permit.
- Operators will report any equipment defect or safety hazard to his supervisor and the use of the equipment will be discontinued until its safety has been assured. Repairs will be performed only by qualified personnel.
- Where possible, all hot work operations will be performed outside of buildings or structures, clear of any foreseeable fire hazards. If the object to be welded or cut cannot readily be moved, all moveable fire hazards will be removed.
- An evaluation of site contaminants will be conducted to determine areas that meet the definition of Class 1. The Person in Charge (PIC) shall determine whether hot work will have a negative impact on or from simultaneous operations.
- Where hot work must be performed indoors or in the vicinity of fire hazards, the area will be cleared, if possible, of all material and equipment which may present a hazard of fire or explosion from flame, sparks, arcs, or slag.
- Where fire hazards exist in the area of hot work operations which cannot be removed, they will be guarded to prevent fire, and the hot work operation will be shielded to confine the heat sparks and slag and to protect the immovable fire hazards and prevent hot materials from falling to a lower level.
- All arc welding operations in occupied areas will be screened to prevent other personnel from being exposed to flash hazards.
- E-Corp will be responsible for inspecting work areas prior to any hot work being performed, designating precautions to be followed prior to work commencing, and assigning a fire watch where advisable or required when any of the following conditions exist:
 - Locations where other than a minor fire might develop.
 - Appreciable combustible material, in building construction or contents, closer than 35 feet to the point of operation.
 - Appreciable combustibles are more than 35 feet away but are easily ignited by sparks.
 - Wall or floor openings within a 35-foot radius that expose combustible material in adjacent areas including concealed spaces in walls or floors.
 - Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.
- Venting, draining or bleeding of flammable or combustible liquids and gases shall be stopped within 35' (10.67m) of the hot work.
- Affected excavations, conduits and manholes within 35' (10.67m) of the hot work shall be either monitored for the presence of flammable gas or sealed.
- Sewer openings, ducts and drains shall be covered with non-flammable impervious material.
- Personnel within the vicinity of the hot work shall be protected against such dangers as heat, sparks, flash and slag.
- If the requirements for fire hazards and guarding as stated above cannot be fully met, E-Corp personnel will not perform the welding and cutting operations until hazardous

conditions are fully resolved.

- If hot work is performed in conjunction with other permitted activities (such as confined space entry or excavation), each applicable permit shall be completed.
- Any hot work to be performed in confined spaces will conform to Permit-required Confined Space procedures and the following requirements:
 - Adequate ventilation is a prerequisite to work in confined spaces.
 - When welding or cutting is being performed in any confined spaces the gas cylinders and welding machines will be kept outside of the space.
 - Before operations are started, gas cylinders will be secured, heavy portable equipment mounted on wheels will be securely blocked to prevent accidental movement, and warning signs will be posted.
 - Where a welder must enter a confined space through a manhole or other small opening, means will be provided for quickly removing him in case of emergency. When safety belts and lifelines are used for this purpose, they will be so attached to the welder's body that his body cannot be jammed in a small exit opening. An attendant with a preplanned rescue procedure will be stationed outside to always observe the welder and be capable of putting rescue operations into effect.
 - When arc welding is to be suspended for any substantial period, such as during lunch or overnight, all electrodes will be removed from the holders and the holders stored so that accidental contact cannot occur, and the machine disconnected from the power source.
 - To eliminate the possibility of gas escaping through leaks of improperly closed valves when gas welding or cutting, the torch valves will be closed and the fuel-gas and oxygen supply to the torch positively shut off at some point outside the confined area, whenever the torch is not to be used for a substantial period, such as during lunch hour or overnight. Where practicable, the torch and hose will also be removed from the confined space.
- Any welding or brazing materials used in hot work which might possibly generate hazardous fumes, gases, or dust to the metals involved will be suitably labeled to indicate the hazard, and appropriate measures for ventilation or respiratory protection provided to ensure that no employee is exposed to higher than permissible levels of hazardous fumes.
- Welding, cutting, or burning of metals containing lead, zinc, cadmium, mercury, beryllium, or other exotic metals, paints, coatings, or preservatives will require that regulation ventilation or respiratory protection be utilized.
- After welding or cutting operations are completed, the welder will mark the hot metal or provide some other means of warning other workers.
- First aid kits and equipment are always readily available for employee use during welding and cutting operations. First aid kits are kept in all company vehicles and are regularly inspected by the SSHO to ensure that contents are kept fully stocked and that the appropriate items are available.
- Personnel in charge of fuel-gas and oxygen supply equipment (including distribution piping systems and generators) will be fully instructed and determined competent for handling, use, and storage of compressed gas cylinders and related equipment.
- The manufacturer's recommendations covering the operation and maintenance of oxygen or fuel-gas supply equipment including generators, and oxygen or fuel-gas distribution piping systems will be followed and readily available to employees.
- Fuel gas and oxygen cylinders must be transported, moved, stored, and used in an upright position, secured to prevent tipping, and located to prevent accidental collision with the cylinders. Cylinders must be kept away from any heat or combustion sources, and at least 20 feet from any flammable gases or petroleum products. When not in use,

