Field Safety Manual
AWAIR

A Workplace Accident and Injury Reduction Program
Safety Policies and Other Procedures

Revision Date: May 1, 2016

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Introduction

Harris Companies requires that its employees, as a condition of employment, comply with all applicable safety, health, and environmental regulations in this manual. All employees will receive an orientation to the safety rules and policy upon initial employment and shall bring to the attention of their immediate supervisor any unsafe conditions or practices.

Compliance with these rules and policies is only part of the safety program. Employees from top management down must be committed to working safely and to be held accountable for actions. This is accomplished with supportive leadership, open lines of communication, and a personal commitment to safety as a value. Harris Companies will commit the necessary resources to provide adequate training and education.

With these premises in mind, Harris Companies firmly adheres to the following principles:

- All incident/injuries can be prevented; and, a zero-injury work environment is possible.
- Management and employees together are responsible for maintaining a safe work environment.

All levels of management, from top executive to first-line supervisors will be held accountable for the implementation of these principles. Commitment to these principles will be the responsibility of the employee, also.

The AWAIR Act is a MNOSHA regulation requiring employers in certain industries to establish a safety and health program. Harris Companies has developed a written safety and health program, promoting safe and healthy working conditions based on clearly stated goals and objectives. This program includes requirements covered under Minnesota Statues 182.653 "A Workplace Accident and Injury Reduction" (AWAIR) Act.

This manual meets all of the requirements of an AWAIR program with the following information located on the pages listed below:

NOTE: This Safety Manual is a guideline of Harris Companies' Safety Policies. It is not a legal document, and shall not be used as a substitute for any Client, County, State, or Federal rule, unless it is more stringent.

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SAFETY MISSION

At Harris Companies it is our belief accidents that injure people, damage property, and destroy material cause needless personal suffering and expense. Taking precautions will eliminate accidents and injuries.

While it is the responsibility of the Corporate Safety Director to design, implement, and monitor the effectiveness of our Safety Program, every employee has a role in creating a safe work environment:

- Senior managers are responsible to provide leadership, resources, and motivation to maintain the Safety Program.
- A professional staff supports the safety and loss control programs.
- Managers must communicate to employees, customers, subcontractors, and suppliers the progress and commitment toward a safe and healthful work place environment.
- Supervisors are accountable for the human and the physical resources under their control and for the measured safety results.
- Employees are responsible for personal actions consistent with safe work practices.

It is the policy of Harris Companies to develop and maintain a model safety, health, and environmental program. This program will focus on the prevention and protection against injuries and illnesses; promotion of safe and healthful actions and attitudes, not only in Harris Companies' employees but also in other individuals who may be affected by this program.

Accidents are avoidable and do not need to happen if all of us do our part, take precautions, act safely at all times, and develop a proactive attitude toward accident prevention.

Gregory J. Hosch, CEO
Harris Companies

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Safety Organization, Responsibilities, and Enforcement

SCOPE

The duties and responsibilities of Management, Safety Director, Project Manager, Estimator, Superintendent, Foreman/Supervisor, Individual Employee, Safety Committee, and Subcontractors.

GENERAL

The success of Harris Companies Safety Program is dependent on employee cooperation and strict compliance with established safety rules, regulations, policies, and the commitment to safety as a value. While management and employees share safety responsibilities, management must establish the policies by which safety offenders are disciplined. Those individuals who refuse to comply with the Harris Companies Safety Program in providing a safe place of employment will be notified in writing and subject to removal from the project in accordance to Harris Companies Disciplinary Procedures Policy.

REQUIREMENTS

A. Management

Management is responsible for aiding the Safety Director and Safety Committee in communicating and enforcing the Safety Program that is in place within the company.

1. Communicate to all employees and supervisors the importance of worker safety and health throughout the organization.
2. Review all safety concerns brought forward by the safety director, safety committee, or supervisors and take appropriate action.
3. Review the AWAIR program and revisions from the safety director, or safety committee at least annually, and help communicate the revisions throughout the organization.
4. Conduct a minimum of 3 jobsite safety audits annually.

B. Safety Director

It is the responsibility of the Safety Director to provide all levels of management and supervisors with the necessary services relative to safety activities and required advice for the promotion and use of an effective Safety Program. The Safety Director reports directly to Harris Companies' CEO.

1. Maintain current knowledge of published safety literature, safety regulations, state codes and other communications. Advise company supervision of compliance and of conditions requiring attention. Keep safety manual updated as needed.
2. Analyze statistical data and inspections to delineate problem areas. Make recommendations for solution.
3. Review all incidents and injuries and assist in investigating fatalities.
4. Review the safety performance of all supervisors.
5. Assist project manager with pre-job safety survey prior to job commencement.
6. Assure that all employees are properly instructed as to the requirements of the Company Safety Program.
7. Assist project managers and supervisors in setting up safety indoctrination procedures.
8. Conduct project safety inspections.

9. Provide safety training.
10. Review all incident reports, providing instructions and guidance as needed to maintain flow of accurate, complete and prompt reporting of all types of incidents.
11. Visit job site where injury occurred and record responses on injury from foreman and other personnel regarding cause and preventative measures.
12. Ascertain that injury report is prepared accurately and signed and sent to insurance company promptly.
13. In the event of a fatality or major catastrophe, proceed immediately to the scene, conduct a thorough investigation of the incident and complete necessary documents. Also investigate all serious injuries to subcontractors.
14. Provide monthly safety reports and charts to President.
15. Organize quarterly safety meetings; and, develop written procedures on exercise and proper back care.

C. Project Manager

The project manager is responsible for the administration of the Safety Program on their project.

Responsibilities include:

1. Uphold jobsite specific safety.
2. Administer all phases of the established Company Safety Program and obtain results.
3. Develop a safe job procedure for unusual or hazardous job operations.
4. Regularly review the project's safety performance and take action as necessary.
5. Determine safety code requirements from Federal, State, City and/or other agencies (with assistance of Safety Director) and provide facilities to meet these needs, along with instructions to field locations concerning requirements where applicable.
6. Ensure that if unsafe conditions are discovered they are immediately corrected, the area is isolated until corrections can be made, or the job is shut down until the condition is corrected.
7. Conduct a minimum of 12 jobsite safety audits, attend 6 tool box talks, and attend a minimum of 2 safety lunches per year.

D. Estimator

The estimator considers initial pre-bid safety and anticipates safety costs including:

1. Review project sites, if possible, at the time of bidding for any unusual hazards and incorporate the necessary costs for safety into bids.
2. When visiting a job site, survey it for proper compliance with safety procedures and report any deviation to the Safety Director or management for further investigation.
3. If a subcontractor is involved in a project, insert a clause in the subcontract insisting that the subcontractor agrees to follow the Harris Companies' Safety Program while performing work on the project.
4. Pre-job Safety Planning:
    a. Equipment needs: tools, personal protective equipment, etc.
    b. Structural safety: shoring, scaffolding, etc.

c. Material handling problems
d. Hazardous material involved
e. Property damage control
f. Public traffic control
g. First-aid supplies
h. Local code requirements

E. Superintendent

Jobsite safety performance and record keeping of an assigned project is vested in the superintendent, accountable to the Safety Director.

Responsibilities include:

1. Enforcement of all phases of the established Company Safety Program.
2. Maintain on-site safety records.
3. Participate with the Safety Director or individual responsible for safety in making a pre-job safety survey prior to job commencement.
4. Instill a workable housekeeping program by:
    a. assigning definite duties to individual assistants and foreman
    b. daily inspections of work areas
    c. weekly housekeeping inspections
    d. keeping records of conditions found and corrective action taken
    e. maintaining safety signs and bulletin boards in a clear and legible condition.
5. Maintain a workable inspection schedule for:
    a. All rigging equipment, including wire rope, shackles, blocks, slings, manila rope, scaffolds and other safety related equipment.
    b. Tools, pneumatic equipment, and fire extinguishers.
    c. Major equipment such as trucks, welding machines, lifts, and any additional company equipment or safety related items.
6. Ensure that foremen require all employees to properly use personal protective equipment such as safety harnesses, lanyards, goggles, hard hats, ventilation equipment, and gloves.
7. Provide home office with a copy of all safety inspection reports and violation notices received from City, State, or Federal inspectors.
8. Keep first-aid kit and fire extinguisher in vehicle for emergency use.
9. Ensure that no one works while under the influence of alcohol or drugs.
10. Conduct a minimum of 1 jobsite safety audit per month per project. Superintendent shares this responsibility with the Foreman/Supervisor.

F. Foreman/Supervisor

Crew safety, the safe conditions of the assigned work areas and all equipment's safe operation is vested in the foreman, accountable to the superintendent.

Responsibilities include:

1. Ensure that safety standards are met or exceeded.
2. Enforce all phases of the established Company Safety Program.
3. The safety of entire work areas.
4. Inspection of work area to detect hazards, including housekeeping, hazards from electrical and other utility lines, traffic, other trades, and inadequate guarding. Take necessary corrective action.
5. Instruct employees to inspect tools and scaffolds before use. Make spot checks of tools and scaffolding.
6. Assign competent person.
7. Inspect major equipment.
8. Inspect hose, rigging, hooks, etc. and maintain documents of their safe condition and use.
9. Command a thorough knowledge of safety procedures and rules contained in the Company Safety Manual.
10. Enforce the use of fall protection and other personal protective equipment by crew when required.
11. Attend and participate in safety meetings as required by the superintendent.
12. Hold "Toolbox Safety Talk" meetings once a week with crew.
13. Make individual safety contact with each crew member a minimum of once daily.
14. Investigate all injuries; review and sign Incident Report form.
15. Develop a proper and cooperative attitude towards safety among crew members.
16. Keep first-aid kit and fire extinguisher in vehicle and on site for emergency use.
17. Know and practice the Company Safety Rules.
18. Require all subcontractors to adhere to all safety regulations.
19. Fill out the Incident Report in a complete and concise manner.
20. See that all injuries are cared for properly and reported promptly.
21. Observe and instruct proper lifting techniques.
22. Inform crew of location of Safety Information Boxes.
23. Safety Information Boxes must only contain SDS Book, AWAIR Program, Grab & Go Packet (Red Accident Folder), and Right-To-Work Posters.
24. Conduct a minimum of 1 jobsite safety audit per month per project. Foreman/Supervisor shares this responsibility with the Superintendent.

G. Individual Employee

"Safety – A benefit you give yourself"

It takes the cooperation of all employees to provide a safe working environment. Support from all levels of the company, working together, is the key to success. Safety is everyone's responsibility.

All employees MUST:

1. Be familiar and comply with all company safety rules to avoid endangering their own self or fellow workers.
2. Use common sense in applying safety both on and off the job.
3. Follow directions from supervisors.
4. Refrain from any unsafe act that might endanger their self or their fellow employees.
5. Question any procedure they believe is not safe.
6. Report any incident, injury or property damage to their supervisor immediately.
7. Report any unsafe situation or act to their supervisor or the Safety Director immediately.
8. Assist in making each job as safe as possible.
9. Use all safety devices.
10. Be aware of your work area and surrounding hazards created by other trades and fellow employees.
11. Work according to good safe practices as posted, instructed and discussed.
12. Practice good housekeeping measures.

H. Safety Committee

The safety committee consists of a combination from management and field personnel, including some members of Corporate Services who are directly responsible for safety. This committee meets regularly and special meetings may be requested as deemed necessary.

Responsibilities include:

1. Establish, review and enforce safety rules.
2. Analyze and discuss all injuries to determine corrective steps to prevent recurrence.
3. Serve as a sub-committee source to study new or special problems.
4. Review inspection reports and recommendations. Determine, administrate, and stimulate all phases of a continuous company accident prevention program.
5. Assist Director of Safety as needed to pre-plan job sites with respect to safety.
6. Audit projects.
7. Review AWAIR program annually.

I. Subcontractor

Subcontractor shall be directly responsible for preventing their employees from working under conditions that are unsafe, unhealthy, or unsanitary. Their compliance with the Occupational Safety and Health Act (OSHA), the Mine Safety and Health Act (MSHA) and Harris Companies Safety Program is mandatory. Disregard of accepted health, safety, and environmental standards will not be tolerated. Subcontractors will:

1. Be required to submit a safety pre-qualification form provided by Harris Companies located in Appendix 2.
2. Have a safety program at least as stringent as Harris Companies' program.
3. Monitor and prohibit the use of unsafe machinery, tools, material, or equipment.
4. Permit only qualified employees to operate equipment and machinery.
5. Instruct their employees in all applicable regulations concerning their work environment, and in recognizing and avoiding all unsafe conditions.
6. Instruct their employees in the safe handling and use of flammable liquids, gases, toxic materials, poisons, caustics, and other harmful substances. Employees shall be made aware of the potential hazards, the necessary personal hygiene, and the personal protective equipment and emergency equipment required.
7. Provide training for employees required to enter confined or enclosed spaces and of the nature of the hazards involved. They shall also advise on the necessary precautions to be taken and the proper use of any personal protective equipment and emergency equipment required.
8. Supply Safety Data Sheets (SDS) on all materials brought on the project that require them and provide a copy to Harris Companies' project management team.
9. Conduct or attend weekly safety meetings; and, provide a copy of the meeting record to Harris Companies project management.

REFERENCES

29 CFR 1926.16

29 CFR 1926.21

Project Safety Requirements

SCOPE

Items that must be verified, posted, provided or on-hand when a construction project is started.

GENERAL

The success of Harris Companies' Safety Program is dependent on employee cooperation and strict compliance with established safety rules, regulations, policies, and the commitment to safety as a value. This section shall include the minimum safety requirements needed to start work on a Harris Companies construction site.

REQUIREMENTS

1. Establish a means by which to receive emergency medical assistance.
2. Establish a location and routing to the nearest emergency room, clinic or physician's office.
3. Provide readily available transportation or a communication system to contact an ambulance for transmitting injured or ill employees.
4. Ensure that a medical facility is readily accessible or at least one employee with a valid certificate in first-aid training is at the job site.
5. A first-aid kit in a weatherproof container with sealed packages for each item shall be easily accessible at the job site.
6. Setup a bulletin board accessible to employees. The following items shall be included:
    a. Occupational Safety and Health Poster (Federal and State).
    b. Emergency phone numbers, i.e. Fire dept., Ambulance, Hospital.
    c. Evacuation Plan (Site Specific).
    d. 300A when appropriate.

Note: Bulletin Boards will be located where they are readily accessible to employees and be constructed in such a manner to provide protection for the information placed on it.

7. Ensure that a copy of Harris Companies' Safety Policy, Emergency procedures, Hazard Awareness and SDS manuals are located onsite and accessible to employees.
8. The following items shall be on file or available for use when required:
    a. An OSHA 300 log will be available through the Safety Department
    b. Incident Report Forms
    c. Safety Meeting Report Forms
    d. Supervisor's Incident Investigation Report Forms
    e. Medical Authorization Forms
    f. Equipment/Property Incident Report Forms
    g. Near-Miss Forms
    h. Employee Safety Orientation and Handbooks

Note: All forms are available in Appendix 2, or through Harris Companies' Safety Department.

9. A supply of proper personal protective equipment shall be on hand.
10. Potable drinking water with disposable cups and covered garbage container.
11. Toilets will be provided in accordance to OSHA standards.
12. Fire extinguishers per OSHA standards.
13. Containers for trash, scrap, and waste (trash containers must have lids).

Note: If the project is for a mining company or on mine property, it is important that you determine MSHA requirements. Contact the customer, your Contract Manager, or the Safety Department for assistance.

REFERENCES

29 CFR 1910 & 1926
30 CFR Parts 45, 48, 50, 56, 57, 58, 75, and 77
NFPA
NEC
40 CFR
49 CFR

Occupational Safety and Health Administration (OSHA) and Mine Safety and Health Act (MSHA)

SCOPE

Procedures relevant to compliance with the Occupational Safety and Health Act (OSHA) and the Mine Safety and Health Act (MSHA) requirements.

GENERAL

Harris Companies' policy is to permit inspections by representatives of regulatory agencies showing proper credentials: State and Federal Occupational Safety and Health Agencies, Mining Safety and Health Administrations, and the Environmental Protection Agency (EPA).

REQUIREMENTS

A. Regulatory Agency Inspection

1. Upon arrival at the Harris Companies work site, the inspector will be directed to the project office.
2. All Harris Companies supervision shall be informed of the inspector's presence on the jobsite.
3. Harris Companies will notify client when applicable.
4. Project personnel shall contact a member of the safety department immediately.
5. The Inspector shall be informed that a safety representative will be available within 30-60 minutes and confirm with inspector that this is acceptable.
6. If the Harris Companies safety representative is not available within 30-60 minutes, the lead project personnel shall represent Harris Companies on the inspection.
7. The inspector will hold an opening meeting. At this time, the inspector's credentials will be reviewed.
8. If the inspector has not mentioned the reason for the inspection, the Harris Companies representative should ask why it is being conducted. Learn the basis for the inspection, and limit the inspection to that reason. For example – if the inspector wants to inspect a crane, limit the inspection to that crane.
9. Upon completion of the opening meeting, the inspector will proceed with the inspection.
10. Harris Companies' representative shall accompany the inspector throughout the inspection. The only exception to this requirement is when the inspector requests to talk to company employees in private.

Note: Agencies are entitled to privacy when questioning employees, unless the employee waives that right.

11. Throughout the inspection, the Harris Companies representative will be courteous to the inspector, and respond to all questions.

Note: Detailed explanations are not encouraged, as they tend to prolong the inspection.

12. The Harris Companies representative or any other Harris Companies employee is not to speculate when responding to questions.
13. If Harris Companies is currently conducting an investigation of an accident and the investigation is not completed, defer all answers to questions asked until the investigation is complete.
14. With the exception of trade secrets, the inspector is authorized to take photographs and samples during the inspection. If the inspector performs these actions, the Harris Companies representative should do the same.
15. Harris Companies representative will:
    a. Keep a detailed record of the scope of the inspection
    b. Keep a list of the Harris Companies employee(s) questioned by the inspector.
    c. Note items of apparent interest to the inspector
    d. Record comments made by the inspector
    e. Record observations made during the inspection
16. Upon completion of the inspection, the Harris Companies representative shall request a closing meeting be held. More than one Harris Companies representative should be present to ensure that the Company understands all statements made by the inspector.
17. Following the closing meeting, the Harris Companies representative should prepare a detailed report of the inspection incorporating any record, notes, samples, photographs, etc., made or taken during the inspection. This report will be sent to the Corporate Safety Office in St. Paul.

B. Citations

In the event an OSHA or MSHA inspection is conducted on the project and the inspector believes conditions found do not comply with the provisions of the laws, the nature of the alleged violation(s) will be described in a written citation with the reference made to the applicable regulations of the law. These conditions must be corrected on or before the date shown on each written alleged violation. Copies of any citations must be faxed to the Corporate Safety Office (Fax #: (651) 602-6597) in St. Paul, MN on the same day it is received.

C. Posting a Citation

Both OSHA and MSHA require that a copy of all citations be prominently posted at or near each place a violation referred to in the citation(s) occurred. It must remain posted until all violations are corrected or for 3 working days, whichever period is longer. Working days means Monday to Friday – not including weekends and federal holidays. The Act provides penalties for violations of the posting requirements.

D. Approval

After notification of proposed penalties, Harris Companies has the right to contest any or all parts of the citation and the proposed penalties. If Harris Companies fails to contest within the 15-day time period, the citation and the penalties proposed will be deemed to be a final order and not subject to review by any court or agency.

E. Abatement

Harris Companies may file notice (letter) to contest the reasonableness of the time stated in the citation for the abatement of alleged violations. Alleged violations that are not contested must be corrected within the specified period noted in the citation. Failure to comply within the abatement period will result in further proposed penalties for each day the alleged violation has not been corrected. Timely correction of an alleged violation does not affect the initial proposed penalty. The OSHA/MSHA Acts provide that whoever knowingly gives false information is subject to fines and/or imprisonment or both. Harris Companies employees involved in regulatory agency inspections on Harris Companies projects will act in a professional manner at all times during the inspection.

REFERENCES

OSHA 29 CFR 1903.1-21;
MSHA 1977 – Sects. 103, 104, 105, 107 and 110
STATE AGENCIES

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Section 1: Incident Investigation and Reporting

SCOPE

A procedure for investigation and reporting of all incidents/near misses.

GENERAL

The purpose of the investigation is to identify all possible contributing causes so that future incidents, which are similar in nature, can be prevented. Investigations are to determine all the facts. These may have a bearing on legal liability. Contact the Safety Department immediately. In the event of a serious incident, *a death, or hospitalization of three or more workers*, the Safety Department must notify OSHA/MSHA within 24 hours of the incident; and, a complete investigation must be on file.

REQUIREMENTS

A. Investigation

The investigation shall begin as soon as possible after necessary notifications have been completed. A written Incident Investigation Report shall be required:

1. When an employee reports an incident or injury, respond promptly to them in a positive manner.
2. Discuss and document the incident and/or injury with the employee as soon as possible.
3. Discuss and document the incident and/or injury with witnesses.
4. Consider the following points for documentation:
    a. What was the injured employee doing before, and at the time of the incident? Was this part of his/her regular duties?
    b. Was the employee properly trained? Were procedures followed?
    c. Did any other employee contribute to this incident?
    d. Was the equipment or machinery which the injured employee was using in good working condition? Was it properly protected? Was it suited for the purpose for which it was being used?
    e. Was the workspace sufficiently lighted?
    f. Were proper housekeeping conditions maintained?
    g. How is the same type of work being accomplished by other employees?
    h. Is there a safer way in which this work could be accomplished?
    i. Was the injured employee in good health when reporting for work on the day of the incident?
    j. Was post-incident drug testing done?

B. Incident/Injury Reporting

All incidents and injuries, including near misses, will be reported immediately to the Foreman, Supervisor, and Safety Director. A Harris Companies Incident Report Form needs to be filled out as soon as possible. Follow the "Incident Grab & Go Instructions" found at the end of this section to ensure the incident report and investigation forms have been filled out, that all appropriate parties have been notified, and that all information goes through the proper channels. These incident reports are discussed during the Harris Companies safety committee meetings and discussed with all Harris Companies supervision, crew foremen, and employees. The proper forms referenced below are located in Appendix 2.

1. **MEDICAL TREATMENT AUTHORIZATION** will be completed by a Harris Companies representative and given to the employee *prior* to the employee being taken to a doctor or hospital for treatment.
2. **SUPERVISOR'S REPORT OF INCIDENT** will be completed for all injuries.
3. **INCIDENT REPORT** to be completed by the injured employee as soon as possible. An accurate and complete report is necessary as the information is used for the First Report of Injury to the insurance carrier.
4. The physician is responsible for maintaining accurate records of all medical treatment provided to the employee and furnishing a copy to Harris Companies.

NOTE: All Medical Records are confidential and must be kept in a secured, locked file.

All original incident reports, other forms, bills, etc. are kept at HARRIS COMPANIES Corporate Office in St. Paul, along with the company-wide OSHA 300 Log. OSHA logs pertaining to a jobsite are kept at the location of that particular jobsite.

Harris Companies works closely with local regional occupational health services to provide our employees with expert care who will refer them to any specialist if necessary. They also assist Harris Companies with insurance and workers' compensation claims. For these reasons, it is very important for all employees to follow our policies pertaining to workplace injuries.

The following steps should be followed for workplace injuries when an individual needs medical treatment:

1. **Injuries must be ascertained as to the seriousness of the situation. If the injury is determined to be an emergency, steps must be taken to ensure the employee receives prompt medical attention.**
2. **All injuries, no matter how minor, must be reported immediately to your foreman or supervisor. The foreman/supervisor or member from the safety team will then notify the safety director immediately after the incident for review, comments, and follow-up activities.**
3. For injuries that take place at a customer facility, notification shall be made to the appropriate designated customer representative according to their Emergency Action Plan Policy. For non-life threatening injuries, no employee is to leave the site without customer notification. Some customers have their own first responders or staff nurse that needs to evaluate the employee before they are allowed to leave the premises. Our customers have legal obligations to contractors working onsite as we have to providing medical attention to our employees.

4. **If an injured employee needs to be taken to Occupational Health Clinic for medical treatment other than an ambulance, they shall be transported by another Harris Companies employee.** The Safety Director or the employee's supervisor will call Occupational Health Services and let them know of the employee's pending arrival and relay any injury information they have.
5. **All Workers Compensation Claims will require the injured employee to submit to a drug/alcohol screen prior to returning to work.**
6. A Harris Companies "Incident Report" must be completed, emailed, or delivered to the Regional IndustrySafe Administrator within 24 hours of notification of injury.
7. **A Harris Companies employee shall NOT go to their own doctor for any workplace injury. Failure to follow the steps and rules regarding medical treatment may result in employee disciplinary action, including discharge.**
8. Charges incurred for first aid treatment, prescription drugs, doctor's charges, etc., are covered, and provided that the employee follows the proper reporting procedures and that Harris Companies has determined the injury is work related in nature.
9. Payment for lost time injuries will be pursuant to state regulations and state Workman's Compensation Laws of pertaining states.

C. Incident Response

1. Treat the injured employee(s)
2. Notify on-site medical services or call ambulance, if necessary
3. Control incident area
4. Prevent further harm to personnel in the area
5. Notify management personnel
6. Identify and segregate witnesses

D. Witness Interview and Statements

1. Witnesses should be immediately identified at the scene of the incident. Interview those involved in the incident and witnesses.
2. Interview witnesses individually; and, prevent discussion of the incident between witnesses. Ask the witnesses to prepare statements of facts separately from one another while other witnesses are being interviewed.
3. The interviewer must be receptive, objective, and listen carefully to each witness.
4. The more knowledgeable witnesses should be interviewed first.
5. The following questions should be asked:
    a. Time and location of incident.
    b. Environmental conditions: Weather, lighting, temperature, noise, housekeeping, distractions etc.
    c. Position of people, equipment, materials, and their relation to pre-contact, contact, and post contact events. Include the position of the witness being interviewed.
    d. Other witnesses, if known by name, and their position.

e. If anything was moved, repositioned, turned on or off, or taken from the scene (including injured) during pre-contact, contact, or post-contact phases.
f. Response of emergency teams and supervisory personnel, and their actions at the scene.
g. What attracted the witnesses' attention to the incident?

6. A formal written statement should be obtained from each witness interviewed. The witness should be informed of the purpose and intended use of his/her statement and who will see it. **Use the Witness Statement for Incident Investigation Form.**

E. Diagrams, Maps, and Sketches

To understand the relative position of people, equipment, and material; diagrams, maps, and sketches are helpful. These should include:

1. The injured
2. Machines, vehicles, equipment, materials
3. Parts broken off or detached from equipment or materials
4. Objects which were broken, damaged, or struck during the incident
5. Gouges, scratches, dents, paint smears, skid marks, etc. on surfaces
6. Tracks or similar traces of movement
7. Defects or irregularities in surfaces
8. Accumulation of stains from fluids, whether existing before the incident, or spilled as a result of the incident
9. Spilled or contaminated material
10. Areas of debris
11. Safety devices and equipment

F. Photographs

Photographs should be taken to provide:

1. Orientation of the scene of incident
2. Record of the detail of injury or damage, including the position of a large number of damaged fragments
3. Evidence of improper assembly or equipment, materials and structures
4. Detail or marks, spills, and signs
5. Records of disassembly or parts for analysis by examination
6. Evidence of deterioration, abuse, and lack of proper maintenance
7. Location of parts overlooked during early stages of investigation
8. A photographic log should be maintained detailing the subject, lens size, and direction. Points of interest should be noted.

G. Parts, Preservation, and Examination

It is extremely important to preserve any equipment, parts, or materials necessary for evidence. Do not substitute any equipment, parts or materials. (The evaluation of those equipment parts or materials involved in the incident may lead to the possible cause of the incident.)

H. Important Evidence to Examine

1. Components of equipment, materials, or structures that are fractured, distorted, scarred, or ruptured
2. Parts suspected of internal failure
3. Parts suspected of improper assembly or mating
4. Parts suspected of deficient material in fabrication, heat treatment, or bonding
5. Parts that appear faulty in workmanship or design
6. Parts improperly mounted or inadequately supported
7. Parts requiring lubrication
8. Controls and position of operation indicators
9. Parts that are power sources: engines, motors, and pumps
10. Substitute or modified parts
11. Foreign objects and parts that seem different in size, location, shape, and color
12. Fluid spills and stains as well as parts that show signs of leakage

I. Return to Work

1. An employee who has sustained an on-the-job injury or illness may return to work ***provided*** the attending physician has approved in writing and a Return-To-Work form has been filled out. The employee shall return to his/her normally assigned job if it is still available and he/she has met any physical restrictions or limitations.
2. Employees who are given restrictions must contact their supervisor to arrange for light duty work. Harris Companies WILL accommodate all light duty restrictions. Employees will ***not*** be released to go home until a review of the case has been made.

J. Non-Work Related Injury

Non-work related injuries need to be documented on the Non-Work-Related Injury Release form.

REFERENCES

29 CFR 1926.20 – 23
30 CFR Part 50

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Incident Grab & Go Instructions

Step-By-Step Protocol for Incident Reporting

On-Site First Aid/Incident

- ☐ Immediately alert the Project Manager/Supervisor and Safety
- ☐ The questions in the "Basic Information" section on the **Incident Investigation Form** must be entered into Industry Safe or call for entry the **SAME DAY** as incident

  Within 24 hours, complete and turn in: *(Upload to IndustrySafe or email for an admin to upload)*

- ☐ **Incident Investigation Form**
- ☐ **Incident Investigation for Supervisors**

Off-Site Treatment

First!