cylinders must have their valves closed, any regulators or attachments removed, and their valve covers in place.

- Personnel assigned to operate or maintain arc welding equipment will be properly trained & qualified to operate such equipment and in safety procedures and familiar with OSHA §1910.252 General Requirements for Welding, Cutting, and Brazing, and §1910.254 requirements for arc welding and cutting, and equipment handling to include the following areas:
 - Machine hook up.
 - Grounding.
 - Electric shock.
 - Switches.
 - Manufacturers' instructions.
 - Electrode holders.
 - There shall be no leaks of cooling water, shielding gas or engine fuel.
- If gas shielded arc welding operations are being performed, operators will be familiar with the American Welding Society Standard A6-1-1966.
- Machines which have become wet will be thoroughly dried and tested before being used.
- Cables with damaged insulation or exposed bare conductors will be replaced. Joining lengths of work and electrode cables will be done using connecting means specifically intended for the purpose. The connecting means will have insulation adequate for the service conditions.

Authorized Air Monitor

The authorized air monitor (or gas tester) is an individual responsible for operating air-monitoring equipment to monitor the presence of flammable gas in the area where hot work is planned. The authorized air monitor may also be the fire watch. The authorized air monitor shall not be a hot work operator during primary source ignition (PSI) hot work but may be a hot work operator during secondary source ignition (SSI) Class 1 hot work.

The following procedure should be followed by the authorized air monitor:

1. Verify that the air monitoring device to be used is calibrated according to the manufacturer's instructions and that calibration information is documented.
2. Perform initial air monitoring of the hot work area for the presence of flammable gas.
3. Perform continuous air monitoring for the presence of flammable gas between the hot work and potential vapor sources.
4. Verify that a Lower Explosive Limit (LEL) Mitigation Plan, is developed and documented if initial or continuous air monitoring detects the presence of flammable gas (LEL is greater than 0 percent).
5. Verify that the LEL Mitigation Plan is implemented, and flammability is controlled to less than 10 percent of the LEL before allowing hot work to proceed.
6. Stop all hot work if any air monitoring reading is greater than 10 percent of the LEL. The authorized air monitor shall perform and document air monitoring:
 - Before a vehicle or equipment that is not intrinsically safe is allowed to enter the Class 1 area, an authorized gas tester shall survey the area along its planned path to its destination.
 - The vehicle or equipment can proceed into the Class 1 area only when flammability readings are 0 percent LEL, or less than 10 percent of the LEL with an implemented LEL mitigation plan.
 - Continuously, as long as the vehicle's engine, non-intrinsically safe equipment, or other ignition sources are running, and initial monitoring is greater than 0 percent.

- Prior to the egress of the vehicle or equipment from the Class 1 area.
- Prior to performing hot work in the presence of flammable gas, an Area Monitoring Program shall be developed and approved by the supervisor and implemented by the Authorized Air Monitor. The Area Monitoring Program Procedure shall include the following:
 - The area and specific points where the hot work will be performed shall be identified.
 - All hot work equipment (ignition sources) and all potential sources of flammable gas within 35' (10.67m) of the hot work shall be identified.
 - The area that will be monitored by the authorized gas tester shall be identified. At a minimum, this includes a 35' (10.67m) radius from the point of the hot work. Hot work in a confined space requires air monitoring for flammable gas throughout the entire space.
 - An LEL mitigation plan shall be developed and implemented.

LEL Mitigation Plan

The following procedure shall be used to develop a LEL mitigation plan:

- Initially, the percent LEL shall be measured.
- Source(s) of flammable gas within the hot work area shall be identified. This will be part of a comprehensive Risk Assessment that evaluates root sources.
- Controls will be developed and implemented to effectively reduce or maintain the flammability level to less than 10 percent of the LEL within the hot work area.
- The percent LEL shall be measured after controls, if any, have been implemented. Note that if concentrations of flammable gas continue to exceed 10% of the LEL further response action (e.g., additional monitoring, removal action) may be needed.

Fire Watch

In the scope of this practice, the fire watch is responsible for monitoring hot work and the surrounding area for incipient fires and changing conditions. The fire watch may also be the authorized air monitor. The fire watch shall not be a hot work operator. If simultaneously performing the authorized air monitor role, the fire watch shall not have any additional roles. Fire watchers will have fully charged and operable fire extinguishers readily available (20lbs minimum). Fire watchers will be adequately trained for the use of any equipment to be used and in the facility's fire alarm and evacuation procedures. Documentation of these trainings will occur.

A fire watch will be maintained for at least **30 minutes** after the welding or cutting operation is completed to prevent or extinguish any fire resulting from these operations. The employee(s) assigned to fire watch will be trained in the proper use of fire extinguishers and fire prevention measures, ensure that appropriate firefighting equipment and fire extinguishers are readily available, and be responsible for sounding of fire alarms in the event of a fire which is not readily extinguishable.

A second fire watch shall be required if one fire watch cannot directly observe combustible materials that could be ignited by the hot work operation.

The fire watch shall perform the following duties and implement the following procedure:

- Understand the location, nature and hazards of the hot work to be performed.
- Survey the area to verify that the necessary fire protection equipment is in place and ready for use.

- Confirm that safe conditions are maintained during hot work operations.
- Make fire-extinguishing equipment readily available and be trained in its use.
- Remain within communication range of the person(s) performing the hot work and maintain a line of sight with the hot work.
- Not leave the area for any reason without a replacement or stopping the hot work.
- Watch for fires in all areas exposed to hot work and communicate to hot work operators to cease all hot work if a fire occurs.
- Try to extinguish a fire only when the fire is obviously within the capacity of the equipment available.
- Sound the alarm (e.g., air horn) and implement evacuation procedures immediately if he or she determines that a fire is not within the capacity of the available extinguishing equipment.
- Remain in the hot work area at least **30 minutes** after the hot work has ceased to detect and extinguish possible smoldering fires.

The fire watch shall not have any other duties besides those specified in this practice during the hot work activities and **30 minutes** afterwards.

Hot Work Operator

A hot work operator is defined as an individual who operates hot work equipment to perform hot work operations.

The hot work operator shall perform the following duties:

- Know and apply applicable company and regulatory policies, standards and procedures related to hot work operations.
- Participate in the inspection of welding and burning equipment and work areas.
- Participate in the completion of the Hot Work Permit.
- Review and sign the Hot Work Permit to acknowledge his or her understanding of the conditions documented on the permit.
- Comply with the conditions of the issued Hot Work Permit.
- Safely handle hot work equipment and processes.
- Cease hot work operations if unsafe conditions develop and notify the SSHO immediately for evaluation and appropriate action.

E-Corp's Hot Work procedure requires the following for conducting Primary Source Ignition (PSI) hot work near buildings, structures or combustible materials:

- Openings or cracks in walls, floors or ducts within 35' (10.67m) of the hot work shall be tightly covered with fire-retardant or noncombustible materials.
- Ducts that might carry sparks to distant combustible or flammable materials shall be shielded, shut, or both.
- Fire-retardant shields or guards shall be provided near walls, partitions, ceilings or roofs of combustible materials.
- When hot work is done on one side of a wall, partition, ceiling or roof; combustibles on the other side shall be relocated if possible, and if it is impractical to relocate combustibles, a fire watch is provided on the side of the combustibles.
- Hot work shall not be attempted on a partition, wall, ceiling or roof with a combustible covering or insulation, or on walls or partitions of combustible sandwich panels or similar construction.
- Hot work close enough to cause ignition by conduction may not be performed on pipes or other metal that is in contact with combustible walls, partitions, ceilings roofs or other combustibles.

When hot work is performed near a sprinkler head:

- A wet rag is to be laid over the sprinkler head and then removed at the conclusion of the welding or cutting operation.
- Special precautions (e.g., ventilation, shielding) shall be taken during the hot work to avoid accidental operation of automatic fire suppression systems.

Permit Preparation

Individuals who have the technical and procedural competencies as defined by the E-Corp training matrix will provide input to the permit as necessary to address all hazards and permit conditions related to the hot work.