- ☐ Ensure the safety and security of the individual(s) that were involved, other people on site, the public, and the project. Ensure the appropriate emergency services have been contacted if required.
- ☐ Take photos of the incident scene and surrounding area immediately. You may want to write a description of the incident describing in detail circumstances of the incident, diagrams, and drawings. Note the chronological sequence of events and what materials or equipment were involved. Who, What, Where, When, How.
- ☐ Immediately alert the Project Manager/Supervisor and Safety
- ☐ When the employee needs to be taken off-site for treatment, use the **Medical Treatment Authorization** form
- ☐ A drug test is mandatory when employee is taken off-site and **must be escorted by a supervisor**
- ☐ Obtain a **Doctor's Report of Workability** from the clinic. **Do not leave without this form**. **Review and call the Safety Department with any questions before leaving.**
- ☐ The questions in the "Basic Information" section on the **Incident Investigation Form** must be entered into Industry Safe or call for entry **IMMEDIATELY AFTER** incident

  Within 24 hours, complete and turn in: *(Upload to IndustrySafe or email for an admin to upload)*

- ☐ **Incident Investigation Form**
- ☐ **Incident Investigation for Supervisors**
- ☐ **5 Why's - Root Cause Analysis** *(The form is uploaded into a Corrective Action in IndustrySafe)*
- ☐ If there is lost time or restricted, light duty, or transfer of duties complete: **Return-To-Work-Light Duty Release Form** and turn in with a copy of the **Doctor's Report of Workability**
- ☐ Submit an **Employee Medical Progress Report** every Friday until employee has been cleared to return to regular duty

  Note: Only the Incident Investigation forms get uploaded to IndustrySafe. Drug testing results, reports of workability, medical documents etc. are to be emailed.

Shannon Renstrom, Dan Kent, or Dan Wahlman can help you enter into IndustrySafe.

HARRIS COMPANIES

Incident Grab & Go Instructions

Step-By-Step Protocol for Incident Reporting

Hazard Recognition / Near Miss

First!

- ☐ Ensure the safety and security of the individual(s) that were involved, other people on site, the public, and the project. Ensure the appropriate emergency services have been contacted if required.
- ☐ Take photos of the scene and surrounding area immediately. You may want to write a description of the situation describing in detail circumstances of the incident, diagrams, and drawings. Note the chronological sequence of events and what materials or equipment were involved. Who, What, Where, When, How.
- ☐ Immediately alert the Project Manager/Supervisor and Safety
- ☐ The information contained in the **Hazard Recognition / Near Miss Report** must be entered into IndustrySafe or call for entry the **SAME DAY** as incident
- ☐ Critical or Catastrophic hazards/near misses must be assigned a **Corrective Action** in IndustrySafe. Add **Corrective Action** in IndustrySafe or call for entry *(no offline version of this)*

Within 24 hours:

- ☐ Upload all forms, photos, or supporting documentation into Industrysafe or email documents for upload

Vehicle Incident

- ☐ Call the police to report the incident - witnesses must remain at the scene for their statements to be taken. If a witness will not stay, obtain their name and phone number.
- ☐ Follow the directions on the back of the **insurance card** and contact the Safety Department
- ☐ Complete the **Vehicle Investigation Report** by obtaining information from the other driver(s) as well as the investigating officer(s). A blank copy of this report form should always be in the vehicle.

Within 24 hours, complete and turn in:

- ☐ Driver must take a drug test *(send documentation via email, do not upload into IndustrySafe)*
- ☐ **Vehicle Incident Report** *(Upload to IndustrySafe or email for an admin to upload)*

Note: It is your responsibility to notify any state and/or local agency (police, etc.) of the accident and file the appropriate written report as required by state law.

Harris Companies will assign a claim number and will advise how to proceed with repairs of your vehicle (if repairs are appropriate) or how to obtain a different vehicle.

EMPLOYEES ARE NOT AUTHORIZED TO AND SHALL NOT EXPRESS OPINION AS TO FAULT OR LIABILITY.

EMPLOYEES WILL NOT AGREE TO ANY SETTLEMENT ON BEHALF OF HARRIS COMPANIES OR SIGN ANY STATEMENTS OTHER THAN THE DOCUMENTS REQUIRED BY POLICE AUTHORITIES.

Shannon Renstrom, Dan Kent, or Dan Wahlman can help you enter into IndustrySafe.

Property Damage

- ☐ Immediately alert the Project Manager/Supervisor and Safety
- ☐ An initial description of the must be entered into IndustrySafe or call for entry the **SAME DAY** as incident

Within 24 hours:

- ☐ Complete the **Property Damage Investigation Form**
- ☐ Upload all forms, photos, or supporting documentation into Industrysafe or email documents for upload

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Section 2: Chemical Spill Policy

SCOPE

To outline proper employee procedures when there is a hazardous chemical spill.

GENERAL

This is a brief outline of what actions Harris Companies employees should follow when there is an inadvertent spill of undetermined chemicals, known chemicals, or other substance which would pose a danger to life and/or health.

REQUIREMENTS

A. Clear the location of all persons except those needed to deal with the spill

1. Remain in the area only if the spill is deemed non-hazardous in nature and can easily be contained.
2. If you are not sure of the nature of the spill, remove all personnel from the area moving upwind to minimize exposure.
3. Assist all injured parties immediately providing that doing so does not present a life safety risk to those would-be-rescuers.
4. If an employee has been injured in the spill such as chemical contact to the eyes or a caustic skin burn, *immediately* take him to the nearest eyewash station and assist him in the cleansing process. If in doubt, contact the local police and fire departments for assistance. Then follow the instructions found in the section "Harris Companies Incident/Injury Reporting Procedures."
5. Remove all personnel to a safe location and perform a head count to ensure that all employees are safe and accounted for.

B. Determine the nature of the spill, its size, and the source of the spill. Use Safety Data Sheets (SDS) to determine the seriousness of the spill and what type of precautions are necessary to deal with the spill.

1. If it is a minor non-hazardous spill, such as a purple primer spill, immediately go to step D which is to control or stop the source and contain the spill. Begin cleanup as outlined in the SDS sheet utilizing the proper safety precautions such as wearing rubber gloves, etc.
2. Do not attempt to deal with a serious or hazardous spill. Follow the plan as outlined in paragraph A. (Remove all personnel to a safe location, assist the injured, and take a head count).
3. Secure the site and contact the local police and fire departments.
4. Immediately contact the local Safety Department Representative and provide him information as to the seriousness, size, and source of the spill. He will send a competent person to the site and provide further instructions.

C. There are certain hazardous materials that require immediate notification to either local, state or federal authorities in the event of a spill. Depending upon the hazardous material involved, contact the police, fire department, or a specific agency of the government.

1. Once contacted, the Safety Director or their designee will notify the appropriate governmental agencies such as the EPA or DEP to inform them:
    a. about the particulars of the spill,
    b. the local authorities that have been notified, and
    c. a Harris Companies representative is en route to the site.

D. Control or stop the source and contain the spill before proceeding to the clean-up phase.

1. Once the spill has been controlled or stopped, the next phase of the process is cleanup.
2. If the spill is non-hazardous, the site supervisor will direct the cleanup.
3. If the spill is deemed hazardous, then the competent person sent to the site by the Director of Safety will direct the cleanup effort.
4. No cleanup will be allowed until a detailed cleanup action plan/method has been developed and approved by the local authorities or government agencies; and, the appropriate safety equipment is determined and delivered to the site if not already on site.

E. Provide complete documentation of the event.

1. Once the situation has been contained and cleanup completed, the event must be fully documented.
2. Statements must be taken from witnesses to determine the cause of the spill.
3. Accident reports for any injuries/exposure must be filed according to company procedure.
4. Government reports must be completed as required.
5. Most importantly, a plan of action to prevent this type of event from happening in the future must be discussed and documented.
6. Copies of all reports are to be sent to the Director of Safety, the General Contractor, and other interested parties

EMPLOYEE CHLORINE HAZARD TRAINING

A. Degrees of Hazard

Chlorine is a strong chemical that can be very dangerous if it leaks into the atmosphere in high concentrations. Chlorine gas is a greenish-yellow gas that is heavier than air; therefore, it tends to accumulate in low areas such as basements or excavations. Immediately leave the affected area and proceed upwind from the spill or leak. The table below outlines the degree of hazard for the different concentrations listed.

CHLORINE	
Chlorine Concentration in Air (PPM) Parts Per Million	Degree of Hazard
0.02 - .02 ppm	Odor threshold
0.2 - 0.5 ppm	No toxic, long term effect
1.0 - 3.0 ppm	Definite odor, irritation eyes and nose
3.0 - 30.0 ppm	Throat irritation
30.0 - 40.0 ppm	Intense coughing fits
40.0 - 60.0 ppm	Exposure for 30-60 minutes may cause serious injury
100 - 1000 ppm	May be fatal
1000 - above ppm	Fatal with a few deep breaths

B. First Aid Measures

1. **INHALATION:** Most severe type of exposure. Seek fresh air immediately. Restore breathing, CPR by competent person with CPR training when required. Call 911 if victim is/was not breathing. Give milk to relieve throat irritation but do not induce vomiting.
2. **EYE CONTACT:** Flush eyes with a direct stream of water for at least 15 minutes while forcing the eyelids apart to ensure complete irrigation of all eye and lid tissue. GET MEDICAL ATTENTION IMMEDIATELY.
3. **CAUTION: CONTACT LENSES SHOULD NOT BE WORN WHILE WORKING WITH CHLORINE**
4. **SKIN EXPOSURE:** For skin irritation resulting from chlorine gas exposure, flush exposed skin for 15 minutes with water. Use soap and warm water if available. If irritation persists after washing, get medical attention.
5. **EFFECTS OF OVER EXPOSURE:** Contact with liquid chlorine may cause burns, blistering and tissue damage. Exposure to chlorine gas may cause severe irritation to the mucous membranes of the eyes, nose and respiratory tract followed by severe coughing, burning, chest pain, vomiting, headache, anxiety and feeling of suffocation. Severe breathing difficulties may occur. Severe exposure may lead to pneumonia and pulmonary edema and may be fatal.

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Section 3: Confined Spaces Entry Program

SCOPE

Harris Companies' Confined Space Entry Program is designed to ensure the safety of personnel that are required to enter and conduct work in permit required confined spaces. The program shall be used to ensure that all confined spaces are free of unfavorable conditions, which can cause injury or death to those who enter them. All personnel are required to comply with the procedures established by this program. Harris Companies employees do not perform work in spaces with Immediately Dangerous to Life or Health (IDLH) atmospheres.

CONFINED SPACE CHARACTERISTICS

A **Confined Space** is a space that has all of the following characteristics:

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

A **Permit Required Confined Space** is a confined space that has one or more of the following characteristics:

1. Contains or has the potential to contain a hazardous atmosphere.
2. Contains a material that has the potential for engulfing an entrant.
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.
4. Contains any other recognized serious safety or health hazards.

EXAMPLES OF CONFINED SPACES

- Boilers, Furnaces
- Exhaust ducts
- Hoppers
- Pits
- Rail Cars
- Septic tanks
- Sewers
- Shafts, wells/cisterns
- Storage Tanks/bins
- Tunnels
- Vats, Process Vessels
- Manholes
- Air Handling Units
- Sump Pits
- Silos

RESPONSIBILITY

Project Management Team is responsible for ensuring that a competent person has been properly trained, capable and designated to perform the work activities in the confined space.

Safety Department will assist in the responsible management of this program and has full authority to make necessary decisions to insure its success.

Superintendent/Foreman will be responsible for recognition of confined space exposures, and will ensure that the exposures are controlled through proper use of confined space safety systems.

Employees are responsible for complying with this policy and notifying their supervisors of any confined space exposures they encounter.

CLASSIFICATION OF CONFINED SPACES (CLASSES 1A, 1B, 2 OR 3):

1. Examples of Class 1A and Class 1B Entries:
    a. Class 1A, all conditions are controllable.
    b. Class 1B, **NOT** all conditions are controllable.
        - Boilers
        - Tanks
        - Electrical vaults
        - Vessels
        - Lift stations
        - Vats
2. Requirements for Class 1A and Class 1B Entries:

    A confined space where no risk of engulfment can exist, where an atmosphere with dangerous air contamination, oxygen deficiency, or oxygen enrichment **CANNOT** develop, and where all known sources of hazards are positively controlled.
    a. Permit required for each entry
    b. Space must be tested for oxygen and air contaminates
    c. Space must be either monitored or ventilated continuously:
        - Ventilation rate must be at least 200 cubic feet per occupant,
        - Or, in spaces larger than 2,000 cubic feet, 6 air changes per hour.
    d. Requires standard rescue procedures
    e. If all hazards are controlled, this space may be reclassified as a Non-Permit space; however, that is only if there is absolutely no chance of a hazardous space being generated. All documentation must still be completed.
    f. No standby person required
3. Description of Class 2 Entries

    A confined space where an atmosphere free of dangerous air contamination, oxygen deficiency, or oxygen enrichment has been verified; however, the area has either had or could develop a hazardous condition at any time.
4. Requirements for Class 2 Entries
    a. Permit required for each entry

b. Space must be tested for oxygen and air contaminates
c. Space must be monitored continuously
    - Ventilation is not mandatory, but is suggested
d. Standby person required
e. Communications maintained between workers inside and standby – visual, voice, or signal line communications

5. Description of Class 3 Entries

   A confined space where an atmosphere free of dangerous air contamination, oxygen deficiency, or oxygen enrichment **CANNOT** be verified or tested, including areas with known hazardous conditions.

6. Requirements for Class 3 Entries
    a. Contact Safety Department
    b. Permit required for each entry
    c. Approved respirator required
    d. Safety Retrieval Harness
    e. Hoisting device required
    f. Standby required
        - Maintain communication with employees in the confined space
        - SCBA available
        - Must alert rescue workers before entering
    g. Must have immediately available on the jobsite, a competent employee trained in CPR and First Aid

CONFINED SPACE HAZARDS (not limited to this list, there may be more)

A. Oxygen Hazards

Too much oxygen in the air increases the potential for normally nonflammable materials such as grease, oil, or clothing to catch fire at normal temperatures or when exposed to sparks or flames. Atmospheres containing too little oxygen result in physical effects to workers in the space.

According to the OSHA standard, the following are defined as high and low oxygen levels:

23.5% & above: **High oxygen levels**

20.8% to 21% : **Normal oxygen level concentration in Air**

19.5% & below: **Low oxygen levels.**

The atmosphere in a confined space may be extremely hazardous because of the lack of natural air movement, ***which accounted for 160 deaths over a five-year period***.

1. Any atmosphere with less than 19.5% oxygen should not be entered without an approved self-contained breathing apparatus (SCBA) or supplied air respirator.
2. The oxygen level in a confined space can decrease because of the work being done, such as welding, cutting, or brazing; or by certain chemical reactions (rusting), or through bacterial action (fermentation), or displaced by other gases (purging).

% Oxygen	Effects of Oxygen Deficiency
16% - 12%	Deep breathing, accelerated heartbeat, impaired attention, impaired thinking, impaired coordination. Employee will appear as though he is intoxicated.
14% - 10%	Very faulty judgment, very poor coordination, rapid fatigue from exertion that may cause permanent heart damage, intermittent breathing, lethargy. Employee will appear as though his is at a high level of intoxication, preparing to pass-out.
10% - Under	Nausea, vomiting, inability to perform vigorous movement or loss of all movement, unconsciousness followed by death if in space for prolonged period.
Less than 6%	Spasmodic breathing, convulsive movements, death in minutes.

B. Flammable Hazards

A flammable or explosive atmosphere contains gases, vapors, or dusts in concentrations high enough to ignite or explode. Common flammable atmospheres include methane gas, solvent vapors from tank residues or combustible dusts such as grain dusts, flour or metallic paint pigments.

1. Can occur when there is a proper mixture of a flammable gas such as, methane, hydrogen, hexane, acetylene, propane, gasoline mists, fumes or vapor, and even dust with the oxygen in the air.
2. Different gases have different flammable ranges.
3. If a source of ignition is introduced into a space containing a flammable atmosphere, an explosion will result.
4. An oxygen-enriched atmosphere will cause flammable materials, such as clothing and hair, to burn violently when ignited. Therefore, never use pure oxygen to ventilate a confined space. Always ventilate with normal air.

C. Toxic Hazards

Toxic atmospheres include gases, vapors, or fumes that have poisonous effects. Some toxic atmospheres are immediately fatal (Immediately Dangerous to Life and Health – IDLH). Other materials are less severe, causing dizziness or nausea. Common toxic hazards include hydrogen sulfide, sulfur dioxide, and carbon monoxide.

1. Can occur from the product stored in a confined space, the work being performed in a confined space, or from the areas adjacent to the confined space. Most substance (liquids, vapors, gases, mists, solid materials and dusts) should be considered hazardous in a confined space.
2. The product stored in the confined space can be absorbed into the walls. Toxic gases can be released when the product is removed, or when cleaning out the residue of the stored product. Example: When removing sludge from a tank, the decomposed material can give off deadly hydrogen sulfide gas.
3. Toxic atmospheres can be generated many different types of work processes. Work being performed such as welding, cutting brazing, painting, scraping, sanding, degreasing, etc. can

result in the creation of toxic atmospheres. Example: Cleaning solvents are used in many industries for cleaning/degreasing. The vapors from these solvents are very toxic in a confined space. Also, when coatings are removed for welding procedures.

4. Toxicants produced by work being performed in the area nearby a confined space can enter and accumulate in confined spaces. Example, exhaust from vehicles, welding machines, and portable gas powered equipment, can cause a lethal atmosphere if vented into or near a confined space.
5. Hydrogen Sulfide is a colorless, heavier-than-air, toxic gas. Symptoms of low-level exposure can include eye irritation, sore throat and cough, shortness of breath, fluid in lungs, fatigue, headaches, and dizziness. In the 200 to 300 ppm range, exposure can lead to serious eye damage, pulmonary edema, loss of consciousness, and/or death.
6. Sulfur Dioxide is a moderate to strong irritant. Sensitivity varies among people. Short exposure (1-6 hrs) to concentrations as low as 1 ppm may produce a reversible decrease in lung function. A 10 to 30-minute exposure to concentrations as low as 5 ppm has produced constriction of the bronchiole tubes. A 20-minute exposure to 8 ppm has produced reddening of the throat and mild nose and throat irritation. In severe cases where very high concentrations of SO2 have been produced, in closed spaces, SO2 has caused severe airways obstruction, hypoxemia (insufficient oxygenation of the blood), pulmonary edema (a life threatening accumulation of fluid in the lungs), and death in minutes. As a result of severe exposures, permanent lung injury may occur.

D. Engulfment

Engulfment is defined as a liquid or solid substance that traps the entrant. Death can occur due to inhaling the substance or by surrounding the entrant, thus causing strangulation, constriction, or crushing.

E. Configuration

Configuration is the internal shape or size of the space. An entrant can be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section.

F. Energy Hazards

Energy hazards are hazards that involve contact with electrical equipment, steam and other sources of heat inside the space. This type of equipment can include shafts, augers, misers or impellers.

G. Other Hazards

Other hazards can include falls due to lose rungs on fixed ladders in manholes, slippery surfaces due to liquids in tanks or sloping floors, noise exposure due to sound reflected off of walls within the space, personal protective equipment that is used improperly, or the specific type of work being performed.

DUTIES

A. Entry Supervisor

The Entry Supervisor shall:

1. Know the hazards that may be faced during the confined space entry.
2. Provide information on the mode, sumptuous and consequences of exposures to hazards in the space to be entered.
3. Verify that the permit used by the company, including all required provisions, has been completed prior to the entry.
4. Terminate the entry and cancel the permit if any of the required provisions of the permit are not met or if additional hazards that affect the safety of the entrants become apparent.
5. Verify that the designated rescue service has been advised of the entry and is available to respond to an emergency.
6. Enforce the removal of unauthorized persons who enter or attempt to enter the confined space.
7. Be responsible for the adherence to procedures; ensure that all operations remain consistent with the terms of the entry permit, and that entry conditions remain acceptable.

B. Attendant

The Attendant shall:

1. Know the hazards that may be faced during the entry including information on the mode, symptoms and health effects, and how these exposures will visibly affect the behavior of the entrants.
2. Monitor activities inside and outside the space to determine if it is safe for entrants to enter or remain in the space.
3. Order the entrants to evacuate the space if the attendant detects a new hazard or a behavior change by the entrants, which may indicate an exposure to a hazard inside the space.
4. Maintain an accurate count of authorized entrants in the space.
5. Remain outside of the space during entry operations until relieved by another attendant.
6. Keep unauthorized persons from entering the space or interfering with the entry process.
    a. Perform no other activities that may interfere with the primary job of monitoring the safety and condition of the people inside the space.
    b. Initiate or perform non-entry rescues as outlined in the rescue plan.
7. Summon rescue and other emergency services as soon as it is determined that the entrants may need assistance.

C. Entrant

An Entrant must:

1. Be properly trained in the use of the necessary safety equipment and PPE required to perform their work assignment in the designated confined space.
2. Understand the hazards that may be faced during entry, including information on the mode, symptoms, and consequences of exposures to the hazards.

3. Properly use equipment; including respiratory protection equipment, ventilation equipment, and air monitoring equipment.
4. Maintain ongoing communication with the attendant.
5. Alert the attendant if unexpected conditions develop which may pose a danger.
6. Immediately, exit the space when directed by the attendant.

PRE-ENTRY PLANNING

It is important to understand that some gases or vapors are heavier than air and will settle to the bottom of a confined space. Also, some gases are lighter than air and will be found around the top of the space. Therefore, it is necessary to test all areas (top, middle, and bottom) of the space with properly calibrated testing instruments to determine what gases are present. If testing reveals oxygen deficiency, or the presence of toxic gases or vapors, the space must be ventilated and re-tested before workers enter. If ventilation is not possible and entry is necessary (for emergency rescue, for example), workers must have the appropriate respiratory protection.

Assessing the hazards involves careful analysis of the potential hazards and how they might affect the workers who will be performing the assigned tasks inside the space. Air monitoring equipment will help you determine the atmosphere inside the space. Once that step is completed, the need for personal protective equipment can be determined.

Answers to the following questions will help the entry supervisor collect necessary information to complete the pre-entry planning and issue the confined space entry permit:

A. What is the purpose of the entry?

Describe exactly what work or job is to be performed and how long it will take. This will help determine the number of people who must enter the space to accomplish the task and, in turn, the amount and type of equipment needed to provide for a safe entry.

B. Will the space be entered by company employees or by subcontractors?

Depending on the specific job involved, Harris Companies may hire a subcontractor with specialized equipment or training to accomplish work inside a particular space. Even if an outside company is hired, Harris Companies is still obligated under the OSHA Standard to identify and communicate the nature of these hazards to any subcontractors who will be completing the work. Once the contractors are aware of the hazards, they can be prepared to protect their workers inside the space.

C. Do people need to enter the space or can the work be performed from outside the space?

In many cases, entry into confined spaces is unnecessary. The tasks can be accomplished outside the space rather than involving all the complexities of a permit-required entry. For example, long handled tools allow workers to reach and clean or maintain the space; closed circuit television cameras eliminate the need to enter dangerous spaces by allowing operators to perform inspections from the outside.

D. Have you eliminated any chemical or electrical hazards?

Begin by thoroughly inspecting the outside of the space. Determine all process lines that enter or leave the space. If these lines pose a hazard to the entrants, decide how these lines can best be isolated from the space. This might include activities such as disconnecting and offsetting the lines, inserting blanks into flange connections, locking out valves or locking out electrical power panels.

If the material poses a high risk to the entrants and the line cannot be disconnected, a "double block and bleed" procedure can be used. This procedure involves closing and locking out two valves in the line and bleeding off the section between the valves.

Be sure to identify all energy sources that may be in the space. Determine how these energy sources can be controlled through lockout procedures. Many automated systems have interconnected control circuits. Make sure the main power control is locked out.

E. What are the airborne hazards inside the space; and, what equipment and methods will you use to determine the airborne concentrations of the hazards in the space?

The entry team must be equipped with air monitoring equipment that can identify the level of airborne hazards in the space. The most important part of the monitoring process is to know what you are looking for. At a minimum, you must look for oxygen levels, combustible gases, dusts, vapors and any toxic materials that may potentially exist in the space. Continuous air monitoring shall also be conducted while personnel are working inside of a confined space, and readings documented on the Continuous Air Monitoring Hourly Charting form in Appendix 2when needed.

Equipment may include direct reading electronic instruments or direct reading detector tubes, available from the local office tool room. Harris Companies also has a program indicating which equipment is to be used based on the types of confined spaces employees will encounter.

Persons assigned to use monitoring equipment will be trained in how to use the equipment, conditions to avoid while using the equipment, and how to recognize when the equipment is malfunctioning. This training will be documented by the Safety Department.

Equipment is kept on required job sites for immediate availability when necessary. An outside source or vendor for accuracy performs consistent maintenance and calibration of equipment. Maintenance and calibration schedules are documented and kept on file by the Safety Department.

F. If the space were a process vessel or tank, what chemicals would have previously been in the space?

Determine the type of work to be performed and compare this with the hazards posed by materials inside the space or residues of materials left inside the space. These materials may be either toxic or flammable. This may require specialized personal protective equipment or may require that the space be cleaned of residues. The space may need to be purged with an inert gas such as nitrogen to prevent explosions. If inert gas purging is used, the resultant atmosphere will require supplied air respirators for all entrants and rescue people.

If the space is to be cleaned, determine the best method. Determine what will be done with the residues removed from the space and how the residues will be disposed. If the material poses an

environmental hazard, it will need to be managed according to all appropriate environmental regulations.

G. How will communication be maintained between the entrants and the attendants?

It is important that communication be maintained between team members. If problems arise, the attendant must be able to order the entrants out of the space, or the entrants must be able to summon for help. The entrants and the attendants should maintain visual or voice contact between them during the entry. If the entrants are out of visual range, portable radios, telephone, or hard wire communication can be used. If explosive atmospheres exist, all equipment must be rated and labeled as intrinsically safe for the specific space classification or hazard. Entry into steel structures may make radio communication difficult. In these cases, hard-wire systems may be needed.

REQUIREMENTS

A. Non-Permit Confined Space

Non-permit confined space means a confined space that does not contain or have the potential to contain any hazard capable of causing serious harm. Even in a non-permit confined space employees will keep a log of entries into the space with the form in Appendix 2. Project management may identify these spaces and others, as a permit required confined space. In these instances, Harris Companies will follow permit rules for the confined space.

B. Permit Required Confined Space

1. **An Entry Permit shall:**
    a. Be completed as far as possible prior to sampling. The person responsible for the confined space entry permit shall know the proper operation and calibration of all equipment to be used.
    b. Be for one shift
    c. Be updated for each shift with the same requirements.
    d. Be updated with records of air sampling.
2. **Compliance**
    a. All Harris Companies employees who enter confined spaces or work in support of a confined space entry shall be trained on all required procedures and ensure that all the requirements have been satisfied and are strictly enforced.
    b. The supervisor responsible for the safe entry, as named on the entry permit, shall evaluate, plan, and implement the procedures necessary to safeguard the employees assigned to the job.
    c. The designated competent person responsible for safe entry shall be responsible for the issuance of all oxygen and gas detection equipment. Anyone noting a malfunction of any gas detector sampling device shall immediately evacuate all personnel, remove problem equipment from service, and notify the designated person.
3. **Training shall consist of:**
    a. Confined space hazard recognition
    b. Respirator training/breathing apparatus.

c. Powered ventilation equipment use
d. All rescue and support equipment
e. Emergency rescue procedures
f. Lockout/Tagout, isolation and purging
g. Air monitoring and gas detection equipment
h. Personal protective clothing/equipment requirements.

4. Posting:

All confined space entrances are required to be posted. The posting shall include the following information: **"DANGER! CONFINED SPACE, ENTER BY PERMIT ONLY"**. When a specific work practice or specific safety equipment is required, a statement shall be added to the warning sign.

5. Safety Equipment

To enter a confined space, the following shall be available:

a. Oxygen and gas detectors to test for flammable, oxygen deficient and toxic atmospheres.
b. Respiratory, hearing, and face protection
c. Powered ventilation equipment, if required to work in the confined space. Ventilation equipment shall be compatible and approved for the work environment.
d. Body protection
e. Additional safety equipment such as a safety line and full body harness. The standby person shall also wear a full body harness with a safety line attached.
f. A self-contained breathing apparatus (SCBA)
g. Radio communication

6. Entering confined spaces:

a. ***ISOLATION*** **–** before entering, isolation procedures shall be completed and verified by Harris Companies competent person.
b. ***TESTING*** **–** initial testing of the atmosphere shall be performed from outside the confined space. When testing indicates the atmosphere is not acceptable for employee entrance, the confined space must be purged and/or ventilated.
c. ***PURGING*** **–** Purging is adjusting the atmosphere in a confined space to acceptable standard Permissible Exposure Limits (PEL), Lower Exposure Limits (LEL), etc. Purging is accomplished by displacing the atmosphere in the confined space with fluid or vapor (inert gases, water, and steam) or by forced ventilation.
d. ***VENTILATION*** **–** Mechanical ventilation shall be provided to maintain the atmosphere at allowable levels. The ventilating equipment shall be located to prevent recirculation of exhausted air or introduction of contaminants from outside of the confined space. Strict control on ignition sources shall be implemented. If the atmosphere cannot be made safe and breathing apparatus must be worn, continuous ventilation will be maintained at all times in an effort to keep the concentration of contaminants as low as possible.
e. ***LIGHTING*** **–** all lighting equipment shall be grounded. Low voltage, battery powered or ground fault interrupter protected lighting systems shall be used as necessary.

7. **Standby Rescue Personnel**

   Employees shall have no other assigned duties and meet the following training requirements:

   a. First-Aid/CPR trained
   b. Self-Contained Breathing Apparatus (SCBA) or Cascade System.
   c. Emergency Med-Evac procedures
   d. Monitoring equipment

   Personnel shall ensure the following equipment is on location and in serviceable condition:

   a. Radio or telephone communication
   b. Gas/oxygen detection equipment
   c. Fire extinguisher
   d. First-Aid kit/stretcher
   e. Required length of lifeline
   f. Full body safety harness
   g. Flashlight
   h. Self-Contained breathing apparatus (SCBA)
   i. Cascade system

8. **Rescue Plan**

   In the event of an emergency, standby employees will take the following actions:

   a. Call the emergency over the communications system provided.
   b. Attempt rescue from outside the confined space.
   c. Do not attempt rescue inside the space until assistance is provided.
   d. Administer first-aid
   e. In the event of a difference between Harris Companies and the Customer's entry procedures, the stricter of the two shall apply.

VENTILATION

Ventilation by a blower or fan may be necessary to remove harmful gases and vapors from a confined space. There are several methods for ventilating a confined space. The method and equipment chosen are dependent upon the size of the confined space openings, the gases to be exhausted, and the source of the makeup air.