Once the Hot Work Permit has been prepared, the SSHO shall first review and sign the permit. By signing the permit, the SSHO authorizes the work to proceed and accepts responsibility for preparing the equipment for the scope of work described in the permit. By signing the permit, the SSHO accepts the responsibility of observing the permitted work to confirm that the work is performed within the permit conditions.

Competence Requirements

All personnel serving in roles listed in this practice shall complete training as required. The following persons shall complete additional training:

- Authorized gas testers shall be trained in the use of the air monitoring equipment they will be operating.
- The fire watch shall be trained in the selection and use of fire extinguishers, including a hands-on training component, and shall be familiar with the facility's fire alarm and evacuation procedures.
- All Contractors performing any of the roles described herein shall be informed of their responsibilities with respect to this practice's requirements and shall be familiar with the information on the Hot Work Permit prior to performing hot work.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/15/21
02	Stacy Maxfield	Annual Review/Update	10/19/22



Hot Work Permit

Revised 6/15/21

Permit Number: _____

HOT WORK PERMIT

This permit may be issued for up to seven (7) consecutive days with appropriate revalidation prior to each shift.

Date	
Site Location and Description:	

Atmospheric Monitoring Applicable? Yes No

(Initial and continuous monitoring are required for all Class I Hot Work [PSI and SSI].)

Instrument:	Date of last calibration:	Pre-use zero air check performed? Y or N
		Yes <input type="checkbox"/> No <input type="checkbox"/>

Initial Reading %LEL: If LEL >0%, fill out LEL Mitigation Plan section. Use this section for recording Revalidation daily initial readings.

Date	Time	%LEL	Date	Time	%LEL	Date	Time	%LEL

Continuous Reading %LEL

Time	%LEL	Time	%LEL	Time	%LEL	Time	%LEL	Time	%LEL

Fire Watch Applicable? Yes No

Note 1: If the answer to any of the fire watch conditions to the left is YES, a dedicated fire watch must be assigned.

Note 2: The fire watch is authorized to perform air monitoring.

1. Will PSI Class I work be performed?	Yes	No
2. Will PSI Non-Class I work be performed within 35' (10.67m) of combustible materials?	Yes	No
3. Will PSI hot work be performed where wall or floor openings within 35' (10.67m) would expose combustibles in adjacent areas?	Yes	No
4. Is PSI hot work to be performed where combustibles are adjacent to the opposite side of partitions, ceilings or roofs being worked on?	Yes	No
5. Will fire alarms or suppression systems be disabled for hot work?	Yes	No

Work Area Preparation for Hot Work Applicable? Yes No

Work may not proceed unless all answers are 'Yes' or NA

1. Is the hot work equipment in proper working order?	Yes	NA
2. Are the proper material safety data sheets available for review?	Yes	NA
3. Have combustible materials been relocated more than 35' (10.67m) from hot work or been properly shielded?	Yes	NA
4. Is fire-fighting equipment in proper working order?	Yes	NA
5. Have ducts, drains and sewers been adequately covered to prevent sparks from entering?	Yes	NA
6. If hot work is to be performed indoors, have combustible floors been wetted down or properly shielded?	Yes	NA
7. Is a 20lb (9.07kg) fire extinguisher available and appropriate for the type of fire expected?	Yes	NA



Hot Work Permit

Revised 6/15/21

Permit Number: _____

Air Monitoring Program:

Document specific areas of site where air monitoring will occur, what potential gas or vapor sources exist within the hot work area and the wind direction:

Lower Explosive Limit (LEL) Mitigation Plan Applicable? Yes No If not applicable, continue monitoring at the source.

% LEL Detected:		% LEL After Controls Implemented	
-----------------	--	----------------------------------	--

Document the location of the confirmed source(s) of gas/vapor and what controls (if any) have been implemented. (Note: Hot work is prohibited if the LEL reading is greater than or equal to 10% in the hot work area.)

AUTHORIZATION BY AIR MONITOR

I have performed air monitoring in hot work area. I will stop work hot work if the LEL reading is greater than or equal to 10%.

Name: Signature: Date: Time:

AUTHORIZATION BY FIRE WATCH

I will maintain a line of sight with hot work operation at all times, have access to a fire extinguisher, and will remain in the hot work area for a minimum of 30 minutes after hot work is complete.

Name: Signature: Date: Time:

AUTHORIZATION BY PERMIT SUPERVISOR

I certify that I have reviewed the permit, all required precautions have been taken, and necessary equipment is provided and inspected for this permitted work.

Name: Signature: Date: Time:

PERMIT REVALIDATION

I confirm that the conditions under which the permit was originally issued remain unchanged, that work is allowed to continue, and that the revalidated permit has been reviewed with the work team.

Name: Signature: Date: Time:

PERMIT CANCELLATION BY PERMIT SUPERVISOR

I attest that the Permitted work is complete, and permit is closed.

Name: Signature: Date: Time:

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Working Alone and Remote Travel Program

Purpose

E-Corp has implemented this program to inform workers of the written Working Alone Procedures in the workplace. This ensures the health and safety of workers at the work site.

Description and Requirements

The Project Manager (PM) is responsible for ensuring that the following policy for control, training, personal protective equipment, and safe work practices is enforced.

The E-Corp Regional Manager's main roles include but are not limited to the following:

- Distributes permits and other forms of hazard communication to ensure the safe performance of assigned tasks undertaken either by the person in this role or a group under their supervision.
- Has an active involvement in the completion of the work.

Working Alone

Working alone applies when a worker is working alone at a work site, and assistance is not readily available if:

- There is an emergency.
- The worker is injured or ill.

E-Corp will notify its workers when workers will not be permitted to work alone. Employees must be trained and educated to perform the work safely before being considered a candidate to work alone.

E-Corp ensures that before any worker is assigned to work alone or in isolation that a worksite hazard assessment will be performed to identify any potential hazard to that worker.

The Site Safety and Health Officer (SSHO) or Project Manager (PM) will perform the hazard assessment. If any hazards are determined through the hazard assessment, E-Corp will take measures to eliminate or, if not practicable, reduce hazards. If hazards are not reduced to an acceptable level, the worker will not be allowed to work alone.

Communication

If a worker is allowed to work alone, they shall keep contact throughout the work shift with a designated person. The safe work procedure for communication provided for a worker who works alone and persons capable of assisting the worker in an emergency or if the worker is injured or ill is:

- Two-way radio, or
- Telephone, cell phone, or
- Other electronic type of communication.

When electronic communication is not practicable or readily available at the worksite an alternate form of communication will be implemented for workers who work alone.

E-Corp will ensure:

- E-Corp or another competent worker visits the worker.
- The worker contacts a designated competent worker.
- The visits or contacts will be at intervals of time appropriate to the nature of the hazards associated with the work being performed by the worker.

Employees working alone must check in at the end of each work shift and document it. The contact person shall verify that the employee has checked in.

Procedures for Checking the Well-being of a Worker

E-Corp shall implement written procedures, in consultation with the joint committee or worker health and safety representative, for checking the well-being of any worker assigned to work alone or in isolation.

The written procedures include:

- A system to check on the worker (well-being) at regular time intervals, including a final check at the end of the work shift,
- Procedures to follow when the worker cannot be contacted, and
- Provisions for emergency rescue.

Contact Person

A designated worker will be assigned to establish contact with the worker at regular predetermined intervals and shall record the results each time he/she establishes contact.

Emergency Procedures

If a worker cannot be contacted, E-Corp will implement emergency procedures.