Under certain conditions where flammable gases or vapors have displaced the oxygen level, but are too rich to burn, forced air ventilation may dilute them until they are within the explosive range. Also, when inert gases (e.g., carbon dioxide, nitrogen, argon) are used in the confined space; the space should be well ventilated and re-tested before a worker is permitted to enter.

A common method of ventilation requires a large hose, one end attached to a fan and the other lowered into a manhole or opening. For example, a manhole would have the ventilating hose run to the bottom to blow out all harmful gases and vapors. The air intake should be placed in an area that will draw in fresh air only. Ventilation should be continuous where possible, because in many confined spaces the hazardous atmosphere will form again when the flow of air is stopped.

Forced or induced ventilation is preferred and should provide a minimum of ten volume changes per hours. Always verify air flow rates from the industrial ventilator/blower manufacturer's specifications. Keep in mind that airflow rates are affected by the length of hose used, and for every bend in the hose, the air flow rate will be reduced.

Ways to ventilate the space:

- Mechanical ventilation
  - Fans
  - Air Horns
- Natural Ventilation
  - Open all manways
  - Space open to natural draft
- Positive/Negative Ventilation
- Continuous forced air ventilation is required if the potential for a hazardous atmosphere exists.
- Employee may not enter the space until the forced air ventilation has eliminated the hazard.
- Make sure air supply is not contaminated. Ventilation air supply must be from fresh air uncontaminated with flammables, toxins, etc.

REVIEW OF KEY POINTS IN THE ENTRY PROCESS

1. Identify the work to be performed.
2. Identify who will perform the work.
3. Determine when the work will be performed.
4. Determine the types of hazards associated with the space.
5. Obtain the written permit for the space; enter the issuance into the log.
6. Obtain the necessary equipment to enter the space.
7. Review the permit requirements with all key personnel involved with the entry.
8. Verify that rescue personnel are available and are aware of the entry.
9. Review the communication procedures with all entry participants.
10. Verify procedures for notifying rescue personnel.
11. Initiate Lockout/Tagout procedures and isolate the space.
12. Clean and/or purge the space to remove hazardous contents.
13. Ventilate the space.
14. Verify atmospheric conditions according to the permit requirements.
15. Enter the space and perform the work.
16. Exit the space and account for all entrants.
17. Cancel the permit; enter the cancellation into the log.
18. Provide appropriate maintenance to equipment used during the entry.

Section 4: Electrical Safety Program

SCOPE

To protect employees from electrical injuries.

GENERAL

This program applies to all work operations where Harris Companies employees may be exposed to live electrical parts and/or those parts which have been de-energized.

The Safety Department has the overall responsibility for the Electrical Safety Program and all Harris Companies employees shall follow this program. Copies of the program may be obtained from the Safety Department.

HAZARD ANALYSIS REPORT

The Supervisor or designee will conduct a hazard analysis of the workplace. This analysis will provide us with the information identifying which departments have equipment using electricity, various types of wiring installations, and the types of employee functions that must be covered by the Electrical Safety Program. The departments/areas of the company identified as having electrically operated equipment and/or wiring installations are reviewed for each project.

Electrically operated equipment is that which must be de-energized before work can be done on it.

Employees of our company who are qualified to work on, near, or with energized electric circuits and equipment are trained in electrical systems.

ENERGIZED ELECTRICAL – NFPA 70E

This electrical program is applicable to all Harris Companies employees **working on or near exposed, energized electrical conductors and/or circuit parts** on HVAC units/equipment pushing 480 volts or less. ***This program is not applicable to work on units/equipment pushing more than 480 volts.*** Work on units/equipment pushing more than 480 volts will require the employee to contact the safety department. At which time the safety department will work with the employee to come up with a site specific safety plan, including a permit. (Appendix 2)

PURPOSE

The purpose of this program is to:

1. Make employees aware of the potential electrical hazards associated with work on energized equipment pushing 480 volts or less;
2. Provide employees with the knowledge they need to protect themselves from potential electrical hazards while working on energized equipment pushing 480 volts or less;
3. Establish safe work practices and procedures for the employees working on energized equipment pushing 480 volts or less; and

4. Develop self-discipline in the employees who are required to work on or near energized equipment pushing 480 volts or less so that they will consistently follow safe work practices and procedures established by Harris Companies.

ELECTRIC SAFETY PROGRAM PRINCIPLES

The electrical safety program principles that apply to this program are as follows:

1. Electrical safety inspection and evaluation of each energized equipment;
2. Maintenance of each unit's electrical insulation and the integrity of each unit's enclosure;
3. Preplanning of every job;
4. Documentation of any first time procedures;
5. De-energizing of each unit immediately after troubleshooting is completed and before repair work/maintenance begins;
6. Anticipation of unexpected events;
7. Identification and minimization of potential hazards;
8. The hazard/risk process that is to be used by employees to evaluate tasks before starting work;
9. Technician protection from shock, burn, blast, and other applicable hazards due to the work environment;
10. Use of tools that are appropriate for the job;
11. Assessment of the abilities of anyone who could be exposed to potential electrical hazards from repair or maintenance work on the energized equipment;
12. Audits of the aforementioned principles every three years; and
13. Protection of ***"Unqualified"*** persons.

ELECTRICAL SAFETY PROGRAM CONTROLS

Harris Companies has established the following electrical safety program controls so that it can measure and monitor the electrical safety program.

1. All affected employees and their supervisors are responsible for ensuring that guards or protective measures are satisfactory for the conditions.
2. All affected employees will consider every electrical conductor or circuit part to be energized until it is shut off, tested dead, and locked out when lockout procedures are required.
3. All affected employees will consider the actual process of de-energizing an electrical conductor or circuit part to be a potentially hazardous task.
4. No affected employees will make bare hand contact with exposed, energized electrical conductors and/or circuit parts.
5. All affected employees will receive electrical safety training as described in this program. The training, in addition to their existing skills and knowledge related to the construction and operation of the electrical equipment, including installations, will qualify the employees to work in the prescribed environment influenced by the presence of electrical energy.
6. All affected employees will receive a copy of this program.

7. All affected employees will obtain answers to any questions they have about the program before they begin work.
8. All affected employees will consistently implement this program.
9. All affected employees will use the procedures described in this program to identify potential electrical hazards associated with their work on energized equipment, and control or eliminate them.
10. All tasks to be performed on or near exposed energized electrical conductors and circuit parts will be identified and categorized.
11. Only troubleshooting procedures will be used on exposed, energized electrical conductors and/or circuit parts unless the unit being serviced has a built-in interlocking disconnect.
12. Where work is being performed on units/equipment with built-in interlocking disconnects, employees will implement safe work practices, including use of the personal protective equipment required for work on all energized units/equipment with exposed, energized electrical conductors and/or circuit parts.
13. All affected employees must be alert when working on or near the units/equipment.
14. Employees must not perform work on the units/equipment while illness, fatigue, prescription drugs, non-prescription drugs, illegal drugs or alcohol impairs them.
15. Employees must never reach blindly into areas that could contain exposed, energized electrical conductors and/or circuit parts.
16. Employees must ensure that their work areas are properly illuminated so that their work can be performed safely.
17. Employees must not wear conductive articles of jewelry and/or clothing.
18. Any conductive objects being carried by a technician will be handled in a manner that prevents accidental contact with exposed, energized electrical conductors and/or circuit parts.
19. Where a technician must work in a confined or enclosed workspace, he or she will use protective barriers or insulating materials to prevent contact with exposed, energized electrical conductors and/or circuit parts.
20. Housekeeping will not be performed where there is a possibility of contact with exposed, energized electrical conductors and/or circuit parts, unless barriers or insulating equipment is used to prevent contact.
21. All affected employees will identify and use the precautions that are appropriate for the work environment.

TRAINING REQUIREMENTS

All Harris Companies employees and supervisors that routinely service energized equipment will receive electrical safety training that is specific to work on energized equipment pushing 480 volts or less. The training will be substantive so that, coupled with the employees' skills and knowledge related to the construction, operation, and installation of the units/equipment; they will be considered ***"Qualified Persons"***. Company workers who are undergoing on-the-job training to become "Qualified Persons" will be considered qualified persons for specific duties when they are under the direct supervision of a qualified person and have demonstrated their ability to perform the specific duties safely. Training will be a combination of the classroom and on-the-job training, which will include the following subjects:

1. The contents of this electrical safety program, with emphasis on safe work practices, procedures and personal protective equipment requirements necessary to complete the task;
2. The ***Qualified Person*** **– Approach Boundary** for protection from electrical shock and arc flash hazards.
3. Identification of electrical hazards associated with work on energized equipment pushing 480 volts or less.
4. The decision making process necessary to determine:
    a. The degree of the hazards;
    b. The extent of the hazards; and
    c. Preplanning practices needed to perform the job safely.
5. Techniques necessary to distinguish exposed energized electrical conductors and/or circuit parts from other parts of electrical equipment
6. Techniques necessary to determine the nominal voltage of exposed energized electrical conductors and circuit parts.
7. Methods of protection from the electrical hazards;
8. Skills necessary to select an appropriate voltage detector and to demonstrate how to use it to verify the absence of voltage, including interpreting indications provided by the device;
9. Skills necessary to select properly rated tools.
10. Selection, inspection and maintenance of personal protective equipment including pre-use leak testing, and biannual dielectric testing of protective rubber gloves.

Retraining will occur as follows:

1. Anytime a supervisor or the results of an annual inspection indicate that the technician is not complying with the safety-related work practices.
2. Whenever new technology, new types of equipment or changes in procedures necessitate the use of safety-related work practices that are different from those that the technician would normally use.
3. Anytime a technician will have to employ safety-related work practices that are not normally used during his or her regular job duties.
4. At least once within a 12-month period.

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS

PPE Required for Work on or Near HVAC Units/Equipment with Exposed, Energized Electrical Conductors and/or Circuit Parts Pushing 480 Volts or Less

VOLTAGE	CLOTHING	GLOVES	Other PPE
480 Volts or Less	Arc-Rated (AR) 8 Calorie ATPV Long Sleeve Shirt, Pants & Balaclava	Class 00 Rubber Gloves with Leather Protective Gloves	Safety glasses, Class E Hardhat with 8 Calorie ATPV Face Shield, Ear Plugs

Protective Clothing – Employees will wear ***long sleeve shirts, pants, and balaclava made of Arc-Rated (AR) material.*** The protective clothing will have a minimum Arc Thermal Protective Value (ATPV) of (8 cal/cm^2). The ATPV will be displayed outside the clothing or on a tag inside.

Eye Protection – Standard ***safety glasses*** will be worn at all times by employees while performing any mechanical service work. The safety glasses must be worn at all times, even while using an arc-rated face shield.

Head and Face Protection – Employees will wear a ***Class E Hardhat*** with an attached ***arc-rated face shield.*** The face shield will have a minimum Arc Thermal Protective Value (ATPV) of (8 cal/cm^2).

Hearing Protection – Employees will wear ***ear canal inserts (earplugs).***

Hand Protection - Employees will wear ***Class 00 Rubber gloves and leather protector gloves*** over the rubber gloves.

Rubber gloves must be di-electrically tested at a certified testing laboratory at least every six months. Employees must field test their gloves before each use by trapping air inside each glove and looking/feeling for leaks. Gloves with leaks or any signs of scratches or other damage will be destroyed and discarded immediately.
Leather protector gloves must be made entirely of leather and have a minimum thickness of 0.03 inches. If the gloves are lined, the liner must be a non-flammable and non-melting fabric.

ELECTRICAL SAFETY PROGRAM PROCEDURES

Harris Companies procedures for work on energized equipment pushing 480 volts or less are as follows:
Sequential Steps to Electrical Safety Program Procedures

Supervisors

1. Ensure that all of your employees have received the proper electrical safety training as described in this program before you allow them to begin work. Ensure that they receive a copy of this program and understand the program's principles, controls and specific electrical safety training requirements. Assess their abilities by testing them on the knowledge they need to protect themselves from electrical hazards.
2. Conduct occasional audits to ensure that all of the electrical safety program principles established for Harris Companies are appropriate, and are being followed by the affected employees.

Mechanical Employees

1. Carefully plan each job well before you have to start the work. Make sure that you have all of the proper tools, equipment and permits (if required). Think through the electrical safety program procedures so that you can easily incorporate them into the troubleshooting, maintenance and/or repair processes.
2. Anticipate unexpected events by thinking through all conceivable possibilities. Remain cognizant of possible unexpected events by giving your undivided attention/concentration to the task.
3. Never approach a unit with exposed, energized electrical conductors and/or circuit parts closer than 4 feet without following the safe work practices and personal protective equipment requirements described in this section. The 4-foot approach and protection boundary is the greater of the two boundaries established for ***Qualified Persons*** for shock and arc flash protection. The 4-foot boundary applies to any conductive objects that you might be carrying as well.
4. Before opening the access door or removing the panel to any energized unit/equipment, inspect/evaluate it to ensure that you know its voltage capacity. All energized equipment is required to be labeled. Labels applied before September 30, 2011 must show the available incident energy or the required level of personal protective equipment. Labels applied on or after September 20, 2011 must show available incident energy and the corresponding work distance, **or** the minimum arc rating of the clothing, **or** the highest Hazard/Risk Category (HRC) for the equipment. The labels must also show the nominal system voltage **and** the arc flash boundary. If there is no label on the equipment/unit, report it in writing to the owner representative and to your supervisor. Also, ensure that all visible parts appear to be in good condition. **(If the unit is pushing more than 480 volts, this program does not apply. Before you proceed, obtain and follow an electrical safety program established for units/equipment pushing the higher voltage of the unit you will be servicing.)**
5. Before opening the access door or removing the panel to any energized unit, put on the following personal protective equipment:
    a. 8 Calorie Arc-Rated (AR) long sleeve shirt, pants and balaclava;
    b. Ear Plugs
    c. Safety Glasses
    d. Class E Hardhat with attached 8 calorie arc-rated face shield
    e. Class 00 Rubber gloves and leather protective gloves.
6. Be sure to use only properly selected/rated voltage testers (multi-meters) and amp-meters to test electrical circuits. Visually inspect all testing equipment including the leads, cables, power cords, probes and connectors before each use.
7. If you see any signs of damage, do not use the equipment. Attach a “Danger – Do Not Use” sign to the equipment and take it out of service immediately. Give it to your supervisor or tool room as soon as possible.
8. Use all testing equipment in conformance with the manufacturers’ recommendations.
9. Only use the testing equipment that is provided by Harris Companies. Never use light-up-type testing equipment.
10. Before testing voltage on electrical conductors and/or circuit parts, test the meter on a known, live source. Then test the electrical conductors and/or circuit parts. Finish by testing the meter again on a known live source. If you detect any inconsistencies or discrepancies with the meter, take it out of service immediately as described above and repeat this process with a properly selected/rated replacement meter.

11. Use only properly rated insulated tools to conduct troubleshooting as necessary to determine what is wrong with the unit.
12. As soon as you have identified the problem, stand to one side of the external service disconnect. Shut off the power. If lockout is necessary, follow the Harris Companies Lockout/Tagout policy in Section 19.
13. Test the unit to ensure that the power has been shut off and discharge any stored energy.
14. Once the unit is "tested dead" and any stored electrical current has been discharged, you may remove your gloves, hardhat, arc-rated face shield, balaclava, and earplugs. In addition, if necessary due to extreme heat or other conditions, you may remove the arc-rated (AR) clothing. ***(Step 14 does not apply to units/equipment with built-in interlocking disconnects. If you are working on a unit with a built-in interlocking disconnect, keep all of your personal protective equipment on at all times throughout the troubleshooting and repair/maintenance process.)***
15. Complete repairs/maintenance on the unit.
16. Remove all of your tools and materials from inside the unit.
17. Close the access door or replace the panel.
18. Put on all personal protective equipment described in Step 5 above.
19. Remove the lockout device if applicable.
20. Stand to one side of the external service disconnect and start the power. ***(This step does not apply to units/equipment with built-in interlocking disconnects.)***
21. Ensure that the structural integrity of the unit (enclosure) is in good condition.
22. If you encounter any unusual first time procedures, write them down and report them to your supervisor. Give the supervisor a copy of your written procedures.

Do not allow ***"Unqualified Persons"*** to come within 10 feet of any unit that is not in an electrically safe work condition. The unit's door or panel must be closed and there must be no exposed energized electrical conductors and/or circuit parts for an unqualified person to approach safely.

SIMPLE LOCKOUT PROCEDURES

Simple lockout procedures (which are detailed below) will be used whenever equipment is de-energized for mechanical service work unless: (1) The technician will only be performing minor maintenance, servicing, adjusting, cleaning, and/or inspecting; (2) The disconnect is adjacent to the conductor, circuit parts and equipment being serviced; (3) The disconnect is clearly visible to the technician; and (4) The work does not extend beyond one shift.

Complex lockout procedures, which are not typically needed for mechanical service work, are necessary when there are multiple energy sources, multiple crews, multiple crafts, multiple locations, multiple employers, differing disconnects, particular sequences, and/or the job or task will continue for more than one work period. For more information on Complex Lockout/Tagout Procedures please refer to the Lockout/Tagout Policy in Section 19.

Simple Lockout Procedures

1. Be sure to follow all applicable steps described in the Electrical Safety Program Procedures.
2. Notify all affected persons that the power to a unit(s)/equipment you will be working on will be shut off and that access to the external service disconnect will be locked out.
3. Shut off the power supply to the unit.
4. Attach the proper lockout device and lock to the external service disconnect to prevent anyone from accidentally starting the unit while work is being performed.

5. Attempt to operate the external service disconnect to ensure that the lockout device is working properly.
6. Select the properly rated voltage-detecting instrument and check it over carefully for visible damage. Test the meter on a known, live source. Then test the equipment/unit for absence of voltage. Finally, test the meter again on a known live source. If you detect any inconsistencies or discrepancies with the meter, take it out of service immediately as described above and repeat this process with a properly selected/rated replacement meter.
7. Discharge any stored energy such as the current in the capacitors.
8. Complete maintenance and/or repair on the unit.
9. Verify that the job is complete and remove all tools and materials from the unit.
10. Notify all affected persons that the lockout procedure has been completed and the electrical supply is being restored. Instruct affected persons to stay away from the unit and the electrical supply.
11. Perform any necessary quality control tests or checks on the unit.
12. Remove the lock and lockout device.
13. Turn on the power supply to the unit.
14. Notify affected persons that the electrical supply is ready to be returned to normal operation.

HAZARD/RISK EVALUATION PROCESS

Anytime work is performed on or near energized HVAC units/equipment pushing 480 volts or less, the potential for electrical shock, burns, arc-flash explosions, and other hazards exists. The risk of injury is significant only if the safe work practices and procedures described in this program are not followed. However, in addition to carefully following the safe work practices and procedures established by this program, employees are to inspect/evaluate each unit before starting work.

1. Look for obvious signs of damage to the unit/equipment, disconnects (where applicable), and conduit/wiring between service disconnects and the unit/equipment (where applicable).
2. Look the unit/equipment over carefully for common causes of arc flash such as:
    a. Dust and other impurities that could provide a path for electrical current;
    b. Corrosion, which can create impurities on insulating surfaces;
    c. High humidity, rain or condensation that could result in water vapor on insulating materials, which can cause flashover to ground;
    d. The potential for spark discharge caused by accidental tool or spare parts contacting exposed, energized electrical conductors and/or circuit parts; and
    e. Anything else that could cause arc flash.

Report any unusual potential hazards to your supervisor before proceeding.

WORKING NEAR EXPOSED ENERGIZED PARTS

A. Overhead Lines

Harris Companies employees working on or near energized overhead lines shall be properly trained to work safely near electrical lines. In addition to the basic training elements, our “qualified” employees are trained in the skills and techniques necessary to identify exposed live parts, determine nominal voltages, and clearance distances.

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

When a **qualified or unqualified person** is working in an elevated position near overhead lines, the location shall be such that the person and the longest conductive object he/she may contact cannot come closer to any unguarded, energized line than the following distances:

1. For voltages to ground 50kV or below – 10'.
2. For voltages to ground over 50kV – 10' plus 4" for every 10 kV over 50 kV.

When a **qualified or unqualified person** is working on the ground near overhead lines, the person may not bring any conductive object closer to unguarded, energized lines than the distances stated above.

B. Electrical Equipment

All Harris Companies employees are prohibited from opening any electrical equipment cabinet at any voltage level unless the employee is specifically trained on the voltages and components.

If it is necessary to open these enclosures or removed protective covers to complete our investigation of existing conditions, Harris Companies will have a qualified person remove and reinstall any covers or barriers that expose employees to energized parts.

C. Vehicular and Mechanical Equipment

Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that a clearance of 10 feet is maintained. If the voltage is higher than 50kV, the clearance shall be increased 4" for every 10kV over that voltage. Under no circumstances, shall the clearance be less than listed above.

Employees standing on the ground may not contact the vehicle or mechanical equipment or any of its attachments while such equipment is working under overhead lines unless they use protective equipment rated for the voltage or the above clearances are maintained.

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, shall be taken to protect employees from hazardous ground potentials, depending on earth's resistance and fault currents, which can develop within the first few feet or more outward from the grounding point.

D. 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 that may contain energized parts.

E. Confined or Enclosed Work Spaces

When an employee works in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, Harris Companies will provide, and the employee shall use, protective shields, protective barriers, or insulating materials as necessary to avoid inadvertent contact with those parts.

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

F. Conductive Materials and Equipment

Conductive materials and equipment that are in contact with any part of an employee's body shall be handled in a manner that will prevent them from contacting exposed energized conductors or circuit parts. If an employee must handle long dimensional conductive objects (such as ductwork and pipes) in areas with exposed live parts, Harris Companies will institute work practices (such as the use of insulation, guarding, and material handling techniques), which will minimize the hazard.

G. Portable Ladders

Portable ladders shall be made of nonconductive material unless authorized by a site specific safety plan.

H. Conductive Apparel

Conductive articles of jewelry and clothing (such as watchbands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) shall not be worn.

I. Extension Cords

Extension cord sets used with portable electric tools and appliances must be of three-wire type and designed for hard or extra-hard usage. Examples of these types of flexible cords include hard service cord (type S, ST, SO, STO). Visually inspect cords daily. Look for any sign of external or internal defect or damage, such as damage to the outer casing. Do not use electrical tape to make repairs. If the outer insulation is damaged, destroy cord and remove from service. Dispose of cord properly so another employee will not use it.

1. All electrical extension cords will be run utilizing Ground Fault Circuit Interrupters (GFCI's)
2. Do not use worn or frayed electric cords. Do not use electrical tape to make repairs.
3. Extension cords must have solid attachment to cord ends with no exposed wires.
4. Extension cords must have a grounding conductor and ground pin.
5. Avoid sharp corners and projections with cords. Do not use cords where they will subject to vehicular traffic.
6. Extension cards may pass through doorways or other pinch points, if protection is provided to avoid damage.
7. Do not run extension cords through holes in walls, ceilings or floors.
8. Do not conceal extension cords behind building walls, ceilings or floors.
9. Extension cords are for temporary use only. Do not use them as a substitute for permanent wiring of a structure.

J. Battery Rooms and Battery Charging Stations

1. General Requirements

a. Batteries of the non-sealed type shall be located in enclosures with outside vents or in well ventilated rooms so arranged as to prevent the escape of fumes, gases, or electrolyte spray into other areas.
b. Ventilation shall be provided to ensure diffusion of the gases from the battery to prevent the accumulation of an explosive mixture.
c. Proper PPE is required; face shields, aprons and rubber gloves shall be provided for workers handling acid or batteries.
d. Facilities for quick drenching of the eyes and body (safety showers and eyewash stations) shall be provided within 25' of the work area for emergency use.

2. Charging

a. Battery charging stations shall be located in areas designated for that purpose.
b. When charging batteries, the vent caps shall be kept in place to avoid electrolyte spray. Care shall be taken to assure that vent caps are functioning properly.

GROUND FAULT CIRCUIT INTERRUPTERS (GFCI)

GFCIs can be used successfully to reduce electrical hazards on construction sites. Therefore, it is our policy to use GFCI on all Harris Companies construction sites.

GFCIs monitor the current leakage to ground. When leakage exceeds 5 milliamps, the GFCI interrupts the current. A GFCI is rated to trip quickly enough to prevent electrocution. The GFCI, however, does not protect from line-to-line contact hazards – such as a worker holding two "hot" wires or a hot and a neutral wire in each hand. It protects against the most common form of electrical shock hazard – the ground fault, and protects against fires, overheating and destruction of insulation on wiring. GFCI protection is required in addition to, not as a substitute for, the grounding requirements of OSHA safety and health rules and regulations.

Tripping of GFCIs – interruption of current flow – is sometimes caused by wet connectors and tools. It is good practice to limit exposure of connectors and tools to excessive moisture by using watertight or sealable connectors. Providing more GFCI's or shorter circuits can prevent tripping caused by the cumulative leakage from several tools or by the leakage from extremely long circuits.

LOCKOUT/TAG-OUT PROGRAM

Refer to Lockout/Tagout policies (Section 19).

EQUIPMENT GROUNDING CONDUCTOR PROGRAM

This written plan is intended to establish and implement specific procedures for an Assured Grounding Conductor Program. This policy shall cover:

1. All cord sets, receptacles that are not a part of the building or structure, and
2. Equipment connected by cord and plug that are available for use or used by employees.

This part of the written plan complies with the requirements of 1926.404(b)(l)(iii).

EQUIPMENT GROUNDING CONDUCTOR INSPECTIONS

Each cord set, attachment cap, plug and receptacle of cord sets, and any equipment connected by cord and plug, except cord sets and receptacles which are fixed and not exposed to damage, are visually inspected before each day's use for:

1. External defects, such as deformed or missing pins, or insulation damage, and
2. Indications of possible internal damage.

Equipment found damaged or defective shall be removed from service and not to be used until repaired. If it is not to be repaired, then it shall be removed from service, destroyed, and disposed of properly.

EQUIPMENT GROUNDING CONDUCTOR TESTING

The following tests are performed on all cord sets, receptacles that are not a part of the permanent wiring of the building structure, and cord-and plug-connected equipment required to be grounded:

1. All equipment-grounding conductors are tested for continuity and are electrically continuous.
2. Each receptacle and attachment cap or plug is tested for correct attachment of the equipment-grounding conductor.
3. The equipment-grounding conductor is connected to its proper terminal.

All required tests are performed and documented on the Assured Equipment Grounding Program Log in Appendix 2:

1. Before first use.
2. Before equipment is returned to service following any repairs.
3. Before equipment is used after any incident which can be reasonable suspected to have caused damage (for example, when a cord set is run over)
4. At intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage will be tested at intervals not exceeding 6 months.

Lockout and Tagging of circuits is found in the Lockout/Tagout section of this plan in Section 19.

TRAINING

Training is provided to ensure that all employees are familiar with the requirements of this plan.

The Safety Department or outside consultants are responsible for training.

The training program addresses the required written elements for electrical safety for:

1. The assured equipment-grounding conductor program
2. Lockout and tagging procedures to be used when working on exposed de-energized parts.

PROGRAM EVALUATION

The Electrical Safety Plan is evaluated and updated annually by the Safety Department to ensure the continued effectiveness of the program.

REFERENCES

29 CFR 1926.402-408
29 CFR 1926.402-416
29 CFR 1926.402-417
29 CFR 1926.402-441
Lockout/Tag-out Policy.

Section 5: Emergency Response Procedures to Hazardous Substances

INTRODUCTION

The function of this Harris Companies policy is to present a distinction between incidental releases of hazardous substances and releases that require an emergency response, and, hence, compliance with the provisions of 29 CFR 1910.120(q), Emergency Response to Hazardous Substance Releases.

It is important that Harris Companies Employees (hereinafter "HCE") understand the distinction between an incidental release of a hazardous substance and a release that requires an emergency response, to be compliant with OSHA 1910.120(q). This part of the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard was written to cover a wide array of facilities and situations where "emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard" may result in employee exposure to safety or health hazards (1910.120(a)(1)(v)).

Potential releases of hazardous substances in the workplace can be categorized into three distinct groups in terms of the planning provisions of 1910.120(q). These groups are:

1. Releases that are clearly incidental regardless of the circumstances;
2. Releases that may be incidental or may require an emergency response depending on the circumstances; and
3. Releases that clearly require an emergency response regardless of the circumstances.

PURPOSE

Harris Companies shall have a written Emergency Response Procedure (hereinafter "ERP") appropriate to the hazards of the workplace which may require rescue or evacuation. Harris Companies jobsite ERP will be developed in conjunction with client owners so that their facility and employee emergency response plan is in compliance with 1910.120.

Each ERP shall be prepared to reflect potential emergency conditions that may occur within the workplace, or from adjacent workplaces, which may affect HCE, the minimum of which will include fire or other emergencies.

The plan will be reviewed with affected HCE. The Harris Companies written ERP will be distributed to affected HCE and will be reviewed and updated on an annual basis.

RELEASES THAT ARE CLEARLY INCIDENTAL

The scope of the HAZWOPER standard does not cover the inevitable release of a hazardous substance that is limited in quantity and poses no emergency or significant threat to the safety and health of employees in the immediate vicinity. This type of release is referred to as an "incidental release" in 1910.120(a)(3).

Harris Companies defines an INCIDENTAL RELEASE as:

> An incidental release is the release of a hazardous substance that does not pose a significant safety or health hazard to employees in the immediate vicinity or to the employee cleaning it up, nor does it have the potential to become an emergency within a short time frame. Incidental releases are limited in quantity, exposure potential or toxicity and present minor safety or health hazards to employees in the immediate work area or to those assigned to clean them up.

RELEASES THAT MAY BE INCIDENTAL OR REQUIRE EMERGENCY RESPONSE DEPENDING ON CIRCUMSTANCES

The properties of hazardous substances, such as toxicity, volatility, flammability, explosiveness and corrosiveness, as well as the particular circumstances of the release itself, including quantity, confined-space considerations and ventilation, will have an impact on what employees can handle safely and what procedures should be followed.

Additionally, there are other controls that protect the employees from associated hazards, such as the training of the employees in the immediate work area, the personal protective equipment (PPE) on hand and the pre-established standard operating procedures for responding to releases of hazardous substances.

These considerations combine to define the distinction between incidental releases and releases that require an emergency response. The distinction is facility-specific and is a function of the emergency response plan developed between Harris Companies and the client.