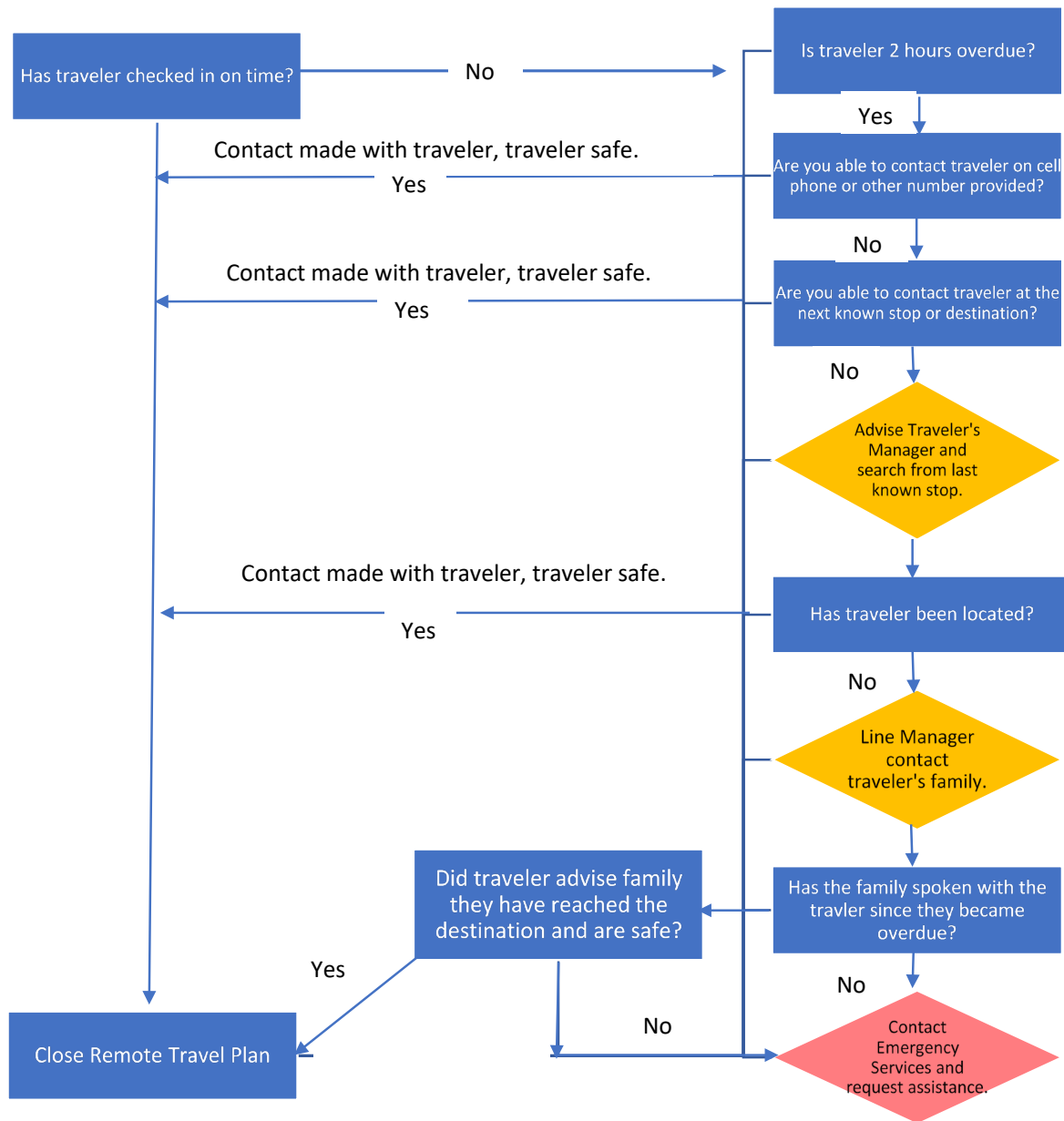
The emergency procedures will take things into consideration such as the length of time missing, weather conditions, physical fitness, etc.

In the event of an emergency:

- Report emergencies to local fire and police departments.
- Inform the emergency chain of command of an emergency.
- Warn employees about the emergency.
- Conduct an orderly, efficient workplace evacuation.
- Assist employees with disabilities or injuries during an evacuation.
- Shut down critical equipment, operate fire extinguishers, and perform other essential services during an evacuation.
- Account for employees at a designated safe area after an evacuation.
- Perform rescue and first aid that may be necessary during an emergency. In the event that the lone worker cannot be contacted, or the lone workers known associates, an employee search will be initialized. The employee search will include notifying the local fire and police departments. If a driver fails to check in at the designated time, the following flowchart may be used to commence the emergency response.

Figure 1: Emergency Search Process

Emergency Search Process



Remote Travel Requirements

Responsibilities

Traveler

It is the responsibility of the traveler to comply with the requirements of this policy (checklist provided at end of the chapter), including:

- Complete a full inspection of the vehicle.
- Coordinating the proper use and care of the remote travel equipment.
- Planning the journey.
- Booking the journey with an accepted travel agency or logging the journey with a Remote Travel Plan.
- Verifying that travel arrangements or details are in the traveler's calendar and that the line manager, supervisor, or other designated person(s) have access to the calendar.
- Compliance with the requirements of the E-Corp Driving Safety Program.

The traveler is also responsible for acquiring the remote travel equipment necessary to the trip and obtaining and preparing an emergency kit.

Traveler's Line Manager

The traveler's line manager shall be responsible for supporting the Emergency Search process if contact is lost with the traveler or any other emergency.

Employees

Employees are responsible for complying with the policies laid out in this section. Employees are not to diverge from this policy to a lesser standard unless a Regional Manager has approved.