RELEASES THAT REQUIRE AN EMERGENCY RESPONSE REGARDLESS OF THE CIRCUMSTANCES

There are releases of hazardous substances that pose a significant enough threat to health and safety that, by their very nature, require an emergency response regardless of the circumstances surrounding the release or the mitigating factors. Harris Companies, along with the client management team will determine the potential for an emergency and plan response procedures accordingly.

Per OSHA 1910.120(a)(3), Harris Companies defines an EMERGENCY RESPONSE as to mean:

> "… a response effort by employees from outside the immediate release area or by other designated responders to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance. Responses to incidental releases of hazardous substances where the substance can be absorbed, neutralized or otherwise controlled at the time of release by employees in the immediate release area, or by maintenance personnel, are not considered to be emergency responses within the scope of this policy. Responses to releases of hazardous substances where there is no potential safety or health hazard are not considered to be emergency responses."

An emergency response may include any of the following situations:

1. The response comes from outside the immediate release area;
2. The release requires evacuation of employees in the area;
3. The release poses or has the potential to pose conditions that are immediately dangerous to life and health (IDLH);
4. The release poses a serious threat of fire or explosion (it exceeds or has the potential to exceed the lower explosive limit or lower flammable limit);
5. The release requires immediate attention because of imminent danger;
6. The release may cause high levels of exposure to toxic substances;
7. There is uncertainty the employee in the work area can handle the severity of the hazard with the PPE and other equipment that has been provided and the exposure limit could easily be exceeded;

Harris Companies policy **states "Employees are not to be Emergency Responders at client facilities"**. In the event that the client emergency response plan is activated, onsite Harris Companies employees must evacuate to the designated safe zone as directed by the client Emergency Response Commander.

HCE shall not perform any work in areas deemed to be Immediately Dangerous to Life or Health (IDLH). HCE will remain in the safe area to serve as technical assistance to emergency responders.

PLANNING AND DELIVERING GUIDELINES FOR EMERGENCY RESPONSE PLANS

Emergency procedures shall be reviewed and discussed, at the client site facility, with all Harris Companies personnel upon arrival for assignment.

Emergency Response Plans shall be established, implemented, reviewed, maintained and updated annually in conjunction with:

1. Client emergency services department requirements.
2. Harris Companies safety staff and management.
3. The ERP will reflect current circumstances at the workplace.

A review of the Emergency Response Plan shall occur with effected employees:

1. When the plan is developed or the employee is assigned initially to a job.
2. When the employee's responsibilities under the plan change.
3. When the plan is changed
4. Annually.

PROCEDURES FOR EMERGENCY EVACUATION PLANNING

Harris Companies will coordinate with client facility management teams, the correct evacuation procedures for Harris Companies employees in the event an emergency is declared.

The client facility ERP, per OSHA 1910.120 must include procedures for emergency evacuation, including type of evacuation and exit route assignments.

The individual site evacuation procedure shall be appropriate to the risk and must be developed and implemented to:

1. Notify staff, including the first aid attendant, of the nature and location of the emergency,
2. Evacuate employees safely and procedures to account for all employees after evacuation,
3. Check and confirm the safe evacuation of all employees,
4. Notify the fire department or other emergency responders, and
5. Notify adjacent workplaces or residences which may be affected if the risk of exposure to a substance extends beyond the workplace.

POTENTIAL EMERGENCIES

The client Emergency Response Plan must include procedures for reporting a fire or other emergency.

Procedures for each of these potential emergencies shall be contained within the Client Facility Emergency Response Plan.

1. Gas Leaks/Chemical Spills
2. Explosion
3. Medical emergencies
4. Fire

Gas Leaks/Chemical Spill - Upon smelling or noticing a gas leak or unusual vapors, or a chemical spill:

1. Pull fire alarm (if present) or sound warning and evacuate the premises via the nearest exit.
2. Proceed to the Emergency Assembly Area
3. Remain in Emergency Assembly Area until directed to move to another location.
4. Re-enter only after the Emergency Site Coordinator has given an ALL CLEAR.
5. Proper Spill Kits will contain the appropriate supplies for materials that may be spilled.

Explosions

1. Get down on the floor, take shelter under tables or desks, and protect your face and head against flying glass and debris.
2. Once it is safe to do so, evacuate premises via the nearest exit and proceed to the nearest Emergency Assembly Area. Assist others if necessary.
3. Remain in Emergency Assembly Area until directed to move to another location.
4. Re-enter only after the Emergency Site Coordinator has given an ALL CLEAR.

Medical Emergencies

1. Call for assistance by phone or radio. Give the exact location and details of the medical emergency.
2. If qualified, provide basic first aid, and keep the person comfortable. Do not move the person unless the atmosphere and conditions pose further risk of injury to the victim. Do not leave him/her unattended.
3. Arrange for emergency medical transportation based on the medical planning portion of the site's Emergency Response Plan.

Fire

1. Warn others in the immediate area. Notify the appropriate emergency response personnel by phone or radio and pull the nearest fire alarm if present.
2. If nearby staff have been trained, and the fire can be stopped in its incipient stage, fight the fire using a portable fire extinguisher appropriate to fire source. Remember, if in doubt, get out.
3. Evacuate the premises via the nearest exit and proceed to the nearest Emergency Assembly Area. Assist others if necessary.
4. Re-enter only after the Emergency Site Coordinator has given an ALL CLEAR.

TRAINING

Harris Companies management will coordinate with client facilities management team regarding emergency response procedures. Harris Companies shall provide training for affected employees in regard to the client facility site specific emergency plan.

1. Each employee shall be given instruction relevant to facility site hazards. This may include:
    a. Gas Leak/Chemical Spills
    b. Explosions
    c. Medical Emergencies
    d. Fire prevention
    e. Emergency Evacuation procedures applicable to the service call facility.
2. Harris Companies shall provide the Emergency Response Plan orientation/awareness to affected Harris Companies personnel before they begin work.
3. Harris Companies personnel shall receive an update orientation annually, or whenever any new information is to be provided.
4. Harris Companies policy states that Harris Companies employees shall not perform emergency response procedures, but they will communicate with clients to coordinate work based on the clients' emergency response plan.

SUMMATION

Harris Companies employees are committed to working safely with hazardous substances. Through supportive leadership, open lines of communication, and a cooperative agreement with client facilities, Harris Companies will provide a work area that will protect employees and control the potential exposures to hazardous materials.

Through coordination with client facility management, Harris Companies will commit the necessary resources to conduct adequate training and education of its employees, so that a clear, concise plan of action will be followed in response to the incidental release of hazardous substance.

It is with understanding and cooperation between client facilities and Harris Companies that Harris Companies employees will not be considered emergency responders; rather they shall serve as a technical adviser to emergency responders, in the event a plan is activated. Affected employees must evacuate to the nearest safe zone and remain there until otherwise directed.

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Section 6: Excavation and Trenching

SCOPE

Minimizing and eliminating the potential hazards of trenching and excavations.

GENERAL

Prior to trenching or excavating 4' or greater in depth, a competent person shall determine the soil classification. Based on this classification a safe method to proceed will be determined.

REQUIREMENTS

A. General

Supervisors will ensure that excavation activities are coordinated, communicated, and conducted in accordance with the provisions of this section and all regulatory requirements.

1. Prior to excavating in the location of any underground installations:
    a. Call the participating "**One-Call"** center for the area in order to locate all utilities within close proximity of the proposed excavation site.
    b. All surface encumbrances that create a hazard to employees will be removed or supported, as necessary.
2. All excavations over 20' in depth will be designed by a professional engineer registered in the state where the work is to be performed.
3. Excavations that are left open longer than the working shift shall be barricaded to prevent accidental entry. When next to vehicular traffic, local highway department requirements for warnings and barricades will be followed.
4. Employees in an excavation will be protected from cave-in by an appropriate protective system. **Exceptions to this are:**
    a. Excavations made entirely in stable rock.
    b. Excavations that are less than 5' in depth and, have been inspected by the competent person indicating there are no potential cave-ins or other hazardous conditions.
5. Spoil piles will be stored a minimum of 2' from the sides of the excavations and will not block the means of exit.
6. A stairway, ladder, ramp, or other safe means of exit will be located in excavations that are 4' or more in depth. Access to the means of egress must be within 25' of the employees. Methods used by employees as a means of access or egress from excavations will be approved by the competent person.
7. Employees working in excavations shall be protected against the hazards posed by water accumulation.
8. Walkways, runways, and sidewalks shall be kept clear of excavated materials or other obstructions; and, no sidewalk shall be undermined unless a support system or other method of protection is provided to prevent possible collapse.
9. Daily inspections of the excavation shall be made by the competent person. If evidence of possible cave-ins, indication of failure of the protective system, hazardous atmosphere, or

other hazardous condition is detected, employees shall be removed from the hazardous area until precautions are taken to ensure their safety.

10. When mobile equipment is operated adjacent to or is required to approach the edge of an excavation, a warning system that alerts the equipment operator shall be used.
11. If ladders are used for getting in and out of trenches 4' deep or more, ladders shall be located no more than 25' from employees within the trench and shall extend not less than 3' above the top of the trench. Step ladders may not be used.
12. Never work alone when performing excavation, trenching, or shoring operations or while working in the trench.
13. A pocket penetrometer should be available through the safety department for determining the proper classification of soil.

B. Competent Person Responsibilities

Competent person means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions, which are unsanitary, hazardous, or dangerous to employees. The competent person has authorization to take prompt corrective measure. Minimum duties of the competent person include:

1. Conducts at least two tests for soil classification, one manual test and one visual test.
2. Understands safety standards and any data provided.
3. Determines proper sloping/shoring system, if required.
4. Recognizes and reclassifies soil after conditions have changed.
5. Determines that shoring/shielding equipment/system is adequate for employee protection.
6. Conducts air test to monitor for hazardous atmosphere.
7. Approves design of structural ramps.
8. Assures location of underground installations/utilities.
9. Conducts inspections of excavations and adjacent areas using the form in Appendix 2.

PERSONNEL PROTECTION

1. No person shall be allowed under loads handled by lifting or digging equipment such as power shovels, derricks or hoists.
2. All employees shall be provided with protective equipment dictated by the excavation work being performed.
3. Precautions shall be taken to protect employees who work in excavation containing water or where water is accumulating.
4. Emergency rescue equipment shall be readily available where hazardous atmospheric conditions exist or may be expected to develop during work in an excavation.
5. Employees shall be adequately protected from loose rock or soil that could fall or roll from an excavation face.
6. Ramps that are used for access and egress from excavations shall be designed by a competent person.

SOIL TYPE IDENTIFICATION

The Simplified Soil Classification System consists of four categories: Stable Rock, Type A, Type B, and Type C. Stability is greatest in stable rock and decreases through Type A and B to Type C, which is the least stable.

1. **Stable Rock** is defined as natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.
2. **Type A** is defined as:
    a. Cohesive soils with an unconfined compressive strength of 1.5 tons per square foot.
    b. Examples of cohesive soils are: Clay, Silty Clay, Sandy clay, and clay loam.
    c. Cemented soils such as caliches and hardpan are also considered Type A. No soil is to be deemed Class A if:
        - It is fissured.
        - The soil is subject to vibration from heavy traffic, pile driving, or similar effects.
        - The soil has been previously disturbed.
3. **Type B** is defined as:
    a. Cohesive soil with an unconfined compressive strength greater than .5 TSF, but less than 1.5 TSF.
    b. Granular cohesion-less soils including: angular gravel, silt, silt loam, and sandy loam.
    c. Previously disturbed soil except those that would be classified as Type C soil.
4. **Type C** is defined as:
    a. Cohesive soil with an unconfined compressive strength of .5 TSF or less.
    b. Granular soil including gravel, sand and loamy sand.
    c. Submerged soil or soil from which water is freely seeping.
    d. Submerged rock that is not stable.

The Competent Person will classify the soil type in accordance with the definitions in OSHA standard 1926 Subpart P, Appendix A, based on at least one visual and one manual analysis. These tests are designed to determine stability based on a number of criteria.

An examination of the job site will determine sources of vibration or evidence of a prior excavation, such as existing underground utilities. Observation of the excavation will determine the presence and amount of moisture as well as layering, faulting and fracturing.

When making a field determination, the competent person must answer three questions:

1. Is the sample granular or cohesive?
2. Is it fissured or non-fissured?
3. What is the unconfined compressive strength?

If the excavated soil stays in clumps, it is cohesive. If the soil breaks up easily and does not stay in clumps, it is granular. If an observation of the soil determines that the material is mostly fine grained, it is cohesive; if primarily coarse, it is granular. This estimation can be difficult. One method of simplifying the process is to disperse a sample in water in a clear glass cylinder. The coarse grained material will settle to the bottom. The fine grained material will layer out on top. Relative percentages can then be easily determined with the use of a ruler and simple arithmetic.

Fissured soil will exhibit open cracks. Observation of the excavation and sample will show this, particularly as it dries. Clay tends to shrink and crack as it dries.

The unconfined compressive strength will help classify the soil type. There are several methods of testing for it. A device called a pocket penetrometer is often used. This instrument is most accurate when the soil is nearly saturated. It should be used to support other tests and not be relied on exclusively. The thumb penetration test is equally useful and easy to perform. If the sample can be dented, but penetrated only with great effort, it is Type A. If it can be penetrated several inches and molded by light pressure, it is a class C. Type B can be penetrated ½" to ¾" with effort and molded.

The competent person shall perform multiple checks of the excavation to generate consistent, supporting data along its depth and length. The soil type is likely to change many times along a right of way; and, the moisture content will vary with the weather and job conditions. All these factors must be taken into consideration during the course of the work.

SELECTION OF PROTECTIVE SYSTEMS

Single slope excavations 20' or less in depth shall have the following slope according to the soil type:

Soil or rock type	**Maximum allowable slope** (measured from horizontal)	
Stable rock	Vertical	(90 degrees)
Type A soil	3/4:1	(53 degrees)
Type B soil	1:1	(45 degrees)
Type C soil	1 1/2:1	(34 degrees)

Where sloping and benching is selected as the method of protection, excavation must be done according to various options depending on whether a soil classification is made.

1. **Without soil classification**

   Excavation must have a slope of 1 ½ : 1 (horizontal to vertical or 34 degrees measured from the horizontal).

2. **With soil classification**

   Conduct soil classification in accordance with 1926 Subpart P App A-Soil Classification, P-8 and paragraph 1926.652(b) and select any one of the three options available:

   a. Determine slope and configuration using 1926 Subpart P-Appendices A and B (Sloping and Benching, P-12).
   b. Design slope using tabulated data.
   c. Have slope designed by a professional engineer.

Where shoring or shielding is selected as the method of protection, soil classification is required. The excavation must comply with one of the following four options:

1. Shoring designed to comply with 1926 Subpart P, (All applicable appendix) .
2. Designed using manufacturers' tabulated data.
3. Designed using other tabulated data approved by a registered professional engineer.
4. Designed by a registered professional engineer.

INSTALLATION REMOVAL

1. Support systems shall be installed and removed without exposing employees to cave-ins and structural collapse.
2. Support systems shall be removed beginning from the bottom of the excavation.
3. Backfilling shall take place together with the removal of the support system.

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Section 7: Fall Protection Program

SCOPE

Procedures to provide protection for employees exposed to falls above 6' in construction or 4' in industry.

GENERAL

Provide guidelines for maximum protection for employees against fall hazards. Guidelines include planning, fall prevention, and fall protection.

PURPOSE

This policy is to ensure protection of employees from fall exposures through the use of recognized fall protection systems. Appropriate fall protection systems are to be used when fall exposure hazards are present. Fall exposure situations include, but are not limited to, unprotected sides and edges, leading edges, hoist areas, holes, framework, reinforcing steel, ramps, walkways, bridges, excavations, and equipment.

REQUIREMENTS

A. Planning

Individual project planning is necessary and should include at a minimum:

1. Schedules of project materials
2. Equipment, material, and supplies needed for fall prevention and protection
3. Work sequence
4. Employee orientation
5. Training
6. Inspection
7. Maintenance
8. Rescue training

B. Responsibility

1. **Safety Department** is responsible for all facets of this program and has full authority to make the necessary decisions to ensure its success. This authority allows the department to hire personnel, purchase the equipment necessary to implement and operate the program, and to provide training for supervisors and affected employees in the use of fall protection systems.
2. **Harris Companies** expressly authorizes all company employees to halt operations if they feel an unsafety condition develops or they believe unsafe condition could develop. No work shall take place until the situation has been assessed and all conditions have been made safe.
3. **Foremen** will be responsible for the recognition of fall exposures, communicating fall exposure situations to the Safety Department, and ensuring fall exposures are controlled

through proper use of fall protection systems. Foremen will be responsible for enforcement of this program for employees.

4. **Employees** are responsible for complying with this policy and notifying their supervisor of any fall exposures they encounter.

C. Fall Prevention

All projects shall make maximum use of fall prevention systems such as scaffolds, aerial lifts, personnel hoists, ladders, and stairways.

1. Fall Prevention Systems:
    a. These systems provide walking and working surfaces in elevated areas. Systems are free from floor openings, equipped with standard guard rail systems on all open sides, and with closure apparatus for ladder openings or other points of access when required. These systems shall include: scaffolds, aerial lifts, and other approved personal hoisting apparatus.
    b. Standard guardrail systems shall comply with OSHA standards.
2. Personnel Lifts/Hoisting Devices:
    a. Employees riding in or working from lifts must secure their safety lanyard as required by the manufacturer's operating procedures.
    b. Lifting devices shall be placed on solid level surfaces so as to reduce the possibility of overturning.
3. Sky-Climbers and Spiders
    a. Employees riding in or working from these devices shall be provided an independent lifeline and rope grab to which their safety lanyard shall be secured.
    b. Each lifeline shall be secured to an individual anchor point supporting a minimum of 5000 lbs per person.
4. Crane Hoisted Personnel Baskets/Platforms
    a. Use of these devices shall comply with the safety procedures set forth in Section 9: Fleet Policies, Cranes and Personnel Hoisting, Motor Vehicles, and Mobile Equipment – Section D.

D. Fall Protection

Employees in elevated areas above ground level or adjacent to surfaces where a fall exposure exists, shall secure their safety lanyard at all times to a structure, lifeline, or approved fall arresting device capable of supporting 5000' lbs.

1. **Fall protection equipment and systems:**
    a. Shall be inspected before each use for damage and/or deterioration. Defective equipment shall be immediately removed from service and be destroyed or sent to shop for repairs.
    b. That has been subjected to a shock load shall be removed immediately from service.
    c. Shall only be used for employee's safety.

2. **Full body safety harnesses and shock absorbing lanyards:**
    a. Shock absorbing lanyards shall be the double locking type and shall not exceed 6' in length. A two-leg lanyard system shall be used when necessary.
    b. NOT supplied by Harris Companies shall NOT be used.
3. **Lifelines:**
    a. shall be capable of supporting 5000 lbs.
    b. shall not be used for any purpose other than fall protection.
    c. Anchor points shall be capable of supporting 5000 lbs.
    d. Horizontal lifelines shall be 3/8" wire rope cable as a minimum and shall be secured on each end by at least two cable clamps.
    e. Horizontal lifelines should be placed to provide hook up points at least waist high for personnel.
    f. Vertical lifelines shall be 5/8" synthetic rope.
    g. Vertical lifelines shall be used with approved rope grabs with 3' lanyards designed for use with 5/8" rope.
    h. Retractable lifelines shall be approved for use in fall protection.
    i. Retractable lifelines shall be secured by means of tagged, fall protection components designed to be used for anchorage.
    j. Retractable lifelines shall have a rope tag-line attached for extending the line to lower elevations whenever necessary. Retractable lifelines not in use must be allowed to fully retract to prevent damage.
4. **Temporary Work Platforms and Walkways:**

    All temporary work platforms or walkways shall be provided with a means of access/egress, which allows personnel to be safely secured at all times. Rope grabs or retractable lifelines shall be used to achieve fall protection while ascending or descending to temporary work platforms or walkways.
5. **Safety Nets:**

    Safety nets may be used in some situations as fall protection. The installation and use of safety nets shall be under the direction of the Safety Department.
6. **Guardrails:**
    a. Guardrails shall have a top rail 42" (+/-3") high. Guardrail systems must be capable of withstanding at least 200 lbs of force applied within 2" of the top edge in any direction and at any point along the edge; and, without causing the top edge of the guardrail to deflect downward to a height of less than 39". Midrails must be installed between the top edge and the walking/working surface 21" high. Midrails must be capable of withstanding at least 150 lbs of force applied in any direction at any point along the midrail. Toeboards must be installed to prevent objects from falling to the floor below and possibly striking another worker.

7. **Barricades:**
    a. are used to warn people of hazards.
    b. Fiber or synthetic rope, road block horses, cones and warning tape, or similar devices may be used.
    c. Colored flagging is helpful, if used must be flagged every 6'.
    d. Around fall hazards (holes in floors, excavations, etc.) barricades must be at least 6' back from the edge of the hazard.
8. **Covers:**

    All covers shall be capable of supporting, without failure, at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time.
    a. All holes/openings over 2" diameter must be covered.
    b. All hole covers must be color coded or marked "HOLE" or "COVER".
9. **Roof Work:**

    Employees performing work on low-slope roofs (a roof having a slope less than or equal to 4-in-12 vertical to horizontal) or roof work activities **must be** protected by a warning line system, guardrail system (a parapet surrounding the entire roof measuring at least 39 inches, at its lowest point in height, is considered a suitable guardrail system), or personal fall arrest/restraint system.

REFERENCES

29 CFR 1926.28	29 CFR 1926.500
29 CFR 1926.104	29 CFR 1926.651
29 CFR 1926.105	29 CFR 1926.451
29 CFR 1926.106	

Section 8: First Aid, CPR, Medical, and Blood-borne Pathogens Policy

SCOPE

Procedures relevant to first aid/medical services and the record keeping/incident reports.

GENERAL

Harris Companies will provide first aid services and arrange emergency transportation of the employee who becomes injured or ill on the job. Project management is responsible for safety related reports concerning work-related injury or illness.

REQUIREMENTS

B. First Aid / Medical Treatment

1. First aid supplies will be available in a first aid kit on the jobsite to all employees for the treatment of a work related injury or illness. First Aid Kits will be inspected on a weekly basis and refilled accordingly. Utilize the First Aid Kit Weekly Inspection Report in Appendix 2 to document these inspections. If supplies are used from the First Aid Kit, documentation will be recorded on the First Aid Kit Treatment Log.
2. Medical cases that require treatment beyond first aid will be referred to an off-site physician or hospital as determined by the severity of the injury or illness.
3. Major Injuries including Falls:
    a. Unconsciousness/head injuries
    b. Compound or other bone fractures
    c. Possible internal injuries
    d. Severe burns
    e. Possible spine or back injuries
    f. Any other injury where it is obvious the victim should not be moved.

If such an injury should occur, the job site competent person will make the victim comfortable and immobilize him/her if necessary. **Do not** move the victim unless instructed by a trained medic or unless the victim's life is in **danger** due to an immediate hazard at the location.

*****ALWAYS HAVE SOMEONE ACTIVATE THE EMERGENCY RESPONSE (action plan) *****
PROCEDURES FOR THE PROJECT OR CALL 911

4. Serious Injuries
    a. Severe lacerations obviously requiring stitches
    b. Localized severe burns
    c. Snake bites or poisoning
    d. Possible fracture
    e. Amputation or crushing of a minor extremity where bleeding can be controlled
    f. Foreign body in eye that cannot be removed by first aid
    g. Insect bite if victim is experiencing a reaction or respiratory problem
    h. Heat related illness

If it appears that the victim can be moved without causing additional injury or complication, the job site competent person should transport the victim to the designated medical facility.

If the victim is treated at a hospital emergency room, they may either admit him/her or treat and release him/her. If admitted to the hospital, he/she will be under the care of hospital staff doctors until released. Once released, we can instruct the victim to contact one of our designated clinics or doctors recommended by our insurance carrier for such subsequent treatment as needed.

If the victim is simply treated in the emergency room and released, again we should refer him/her to our designated clinic for any further subsequent follow-up treatment. This procedure is essential if we are to maintain control over the medical service.

It is Harris Companies policy that all "serious job-related injuries" be treated by a professional physician. On the day of injury, injured employees must visit the designated clinic. The supervisor/job-site competent person shall assign a foreman, supervisor (should not be another craft person/apprentice) or the onsite safety coordinator to escort the employee to the clinic if he/she cannot take the employee.

The employee should never be allowed to take him/herself due to liability issues. The employee should be taken to the clinic, if possible, unless the injury has an impact on loss of life or loss of limb, in which case, the employee should be taken to the designated emergency room for the project.

5. Non-Serious Injury – Non-Emergency
    a. Painful bruises that do not interfere with the ability to work.
    b. Minor lacerations where bleeding can be controlled and stitches are not necessary.
    c. Minor eye irritation.
    d. Other irritations that can be treated by first aid.
    e. First Aid Cases
6. Very minor injuries (i.e. a slight cut needing only a band-aid) may be treated on the job site by the competent person. The competent person should follow-up on the condition of the victim at the end of the shift, during the next regular workday, and periodically over the next week (in case of developing infection) to see that no further medical treatment is required.

C. Injury/Illness Reporting Procedures

Project management is responsible for ensuring safety related reports concerning a work related injury or illness are properly completed and maintained using the information in Section 1: Incident Investigation and Reporting, subsection A.

D. Blood-borne Pathogens Exposure Control

1. Purpose:
    a. The purpose of OSHA's Bloodborne Pathogen Standard (1910.1030) is to reduce occupational exposure to Hepatitis B Virus (HBV), Human Immunodeficiency Virus (HIV), and other bloodborne pathogens that employees may encounter in their workplace. Harris Companies' Exposure Control Plan has been established to

comply with the OSHA Blood-borne Pathogens Standard. The objective of this plan is two-fold:

- To protect our employees from the health hazards associated with bloodborne pathogens.
- To provide appropriate treatment and counseling should an employee be exposed to bloodborne pathogens.

Our employees can review the exposure Control Plan at any time. Employees are informed of this right to ready access to the plan during education/training sessions. The major components of our Exposure Control Plan are summarized below.

2. Exposure Control Plan Responsibilities
   a. There are three major categories of responsibility that are central to the effective implementation of the Exposure Control Plan. These are:
      - Safety Director – is responsible for developing and providing oversight of the Bloodborne Pathogens Exposure Control Plan in accordance with applicable State and Federal OSHA regulations (1910.1030).
      - Project Managers, Supervisors, Foremen – are responsible for implementing this plan within their areas of responsibilities and for having their personnel trained in the requirements of the plan. They will provide their personnel with the required items for compliance and will ensure that persons working under their direction are working in accordance with this Bloodborne Pathogens Exposure Control Plan.
      - Our employees – All employees are to adhere to this Bloodborne Pathogens Exposure Control Plan.
3. Exposure Determination

   One of the keys to implementing a successful Exposure Control Plan is to identify exposure situations employees may encounter. In order to facilitate the identification of these conditions, we have prepared the following lists:

   a. Job classifications in which employees have occupational exposure to bloodborne pathogens. First Aid/CPR responders offer the most potential for exposure to bloodborne pathogens. Universal Precautions shall be used when responding to these situations.
   b. Those employees who have been trained in First Aid/CPR shall be considered as "Good Samaritans" when they perform First Aid/CPR since it is a collateral duty to routine work assignments. Harris Companies will offer post exposure follow-up procedures to any employee who experiences an exposure incident as the result of performing "Good Samaritan" acts.
   c. The Hepatitis B vaccination series is available to the identified exposure groups who may have or have had exposure to bloodborne pathogens or other infectious materials at no extra cost. An employee may decline to be vaccinated provided the appropriate declination statement is signed.
4. Exposure Incident

   If an employee comes into contact with blood or other potentially infected material, they shall thoroughly wash all of the contaminated area and then do the following:

a. Contact your Supervisor and the Safety Director Immediately.
b. As directed, see a physician as soon as possible, but in no case beyond 24 hours after the incident.
c. If applicable, post exposure vaccinations are pre-approved by Harris Companies. If you choose not to accept the vaccinations, a signed declination statement must be completed and submitted to the Safety Director.

5. Potentially Infectious Materials

Universal precautions assume human blood and certain human body fluids are known to be infected with bloodborne pathogens and that it is impossible to identify every person who may be infected. Only one exposure is necessary to cause an infection. Universal precautions are used to prevent transmission of these infections. Universal precautions include barrier protection such as gloves, masks, and protective eyewear, as well as hand washing and proper work practices. The following are potentially infectious materials that require universal precautions as a minimum:

a. Blood
b. Body Fluids
c. Seminal/vaginal secretions
d. Open body tissues
e. Potentially contaminated water such as sewage or river water.

6. Personal Protective Equipment

Examples of personal protective equipment (PPE) include gloves, face shields, gowns, coveralls, protective eye wear, masks, and rescue breather with one-way valves. Appropriate PPE is equipped that does not permit blood or other potentially infectious materials to pass through or reach the wearer's work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes. PPE will be supplied to Harris Companies employees at no extra cost.

a. Employees should use appropriate PPE whenever there is a potential for occupational exposure. An employee may temporarily or briefly decline the use of PPE, under rare circumstances, when in the employee's professional judgment it would prevent the delivery of first aid or public safety services, or it will pose an increased hazard to the employee or to others.
b. Harris Companies first aid kits will contain a rescue breather and disposable single use gloves.
c. If a garment is contaminated by blood or other potentially infectious material, the garment shall be removed as soon as possible.
d. Upon removal of PPE, the contaminated material shall be placed in an appropriately designated area or container for storage, washing, decontamination, or disposal.
e. Gloves shall be worn whenever contact with blood or other potentially infectious materials can be reasonably expected, and when handling or touching contaminated waste.
    - Disposable (single use) gloves should be replaced as soon as practical when they are contaminated, punctured, or when their ability to function as a barrier is compromised.

- Disposable (single use) gloves cannot be washed or decontaminated for re-use.
- When gloves are removed they shall be removed inside out. The wearer shall avoid touching eyes or mouth.

f. Eye protection devices such as goggles shall be worn whenever splashes, sprays, spatters, or droplets of blood or potentially infectious materials may be generated, or eye contamination can reasonably be expected during cleanup.

g. Rescue breathers with a one-way valve shall be worn whenever resuscitation and/or CPR is administered. All Harris Companies First Aid Kits shall contain a rescue breather with a one-way valve.

h. Masks should be worn alone, or in combination with eye protection devices, whenever splashes, sprays, spatters, or droplets of blood or potentially infectious materials may be generated or eye nose, or mouth contamination can be reasonably expected during cleanup.