Remote Driving

Remote driving shall only be permitted when deemed necessary for the achievement of business objectives and after safer journey options have been excluded. All road journeys in areas identified as 'remote' must take action to mitigate the risks associated. Travel to areas or locations that require higher levels of mitigation will only be executed if risk mitigations can be implemented to render the travel safe.

Each driver is responsible for their safety on the road. Drivers are required to follow the requirements of the Driving Safety Program.

Journey Planning

A complete travel checklist must be performed in preparation to the trip, including a vehicle/equipment checklist, worksite hazard assessment, etc. The traveler must obtain the necessary maps to plan the journey from start to finish. Map and route considerations should be evaluated by elements such as:

- Road and weather conditions along the selected route.
- Time required to travel between stops.
- Time required for rest.
- Time required at stops (customers' locations or to perform tasks safely).
- Cumulative time to execute trip and to avoid fatigue.
- The effects from the time of travel (such as fatigue, sun glare, traffic, and animals).
- Fuel consumption and distance between gas stations along the route.

The traveler should obtain and prepare a contact list that includes, but is not limited to, the following:

- Phone numbers of persons at the destination as well as the starting and intermediate points.
- Phone numbers of the traveler's family or next-of-kin contact.
- Phone number of the traveler's line manager.
- Work and mobile/cell phone numbers of designated alternates.

The traveler must assess the type of personnel and physical requirements necessary to the journey. This should include:

- An effective means of communication to ensure that assistance can be contacted, if needed.
- Basic mechanical knowledge.
- Appropriate training (such as defensive driving courses, basic first aid, remote first aid, etc.)

Day of Travel

On the day that travel is to commence, the traveler shall complete an inspection of the vehicle as part of the remote travel checklist. The travel plans must be communicated to the traveler's senior leader and designated alternate.

Immediately upon arrival to the destination, the traveler must notify the designated contact person or third-party remote travel tracking system and advise that: **"I have reached my destination and would like to close a Remote Travel Plan."**

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/12/21
02	Stacy Maxfield	Annual Review/Update	10/19/22



REMOTE TRAVEL CHECKLIST

Employee: _____ Date: _____

Travel Destination: _____

Hotel (Name and Phone): _____

Checkpoint Call Person: _____ Call Time: _____

Call time Departure: _____ Call Time Arrival: _____

X	Remote Travel
	Vehicle Inspection Complete, vehicle in good working order.
	Plan Journey including travel stops.
	Driving Directions available, printed if unfamiliar location.
	Remote travel equipment in place including tools for vehicle repair.
	Emergency kit in vehicle.
	Contact E-Corp representative when leaving for trip,
	Follow E-Corp Driving Safety Program Light Duty Vehicle Driving Requirements: <ul style="list-style-type: none"> • Stop driving if you are tired. • Stop every two hours for 5-15 minutes at a safe location. • Avoid driving during dusk and dawn hours on long trips. • Adhere to the maximum length of driving time: <ul style="list-style-type: none"> ○ 14 hours work in a rolling 24 hours. ○ 60 hours work in a rolling seven days. ○ 10 hours driving per day maximum (excludes commuting time). • Take at least one 24-hour continuous break per rolling seven days.
	Contact E-Corp representative when you have arrived at the site.

Employee Emergency Contact (Name) _____

Employee Emergency Contact (Phone) _____

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Working Over or Near Water Program

Purpose

E-Corp is committed to the safety and health of our employees. Therefore, the following working near water plan has been adopted. This policy for working near water is adopted in accordance with the following OSHA regulations:

§1926.106 – Working Near Water

The Health and Safety Manager (HSM) has the overall supervisory responsibility for the effectiveness of this program.

General Requirements

Work near water is primarily defined as that work which involves a potential danger of drowning. Evaluation as to whether work could represent a danger of drowning and hence the requirements of this guidance are applicable, will be done on a site-specific basis, as deemed appropriate, by the work team as part of Health and Safety Plan development.

As a guide it is generally considered that work conducted within 6 feet of water that is more than 3 feet deep or has a soft bottom of sufficient thickness to become an entrapment hazard can pose a danger of drowning. Use of approved fall protection systems (including guard rails between the work area and the water) may replace the need for personal flotation devices, rescue skiffs and other work near water health and safety procedure requirements identified in this program.