7. Housekeeping

Work sites shall be maintained in a clean and sanitary condition.

a. All equipment and working surfaces shall be cleaned and decontaminated after contact with blood or other potentially infectious materials. Contaminated work surfaces shall be decontaminated with an appropriate disinfectant.

b. Broken glassware that may be contaminated shall not be picked up directly with the hands. The glassware shall be cleaned up using mechanical means only and with appropriate hand protection.

c. Disinfectant shall at a minimum consist of a 10% bleach solution in water or an approved germicide.

d. If provision of handwashing facilities are not feasible, then an appropriate antiseptic hand cleanser in conjunction with cloth/paper towels or antiseptic towelettes must be provided by the company.

8. Cleanup Procedures

All potential infectious waste shall be disposed of in accordance with local and state regulations. Potential infectious waste is not regulated unless it is so saturated as to drip or flake from the absorbent. If broken glass or other sharp items are involved in the incident and are contaminated, they shall be handled by mechanical means (dust pan and brooms). They shall never be picked up with the hands. If the waste is regulated, it shall be discarded in leak proof red bags or containers that designate it as infectious waste. Red biohazard bags are available in the first aid kits.

9. Waste Disposal

Regulated waste shall be placed in containers which are closeable, constructed to contain all contents, and prevent leakage of fluids during handling, storage, transportation or shipping.

a. Discarding and Containment of Contaminated Sharps

- Contaminated sharps, such as broken glass, needles, etc., shall be discarded immediately or as soon as possible in containers that are closeable, puncture resistant, and appropriately labeled or color-coded container.
- If leakage is likely, place them in a secondary closeable, leak-proof, and appropriately labeled or color-coded container.

- Reusable containers shall not be opened, emptied, or cleaned out without the use of PPE.

b. Other Regulated Waste Containment
   - Regulated waste shall be placed in containers that are leak proof, puncture-resistant, appropriately labeled or color coded such as the red bag that is located within the bio-fluids response kit, and closed prior to removal.
   - If outside contamination of a regulated waste container occurs, it shall be double bagged in a second container which is constructed to prevent leakage and appropriately labeled or color coded and closed.
   - All waste shall be labeled as "BIOHAZARD". Warning labels, containing the international biohazards symbol, shall be affixed to all containers of regulated biological waste.
   - Contact the local hospital or medical waste disposal company currently used or contact the Safety Director for guidance on regulated waste disposal.

c. Signs and Labels
   - Biohazard labels shall be affixed to containers of regulated waste of blood or other potentially infectious materials that are used for storage, handling, or transportation.

10. Training
    a. All designated employees shall participate in a training program.
    b. Training shall be provided at the initial assignment to tasks where occupational exposure may take place and at least annually thereafter. Additional training shall be provided when changes, such as modifications of tasks or procedures, affect the employee's occupational exposure.
    c. The bloodborne pathogens training program will address the following:
       - A general explanation of the OSHA standard and indicate that a copy of the regulation is available to them.
       - A general explanation of bloodborne diseases such as HBV and HIV and their modes of transmission.
       - An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
       - An explanation of the use and limitations of appropriate engineering controls, work practices, and personal protective equipment (PPE).
       - Information on appropriate cleanup procedures.
       - Information on the HBV vaccine and medical follow-up procedures.
       - Information on the appropriate actions to take and the persons to contact in an emergency involving blood or other potentially infectious materials.
       - An explanation of the procedure to follow if an exposure incident occurs, including the method or reporting the incident and the medical follow-up that will be available.
       - An explanation of signs and labels, and record keeping procedures.

- Knowledge of PPE and items available in First Aid Kits.
- Contents of the plan and where it is located.

11. Record Keeping

    Training records shall be maintained for three years from the date of which the training occurred in accordance with OSHA 1910.1030. All exposure and medical records should be maintained for at least the duration of employment plus 30 years in accordance with OSHA 1910.1020. The medical records of employees who have worked for less than one year need not be maintained beyond the term of employment if the employee is provided the record upon termination of employment. Records shall be maintained as determined by the Safety Director.

12. Program Evaluation

    This program will be reviewed and updated on an annual basis, or whenever necessary, to reflect changes in regulations, work practices, or procedures.

REFERENCES

29 CFR 1904.1-20 29 CFR 1926.23, 50 30 CRF Part 50

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QUICK REFERENCE SUMMARY
EXPOSURE CONTROL PLAN:

FIRST AID AND MEDICAL CARE FOR A JOBSITE INJURY

A. Personal Protective Equipment

Employees should select the appropriate type of PPE needed when assisting in providing first aid/CPR to others and to perform blood spill clean-ups.

1. **Latex/vinyl gloves** shall be worn when it is reasonably anticipated that employees will have hand contact with blood, non-intact skin, mucous membranes, or other potentially infectious material. All first aid kits are equipped with latex gloves.
2. The selection of protective equipment will be considered appropriate only if it does not permit blood or other potentially infectious materials to pass through or reach the employee's clothing, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used.
3. The job site competent person will be responsible for the proper handling, removal, and disposal of all personal protective gloves and equipment. In addition, he will ensure that all "gloved" employees wash their hands and any other potentially contaminated skin areas with soap and water immediately or as soon as feasible after exposure.

B. PPE Accessibility

All personal protective equipment is readily accessible to each employee, will be provided at no cost, and is kept in the job site first aid kit.

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FIRST–AID WOUND CARE

Harris Companies has adopted a "hands off" approach to blood. If possible, even when trying to help injured employees, **do not come into direct contact with blood.**

For example, an employee may choose to help open bandages, cut tape, etc. while the injured employee holds pressure on a laceration. The injured employee may also be able to clean up any blood spill (drops of blood) after the wound has been dressed. This "Hands Off" practice helps to ensure that other employees are not involved with blood.

All blood or other potentially infectious material will be considered infectious regardless of the perceived status of the source individual. If someone is exposed to someone else's blood or infectious material, an "**Exposure Incident Report"** should be completed.

BLOOD SPILL CLEAN UP PROCEDURES

1. Contaminated work and equipment surfaces shall be cleaned, disinfected, and decontaminated with an appropriate disinfectant as soon as feasible.
    a. Find a wash cloth/sponge and prepare a disinfecting solution (1 part bleach to 10 parts water).

*Note: Do **not** prepare 1:10 bleach and water solutions ahead of time. Bleach in water loses effectiveness over time.*

    b. Carpeted surfaces shall be cleaned and disinfected using absorbent bleach material (i.e., Zep Chlor-retain). Lysol brand disinfectant is a tuberculocidal agent that can be used for minor spills, bloodstains, etc.
2. Put on appropriate PPE.
3. Wipe up spill with designated clean up supplies– Scrub porous materials as needed.

Note: Broken glassware that may be contaminated should not be picked up directly with the hands. It shall be cleaned up using mechanical means, such as a brush and dustpan or tongs.

4. Dispose of waste materials and PPE in lined containers so no one can accidentally be exposed to them.

Any laundry/clothing that is contaminated with blood or other potentially infectious materials should be handled as little as possible and placed in plastic bags. The best option is to dispose of them properly. If clothing is taken to a laundry/dry cleaning service, make the service aware that the stains are bloodstains, etc. so they can act appropriately.

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Section 9: Fleet Policies, Cranes and Personnel Hoisting, Motor Vehicles, and Mobile Equipment

SCOPE

Safe operation of motor vehicles and mobile equipment; and the safe operation and maintenance of cranes and personnel hoisting policies.

GENERAL

Employees assigned to operate motor vehicles and mobile equipment shall be trained and qualified for the equipment they are to operate. Employees shall comply with the manufacturer's specifications and limitations applicable to the operation of all cranes. The use of crane personnel platforms shall be permitted when their use is necessary because conventional means to reach the work area such as ladders, stairways, aerial lifts, elevating work platforms, or scaffolds are either more hazardous or are not possible because of structural design or project conditions.

STATEMENT ON VEHICLES

Harris Companies fleet policy and procedures regards the operation of the company vehicle that may have been furnished in order to provide you with adequate, safe, and economical transportation in performing your duties.

Since the vehicle you may have been provided represents a substantial investment by Harris Companies, you are required to keep your expenses down to a minimum and maintain the vehicle in the best possible condition for company image and for eventual resale. Please review this policy carefully. Obtain the Fleet Manual (glove compartment size) from the Safety Department and place it in the compartment of your vehicle for reference. If you have any questions regarding this manual or the operation of your vehicle, please contact the Safety Director.

This manual has been prepared to acquaint you with what is expected in the operation and maintenance of your company vehicle. You are trusted to provide good judgment and an awareness of the responsibilities involved, both of which are necessary to continue in Harris Companies fleet program and to assure you safe, dependable transportation.

A substantial investment is involved. In order to keep the vehicle in the best possible condition and costs at a minimum, we ask that you drive and maintain the vehicle as though it were your own. Failure to do so may result in a loss of company vehicle privileges as well as responsibility for extraordinary costs.

MOTOR VEHICLE RECORD POLICY

It is the policy of Harris Companies to obtain and review Motor Vehicle Records (MVR) before a vehicle is extended to the individual. MVR's are checked annually on all employees where driving is part of his/her job description.

Harris Companies' Safety Department will review the MVR's to ascertain, in its sole discretion, whether the applicant or employee holds a valid license, and whether his/her driving record is within the parameters set by company policy. If an employee's driving record does not meet the criteria set by the company, as determined at the sole discretion of management, remedial training or other disciplinary action may be taken, up to and including termination. If an applicant's driving record does not meet the criteria set by the company, as determined at the sole discretion of management, no offer of employment will be extended.

Any of the following (not limited to) may disqualify a driver from operating company owned vehicles, or those vehicles in the care and custody of the company:

1. DUI/DWI; Impaired or under the influence of drugs; chemical test above legal limits; blood alcohol content above legal limits; or similar violations in the past 5 years
2. Reckless driving; negligent driving; racing/speed contests; fleeing officers; driving while license suspended; or similar violations in the past 5 years
3. Speeds in excess of 25 MPH over the posted speed limit in the past 5 years
4. Three or more at fault accidents and/or other moving violations in the past 3 years
5. Two or more at fault accidents and/or other moving violations in the past year

"Traffic Violation" includes seat belt violation, but does not include such non-moving violations as weight violations or improper/inadequately maintained equipment.

FUEL EXPENSES

1. You have been issued an approved gas card to fuel your vehicle.
2. Do not use this card for fueling any other vehicles. This card is only to be used for fuel, oil (as needed), and minor vehicle expenses for your assigned vehicle.
3. Check the Owner's Manual that came with the vehicle for fuel requirements.
4. If you lose your card, immediately contact the Fuel Card Administrator.

OUT OF POCKET EXPENSES

Since your vehicle is enrolled in Maintenance Management and the Gas Card Program, you should have minimal out of pocket expenses, such as parking and tolls.

CELL PHONE USE IN VEHICLES POLICY

Harris Companies has a large potential liability from accidents resulting from an employee's negligent use of a cell phone while operating a motor vehicle. The safe operation of motor vehicles is dependent upon a number of factors. One of the most important is staying focused on the task of driving. The use of cell phones can be a distraction and can cause or contribute to an incident. While simple conversation may not significantly affect driving ability adversely, complex business related conversation might disrupt a driver's ability to concentrate on driving conditions.

The use of cell phones in motor vehicles must never compromise safety. *Some jurisdictions have enacted laws regulating cell phone use in vehicles and employees are expected to become familiar and comply with these laws.* In the absence of and/or to supplement specific laws, driver cell phone use should comply with the following requirements when operating company vehicles, or driving rentals or personal vehicles on company business:

1. When possible, allow voicemail to pick up incoming calls while the vehicle is in motion.
2. Advise the person with whom you are speaking that you are on a cell phone in your vehicle and you will call them back.
3. When engaged in conversation on a cell phone while driving, actively compensate for the potential distraction created by cell use:
    - Move to slower travel lanes,
    - Decrease your speed,
    - Increase your following distance, and
    - Frequently check your mirrors to assess the immediate driving environment.
4. Hang up without warning if hazardous driving conditions should develop.
5. Do not use the phone during heavy traffic or hazardous weather conditions.
6. When using hands-free devices, position the phone as close as possible to your line of vision.
7. Program emergency numbers and frequently called numbers in your speed dial and voice activated features.
8. Minimize the length of the conversation.

DO NOT TAKE NOTES – TEXT OR READ INCOMING MESSAGES – OR – E-MAIL WHILE DRIVING

TRAFFIC AND MOVING VIOLATIONS AND FINES

Traffic tickets and parking violations are considered a "personal matter" and must be settled immediately. These expenses are ***non-reimbursable***. You are also responsible for any late charges and administrative fees for any summons or citations that have been forwarded to Harris Companies by the local officials.

If a violation goes unpaid, often times a second notification will be sent to Harris Companies as the registered owner of the vehicle. If Harris Companies must pay the violation, a $15.00 processing fee is added. You are then responsible for paying both the violation and the processing fee.

Harris Companies requires all such violations be paid ***immediately***. Failure to pay a violation may not only affect the employee's record for registration renewal, but may also affect other employees within the fleet. This practice is necessitated in order to uphold the titling and/or registration privileges of leased/owned vehicles. A number of states and municipalities impound vehicles if outstanding violations are not paid.

ACCIDENTS

In the event that you are involved in an accident, please follow the instructions below:

1. Employees are to obtain the following information when an accident involves another vehicle:
    a. Driver's Name
    b. Address
    c. Name of Vehicle Owner
    d. Name of Insurance Company
    e. Vehicle Registration Number
    f. Vehicle License Plate Number
    g. Name(s) of injured
    h. Where injured were taken
    i. Witnesses – for and against
    j. Names and badge numbers of investigating officer(s)
    k. Time and location of accident
    l. Weather conditions
    m. Traffic Conditions
    n. Diagram and written description

EMPLOYEES ARE NOT AUTHORIZED TO AND SHALL NOT EXPRESS OPINION AS TO FAULT OR LIABILITY.

EMPLOYEES WILL *NOT* AGREE TO ANY SETTLEMENT ON BEHALF OF HARRIS COMPANIES OR SIGN ANY STATEMENTS OTHER THAN THE DOCUMENTS REQUIRED BY POLICE AUTHORITIES.

2. As soon as possible after the accident occurs, follow the directions on the back of the insurance card and contact the Safety Department for assistance and additional instructions. The Vehicle Investigation Report on (4 pages, see Appendix 2) must be submitted to the Safety Department within 24 hours after you report the accident.
    a. It is your responsibility to notify any state and/or local agency (police, etc.) of the accident and file the appropriate written report as required by state law.
    b. HARRIS COMPANIES will assign a claim number and will advise how to proceed with repairs of your vehicle (if repairs are appropriate) or how to obtain a different vehicle.

ACCIDENT DEDUCTIBLE

If an accident occurs in a company-insured vehicle assigned to you (whether or not the accident occurs when you or any other authorized driver is driving the vehicle) and it is determined that the accident is the fault of the company-insured vehicle, OR you, OR the driver of the company-insured vehicle were issued a citation, you **may be charged**, at the Companies' discretion, for vehicle damage up to and including $500.00.

No deductible will be assessed on accidents involving a company-insured vehicle if NO citation was issued to you or your authorized driver; and, the Safety Director determines the accident was not your fault.

Collection of Deductible:

Your remittance of an accident deductible must be payable to Harris Companies and forwarded to the following address.

HARRIS COMPANIES
Attn: Safety Director
909 Montreal Circle
St. Paul, MN 55102

Please indicate your fleet and unit number on your remittance.

MOBILE EQUIPMENT REQUIREMENTS

A. General

1. Read the manufacturer's manual before operating.
2. Any reported leak or mechanical problem is cause to immediately shut the vehicle or equipment down.
3. Operators shall keep their vehicles and equipment clean, including windows and light lenses.
4. All operators shall wear required protective items such as hard hats, safety glasses, and safety boots, or equipment as called for by the job conditions.
5. Employees shall wear seat belts as provided.
6. Operators shall not leave the cab while the engine is running.
7. All engines shall be shut-down during refueling.
8. Park out of traffic flow and have reflectors or warning lights showing.
9. Employees taking over-the-counter or prescription drugs shall report to their supervisor who will determine if it is safe for the employee to continue operating.

B. Motor Vehicles

1. Operators shall have a current driver's license applicable to the vehicle they are operating.
2. A current registration and insurance certificate must be kept in the vehicle at all times.
3. Motor vehicles must be maintained in a safe operating condition.
4. Report any damages to vehicle to your immediate supervisor.
5. Operators shall abide by all applicable state and local laws as well as all company policies.

C. Mobile Equipment

1. General

a. Periodic drug screens may be administered to operators in accordance with company, customer, or DOT requirements.

b. Operators shall be tested by a competent person before assignment. The tester will ensure the operator fully understands how to read a load chart and run the equipment in a smooth manner.

c. Assigned mobile equipment shall be inspected on a daily basis. The operator shall fill out and submit a daily inspection form. (Mobile Equipment Inspection Report, found in Appendix 2). Operator shall ensure that any special warning signs are posted, the backup alarm is working, and a fire extinguisher is on the equipment. Operator shall follow all required load-rating capacities and recommended operating speeds.

d. Operators shall not perform any task that distracts the operator while operating equipment, (ie. Use of phone, eating, drinking, or reading)

e. Operators must know hand signals and only take signals from one person. However, the operator shall obey a "Stop" signal from anyone. A signal person must be used if the operator cannot see the placement point.

f. Before entering a work area, equipment operators shall check for overhead power lines and other obstructions or hazards that could impede their movement or work operations.

2. Aerial Platforms

a. The operator shall fill out and submit a daily Powered Aerial Work Platform Inspection Log.

b. Operator shall test controls each day when making an inspection.

c. When employees are in the basket of a lift that requires tie-off, either by operators' manual or jobsite requirements shall wear a full-body harness with a self-retracting life-line anchored to designated tie-off points. They will not tie off to the structure, except if they are accessing a work area outside of the basket.

d. Aerial lifts shall not be used near electric power lines unless they are de-energized.

e. Ground controls shall not be operated on ground level unless workers on the platform grant permission or an emergency condition exists.

f. If lift is provided with outriggers, ensure they are completely extended and pads are used under the outriggers on soft surfaces.

g. Do not operate if winds are in excess of manufacturer's specifications.

h. Do not let people work below the platform; barricade the area.

i. An outside agency shall inspect mobile equipment requiring annual certification.

3. Back-Hoe

a. The operator shall fill out and submit a daily Mobile Equipment Inspection Report.

b. Check operating area for hazards; stay proper distance from power lines.

c. When performing maintenance, beware of pinch points and do not use outriggers to elevate equipment; always use cribbing to block it up.

d. Seatbelts shall be worn at all times while operating the back-hoe.

e. When excavating, operator shall not allow other workers in his area of operation.

f. Be cautious when excavating where known underground utilities exist. A signal person should be used to notify the operator when close to utilities.

g. Avoid side hill travel when working on slopes. Operate up and down the slope.

h. Allow no one to ride on equipment.

i. Park on level ground, ensures bucket is down, and set brakes.

4. Front End Loader/Skid Loader

a. The operator shall fill out and submit a daily Mobile Equipment Inspection Report.

b. Seatbelts shall be worn at all times while operating the Front End Loader/Skid Loader.

c. Pinch points shall be guarded.

d. Front End Loader/Skid loader operators are to remain in seat when raising bucket.

e. Avoid side hill travel when working on slopes. Operate up and down the slope.

f. Mount loaders carefully using ladders, grab irons, or hand holds provided. Always dismount ladders facing the machine.

g. Allow no one to ride on your equipment

h. Do not swing loads over dump truck cabs.

i. Always look to the rear when reversing travel and ensure audible alarm is working.

j. Be alert for hazards that may interfere with your equipment or possible danger to other workers.

k. When performing maintenance or not in use, loader buckets shall be lowered to ground or blocked, the controls in neutral position with the motors stopped, and brakes set.

D. Cranes

1. Load Ratings

a. The load ratings for a crane with a specified boom length and working radius are found in the crane manufacturer's capacity chart. This chart is the guide for that particular crane because it dictates the limits for which the crane and its components were designed. It is specific to the crane and should be identified with the crane ID number on the chart.

b. Load ratings should be down-rated by two percent (2%) for each degree of temperature LESS than 0°F until minus –30°F is attained. Lifting is NOT recommended at temperatures less than -30°F.

2. Wire Rope

The manufacturer for that service must recommend all hoisting wire ropes. Non-rotating rope is not acceptable for boom hoist reeving and is not recommended for multiple-part reeving. The replacement rope for cranes must be the same size, grade, and construction as recommended by the crane manufacturer.

a. Ropes shall be replaced when any of the following conditions are detected:

- Six or more randomly distributed broken wires in any one lay or when there are three or more broken wires in any one strand of any one lay.
- Two or more broken wires in any one lay in those sections beyond the end connections or when there are one or more broken wires at the end connections.
- Wear of one third the original diameter of outside individual wires.
- Kinking, crushing, bird caging or any other damage or distortion of the wire rope structure.
- Evidence of heat damage.
- The rope's diameter is reduced by more than 3/64-inch in a rope diameter up to and including ¾-inch, 1/16 inch in a rope with a diameter from 7/8 to 1-1/8-inch, 3/32-inch in a rope with a diameter from 1-1/4" to 1-1/2".

b. Do not allow wire rope to become fouled or jammed, either on the drum or by jumping off a sheave.

3. Operations:

a. Before each lift, the Superintendent-in-charge of the lifting operation must determine the weight of the load to within +/-5%. When determining the weight of the load, the weight of all handling devices such as slings, spreader beam, and load block shall be considered as being part of the load.

b. The lifting capacity shall not be increased by tying off equipment to the crane's gantry or upper works.

c. Every time the weight of a load is at or near the crane's rated capacity, the crane operator will test the crane's brakes by raising the load a few inches and applying the brakes.

d. The operator shall exercise special care when using a long boom in a high position. Crane booms shall not be used to drag loads sideways.

e. A load-rating chart must be physically attached to each crane. The operator must be able to read this chart from his normal operating position.

f. The supervisor-in-charge of the lifting operation shall assign a competent worker to signal the crane operator. The crane operator shall take signals only from the assigned signaler.

g. The operator shall not raise, lower, or swing the boom or load or travel with the load while anyone is on the load or on the hook. The operator shall not swing loads over people.

h. Tag lines shall be used at all times unless they are impractical.

i. When the whip line is being used or when the crane is traveling, the main load hook shall be tied back to the crane's upper works.

j. The operator shall ensure that the house swing is locked when the crane is unattended even if only for a short period. At the end of each shift, the operator shall ensure that the main hook or headache ball is tied off to a secure anchor. When high winds are likely, the crane shall be boomed down and rested on a suitable support for the night.

k. Check operating area for hazards; ensure proper distance from power lines is maintained.

l. Ensure the swing radius of the crane is barricaded.

m. Never operate with other than the manufacturers recommended counter-weight.

n. Mount crane carefully using grab irons and handholds provided.

o. At any time, the operator feels that materials are not rigged properly, or a hazard exists, the operator will cross his/her arms to alert riggers that he/she will not operate the crane.

4. Maintenance

The crane and its equipment must be inspected regularly; written, signed, and dated records of these inspections shall be readily available. These records should include dated and detailed records of the crane's service and maintenance.

a. Inspect Daily:
   - All safety devices.
   - Air and hydraulic systems for deterioration or leaks.

b. Inspect Weekly:
   - Crane hooks and blocks for signs of damage or excessive wear.
   - Ropes, pendants, and end fittings.
   - Boom chords and lattices.

- Drums and sheaves.
- Pins, gears, rollers, and locking devices.

c. Inspect Monthly:
- Brake and clutch systems parts, linings, pawls, and ratchets.
- Load, boom angle, and other indications.
- Chain drive sprockets.
- Travel steering, braking, and locking devices.

d. Inspect Annually:
- Outside agency or manufacturer representative will perform.

5. Inspection Forms

a. The operator shall fill out and submit a daily Mobile Equipment Inspection Report.

b. Inspection report forms shall be used to note the general appearance and condition of the cranes before they are accepted for use.

c. Inspection must be made before a piece of equipment is released.

d. A checklist shall be used before every lift considered critical.

6. Critical Lifts

All lifts more than eighty-five percent (85%) of the crane's capacity and lifts requiring more than one crane shall comply with the following:

a. Checklist:
- Can the crane get to the area of the lift?
  - Any road/bridge limitations in route?
  - Will the crane's length, width, and height permit it access to the lift area?
  - Any traffic control problems in the lift area?
- Are there any tire/outrigger support considerations in the lift area?
  - Underground utilities?
  - Steep Slopes?
  - Newly backfilled areas?
  - Non-compacted stone?
  - Ice/snow/frozen ground?
  - Soft ground conditions?

b. Procedures:
- Evaluate any obstructions in the working area (power lines, poles, trees, buildings, traffic, fences, pedestrians, etc.)
- Check revving and determine number of parts needed and if you have adequate wire rope.
- Determine radius of load.
- Select rigging method.
- Determine boom length needed.

- Make all required deductions from the load chart for the crane configuration used.
- Determine lifting area in relation to crane, i.e., over rear, side, or front, and use the appropriate chart.
- When using a jib at the radius of the load, you must compare the jib rating to the main boom and/or attachment rating and use the lower figure.
- If the lift is close to the machines capacity, in the ***structural limited area*** of the load chart, make a test lift in a safe area first.
- Before the pick is made, ensure that you are complying with all the notes, cautions, and warnings that are on the load chart and range diagram.
- When the lift is made, the crane operator ***must*** take into consideration additional factors such as wind direction and speed, use of tag lines to control the load, dynamic loading, etc., and make any necessary changes to keep the lift within the cranes capacity.

E. Truck Cranes – Operating Limitations

The following instructions shall be **strictly enforced**.

1. The crane must be level to within 1/8" in 24".
2. All outriggers must be out to full spread, and to ensure that the outriggers have equal loads; all carrier wheels must be lifted until they just clear the ground.
3. When the ground condition is not ideal, timbers that are longer than the dimensions of the outrigger pad must be used under all outrigger pads.
4. The front bumper counterweight shall be used only to raise long booms as recommended by the manufacturer of the crane. The front bumper counterweight shall not be used to increase the crane's lifting capacity.
5. Signal bells and horns must be used to warn people when the machine is backing up.

F. Crawler Cranes – Operating Limitations

The following instructions shall be **strictly enforced**.

1. The crane must be level to within 1/8" in 24".
2. Turns should be made on hard level ground only.
3. Use timber mats when ground conditions are less than ideal. These mats should be placed crosswise to the tracks; and, the mat's length should be greater than the outside width of the pair of tracks.
4. Reduce rated loads by twenty percent (20%) when traveling with load over side of crawler or when traveling and swinging is done simultaneously.

G. Hydraulic Cranes – Operating Limitations

The following instructions shall be **strictly enforced**.

1. On Rubber

a. When traveling with loads that approach the crane's capacity (on rubber ratings), the mechanical swing lock must be engaged and travel speed reduced to creep speed.
b. Loads carried must be tied to the front of the hydraulic crane.
c. Signal bells or horns must be used to warn people when the machine is backing up.

2. On Outriggers
   a. All outriggers must be out to full spread, and to ensure that the outriggers have equal load, all carrier wheels must be lifted until they just clear the ground.
   b. When the ground condition is not ideal, timbers that are longer than the dimensions of the outrigger pad must be used under all outrigger pads.

H. Personnel Hoisting

The following requirements apply when cranes are used to hoist personnel:

1. Lifting and lowering speed shall not exceed 100' per minute.
2. Load lines shall be capable of supporting without failure, at least seven times the maximum intended load, except where rotation resistant rope is used, the lines shall be capable of supporting without failure, at least ten times the maximum intended load.
3. Load and boom hoist drum brakes, swing brakes, and locking devices such as pawls or dogs, as equipped, shall be engaged when the occupied personnel platform is in a stationary working position.
4. The load line hoist drum shall have controlled load lowering. Free fall is prohibited.
5. The crane must be level to within 1/8" in 24" (this is more stringent than the OSHA standard of one percent of level grade.)
6. The total weight of the loaded personnel platform and related rigging shall not exceed 50% of the rated capacity of the crane, at any radius.
7. The use of cranes having live booms is prohibited.
8. A boom angle indicator must be in use.
9. Telescoping booms shall be equipped with a device to indicate the booms extended length.
10. A positive anti-two-block device or two-block damage prevention feature.
11. At least two brakes, one of which should be on the boom hoist drum. A worm gear or load-locking hydraulic valve in the drum is considered a braking feature.
12. Hydraulic cranes must have flow restrictors or check valves in the hydraulic system to prevent uncontrolled descent of the boom.

Personnel Platform

1. Design Criteria
   a. The personnel platform and suspension system shall be designed by a qualified person competent in structural design.
   b. The suspension system shall be designed to minimize tipping of the platform due to movement of personnel.
   c. The platform shall be capable of supporting at least five times the maximum intended load.

d. All welding of the platform shall be performed by a qualified welder.
e. Each platform shall be provided with perimeter protection from the floor to 42" above the floor, which shall consist of either solid construction or expanded metal having openings no greater than ½".
f. The access gate shall swing inward and be equipped with a locking mechanism.
g. The platform shall be posted with a plate or other permanent marking indicating the weight and load capacity of the platform.
h. A grab rail shall be installed inside the entire perimeter of the platform.
i. Headroom shall be provided which allows personnel to stand upright in the platform.

Personnel Platform Loading

1. The rated load capacity of the personnel platform shall not be exceeded.
2. The platform shall not be used as a material hoist.

Rigging

1. When a wire rope bridle is used to connect the personnel platform to the load line, the bridle legs shall be connected to a single ring or shackle.
2. Wire rope, shackles, rings, and other rigging hardware shall have a minimum safety factor of five.
3. All eyes in wire rope slings shall be fabricated with thimbles.

Inspection and Testing

1. Cranes used to hoist personnel platforms shall be inspected before hoisting personnel to verify that all systems, controls, and safety devices are activated and functioning properly.
2. A full-cycle operational test lift at one hundred and twenty-five percent (125%) of the intended load of the platform shall be made prior to the hoisting of personnel for the first time at each new set-up location.
3. After the trial lift, the platform shall be hoisted a few inches and inspected to assure that it is secure and properly balanced. The following conditions must exist:
    a. Hoist ropes shall be free of kinks.
    b. Multiple part lines shall not be twisted around each other.
    c. The primary attachment shall be centered over the platform.

Safe Working Practices:

1. Personnel shall stay completely inside the platform during the raising, lowering, and positioning.
2. If the platform is not landed, it shall be secured to the structure before personnel exit or enter the platform.
3. Tag lines shall be used when practical.
4. Hoisting of personnel while the crane is traveling is prohibited.
5. The crane operator shall remain at the controls at all times.

6. Personnel being hoisted shall remain in continuous sight of and/or communication with the operator or signal person.
7. Personnel occupying the personnel platform shall wear a full body safety harness with lanyard attached.
8. Hardware used for attaching the platform to the hoist line shall not be used for any other service.
9. A pre-lift meeting attended by the crane operator, signal person, personnel to be lifted, and their supervisor shall be held to discuss the procedures to be followed. Copies of this meeting shall be maintained on file.

TRAINING

All training of operators shall be conducted by a competent person who shall ensure the operator has a current state driver's license, is qualified to perform basic maintenance and daily inspections, operate in a safe and smooth manner, and understand the potential hazards involved in operating the equipment assigned.

REFERENCES

29 CFR 1910.67

29 CFR 1910.180

29 CFR 1926.550, 556, 400, 600-602, 952

Section 10: Forklift Policy

INTRODUCTION

A forklift has superhuman strength to make work faster and easier. But if you do not drive a forklift safely and work around it carefully, it can be hazardous. Knowing the safety guidelines for forklifts can help you get your work done without incidents.

The High Cost of Incidents: Everyone pays a high price for not working safely around forklifts. **Drivers** can be injured, disabled, or killed if their forklift tips over on them. **Pedestrians** can be crushed by falling loads or run over by the wheels of sharply turning forklifts. **Property damage**, too, can result from poor driving, loading, and unloading skills.

Your Safety Program: With the help of your supervisor, you and your co-workers can prevent forklift incidents, be proud of your work, and go home injury-free.

DRIVER RESPONSIBILITIES

Material handling incidents occur frequently in industry and have accounted for many deaths and serious injuries. These incidents also cost companies like ours millions of dollars in product and property damage. All of these incidents, whether employee injury or property damage, could have been prevented!!

Incident prevention starts with ***you*** and the attitude you have toward your job. Be responsible for your actions by following the safe operating practices of Harris Companies outlined in this program.

The forklift is a versatile piece of material handling equipment. Driving the forklift requires you, the operator, to be good at your job and skilled in order to safely perform required job tasks. Each operator is responsible for the safe operation of the forklift and having knowledge in the following areas:

1. Ability to discuss the safe operating procedures related to routine forklift operations.
2. Understanding all the critical parts or components of the lift truck.
3. The operator shall fill out and submit a Forklift Daily Inspection Log.
4. Asking your supervisor if there is any specific or special material handling instructions (e.g., capacity levels, protective equipment, or clothing.)
5. Reporting all injuries and property damage to your supervisor – ***immediately using the forms in the Grab & Go Packet (Red Incident Folder) (Also in Appendix 2)***
6. Never operate material handling equipment under the influence of drugs or prescribed medications that may impair your ability to be alert. This is for your own safety, as well as others.
7. Knowing the capacity of your forklift and the weight of the materials to be lifted. Never lift more than the rated capacity of your equipment.
8. Being alert to your surroundings and looking for conditions that might not be safe for the type of forklift you are operating. Ask your supervisor if any conditions exist in which your forklift should not be used.

SAFETY GUIDELINES

CARE OF MACHINE

1. Never change direction of travel while in motion. Stop before shifting to reverse. Never use reverse as a brake.
2. Avoid sudden stops or starts.
3. No one should operate a forklift other than the person to whom it is assigned.
4. Never use a forklift for pushing or pulling. Forklifts are designed to lift and transport.
5. Every forklift has a rated capacity for lifting. Never lift amounts that exceed the capacity.
6. Safety check your forklift at the start and end of your shift.
7. Never use an unsafe piece of equipment.
8. Never run an electric forklift beyond the rated capacity of the battery as shown by red hand of ampere-hour meter.

PROTECTION OF OTHER PERSONNEL

1. Absolutely no one shall ride the forks of a forklift or hitch a ride in any manner.
2. Watch out for pedestrians as they always have the right of way. Always drive defensively.
3. Do not allow bystanders during stacking. Loads and stacks can topple and injure someone. Never let anyone stand beneath loads on forks.
4. Lower forks to ground level when parking.
5. Keep to the right whenever possible. Practice standard driving rules.
6. Use horn only as a warning signal.
7. Yield the right-of-way. At intersections, yield to the vehicle at the right.
8. Do not follow too closely. Keep a safe distance from vehicle ahead, as in highway traffic.
9. Look in the direction of travel. Never move a forklift without first looking in the intended travel direction. Do not drive looking over the shoulder any longer than necessary.
10. Never pass another vehicle traveling in the same direction that has slowed down for an aisle intersection.
11. Keep load as low as possible when driving, approximately 3 or 4” above the floor. The same applies for traveling with no load.
12. Verify that wheel chocks, supports, and dock plates are correctly used or engaged before entering a trailer to load/offload materials.

PROTECTION OF DRIVER

1. Keep arms and legs where they belong. Do not hang over side of vehicle. Keep head, hands, and feet out of uprights when the machine is in operation.
2. Do not drive with wet or greasy hands.

*****PROTECTION OF PROPERTY*****

1. Avoid bumping into objects, especially when backing. Watch where the forklift is going.
2. Slow down for wet and slippery floors.
3. Do not daydream on a moving forklift - always be alert.
4. Report all incidents immediately to a supervisor.

OPERATION CHECKLISTS

A. Forklift Maintenance:

In addition to learning the proper way to operate your forklift, it is also important that your forklift be kept in good working order at all times. This can only be accomplished through an organized preventive maintenance program.

B. Provision for Fueling Forklifts:

1. *Electric Forklifts:*
    a. Handling and charging batteries create potential hazards that can be minimized by wearing chemical goggles, rubber gloves, aprons, and rubber boots. Also, hydrogen gas may be vented from the batteries causing a potential fire hazard.
    b. When charging batteries:
        - Always pour acid into water.
        - Carboy tilter or siphon should be used to handle electrolyte.
        - Maintain vent caps in place during charging to prevent electrolyte spray.
        - The cover over the battery should be removed during charging to dissipate heat.
        - Tools or metal parts should never be placed on battery.
        - Never smoke in or near the battery charging area.
2. *Liquefied Petroleum:*
    a. Fuel containers require an excess flow check valve to prevent fuel from escaping.
    b. Exchange of removable fuel containers should be done outdoors, except when all safety devices meet NFPA codes.
    c. Contact your supervisor for complete information.
    d. LP forklifts should be parked in well-ventilated areas.

TRAINING

All employees required to operate a forklift must receive proper training. All training and testing shall be accomplished by a qualified instructor that has completed a Forklift Trainer Course. All records of training shall be sent to the Safety Department.

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Section 11: Hazard Communication, Right-To-Know, SDS Policy

SCOPE

Procedures provided to employees to assure exposure to hazardous chemicals and materials are eliminated or held to a minimum.

GENERAL

Information necessary for the safe use, handling, and storage of hazardous chemicals and materials will be made available to employees; and, includes guidelines on identification of chemical hazards and the preparation and proper use of container labels, placards and other types of warnings. This program may also be referred to as "Right to Know".

REQUIREMENTS

A. Chemical Inventory

1. Harris Companies will maintain an inventory of all known chemicals in use on its projects. A Chemical Inventory List shall be available from project management, as well as located in Appendix 2.
2. Hazardous chemicals brought onto the project by Harris Companies shall be included on the same chemical inventory list.

B. Container Labeling

OSHA has updated the requirements for labeling of hazardous chemicals under its Hazard Communication Standard (HCS). As of June 1, 2015, all labels will be required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. A sample revised HCS label, identifying the required label elements, is shown on the next page. Supplemental information can also be provided on the label as needed.

HAZCOM STANDARD PICTOGRAMS		
Health Hazard  • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	**Flame**  • Flammable • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	**Exclamation Mark**  • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non Mandatory)
Gas Cylinder  • Gasses under pressure	**Corrosion**  • Skin Corrosion/burns • Eye Damage • Corrosive to Metals	**Exploding Bomb**  • Explosives • Self-Reactives • Organic Peroxides
Flame over Circle  • Oxidizers	**Environment (Non-mandatory)**  • Aquatic Toxicity	**Skull & Crossbones**  • Acute Toxicity (fatal or toxic)

1. Chemicals shall be stored in their original, or approved smaller containers with proper labeling attached. Any container not properly labeled should be given to management for labeling or proper disposal.
2. Employees may dispense small quantities of chemicals into other containers when intended for immediate use. All unused chemical left after work is completed must be returned to the original storage container.
3. No unmarked containers of any size are to be on the project.
4. Harris Companies shall rely on manufacturer applied labels whenever possible, and shall ensure labels are maintained, complete with any appropriate hazard warning.
5. All manufacturer labeling shall conform to OSHA's implementation plan of GHS system.

C. Safety Data Sheets (SDS)

Employees working with hazardous chemicals may request a copy of the SDS. Requests for SDS should be made to the project management.

SDS shall be available on the project to provide immediate reference to chemical safety information.

1. The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. As of June 1, 2015, the HCS will require new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below:
    a. **Section 1, Identification** includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.
    b. **Section 2, Hazard(s) identification** includes all hazards regarding the chemical; required label elements.
    c. **Section 3, Composition/information on ingredients** includes information on chemical ingredients; trade secret claims.
    d. **Section 4, First-aid measures** includes important symptoms/ effects, acute, delayed; required treatment.
    e. **Section 5, Fire-fighting measures** lists suitable extinguishing techniques, equipment; chemical hazards from fire.
    f. **Section 6, Accidental release measures** lists emergency procedures; protective equipment; proper methods of containment and cleanup.
    g. **Section 7, Handling and storage** lists precautions for safe handling and storage, including incompatibilities.
    h. **Section 8, Exposure controls/personal protection** lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).
    i. **Section 9, Physical and chemical properties** lists the chemical's characteristics.
    j. **Section 10, Stability and reactivity** lists chemical stability and possibility of hazardous reactions.
    k. **Section 11, Toxicological information** includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.
    l. **Section 12, Ecological information***
    m. **Section 13**, **Disposal considerations***
    n. **Section 14, Transport information***
    o. **Section 15, Regulatory information***
    p. **Section 16, Other information,** includes the date of preparation or last revision.

**Note: Since other Agencies regulate this information, OSHA will not be enforcing Sections 12 through 15(29 CFR 1910.1200(g)(2)).*

Employers must ensure that SDSs are readily accessible to employees.
See Appendix D of OSHA standard 1910.1200 for a detailed description of SDS contents.

2. Hazard Determination

   It is the chemical manufacturer's and importer's responsibility to evaluate chemicals produced or imported by them to determine if they are hazardous. This determination of a hazardous chemical is communicated to non-manufacturing firms by way of SDS and appropriate chemical container labeling. Under OSHA, employers are not required to evaluate chemicals unless they make a determination not to rely on the evaluations of the manufacturers or importer.

   Some physical hazards pertain to chemicals and how they react under certain conditions, physical hazards include chemicals that are combustible liquids, compressed gasses, explosive, flammable, organic peroxides, oxidizers, pyrophorics (ignite spontaneously), and water reactive.

D. Employee Training

Employees shall be trained to work safely with hazardous chemicals during their safety orientation and annually thereafter. Employee training shall include:

1. Methods used to detect a release of a hazardous chemical(s) in the work place.
2. Physical and health hazards associated with chemicals being used.
3. Protective measures to be taken.
4. Safe work practices, emergency responses, and the use of personal protective equipment.
5. Information on hazard communication standard including:
   a. Labeling and warning systems.
   b. An explanation of Safety Data Sheets

E. Personal Protective Equipment (PPE)

The required PPE is available on all projects. An employee working with hazardous chemicals without the provided PPE is subject to disciplinary actions. If an employee is unsure of the proper PPE required for a specific hazardous chemical, he/she should consult the SDS for the specific chemical in question.

F. Emergency Response

1. Any incident of exposure or spill of a hazardous chemical or substance must be reported to project management at once.
2. Project management shall be responsible for insuring that proper emergency response actions are taken in leak/spill situations.

G. Hazards of Non-Routine Tasks

1. Project management shall inform employees of any special tasks that may involve possible exposure to hazardous chemicals during work assignment.
2. Review of safe work procedures and use of required PPE shall be conducted prior to the start of such tasks. Where necessary, areas shall be posted to indicate the nature of the hazard involved.

H. Informing Other Employers

1. Employers are required to adhere to the provisions of Hazard Communication Standard.
2. Information on hazardous chemicals known to be present shall be exchanged with other employers in the same area of the jobsite. Employers shall be responsible for providing necessary information to their respective employees.
3. All on site employers shall have access to a copy of Harris Companies Hazard Communication Standard.

I. Posting

Information shall be posted on the project bulletin board as required under the Hazard Communication Standard as follows:

1. Inventory List of Chemicals (See SDS Folder)
2. A copy of this policy

J. Common Terms and Definitions

Corrosives: Corrosives are chemicals or materials that can burn or damage on contact with the body or in close proximity with the eyes. Corrosives can also damage the lungs if inhaled. Common corrosives are some cleaners, acids, and caustics.

Flammables: Most common flammables are liquids that emit vapors that can ignite and materials that burn. Flammables can also be gases or solids.

Reactives: Reactives are materials that when mixed with certain other materials can react explosively or violently. The reaction can cause fire or toxic vapors or gases.

Toxic: Toxic materials can poison the body and cause harmful effects under improper exposure. The effects can result from immediate or long-term overexposure.

Acute Exposure: Acute exposure to a chemical pertains to a single exposure to a chemical over a short period of time.

Chronic Exposure: Chronic exposure pertains to repeated exposures to a chemical over a long period of time.

Inhalation: A chemical can enter a body through inhalation by breathing the substance into the body. Vapors and dusts can also be inhaled causing damage to the breathing passages and lungs.

Ingestion: Ingestion is the act of swallowing and is an infrequent route of toxic chemicals into the body.

Absorption: The entry of a chemical substance through the skin is known as absorption.

REFERENCES

29 CFR 1926.59

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Section 12: Hazard Warning Policy

SCOPE

Hazard warning systems consist of signs, signals and barricades.

GENERAL

Consistent means of identifying local or general hazards; a Hazard Warning Policy must be understandable by all employees, subcontractors and visitors.

REQUIREMENTS

A. Signs/Signals

1. Signs when required shall be visible at all times when work is being performed; and, shall be removed promptly when the purpose for them no longer exists.
2. Danger signs shall be used only where an immediate hazard exists and have red as the predominating color for the upper panel; black outline on the borders; and a white lower panel for additional sign wording.

3. Caution signs shall be used only to warn against potential hazards and have yellow for the upper panel and black as the predominate colors. Black lettering shall be used for additional wording.

4. Exit signs, when required, shall be lettered in legible red letters, not less than 6" high, on a white field and the principle stroke of the letters shall be at least ¾" in width.
5. Safety instruction signs shall be white with green upper panel with white letters to convey the principle message. Any additional wording on the sign shall be black letters on the white background.

6. Directional signs, other than automotive traffic signs, shall be white with a black panel and a white directional symbol. Any additional wording on the sign shall be black letters on the white background.
7. Construction areas shall be posted with legible traffic signs at points of hazard.
8. All traffic control signs or signals shall be normal highway signs or signals.
9. Accident prevention tags shall be used as a temporary means of warning employees of an existing hazard, such as defective tools, equipment, etc. They shall not be used in place of, or as a substitute for, accident prevention signs.

B. Barricades

1. Barricades shall be visible at all times when work is being performed, isolate a 6' clearance area from the hazard, and shall be removed promptly when the hazard no longer exists.
2. Barricade tape, when used shall be a minimum of 2" wide and be colored red and black for "danger" and yellow and black for "caution". If timber barricade is used, it should be painted with the same colors as barricade tape or the appropriate tape should be affixed to it.
3. Red and black barricade tape shall be used to designate an area of danger. Only the individual(s) who establishes a "danger area" may allow employees to enter. All others shall go around.
    a. When red/black barricade tape is used to designate an area of danger, the individual(s) shall place a sign on the tape that lists the following information:
        - What the hazard is.
        - Responsible person(s) whom established the barricaded area.
        - Responsible parties direct phone number.
        - Duration of barricade.
    b. Individual(s) that establish(es) a barricaded area are responsible for removing all barricade tape, signs, and barricades directly upon completion of work and dispose of materials appropriately.
4. Yellow and black barricade tape shall be used to designate an area of caution.
    a. Signs stating why the caution tape is in place help warn others of potential hazards.
    b. Employees shall be allowed to move through an area marked with caution tape but only with knowledge of why the area is marked.
5. Signs should be placed with all barricades to identify hazards present.

REFERENCES

29 CFR 1926.200
ANSI D6.1-1971
ANSI Z53.1-1967

Section 13: Health – Temperature Related Policies

SCOPE

To provide workers a safe work environment from temperature related injuries/illnesses.

GENERAL

Supervisors and employees will be trained in controlling and preventing temperature related injuries/illnesses.

INTRODUCTION

It is Harris Companies policy to control employee exposure to high and low temperature extremes. It is through policies and procedures that Harris Companies can strive to protect personnel from adverse effects of working in temperature extremes, and assist with protecting personnel from possible temperature related disorders.

REQUIREMENTS

1. **Employees shall:**
    a. Notify their supervisor if they believe they are being exposed to temperature extremes through regular work practices, or when a change in work practices increases their exposure to temperature extremes.
    b. Receive training on cold stress recognition, prevention, and a control measures prior to working in a cold environment.
    c. Follow safe work practices to reduce cold stress as specified in this policy.
    d. Wear PPE as specified to help prevent cold stress disorders from developing.
2. **Safety Department shall:**
    a. Initially evaluate work areas/activities that may be affected by temperature extremes.
    b. Recommend changes to the work environment, as needed, to reduce employees' potential for developing cold-related disorders.
    c. Provide emergency room interface after hospital evaluation.
3. **Safety Coordinators shall:**
    a. Assist supervisors with monitoring ambient temperatures and conducting cold stress monitoring when the threshold temperature is reached.
    b. Assist supervisors with the implementation of changes recommended by the safety department to reduce employee's potential for developing cold-related disorders.
    c. With the assistance of safety department personnel and others deemed as "competent persons", train supervisors on the detection of early signs of cold stress; and, train employees on cold stress recognition, prevention, and control measures prior to working in a cold environment.

4. **Supervisors shall:**
    a. Identify employees who will be potentially exposed to temperature extremes to the Safety Coordinator. Employees/activities affected by cold temperatures may include but are not limited to:
        - Construction – outdoor work or performing renovation work in areas where the heating/ventilation has been turned off.
        - Maintenance – outdoor work or performing renovation or new construction in areas where the heat/ventilation is under repair or not yet installed.
    b. Receive initial or seasonal refresher training on the detection of early signs of cold stress and first aid for initial response to cold stress disorders.
    c. Educate employees on the symptoms of cold stress. Conduct safety briefings regarding health hazards and control measures associated with cold stress whenever conditions require the implementation of cold stress monitoring. Permit employees to interrupt their work if they demonstrate physical signs of cold stress.
    d. In a cold-related emergency:
        - Notifies local EMS transport to a local emergency room.
        - Notifies Safety Department that EMS has been called
        - Provides cold stress disorder first aid until EMS arrives.
    e. Monitor ambient air conditions to determine applicable work/rest regimens.
    f. Encourage employees to notify supervisors if the employee has an underlying medical condition or is taking medication that increases cold intolerance and arrange accommodation venues.
    g. Permit employees to interrupt their work if they demonstrate signs of cold-related distress or extreme discomfort.
    h. Ensure employees have access to potable drinking water.

A. Training

Training will be conducted by a competent person who shall ensure that Harris Companies employees be trained in accordance to OSHA rules relating to temperature related illnesses/injuries.

TEMPERATURE EXTREMES – COLD

A. Introduction

This policy applies to all Harris Companies operations where ambient temperatures are less than 40 degrees Fahrenheit (°F).

B. Hazard Identification

1. General

a. Supervisors will evaluate, with the assistance of the safety coordinator, work operations to determine employee exposure to cold temperature extremes as part of the Job Hazard Analysis (JHA).

b. When the body is unable to warm itself, cold stress disorders may result, including tissue damage and possibly death. Four environmental factors affect the amount of cold stress employees may face in a cold work area. The following factors are to be considered in the evaluation:
    - Temperature
    - Wind velocity
    - Humidity level at low temperatures
        - High humidity at low temperatures causes condensation lowering body temperatures.
    - Dampness
    - Contact with cold water or cold surfaces.

c. Major risk factors for cold stress
    - Major risk factors that may affect the amount of stress employees may face in a cold work area include:
        - wearing inadequate or wet clothing
        - taking certain drugs or medications such as alcohol, nicotine, caffeine, and medication that inhibit the body's response to the cold or impairs judgment.
        - having an upper respiratory infection or certain chronic diseases such as diabetes, heart, vascular, and thyroid problems, may make an individual more susceptible to cold environments.
        - being male; men experience greater death rates due to cold exposure than women (possibly due to inherent risk-taking activities, body-fat composition, or other physiological differences).
        - becoming exhausted or immobilized, especially due to injury or entrapment, may speed up the effects of cold temperatures.
        - older/elderly persons are more susceptible to the effects of cold stress.

2. Recognition of Cold Related Disorders. Cold body parts are tricky and need to be warmed gently to prevent further harm. Symptoms must be readily identifiable and prompt first aid or prompt referral to emergency care is needed, in order to gently increase the temperature and promote warmed blood flow to the area without death of tissue or the need for amputation.
    a. A cold environment forces the body to work harder to maintain its temperature. Cold air, water, and snow all draw heat from the body. Wind chill, which is a combination of temperature and velocity, is an important factor to evaluate when working outside. A dangerous situation of rapid heat loss may arise for any individual exposed to high winds and cold temperatures.
    b. Cold-induced occupational illnesses, injuries, and reduced productivity may occur with excessive exposure to a cold work environment. When in a cold environment, most of the body's energy is used to keep the body cavity warm. Over time, the body will begin to shift blood flow from the extremities (hands, feet, arms and legs) and outer skin to the core (chest and abdomen), allowing exposed skin and extremities to cool rapidly and increasing the risk of frostbite and hypothermia.

Trench foot may also be a problem where cold water is present within a cold working environment.

Cold induced disorders include:

(The cold stress disorders outlined below are listed from the least to the most serious disorder; death is possible if the person is not removed from the cold stress situation.)

a. **Trench Foot** – caused by long, continuous exposure to a wet, cold environment, or actual immersion in water. Symptoms include a tingling and/or itching sensation, burning, pain, and swelling; sometimes blisters form in more extreme cases.

b. **Chilblain** – Red swollen skin that is tender, hot to the touch and may itch. Condition may worsen to aching/prickly sensation to actual numbness.

c. **Frostbite** – occurs when skin tissue actually freezes, causing ice crystals to form between cells and draw water from them, which leads to cellular dehydration. Although frostbite typically occurs at temperatures below 30°F, wind chill effects may cause frostbite at above-freezing temperatures (see Attachment 2 at the end of this section)

- Initial effects of frostbite include uncomfortable sensations of coldness; tingling, stinging, or aching of the exposed area followed by numbness. Ears, fingers, toes, cheeks, and noses are primarily affected. Frostbitten areas appear white and cold to the touch. The appearance of frostbite varies depending on whether re-warming has occurred.
- Deeper frostbite involves freezing of deeper tissues (e.g., muscles, tendons, etc.) causing exposed areas to become numb, painless and hard to the touch.

d. **General Hypothermia** – Occurs when your body temperature falls to a level where normal muscle and brain functions may be impaired. While hypothermia is generally associated with freezing temperatures, it may occur in any climate where a person's body temperature falls below normal.

- The first symptoms of mild hypothermia, such as shivering, an inability to perform complex motor functions, lethargy, and mild confusion, occur as the core body temperature decreases to approximately 95°F.
- As body temperature continues to fall, hypothermia becomes more severe. The individual falls into a state of dazed consciousness, failing to complete even simple motor functions. The victim's speech becomes slurred and their behavior may become irrational.
- The most severe state of hypothermia occurs when body temperature falls below 90°F. The body moves into a state of hibernation, slowing the heart rate, blood flow, and breathing. Unconsciousness and heart failure may occur in a severely hypothermic state.

C. Hazard Control

The risk of developing cold related injuries will be reduced by using one or more of a selection of engineering controls, work practices, employee training, and exposure (cold stress) monitoring.

1. Exposure monitoring. The supervisor shall conduct cold stress monitoring (ambient temperature monitoring) when the work environment temperature is less than 40°F. Initial

monitoring will be conducted to determine the first warm-up break, measuring air temperatures and estimating wind velocity (for outdoor operations), as follows:

a. Establish the work/warm-up schedule for properly clothed employees using the Threshold Limit Values (TLV) outlined in Attachment 1 at the end of this section, "TLV's Work/Warm-up Schedule for a 4-hour shift."

b. For exposed skin, continuous exposure shall not be permitted when the air speed and temperature result in an equivalent chill temperature of -25°F. Refer to the National Weather Service "Wind Chill Factor Chart" for information on making an exposure determination. See Attachment 2 at the end of this section.

c. At air temperatures of 40°F or less, employees who become immersed in water, or whose clothing has become wet, should immediately change their clothing and be treated for any symptoms of hypothermia.

2. Engineering controls will be implemented to reduce risk, when feasible, and will include such measures as:

a. Use an on-site source of heat (e.g., air jets, radiant heaters or contact warm plates.)

b. Shield work areas from drafty or windy conditions.

c. Provide a heated shelter for employees who experience prolonged exposure to equivalent wind-chill temperatures of 20°F or less.

d. Use thermal insulating material on equipment handles when temperatures drop below 30°F.

3. Safe work practices will be implemented to combat the effects of cold temperature extremes, such as changes in work schedules and practices will help combat the effects of exceedingly cold weather. This can include:

a. Allowing employees a period of adjustment to the cold before scheduling a full work shift in a cold work area.

b. Permitting employees to interrupt their work if they demonstrate signs of cold-related disorders or extreme discomfort.

c. Establishing work periods and rest periods in a warm area. If work is performed continuously in the cold at or below an equivalent chill temperature of 20°F, heated warming shelters should be made available nearby. Employees shall be encouraged to use these shelters at regular intervals. When entering a warming shelter, employees should remove their outer layer of clothing, and loosen the remainder of clothing to permit sweat evaporation.

d. Reducing the number of activities performed in cold environments as much as possible. When employees must work outside in cold temperatures, supervisors shall select the warmest hours of the day. Arrange work tasks to minimize sitting or standing still for long periods.

e. Protecting employees from drafts to the greatest extent possible.

f. Establishing a "buddy system" while working in cold climates/temperatures, so employees can monitor each other for signs of cold stress.

g. Encouraging employees to remain hydrated; provide drinking water/electrolyte-replenishing fluids.

h. Adaptation of work schedules should help prevent cold-related disorders from occurring.

4. Emergency First-Aid Procedures. When in urban areas where emergency services personnel are readily available to transport victims of cold related disorders to a hospital facility, minimum manipulation and first aid interventions are necessary. Hospital facilities have current protocols, procedures, and equipment for effective, gentle warming of cold induced injuries. In most cases only removing wet clothing and covering affected area with blankets or towels should suffice until EMS arrives. Applying too much heat or warming too quickly can result in further injury.

Illness	Symptoms	First Aid*
Hypothermia	Mild symptoms • An exposed worker is alert • He/she may begin to shiver and stomp the feet in order to generate heat Moderate to Severe symptoms • As the body temperature continues to fall, symptoms will worsen and shivering will stop. • The worker may lose coordination and fumble with items in the hand, become confused and disoriented. • He/she may be unable to walk or stand, pupils become dilated, pulse and breathing become slowed, and loss of consciousness can occur.	• Call 911 in an emergency • Move the person to a warm, dry area • Remove wet clothes and replace with dry clothes, cover the body (including head and neck) with layers of blankets; and with a vapor barrier (tarp, garbage bag) Do NOT cover the face If medical help is more than 30 mins away • Give warm sweetened drinks if alert, to help increase the body temperature. • Place warm bottles or hot packs in armpits, sides of chest, and groin.
Frostbite	• Reddened skin develops gray/white patches • Numbness in the affected part • Feels firm or hard • Blisters may occur in the affected part, in severe cases	• Loosely cover frostbitten parts with dry, sterile gauze or soft, clean cloth bandages. • Do not massage frostbitten tissue because it may cause greater injury. • Do not apply snow/water. Do not break blisters. • Severe cases may require hospitalization. • If professional medical treatment will be delayed, consult with a medical professional for guidance on re-warming techniques. If there is a chance that the affected part will become cold again, then do not warm it. Warming and re-cooling may cause severe tissue damage.
Chilblain	• Red swollen skin that's tender • Skin hot to the touch • Itchiness • Aching/Prickly sensation to possible numbness	• Remove from cold. • Remove wet or constrictive clothing. • Gently wash area. • Cover with loose warm clothes and allow gradual, natural re-warming.
Trench Foot	• Tingling and/or itching sensation • Burning • Pain • Swelling • Sometimes Blisters form	• Move employee to a warm, dry area. Gently dry off foot and cover with a dry cloth/blanket. • Carefully soak foot in warm (not hot) water gradually raising temperature of water above current temperature of foot. Only warm in gradual temperature increments so as not to burn the areas. Temperature recognition will be impaired. • Dry, re-warm, and elevate affected tissue. • Seek medical assistance as soon as possible.

D. Records and Reports

1. Records and training reports are to be maintained in accordance with OSHA regulations.
2. Employee health monitoring results should be maintained in the electronic medical record database.