Where practicable, diverting and/or removing water from the work area prior to performing other construction activities is generally preferable to having to perform work in a sustained basis on, in, or near water. However, implementing water diversion/removal may itself temporarily expose workers or others to activities that represent a potential danger. Therefore, the relative hazards represented by implementing and maintaining water diversion/removal needs to be assessed and compared to the hazards of completing the planned work without water diversion/removal before a final decision is made.

If diverting/removing water is impracticable then appropriate testing, design, safety and emergency response planning should be completed in accordance with project specifications and applicable regulations and guidance prior to proceeding with work on, in, or near water. Diversion/movement of water shall be subject to approval of local authorities and follow local and state regulations.

Working adjacent to and/or within water should be considered in very early stages of design of remediation or decommissioning as part of initial alternative development and screening. Working adjacent to and/or within water should be designed in accordance with locally recognized and accepted standards.

Work Near Water Health and Safety Procedures

Communications – Personnel exposed to water-related-hazards shall be provided with immediate access to emergency communications such as radio communications and/or cell phones.

Buddy System – The use of a buddy system should be maintained in areas with water-related-hazards.

Life Jackets & Buoyant Work Vests

It is the policy of E-Corp that when employees are working over or near water, they will be provided with a U.S. Coast Guard-approved life jacket or buoyant work vest when the danger of drowning exists.

- Wear Coast Guard approved work vests. Inspect work vests before each use. Defective units must not be used.
- Do not use recreational boating PFDs such as ski jackets for work applications.
- PFDs used as work vests may be Type I, II, III, or V PFDs. A Type V PFD, including Type V Hybrid PFDs, is acceptable only if it is U.S. Coast Guard approved and marked for use as a work vest, for commercial use, or for use on commercial vessels.
- PFDs shall be fitted with a SOLAS (Safety of Life at Sea convention) compliant whistle or noise making device.
- When worn at night, PFDs shall have SOLAS rated reflective tape/materials affixed to the PFD.
- Safety nets or similar fall protection or positioning devices may be used in place of PFDs.
- The use of PFDs is generally NOT appropriate for entrapment hazards such as deep muds.
- In hypothermia conditions, PFDs should be insulated (e.g., “mustang suits”).

Ring Buoys

E-Corp will provide ring buoys. The following are requirements for use of Ring Buoys:

- Type IV Personal Flotation Devices (PFDs) are U.S. Coast Guard approved "ring life buoys" typically referred to as "life rings" or "throwing rings."
- These devices are required for work near water.
- The interval between rings shall not exceed 200 feet and/or throwing rings must be within 100 feet of work.
- Maintain 90 feet of retrieval line attached to throwing rings.
- These devices or equivalent length rescue throwing bags shall also be used where there are potential entrapment hazards such as bogs, lagoons, quicksand, or deep muds.

Skiffs

When employees are working over or adjacent to water, at least 1 lifesaving skiff will be immediate available.

- Rescue skiffs should be used judiciously and may pose additional drowning risk for rescue personnel. Throwing rings or throwing bags should generally be used before launching a boat.
- The skiff must be in the water or capable of being quickly launched by one person.
- There must be at least one person present and specifically designated to respond to water emergencies and always operate the skiff when there are employees above water without an approved fall protection system in place. When the operator is on break another

operator must be designated to provide the requisite coverage while employees are above water.

- The skiff operator may be assigned other tasks provided the tasks do not interfere with the operator's ability to quickly reach the skiff and get underway. If visual contact is not maintained by the skiff operator, a communication system, such as a two-way radio, must be in use to inform the skiff operator of an emergency and to inform the operator where the skiff is needed.

Equipment in the skiff:

- At least one paddle, attached by lanyard to the skiff (or a fixed oar) shall be included in the skiff (regardless of whether the skiff is powered or unpowered).
- At least one PFD for each rescue person.
- At least one throwing ring or throwing bag.

Use of Fall Protection

In general, fall protection systems may be used in place of PFD vests and other work near water controls. Examples include guard rails, fall arrest systems, lifelines, harnesses or safety nets. Fall protection systems should comply with the applicable provision of 29 CFR 1926.502.

Hazard Training

All employees working over or near water must be trained in their responsibilities and the safe work practices associated with their tasks.

Prior to the commencement of work, a risk assessment and pre-task plan will be completed and signed by all members of the crew that may be working over or near water.

When the danger of drowning exists, employees are not permitted to work alone.

Revision History

Revision	Author	Changes Made	Date
01	Stacy Maxfield	New Program	06/14/21
02	Stacy Maxfield	Annual Review/Update	10/20/22