Include supervisor and employee training as well as supervisor monitoring for cold stress in the Job Hazard Analysis.

TEMPERATURE EXTREMES – HOT

A. Identify Environmental Factors

Several environmental factors can contribute to temperature related illness.

1. *Air Temperature*
2. *Humidity*
3. *Radiant Heat*
4. *Air Movement*
5. *Conductive Heat Sources*
6. *Heavy Labor Tasks*
7. *Personal Protective Equipment*

B. Evaluate Environment Factors

1. Check air temperature
    a. Check Weather – Check the forecast, including the temperature and the relative humidity for the area of the worksite, or for the area closest to the worksite. Working in temperatures greater than 75° or a 10°F spike in temperature can put one at risk for heat-related illness.
2. Check humidity
    a. High humidity (approaching 80% and greater) is an important factor because it limits sweat production and evaporation.
    b. Find the Heat Index – The heat index is the temperature the body feels when heat and humidity are combined. The chart (Attachment 4 of this section) shows the heat index that corresponds to the actual air temperature and relative humidity.
3. Check radiant heat from sun and other sources
    a. Radiant heat is the transfer of heat energy through the air.
        - Examples include heat generated from the sun, rocks, shingles, cement, machinery, and buildings. Each radiant heat source present adds to the total amount of radiant heat an employee will be exposed to.
    b. Not all surfaces radiate heat equally. Darker and smoother surfaces (e.g. asphalt parking lot) absorb and radiate greater amounts of heat than rough and light colored surfaces.

4. Check air movement
    a. Air movement affects an employee's ability to cool off. Air movement aids in the transfer of heat from warm skin to cooler air and in sweat evaporation. Even moderate breezes can significantly increase the rate of heat loss. At air temperatures less than skin temperature, the body will lose heat. However, the reverse effect can occur if the air temperature is higher than the skin temperature.
5. Check conductive heat sources
    a. Heat that is transferred when an employee comes into direct contact with a heat source. Consider the duration of time the employee is exposed to each source of conductive heat.
6. Check workload and activity
    a. Refer to Attachment 5 at the end of this section to determine the level of workload activity employees are doing.
7. Check Personal Protective Equipment
    a. PPE is important for worker safety. When controlling temperature related illness environmental factors, PPE can increase the risk of heat illness. Fabrics that do not freely "breathe" will trap sweat next to the skin. This is the same effect as raising the humidity and will greatly decrease the cooling we otherwise get from sweating. Non-breathing clothing also restricts the removal of body heat by air convection. Encourage employees to wear loose fitting, light-weight fabrics like cotton or cotton blends.

C. Control Environmental Conditions

Harris Companies is responsible for controlling heat-related illness environmental factors at the worksite. This can be done by developing clear written programs, and implementing effective work practices and engineering controls. *Work Practice Controls* are means of altering the way work is done to reduce or control the rate at which the body generates heat. *Engineering Controls* are the use of devices to reduce exposure and aid in cooling. ***See Attachment 6 at the end of this section for examples of engineering controls that can be applied in the workplace.*** *(After selecting the controls, you need to document the following information:* when *these controls would be used;* why *these controls would be used; and* what *the expected outcome of these controls are.)*

a. Provide cooling/heating measures as necessary
b. Personal protective clothing where needed
c. Water
d. Breaks when needed

D. Hazard Identification

Heat related Illness include:

1. **Heat Stroke** – The most serious form of heat-related illness, happens when the body becomes unable to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat. Signs include confusion, loss of consciousness, and seizures.
2. **Heat Exhaustion** – is the body's response to loss of water and salt from heavy sweating. Signs include headache, nausea, dizziness, weakness, irritability, thirst, and heavy sweating.

3. **Heat Cramps** – are caused by the loss of body salts and fluid during sweating. Low salt levels in muscles cause painful cramps. Tired muscles – those used for performing the work – are usually the ones most affected by cramps. Cramps may occur during or after working hours.
4. **Heat Rash** – also known as prickly heat, is skin irritation caused by sweat that does not evaporate from the skin. Heat rash is the most common problem in hot work environments.

E. Hazard Control

Emergency First-Aid Procedures.

Illness	Symptoms	First Aid
Heat Stroke	• Confusion • Fainting • Seizures • Excessive sweating or red, hot, dry skin • Very high body temperature	• Call 911 While waiting for help: • Place worker in shade • Loosen clothing, remove outer clothing • Fan air on worker; cold packs in armpits • Wet worker with cool water; apply ice packs, cool compresses, or ice if available • Provide fluids (preferably water) as soon as possible • Stay with worker until help arrives
Heat Exhaustion	• Cool, moist skin • Heavy sweating • Headache • Nausea or vomiting • Dizziness • Light headedness • Weakness • Thirst • Irritability • Fast heart beat	• Have worker sit or lie down in a cool, shady area • Give worker plenty of water or other cool beverages to drink • Cool worker with cold compresses/ice packs • Take to clinic or emergency room for medical evaluation or treatment if signs or symptoms worsen or do not improve within 60 minutes • Do not return to work that day
Heat Cramps	• Muscle spasms • Pain • Usually in abdomen, arms, or legs	• Have worker rest in shady, cool area • Worker should drink water or other cool beverages • Wait a few hours before allowing worker to return to strenuous work • Have worker seek medical attention if cramps don't go away
Heat Rash	• Clusters of red bumps on skin • Often appears on neck, upper chest, folds of skin	• Try to work in a cooler, less humid environment when possible • Keep the affected area dry
***Remember, if you are not a medical professional, use this information as a guide only to help workers in need.**		

Attachment 1: Work/Warm-Up Schedule for a 4-hour Shift

Work/Warm-up Schedule for a 4-hour Shift (Example only)

Air Temperature	No Noticeable Wind		5 MPH Wind		10 MPH Wind		15 MPH Wind		20 MPH Wind	
°F	Work Period	# Breaks	Work Period	# Breaks	Work Period	# Breaks	Work Period	# Breaks	Work Period	# Breaks
32° to -15°	Normal	1	Normal	1	Normal	1	Normal	1	Normal	1
-15° to -19°	Normal	1	Normal	1	75 Min	2	55 Min	3	40 Min	4
-20° to -24°	Normal	1	75 Min	2	55 Min	3	40 Min	4	30 Min	5
-25° to -29°	75 Min	2	55 Min	3	40 Min	4	30 Min	5	Non-emergency work should cease	
-30° to -34°	55 Min	3	40 Min	4	30 Min	5	Non-emergency work should cease			
-35° to -39°	40 Min	4	30 Min	5	Non-emergency work should cease					
-40° to -44°	30 Min	5	Non-emergency work should cease							
-45° & Below	Non-emergency work should cease									

Notes for Table:

1. Schedule applies to any 4-hour work period with moderate to heavy work activity, with warm-up periods of ten (10) minutes in a warm location and with an extended break (e.g. Lunch) at the end of the 4-hour work period in a warm location. For Light-to-Moderate Work with limited physical movement, apply the schedule one step lower. For example, at -35° with no noticeable wind, a worker at a job with little physical movement should have a maximum work period of 30 minutes with 5 breaks in a 4-hour period as compared to a worker who is doing moderate to heavy work who should be limited to 40 Min work periods and 4 ten minute breaks. An employee engaging in work that is more physical will have increased blood flow and will reduce the effects of cold illnesses/injuries as compared to a sedentary position.

2. The following is suggested as a guide for estimating wind velocity if accurate information is not available: 5 MPH – Light flag moves, 10 MPH Light flag fully extended, 15 MPH – raises newspaper sheet; 20 MPH: blowing and drifting snow.

3. TLV's apply only for workers in dry clothing

Adapted from Occupational Health & Safety Division, Department of Labor (Suggested work practices)

Attachment 2: Wind Chill Factor Chart

Wind Chill Factor Chart

Temperature (°F)

Wind (MPH)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63	
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72	
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77	
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81	
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84	
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87	
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89	
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91	
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93	
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95	
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97	
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98	

Frostbite Times — 30 Min | 10 Min | 5 Min

Wind Chill (°F) = 35.74 + 0.6215T – 35.75(V^0.16) + 0.4275T(V^0.16)

Where, T= Air Temperature (°F) V = Wind Speed (MPH)

Attachment 3: Temperature Effects on Skin in Contact with Surfaces

Temperature Effects on Skin in Contact with Surfaces

Temperature (°F)	Sensation or Effect
212 °	Second Degree Burn on 15-Second Contact
180°	Second Degree Burn on 30-Second Contact
160°	Second Degree Burn on 60-Second Contact
140°	Pain; Tissue Damage (1st Degree Burns)
120°	Pain; "Burning Heat"
91° (+/-4)	Warm; "Neutral" (Physiological Zero)
54°	Cool
37°	"Cool Heat"
32°	Pain
Below 32°	**Pain; Tissue Damage (Freezing)**

Attachment 4: Heat Index Chart

Heat Index Chart

The Likelihood of Heat Related Illnesses with Prolonged Exposure or Strenuous Activity

General Effects of Heat Index on People in Higher Risk Groups

80-89 Caution	**Fatigue possible with prolonged exposure and physical activity**
90 – 104 Extreme Caution	**Sunstroke, Heat Cramps, and Heat Exhaustion Possible**
105 – 129 Danger	**Sunstroke, Heat Cramps, and Heat Exhaustion likely, and Heat Stroke Possible**
130 or Higher Extreme Danger	**Heat Stroke highly likely with continued exposure**

Attachment 5: Workload Activity Examples

Workload Activity Examples

These are only examples meant for comparable reference to determine approximate workload activity.

Categories	Example Activities
Resting	Sitting quietly
	Sitting with moderate arm movements
Light	Sitting with moderate arm and leg movements
	Standing with light work at machine or bench while using mostly arms
	Using a table saw
	Standing with light or moderate work at machine or bench and some walking about
Moderate	Scrubbing in a standing position
	Walking about with moderate lifting or pushing
	Walking on level at 3 mph while carrying 12 pound load
Heavy	Carpenter sawing by hand
	Shoveling dry sand
	Heavy assembly work on a non-continuous basis
	Intermittent heavy lifting with pushing or pulling (e.g. lifting flanges & pipe fittings)
Very Heavy	Shoveling wet sand and concrete

Attachment 6: Environmental Factors

Environmental Factors

Every worksite has different environmental factors.
The following chart provides examples of work practice and engineering controls that can be used to reduce environmental risk factors.

Factors	Controls and Methods
Air Temperature	o Provide cooling vests o Provide misters or other cooling devices o Wet down clothing o Perform work during the cooler parts of the day or in the shade when possible o Encourage workers to take frequent short breaks in a shaded or cooled area o Provide sufficient amounts of water and encourage consumption of non-alcoholic or non-caffeinated beverages. o Use the buddy system o Implement an acclimatization program o Ensure first-aid trained personnel are on site
Relative Humidity	o Provide cooling vests o Encourage employees to wear breathable, light colored clothing o Perform work during the cooler parts of the day or in the shade when possible o Encourage workers to take frequent short breaks in a shaded or cooled area o Encourage employees to bring a change of clothing, and change their clothes if they become saturated
Radiant Heat	o Eliminate unnecessary sources of radiant heat o Install insulation or shielding devices o Provide wide brimmed hats for employees o Perform work during the cooler parts of the day or in the shade when possible o Encourage employees to wear breathable, light colored clothing o Provide and encourage workers to take frequent short breaks in a shaded or cooled area o Encourage the use of sunscreen lotions o Wear shaded goggles or sunglasses
Air Movement	<u>Less than 95°F</u> o Provide misters or other cooling devices o Increase air movement through the use of fans or other devices o Loosen or reduce clothing <u>At 95°F or above</u> o Reduce air temperature o Cover the body to reduce rate of heat gain by convection

Conductive Heat Sources	o Provide protective gloves and footwear (insulation) o Perform work during the cooler parts of the day or in the shade when possible o Encourage workers to take frequent short breaks in a shaded or cooled area
Workload Activity and Duration	o Rotate employees performing particularly physically demanding jobs o Perform work during the cooler parts of the day or in the shade when possible o Enforce work/rest schedules o Encourage workers to take frequent short breaks in a shaded or cooled area o Use the buddy system o Routinely monitor the employee's status o Implement an acclimatization program o Ensure first-aid trained personnel are on site
Personal Protective Equipment	o Remove PPE during breaks o Perform work during the cooler parts of the day or in the shade when possible o Encourage workers to take frequent short breaks in a shaded or cooled area o Routinely monitoring the employee's status o Ensure first-aid trained personnel are on site.

Section 14: Hearing Conservation Program

PURPOSE

To provide information and guidelines to supervisory personnel who oversee work tasks and environments where sound levels exceed a time-weighted decibel rating of 85 DBA during the course of a normal workday. These guidelines are to be implemented to protect employees from potentially harmful effects of exposure to excessive noise.

SCOPE

All Harris Companies employees and staff.

POLICY

All workers who are subjected to a noise level that exceeds a time-weighted decibel rating of 85 dBA or above during the course of a normal workday are to be included in a Hearing Conservation Program.

Harris Companies recommends that workers who are exposed to intermittent noises above 85 dBA should utilize proper hearing protection.

ADMINISTRATION

It is the policy of Harris Companies to institute an occupational Hearing Conservation Program for our workers to prevent any temporary or permanent noise-induced hearing loss to employees and to comply with the federal OSHA standard found at 29 CFR 1926.52.

This written Hearing Conservation Program serves as a record of the details of the Hearing Conservation Program in place at Harris Companies. We have this program in place to protect the hearing of all workers in the company. Elements of the Hearing Conservation Program include:

1. Monitoring
2. Audiometric Testing Program
3. Hearing Protection
4. Training and Information
5. Record-keeping

The Safety Director is the person having overall responsibility for the Hearing Conservation Program. The program will be reviewed and updated as necessary.

PROCEDURES

A. Monitoring

1. All workplaces suspected of having noise levels that may exceed the action level are to be monitored by the Safety Office or a qualified person to identify employees who receive daily noise doses at or above the action level of 85 dBA over an 8-hour shift.
    a. Noise levels must be re-measured whenever any change relating to noise production is suspected of increasing exposures to the extent that additional employees may receive at or above the action level, or the noise reduction provided by the selected hearing protection is rendered inadequate.
    b. Noise levels must also be re-measured to determine the effectiveness of any engineering controls that are installed.
    c. Monitoring may be accomplished by an area survey technique in which sound level meter readings are combined with estimates of the length of exposure of individuals to particular sound levels in order to calculate an 8-hour Time Weighted Average (TWA), or may be measured by personal sampling method by the use of noise dosimeters.
2. When information indicates that any employee's exposure may equal or exceed an 8-hour TWA of 85 dBA, Harris Companies develops and implements an appropriate monitoring program to identify all employees for inclusion in the hearing conservation program and to select proper hearing protection.
3. Harris Companies will notify all employees exposed at or above an 8-hour TWA average of 85 dBA of the results of the monitoring.
4. Within 6 months of an employee's first exposure at or above the action level, Harris Companies will establish a valid baseline audiogram against which subsequent audiograms can be compared. Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used as a substitute for this requirement. At least annually after obtaining the baseline audiogram, the company will obtain a new audiogram for each employee exposed at or above an 8-hour TWA of 85 dBA.
5. If the annual audiogram shows that an employee has suffered a standard threshold shift, the company may obtain a retest within 30 days and consider the results of the retest as the annual audiogram. The company provides an opportunity for affected employees or their representatives to observe any noise measurements conducted. The company selects proper hearing devices for affected employees.
6. The audiometric testing program is in place and available at no cost to all affected employees to ensure that noise exposures are kept at proper levels.

B. Hearing Protection

Hearing protection must be made available to all workers exposed at or above the action level. The use of hearing protection is mandatory for those exposed at or above the Permissible Exposure Limit (PEL), and for those exposed at or above the action level.

1. Harris Companies ensures that employees have a variety of suitable protectors that reduce employee exposure at least to an 8-hour TWA of 90 dBA, or 85 dBA or lower for employees who have experienced a standard threshold shift in their hearing.

2. Harris Companies ensures evaluation for adequacy of the hearing protection for the specific noise environments in which the protector will be used, according to specifications.
3. Harris Companies re-evaluates noise whenever employee noise exposures increases to the extent that current hearing protectors no longer provide adequate attenuation, and then provides more effective hearing protection.
4. The employee's department must provide a variety of suitable hearing protectors from which employees may choose. This requires the availability of at least one type of plug and one type of muff.
5. These devices are to be supplied to employees at no cost, and replaced as necessary. Harris Companies will supply hearing protection as needed.

C. Noise Reduction

The reduction or elimination of noise producing sources and/or employee exposure should be sought through administrative (e.g., modified work schedule) and/or engineering controls prior to utilizing hearing protection, if appropriate and cost effective.

RESPONSIBILITIES

A. The Safety Department or job site office will be responsible for the coordination of the overall program, with specific responsibility for:

1. Assessing the need for hearing protection and identifying those employees who should be included in the Hearing Protection Program through monitoring.
2. Selection of the types of hearing protection to be provided to Harris Companies employees.
3. Providing initial training for care, use, and maintenance of hearing protection.
4. Conducting periodic inspections and evaluation to determine the continued effectiveness of the program.
5. Maintain copies of all records relating to workplace monitoring and testing.

B. Job Site

1. Actual implementation of the program is the responsibility of the individual job site in which exposed employees work. These responsibilities include:
    a. Coordination of employee training schedules with the proper training facility.
    b. Enforcement of the proper care and usage of assigned hearing protection.
    c. Sending training certifications to Safety Department.

C. Employee

1. To use the hearing protection provided in accordance with the instructions and training received.

TRAINING

Harris Companies has a hearing protection-training program for all employees exposed to noise at or above an 8-hr TWA or 85 dBA. The Safety Director and/or outside consultants are responsible for providing this training.

The company repeats the training program annually.

The company assures that the training material is updated to be consistent with changes in the protective equipment and work processes.

The company assures that each employee is informed of at least the following information:

1. The effects of noise on hearing
2. The purpose of hearing protectors; the advantages, disadvantages, noise reduction of various types; and instructions on selection, fitting, use, and care.
3. The purpose of audiometric testing and explanation of testing procedures

The company makes informational materials pertaining to the Occupational Noise Exposure standard that are supplied to it by OSHA, available to affected employees or their representatives.

RECORDKEEPING

Harris Companies will maintain accurate records of all employee exposure measurements required by the monitoring program.

The company maintains accurate records of all employee audiometric test records obtained pursuant to paragraph (g) of 29 CFR 1910.95.

The company retains noise exposure measurement records for two years and audiometric test records for the duration of the affected employee's employment plus 30 years.

The company provides access of records to employees, former employees, representatives designated by the individual employee, and OSHA upon request.

Section 15: Hot-Work Program

SCOPE

The purpose of this policy is:

1. To provide safety requirements for welding, cutting, and brazing in accordance with 29 CFR 1910.252 of OSHA.
2. To prevent any fires that may result from "**hot work**" processes.
3. To protect life and property from fire hazards that may occur during the operation of welding, cutting, and brazing job activities.

GENERAL

This policy applies to all Harris Companies employees and sub-contractors who may perform any work generating spark or flame.

RESPONSIBILITY

The Safety Department is responsible for all facets of this program and has full authority to make necessary decisions to ensure its success. The Safety Department or his/her appointed representative shall be responsible for ensuring the development and implementation of this policy and be able to provide necessary resources as available to carry out the program.

The Superintendents and crew Foremen shall ensure that all directly supervised employees and sub-contractors are utilizing appropriate welding, cutting, and brazing procedures. They shall ensure that the conditions of designated hot work areas have not changed before authorizing hot work permits. They shall ensure that all welding and cutting equipment is maintained in safe operating condition. They shall ensure that employees are suitably trained in the operation of the equipment and safe use of the process. They will issue hot work permits for work under their supervision.

Employees shall be able to read and understand this policy. They will complete Hot Work training as required by the Safety Department. They shall ensure that all PPE is worn properly for the specific hazard involved and that all equipment is in good working condition. They will conduct welding, cutting, brazing, and/or hot work activities in accordance with all safety guidelines and procedures. Employees shall protect nearby combustibles or personnel against heat, sparks, etc. when working in occupied workspaces. Employees will inform their supervisors of any hazards that they feel are not adequately addressed in the workplace and of any concerns that they have regarding the program.

PROGRAM COMPONENTS

A. Welding Hazards

1. Both health and physical hazards are associated with welding depending upon the welding process, the base material, the filler material, and the shielding gas that may be used. Health hazards may be either acute or chronic, the following are the most common:
    a. Burns
    b. Electrical shock and burns
    c. Infrared and ultraviolet eye injury from looking at the arc without eye protection
    d. Lung irritation or poisoning from toxic gases or fumes from the welding operation
2. Physical Hazards associated with welding operations include:
    a. Fire
    b. Potential explosion when welding in close proximity to closed containers that have held flammable liquids or other combustible materials
    c. Potential flash fire when welding in close proximity to flammable or combustible vapors at the worksite

B. Safety Guidelines

1. *All hot work shall be performed in a Designated Hot Work Area, if possible.*
2. **Designated Hot Work Area** must meet the following requirements:
    a. Shall be a discrete area, sectioned off by noncombustible walls, or curtains.
    b. Adequate ventilation, such as a suction hood system providing 20 air changes per hour, should be provided.
    c. Where welding, cutting, and brazing are done near walls, partitions, ceilings, or a roof of combustible construction, fire-resistant shields, or guards shall be provided to prevent ignition.
    d. Protective dividers such as welding curtains or non-combustible walls will be provided to contain sparks and slag to the combustible free area.
    e. Flammable and combustible liquids and material will be kept 25’ from work area.
    f. Floors shall be swept and clean of combustibles within 25’ of work area.
    g. At least one 10 lb. dry chemical fire extinguisher should be within access of the 25’ of work area.

C. Hot Work in areas not designated as Hot Work Areas

When welding, cutting, or brazing work is to be done outside of a Designated Hot Work Area, it is necessary to meet the following requirements:

1. A Hot Work Permit may be required. A sample hot work permit is shown in Attachment 1 of this section.
2. Flammable materials that cannot be removed from the area must be adequately covered or guarded before hot work is started.
3. All floor openings and cracks shall be closed, sealed, and/or covered to ensure that sparks cannot drop into the openings and come into contact with combustible materials.

4. Guards, shields, and or fire-blankets shall be used to confine the heat, sparks, and/or slag from coming into contact with any combustible material within 25' of the hot work.
5. Portable welding curtains or shields must be used to protect other workers in the welding area.
6. Airflow away from the welder and others present must be established and maintained.
7. Plastic materials must be covered with welding tarps during welding procedures.
8. Suitable fire extinguishing equipment shall be maintained in a state of readiness at all times for instant use. This may include fire extinguishers, water hoses, or buckets of sand, depending on the nature of the combustible material exposed.
9. Fire Watchers shall be required whenever these activities are performed in locations where other than a minor fire might develop. The Fire Watcher:
    a. Shall be present to ensure that sparks, slag, and heat generated by the hot work do not start a fire while the welder is working.
    b. Shall remain at the work location for at least 30 minutes after the hot work has been completed to ensure that no sparks or slag are smoldering and that the heat generated by the hot work did not cause some other material to smolder thus creating a potential fire hazard.
    c. Shall be trained in the proper use of fire extinguishing equipment and be prepared to use it.
    d. Shall be familiar with facilities for sounding an alarm in the event of a fire or other emergency situation.
    e. Shall also be trained to react to other potential hazards associated with the work activity such as exposure to welding fumes, welding flash, and any other potential hazards unique to the area in which the work is being performed.
    f. The person performing hot work and the fire watch shall be required to read the Hot Work Permit and sign the permit acknowledging the fact that they understand the potential hazards and will follow the requirements of the permit.
    g. If feasible, floors shall be wetted before start of hot work to prevent ignition.

D. Prohibited Hot Work Areas

1. Areas not authorized by management.
2. Areas equipped with sprinkler systems that are out of order.
3. In the presence of potentially explosive atmospheres, e.g., a flammable liquid.
4. Areas where combustible or flammable materials are within 25' and cannot be moved or protected.
5. Areas where appropriate firefighting equipment is not readily available.
6. Areas where floor and wall openings cannot be covered.

HOT WORK PROCEDURES

1. All hot work permits shall be returned to the issuing supervisor when the hot work has been completed.
2. Supervisor and employee are responsible for identifying and controlling workplace hazards before hot work is performed.
3. Hot Work Permit procedures shall be mandatory for sub-contractors under contract with Harris Companies.
4. Hot Work Permit (for non-designated hot work area) will be issued for a period covering the duration of hot work.
5. **Prior to Hot Work**
    a. Inspect the hot work area to identify any fire hazards.
    b. Remove all flammable or combustible materials within a 25' radius of the hot work.
    c. Sweep floor of all loose combustible debris.
    d. Placing non-combustible or flame resistant screens to protect personnel in adjacent work areas from heat, flames, radiant energy and welding splatter.
    e. Cover sprinkler heads directly above the hot work area with wet rags or other non-combustible materials so they will not be triggered during the work if the hot work area has any.
    f. Cover smoke detectors located in close proximity of the work area, or notify the electrical shop to deactivate smoke detectors in the hot work area.
    g. Notify anyone nearby who may be affected by the work.
    h. Make provisions for proper ventilation.
6. **After Hot Work**
    a. Fire Watch will maintain watch over hot work area a minimum of 30 minutes after hot work is completed.
    b. Remove any covers from sprinkler heads immediately upon completion of the hot work if the hot work area has any.
    c. Remove covers from any smoke detectors immediately upon completion of the hot work, or notify the electrical shop to reactivate them if they have been deactivated.
    d. Clean up any slag, debris, or used electrodes resulting from the work.
    e. Restore ventilation to its original condition.
    f. Supervisor shall conduct a site audit at the end of shift to ensure that hot work was completed properly and permits were signed off according to policy.

VENTILATION GUIDELINES FOR WELDING, CUTTING, AND BRAZING

A. General or Dilution Ventilation

1. Relies on diluting airborne contaminants with fresh air from open doors, windows or fans.
2. Provides enough air movement to keep the fumes and gases out of the welder's breathing zone.

B. Local Exhaust Ventilation

It is much more effective in controlling welding fumes and gases because it captures the fumes and gases close to the source and keeps them from entering the welder's breathing zone. This is usually accomplished by the use of hoods and ducts. To be effective, local exhaust ventilation must:

1. Be close to the welding arc or flame where the fumes, gases, and heat are generated.
2. Have enough velocity to draw away the contaminants.
3. Ensure protection from fume and gases by (depending on circumstances) one or a combination of:
    a. Good general ventilation.
    b. Use of a booth.
    c. Local exhaust ventilation such as fume hoods and ducts.
    d. Movable hoods placed as close to the work as practical and provided with a rate of 100' per minute in the zone of welding when the hood is at its most remote distance from the point of welding.
    e. The rates of ventilation required to accomplish this velocity using a 3" wide flanged suction opening accordance with 29 CFR 1910.252(c)(3)(i) are shown in the following table:

Welding Zone	Minimum air flow cubic ft/minute	Duct diameter, inches
4 to 6 inches from arc or torch	150	3
6 to 8 inches from arc or torch	275	3 ½
8 to 10 inches from arc or torch	425	4 ½
10 t o12 inches from arc or torch	600	5 ½

INSPECTION AND STORAGE OF CYLINDERS

A. Inspection and Handling

1. Employees should inspect cylinders, regulators, and hoses before use.
2. Hammers or wrenches shall not be used to open cylinder valves. If valves cannot be opened by hand, the supplier shall be notified.
    a. When a special wrench is required, it shall be left in position on the stem of the valve while the cylinder is in use so that the fuel-gas flow can be quickly turned off in case of emergency.
3. Smoking is never allowed around flammable gases.
4. Inspect the cylinder and the gas identification tag.
5. Unless cylinders are secured on a special truck, regulators shall be removed and valve-protection caps, when provided for, shall be put in place before cylinders are moved.
6. Inspect your work area for grease or oils before you use compressed gas.
7. Always use regulators for all gas cylinder hookups, valves must be fully shut off when not in use.
8. Ensure that you use only non-sparking tools for flammable gases.
9. Be sure the cylinder is in an upright, secure position in your work area.
10. You should limit pressure to 30 psi for air blow down.
11. Never refill or attempt to repair a gas cylinder.
12. Remove leaking cylinders out of the building and properly vent all remaining gas.
13. Damaged cylinders should be marked “Damaged-Do NOT Use.”
14. Be sure to check all hose fittings for compressed air systems by using a control nozzle with self-closing valve at the operator’s end.

B. Storage

1. Label and separate the empty cylinders from the full ones.
2. Always install the caps back on the cylinder.
3. Store cylinders upright and away from heat sources.
4. Keep the storage area dry and well ventilated.
5. Store oxygen cylinders separately from the other types. Cylinders should be chained or strapped to prevent tipping.
6. Fuel gas and oxygen must be stored at a minimum of 20’ apart or separated by one-hour rated firewall.

WELDING OPERATIONS SAFETY PROCEDURES

A. Electric Welding and Cutting

1. Perform Safety Check on all equipment
    a. Ensure fire extinguisher is charged and available.
    b. Ensure electrical cord, electrode holder, and cables are free from defects; no cable splices are allowed within 10' of the electrode holder.
    c. Ensure PPE (welding hood, gloves, rubber boots/soled shoes, aprons) are available and have no defects.
    d. Ensure the welding unit is properly grounded.
    e. Examine equipment frequently to determine that all electrical connections and insulations on holders and cables are in good condition. Loose cable connections may overheat or arc and cause a fire.
    f. Keep welding cables dry, grease and oil-free, and protected from sparks or hot metal.
    g. Store welding rods in the container on the welding machine; do not throw on floors or in the staging area.
2. Set Voltage Regulator no higher than the following for:
    a. Manual Alternating Current Welders – 80 volts.
    b. Automatic Alternating Current Welders – 100 volts.
    c. Manual or automatic Direct Current Welders – 100 volts.
3. Uncoil and spread out welding cable:
    a. To ensure proper contact of work leads and connection.
    b. To remove any metal fragments from magnetic work clamps (to avoid electric shock do not wrap welding cables around a body part and avoid welding in wet conditions).
4. Avoid overheating.
5. Prior to spot welding, the material is usually cleaned in a caustic or slightly acid bath. Employees performing these wash operations shall be protected from splashing liquid.
6. The operator shall make necessary adjustment to the contactors.
7. In hand spot welding installations, eye protection shall be required to protect the operator from the spattering metal. Welding of materials such as stainless and high carbon steels causes excessive spattering of metal.
8. Operators shall be cautioned to protect against the possible penetration of the metal into the tips of the fingers.

B. Gas Welding and Cutting

1. Gas welding typically uses an oxy-acetylene gas flame as a source of heat. Some types of gas welding, such as soldering, use propane or other fuel gasses.
    a. **Brazing** – Brazing applies heat to the metal, usually from an oxy-acetylene gas flame. The metal does not reach its melting point. Instead, filler material and flux from a welding rod melt to form the weld.
    b. **Soldering** – Like brazing, is accomplished without melting the metal parts that will be joined.
    c. **Gas Cutting** – Creates a molten pool of metal using heat from a gas torch. A jet of oxygen is injected into pool to accelerate the oxidation of the material.
2. Perform Safety Check on all equipment to:
    a. Ensure tanks have gas, and that fittings are tight.
    b. Ensure fire extinguisher is charged and available.
    c. Ensure hoses have no defects.
    d. Ensure PPE (welding hood, gloves, rubber boots/soled shoes, aprons) are available and have no defects.
    e. All defective equipment must be repaired or replaced before use.
3. Remove flammables and combustibles
    a. Remove all nearby flammable or combustible materials before lighting a flame.
    b. Remove all flammable and readily combustible materials from your pockets, such as matches and cigarette lighters.
    c. Place welding screen or suitable barricade around work area to provide a fire safety zone and prevent injuries to passersby.

WELDING OPERATORS PROTECTION

Welders need to be protected against heat, sparks, ultraviolet rays, hot slag, fumes, and toxic gases. Make sure employees are outfitted with the following personal protective equipment (PPE):

A. Eye and Face Protection

1. Safety glasses, goggles, face shields, helmets, or other suitable eye protection having the proper lens shade for the work being done shall be worn during all welding, cutting, and brazing operations.
2. Fire watch personnel shall wear eye and face protection as appropriate.
3. Goggles shall be ventilated to prevent fogging of the lenses as much as practical.
4. Goggles, helmets, and face shields shall be checked frequently.
5. The following is a guide for the selection of the proper shade numbers. These recommendations may be varied to suit the individual's needs in accordance with 29 CFR 1910.252(b)(2)(ii)(H) of OSHA.

Welding operation	Shade No.
Shielded metal-arc welding 1/16, 3/32, 1/8, 5/32-inch electrodes	10
Gas-shielded arc welding (nonferrous) 1/16, 3/32, 1/8, 5/32-inch electrodes	11
Gas-shielded arc welding (ferrous) 1/16, 3/32, 1/8, 5/32-inch electrodes	12
Shielded metal-arc welding: 3/16, 7/32, 1/4 inch electrodes	12
Shielded metal-arc welding: 5/16, 3/8-inch electrodes	14
Atomic hydrogen welding	10 – 14
Carbon arc welding	14
Soldering	2
Torch brazing	3 or 4
Light cutting, up to 1 inch	3 or 4
Medium cutting, 1 inch to 6 inches	4 or 5
Heavy cutting, 6 inches and over	5 or 6
Gas welding (light) up to 1/8 inch	4 or 5
Gas welding (medium) 1/8 inch to 1/2 inch	5 or 6
Gas welding (heavy) 1/2 inch and over	6 or 8

***NOTE**: In gas welding or oxygen cutting where the torch produces a high yellow light, use a filter or lens that absorbs the yellow light.*

B. Head Protection

Head protection made of a flame resistant material shall be worn.

C. Protective clothing and equipment

1. Protective clothing and equipment shall be suitable for the type of work to be performed, kept in good repair, and kept free of oil and grease.
2. Sleeves shall be kept buttoned at the wrist.
3. Collars shall be kept buttoned.
4. Fire-resistant gloves and aprons shall be worn during welding, flame cutting, and brazing processes.
5. Safety shoes should be worn to protect the operator from spark hazards.

D. Respiratory Protection

1. Engineering controls and safe work practices are the primary means to prevent employee over exposure to welding fumes, toxic gases, and dusts.
2. Harris Companies employees that are required to wear a respirator during welding operations will abide by the Respiratory Protection Program found in Section 29.

E. Hearing Protection

1. Hearing protection devices may be required during some welding operations. See more details in the Hearing Conservation Program Policy in Section 14.

TRAINING

Training shall be provided initially to all personnel affected by this procedure and at any time there is a modification to this procedure that will affect work practices. The degree of training provided shall be determined by the potential hazards of the welding, cutting, and brazing job assignment.

A. Initial training

1. To ensure employees recognize the hazards associated with welding, cutting, and brazing operations.
2. To know the safe work practices for welding, cutting, and brazing operations.
3. To understand the importance and requirements of Hot Work Permits.
4. To understand the requirements to establish and maintain Hot Work Areas.
5. To use the appropriate personal protective equipment (PPE) for the job.
6. Employees performing the hot work shall be trained in the proper use of the equipment they will be using to perform the hot work.
7. They shall also be trained in the proper use of the fire extinguishing equipment that is provided for the use of the fire watch. They shall also be trained in the proper use of any protective equipment or procedures necessary to protect themselves or other personnel in the area and the facility.
8. Employees conducting hot work will be informed of the hazards associated with Hexavalent Chromium VI and other toxic gases.

B. Additional or refresher training

1. All authorized and affected employees shall receive appropriate training whenever there is a change in their job assignments or a change in welding equipment or processes that present a new hazard.
2. Employees or supervisors have reason to believe that there are deviations from or inadequacies in the employees' knowledge of known hazards, or use of equipment or procedures.

Attachment 1: Hot Work Permit

HOT WORK PERMIT

All temporary operations involving open flames or producing heat and/or sparks require a Hot Work Permit. This includes, but is not limited to, brazing, cutting, grinding, soldering, thawing, and welding.

PART A

INSTRUCTIONS FOR FIRE SAFETY SUPERVISOR

1. Verify precautions listed at right (or do not proceed with the work).
2. Complete PLY 1 and retain for job files.
3. Post PLY 2 in vicinity of hot work.

DATE | JOB NO.

LOCATION/BUILDING & FLOOR (Be Specific)

DESCRIPTION OF WORK BEING PERFORMED

NAME OF PERSON DOING HOT WORK

The above location has been examined, the precautions checked on the Hot Work Checklist have been taken to prevent fire, and permission is authorized for this work.

SIGNED: _____
(Fire Safety Supervisor)

SIGNED: _____
(Person doing Hot Work)

SIGNED: _____
(Fire Watch)

TIME STARTED: Date: _____ Time: _____ AM/PM

PERMIT EXPIRES: Date: _____ Time: _____ AM/PM

FILL OUT EMERGENCY INFORMATION ON BACK OF PLY 2.

HOT WORK CHECKLIST

- ☐ Sprinklers and fire hoses streams in service/operable.
- ☐ Hot Work equipment in good condition (e.g., power source, welding leads, torches, etc.)
- ☐ Multi-purpose fire extinguisher and/or water pump can.

REQUIREMENTS WITHIN 35 FEET OF WORK

- ☐ Dust, lint, debris, flammable liquids and oily deposits removed.
- ☐ Explosive atmosphere in area eliminated.
- ☐ Combustible floors (e.g., wood, tile, carpeting) wet down, covered with damp sand or fire blankets.
- ☐ Flammable and combustible material, remove where possible. Otherwise protected with fire blankets, guards, or metal shields.
- ☐ All wall and floor openings covered.
- ☐ Walkways protected beneath hot work.

WORK ON WALLS OR CEILINGS

- ☐ Combustibles moved away from other side of wall.

WORK IN CONFINED SPACES

- ☐ Confined space cleaned of all combustibles (example: grease, oil, flammable vapors).
- ☐ Containers purged of flammable liquids/vapors.
- ☐ Company confined space guidelines followed.

FIRE WATCH/HOT WORK AREA MONITORING

- ☐ Fire watch will be provided during and for 30 minutes after work, including any coffee or lunch breaks.
- ☐ Fire watch is supplied with an extinguisher, and/or water pump can, also making use of other extinguishers located throughout work area.
- ☐ Fire watch is trained in use of this equipment and familiar with location of sounding alarm.
- ☐ Fire watch is required for opposite side of walls, above, and below floors and ceilings.

OTHER PRECAUTIONS TAKEN

- ☐ _____

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Section 16: Hydrogen Sulfide (H_2S) Awareness Program

PURPOSE

This safety awareness program is intended to provide information to Harris Companies employees regarding the potential health effects of Hydrogen Sulfide (H_2S). Our goal is to ensure our employees have the knowledge they need to work safely and adequate measures can be taken to limit exposures through safe work procedures in the workplace.

WHAT IS HYDROGEN SULFIDE (H_2S)?

Hydrogen sulfide is the chemical compound with the formula H_2S. It is slightly (20%) heavier than air, has a tendency to settle in low-laying areas, and is readily dispersed by wind movements or currents. H_2S dissolves in water forming a weak acid (hydro sulfurous acid), when in water H_2S can be released when agitated, making it a dangerous hidden hazard. A mixture of H_2S and air is explosive. When ignition occurs, the combustion produces irritants and toxic gases, including sulfur dioxide (SO_2) which can have an irritating effect on the eyes and lungs and can be fatal. H_2S attacks most metals, especially in the presence of water, forming sulfides that are usually insoluble precipitates. It is also very corrosive to plastics and tissue.

H_2S is a colorless, very poisonous, flammable, extremely hazardous gas with the characteristic odor of "rotten egg". It occurs naturally in crude petroleum, natural gas, biogas, LPG, volcanic gases, some well waters, and hot springs. Natural gas can contain up to 90%. Hydrogen Sulfide often results from the bacterial breakdown of organic matter in the absence of oxygen, such as in swamps and human and animal sewers (e.g., sewage); this process is commonly known as anaerobic digestion. Bacteria found in your mouth and gastrointestinal tract produce hydrogen sulfide from bacteria decomposing materials that contain vegetable or animal proteins. The human body produces small amounts of H_2S and uses it as a signaling molecule.

Industrial activities that can produce the gas include petroleum/natural gas drilling and refining, wastewater treatment, coke ovens, food processing, tanneries, and kraft paper mills. Hydrogen sulfide can also exist as a liquid compressed gas.

Other names for hydrogen sulfide:

- Dihydrogen monosulfide
- Dihydrogen sulfide
- Hydrosulfuric acid
- Manure gas
- Rotten egg gas
- Sulfur Hydride
- Swamp Gas
- Sewer gas
- Sour gas
- Stink damp
- Sulfane

PARTICIPANT IN THE SULFUR CYCLE

Hydrogen sulfide is a central participant in the sulfur cycle, the biogeochemical cycle of sulfur on Earth. In the absence of oxygen, sulfur-reducing and sulfate-reducing bacteria derive energy from oxidizing hydrogen or organic molecules by reducing elemental sulfur or sulfate to hydrogen sulfide. Other bacteria liberate hydrogen sulfide from sulfur-containing amino acids; this gives rise to the odor of rotten eggs.

Sludge from a pond; the black color is due to metal sulfides. As organic matter decays under low-oxygen (Hypoxic) conditions (such as in swamps, eutrophic lakes or dead zones of oceans), sulfate-reducing bacteria will use the sulfates present in the water to oxidize the organic matter, producing hydrogen sulfide as waste. Some of the hydrogen sulfide will react with metal ions in the water to produce metal sulfides which are not water soluble. These metal sulfides, such as ferrous sulfide FeS, are often black or brown, leading to the dark color of sludge.

HOW CAN I BE EXPOSED TO H_2S GAS?

The main way you can be exposed to hydrogen sulfide gas is by breathing it. You also can be exposed to hydrogen sulfide gas through skin and eye contact. You are also exposed to hydrogen sulfide by the small amount that is produced by bacteria in your mouth and gastrointestinal tract.

Exposure to hydrogen sulfide gas can occur in the home and in the workplace. In the home, exposure may occur because of faulty plumbing. Sewer drains that have dry traps can allow hydrogen sulfide gas to enter the home.

Harris Companies employees can be exposed to hydrogen sulfide while working in areas such as:

1. Water or waste water treatment plants
2. City manholes and sewers
3. Sludge lagoons
4. Pits, underground shafts and tunnels
5. Electrical utility vaults
6. Underground utilities and pipelines
7. Industrial facilities
8. Food producing facilities
9. Piping and corroded pipe repairs (H_2S is a primary contributor to corrosion in refinery processing units and piping)
10. Preheat exchangers
11. Tanks and vessels
12. Confined spaces
13. Poorly ventilated spaces
14. Excavations deeper than 4’
15. Petroleum and natural gas drilling and refining
16. Farms with manure storage pits or landfills can be exposed to higher levels of hydrogen sulfide.

Individuals living near a wastewater treatment plant, a gas and oil drilling operation, a farm with manure storage or livestock confinement facilities, or a landfill may be exposed to higher levels of hydrogen sulfide. If you live in a neighborhood near these types of industry, you could be exposed to hydrogen sulfide by breathing the gas released into the air or drinking contaminated water from activities at these facilities.

HEALTH EFFECTS OF H_2S EXPOSURE

Hydrogen sulfide is considered a broad-spectrum poison, meaning that it can poison several different systems in the body, although the nervous system is most affected. The toxicity of H_2S is comparable with that of hydrogen cyanide. It is both an irritant and a chemical asphyxiant with effects on both oxygen utilization and the central nervous system. Its health effects can vary depending on the level and duration of exposure. The effects can be delayed for several hours, or sometimes several days, when working in low-level concentrations. Repeated or prolonged exposures may cause eye inflammation, headache, fatigue, irritability, insomnia, digestive disturbances and weight loss. Repeated exposure can also result in health effects occurring at levels that were previously tolerated without any effect. In many individuals, permanent or long-term effects such as headaches, poor attention span, poor memory, and poor motor function may occur. No health effects have been found in humans exposed to typical environmental concentrations of hydrogen sulfide at levels of 0.00011 – 0.00033 ppm. Hydrogen sulfide has not been shown to cause cancer in humans and has not been classified for carcinogenicity.

You can smell hydrogen sulfide gas at lower levels than may cause health effects, so smelling the gas does not always mean that it will make you sick. *However, at higher levels (100 ppm – 150 ppm), your nose can become overwhelmed by the gas and you cannot smell it.* A person's ability to detect the gas is affected by rapid temporary paralysis of the olfactory nerves in the nose, leading to a loss of the sense of smell. This means that the gas can be present at dangerously high concentrations, with no perceivable odor. These properties make it extremely dangerous to rely totally on the sense of smell to warn of the presence of hydrogen sulfide gas.

Low concentrations irritate the eyes, nose, throat, and respiratory system (e.g., burning/tearing of eyes, coughing, difficulty breathing, and pulmonary edema (accumulation of fluid in the lungs), headache, dizziness, nausea, vomiting, staggering, and excitability.

High concentrations (greater than 500 PPM) can cause shock, convulsions, inability to breathe, extremely rapid unconsciousness, coma, and death. Effect can occur within a few breaths, and possibly a single breath. This high level of exposure would not be expected in a home, but could occur in a workplace.

Health effect at different exposures:

1. 0.0047 ppm is the recognition threshold, the concentration at which 50% of human can detect the characteristic odor of hydrogen sulfide, normally described as resembling "a rotten egg".
2. OSHA has established a permissible exposure limit (PEL) (8-hour time-weighted average (TWA)) of 10 ppm.
3. 10-20 PPM is the borderline concentration for eye irritation.

4. 20 ppm is the acceptable ceiling concentration established by OSHA.
5. 50 ppm is the acceptable maximum peak above the ceiling concentration for an 8-hour shift, with a maximum duration of 10 minutes.
6. 50-100 ppm leads to eye damage.
7. At 100-150 ppm the olfactory nerve is paralyzed after a few inhalations, and the sense of smell disappears, often together with awareness of danger.
8. 320-530 ppm leads to pulmonary edema with the possibility of death.
9. 530-1000 ppm causes strong stimulation of the central nervous system and rapid breathing, leading to loss of breathing.
10. 800 ppm is the lethal concentration for 50% of humans for 5 minutes' exposure (LC50).
11. Concentrations over 1000 ppm cause immediate collapse with loss of breathing, even after inhalation of a single breath.
12. *Although respiratory paralysis may be immediate, it can also be delayed up to 72 hours.*

IS THERE A MEDICAL TEST TO SHOW WHETHER I'VE BEEN EXPOSED TO H_2S?

Hydrogen sulfide can be measured in exhaled air, but samples must be taken within 2 hours after exposure to be useful. A more reliable test to determine if you have been exposed to hydrogen sulfide is the measurement of the sulfate levels in urine. This test must be done within 12 hours of exposure. Both tests require special equipment, which is not routinely available in a doctor's office. Samples can be sent to a special laboratory for the tests. These tests can tell whether you have been exposed to hydrogen sulfide, but they cannot determine exactly how much hydrogen sulfide you have been exposed to or whether harmful effects will occur.

A simple diagnostic clue of extreme poisoning by H_2S is the discoloration of copper coins in the pockets while working. Treatment involves immediate inhalation of amyl nitrate, injections of sodium nitrite, inhalation of pure oxygen, administration of bronchodilators to overcome eventual bronchospasm, and in some cases hyperbaric oxygen therapy.

HOW CAN I REDUCE MY EXPOSURE TO H_2S GAS?

Exposure to hydrogen sulfide gas can be reduced or prevented by ensuring that plumbing fixtures and pipes are installed and maintained properly. In homes where hydrogen sulfide gas is present, you can reduce the level of gas by locating and eliminating the source. If you live in a neighborhood impacted by industrial emissions of hydrogen sulfide, go inside and close doors and windows when odors are strong outside. When outdoor odors are high, you also may want to avoid outdoor activities such as jogging or yard work.

Workers who may be exposed to hydrogen sulfide gas should follow the guidelines established by OSHA. OSHA has established confined space entry standards to prevent death from exposure to chemicals like hydrogen sulfide gas.

OSHA has set an acceptable ceiling limit for hydrogen sulfide of 20 ppm in the workplace.

NIOSH recommends a 10-minute ceiling of 10 ppm in the workplace.

SAFE WORK PRACTICES

Wherever possible, exposure should be minimized by implementing adequate engineering controls and safe work practices. Our projects are typically multi-employer worksites. Communication must be made with the host facility to ensure our employees are not exposed to the above recommended levels. This will be performed during pre-job meetings, pre-job hazard identification, and at the direction of customer facilities. The job supervisor must assess the work site to determine the risks associated with the work tasks. All Harris Companies employees must be aware of site specific contingency and emergency plans.

Before entering areas where hydrogen sulfide may be present:

1. Air must be tested for the presence and concentration of hydrogen sulfide by a qualified person using air monitoring equipment, such as hydrogen sulfide detector tubes or a multi-gas meter that detects the gas. Testing should also determine if fire/explosion precautions are necessary.
2. The space/area must be ventilated continually to remove the gas.
3. If the gas cannot be removed, the person entering the space/area must use appropriate respiratory protection and any other necessary personal protective equipment, rescue and communication equipment.

OSHA's confined spaces standard contains specific requirements for identifying, monitoring, and entering confined spaces. Follow the Harris Companies' Confined Space Program in Section 3.

Extra precautions must be made in any area that would qualify for low lying areas such as below ground levels of waste water treatment buildings. Even though these areas are not confined spaces, we must make every attempt to ensure our employees do not succumb to over exposure of hydrogen sulfide. One of the ways we achieve this is to have an employee monitor the air while other employees are in the basement performing their work task.

Should an alarm sound on an H_2S detector, immediately evacuate the area and notify your supervisor. Also, immediately notify your foreman and safety director if you feel you have been exposed to or are developing potential signs or symptoms of hydrogen sulfide exposure.

Procedures in the event of a hydrogen sulfide release that requires evacuation:

1. Hold your breath and quickly leave the area containing H_2S. Do NOT inhale.
2. Move quickly upwind. Always be conscious of the wind and constantly monitor wind direction. Wind socks and streamers show which direction the wind is blowing so that you can determine the proper safe breathing area.
3. Report to the designated assembly area for a head count.
4. Do NOT return to work area until it has been determined safe for re-entry.

ENTERING DANGEROUS H_2S ATMOSPHERES (AT OR ABOVE 100ppm is IDLH)

No entry into any IDLH atmosphere will be made by a Harris Companies employee. Harris Companies employees are not trained in the use of self-contained breathing apparatus (SCBA) or rescue training.

NEVER attempt a rescue in an area that may contain hydrogen sulfide without using appropriate respiratory protection and without being trained to perform such a rescue. Many would be rescuers have died as a result to the same high levels as their downed co-workers. Do not become a casualty.

Entry into IDLH (Immediately Dangerous to Life and Health) can only be made using:

1. A full face piece pressure demand self-contained breathing apparatus (SCBA) with a minimum service life of thirty minutes, or
2. A combination full face piece pressure demand supplied-air respirator with an auxiliary self-contained air supply.

If H_2S levels are below 100 ppm, an air-purifying respirator may be used, assuming the filter cartridge/canister is appropriate for hydrogen sulfide. A full Face Piece respirator will prevent eye irritation. If air concentrations are elevated, eye irritation may become a serious issue. If a half mask respirator is used, tight fitting goggles must also be used. Workers in areas containing hydrogen sulfide must be monitored for signs of over exposure.

MULTIGAS DETECTORS

Harris Companies uses portable Lumidor MultiMAX Pro gas detectors. These detectors have 4 sensors installed that will detect oxygen, carbon monoxide, lower explosive limits and hydrogen sulfide. Multi-gas air monitors will ONLY detect the type of chemical or component of that particular sensor they are installed with. For instance, for ammonia, you would need an air monitor with an ammonia sensor installed in it. Harris Companies multi-gas detectors with hydrogen sulfide sensors are designed to alarm at pre-set low alarm levels of 10 ppm.

- **WARNING:** If the Toxic Gas alarm condition is reached while using the instrument as a personal or area monitor, leave the area immediately as the ambient condition has reached a preset alarm level. If using the instrument as an inspection device, do not enter the area without proper protection. Failure to follow this warning will cause over-exposure to toxic gases, which can result in serious personal injury or death.

PERSONAL PROTECTIVE EQUIPMENT & RESPIRATORY PROTECTION

It is important to know that the respirators that Harris Companies provides, at no cost to the employee, are the 3M 6900 Full Face Respirator with the 3M P100 cartridges. These cartridges have the warning: "Do NOT wear for protection against organic vapors with poor warning properties or those which generate high heats of reaction with the sorbent material in the cartridges and are to be used for escape use only".

Protective engineering controls and work practices are generally sufficient to reduce exposures to at or below the PEL/STEL without the use of respirators. Where an area has been determined to be contaminated with hydrogen sulfide, work will be stopped until evaluation and engineering practices can be implemented to prevent further exposure to Harris Companies employees.

FIRST AID

EYE: PERSONS WITH POTENTIAL EXPOSURE TO HYDROGEN SULFIDE SHOULD NOT WEAR CONTACT LENSES. Flush eyes with large amounts of water for at least 15 minutes, holding eyelids open to ensure adequate rinsing. If irritation persists, seek immediate medical attention.

SKIN: Remove contaminated clothing and flush affected area with large quantities of water. If irritation persists or symptoms occur, seek medical attention.

INGESTION: Not anticipated; product is a gas.

INHALATION: PROMPT REMOVAL FROM THE CONTAMINATED AREA TO FRESH AIR AND IMMEDIATE MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. If breathing has stopped, perform CPR. Keep the affected person warm and at rest until medical personnel arrive.

TRAINING

All Harris Companies employees, that perform work activities where the potential of exposure to hydrogen sulfide may be present, will be provided awareness training in this program in order to be familiar with the potential hazards and proper safe work procedures. These standards are designed to protect anyone who could be exposed and suffer serious health consequences. Training records will be kept in the employee's safety training files at the HARRIS COMPANIES Corporate Office in St. Paul, MN.

RESOURCES

US Department of Labor Occupational Safety and Health Administration (OSHA) www.osha.gov

Agency for Toxic Substances and Disease Registry (STSDR) www.atsdr.cdc.gov

Airgas Hydrogen Sulfide Safety Data Sheet http://en.wikipedia.org/wiki/Hydrogen sulfide

Winger Mechanical

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Section 17: Ladder Usage Policy

SCOPE

Safe use and storage of portable ladders.

GENERAL

All employees shall have proper training before working with a ladder that will include inspection, selection and use.

REQUIREMENTS

Ladders shall be inspected prior to use using the Ladder Inspection Log in Appendix 2.

All ladders are intended for **Harris Companies use only**. Any ladder not in use must be stored in a way to prevent other companies from using Harris Companies equipment, unless proper authorization has been granted to them through a signed *Equipment Waiver and Indemnity Agreement* Form in Appendix 2. *(If the Project Management team wishes to allow another company's employees to utilize Harris Companies ladders, then said Project Management must have a signed Indemnity Agreement with the other contractor before equipment use.)*

Employees shall use three points of contact at all times when climbing a ladder. Tools shall be lifted by rope and never carried in the hand.

Employees shall conduct work maintaining their body within the width of the side rails.

A. Portable Ladder Safety Rules

1. Portable ladders can be used for safe access to elevations not provided with permanent stairways.
2. Faulty ladders (broken, split, missing rungs, missing/broken side rails, or other defects) shall be immediately removed from service, rendered unusable, and removed from the jobsite.
3. Portable ladders shall be placed on a substantial base, with the area around the top and bottom of ladder kept clear.
4. Unless protected by barricades or guards, ladders must not be placed in passageways, doorways, driveways, or any location where they could be accidentally displaced.
5. All portable ladders shall be secured to prevent movement.
6. Metal ladders shall not be used unless authorized by a site specific safety plan.
7. All company ladders shall be marked and clearly identified with:
    a. **Company Identification** located in an area where it will not deface any labels on the ladder. All labels must remain in a readable condition.
8. All ladders will be stored when not in use.

B. Extension & Straight Ladders

1. Extension ladders must be placed so that the horizontal projection is not greater than ¼ of the vertical projection. (Four foot up, one foot out (4 to 1 ratio).
2. Side rails of extension and straight ladders must extend 36" above landings. Top and bottom of extension and straight ladders should be secured from movement.
3. Employee shall ensure that rung locks are engaged before extension ladder usage.
4. Proper access and guardrail systems shall be installed on the upper platform.
5. Extension ladders shall never be separated or disassembled. Disassembled ladders must be removed from site and disposed of.

C. Step Ladders

1. Planks shall not be placed on top of stepladders.
2. No one shall be permitted to stand and work on the top two steps of a step ladder.
3. Stepladders will not be used unless fully extended and the braces locked.
4. The backside of a stepladder shall not be used for any work, unless it is a double stepladder with steps on both sides.

D. Project Made Ladders

1. Company employees will not manufacture project made ladders at any time.

REFERENCES

29 CFR 1926.1050

29 CFR 1926.1053

29 CFR 1926.1060

Section 18: Lead in Construction Policy

PURPOSE

To establish and implement a safety program for the protection of workers that are exposed to the dangers of airborne lead during construction or demolition activities on Harris Companies jobsites.

DEFINITIONS

Action Level (AL) – The employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 ug/m3) calculated as 8-hr time weighted average (TWA). At this minimal level of exposure, initial actions shall be initiated, such as medical monitoring and training.
Administrative Controls – The use of management involvement, training of employee, rotation of workers, air sampling, and medical monitoring to protect individuals.
Competent Person – The person who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.
Engineering Controls – Process change, substitution, isolation, ventilation and source modification to reduce work related exposures.
Lead – Metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.
Permissible Exposure Limit (PEL) – In accordance with OSHA 29CFR1910.1025, the PEL is 50 micrograms per cubic meter (50 ug/m3) of air averaged over an 8-hr period. An employee shall not be exposed above the PEL for lead averaged over an 8-hr period.
Personal Protective Equipment (PPE) – Personal protective equipment includes equipment designed to protect individuals from hazards and includes head, face, eye, foot ear, and respiratory protection.

TRAINING

Before any activity involving the potential of lead exposure begins, Harris Companies and/or subcontractor employees must receive job specific training in the following areas by a competent person within their company.

1. Review job specific activity plan in regards to lead exposure/handling and hazards.
2. Specific activities that could result in exposure to lead and lead exposure levels for work activities if they are known.
3. Health hazards associated with lead exposure
4. Proper use, wear, and maintenance of protective clothing and equipment including respirators.
5. Engineering and administrative controls needed to minimize lead hazards.
6. Purpose and procedures of medical surveillance and the rights concerning this information.
7. Review applicable OSHA standards.
8. Proper handling of lead contaminated materials and waste.

EXPOSURE ASSESSMENT AND AIR MONITORING

1. Harris Companies employees and Subcontractors working with lead must conduct monitoring to determine the levels of employee lead exposure and the effectiveness of engineering controls, work control practice, and necessity of PPE.
2. Continue air monitoring until two consecutive tests are obtained below the action level of 30 ug/m3.
3. In performing air monitoring, documentation needs to be specific as to work activities and time exposed.
4. Any changes to the work activities require that additional air monitoring be conducted.

PERSONAL PROTECTIVE EQUIPMENT

After engineering controls and work practice controls are in place to minimize the lead contamination hazard, protective clothing must be utilized. At a minimum, this shall include gloves, coveralls, or Tyvek suits, boots, hard hats, and safety glasses. If the airborne lead is determined to be over the PEL 50 ug/m3, respirators will be required.

HYGIENE PRACTICES

Lead contamination occurs through ingestion or inhalation. This usually occurs because of ingesting lead particles that come in contact with food, drinks, or cigarettes, or through inhaling airborne lead without the use of a respirator. Good hygiene practice is critical regardless of what work activities are performed when dealing with lead. Adequate time and facilities will be available to workers as not to interfere with breaks and shift times. To avoid any employee or environmental contamination, the following hygiene practices will be used on this project for all workers:

1. Running water, soap, clean towels, and readily available trash containers will be available to allow workers to wash their hands and face before eating, drinking, smoking, or leaving the project. Shower facilities will be available when exposure exceeds the PEL of 50 ug/m3.
2. Clean change rooms for removing street clothes and putting on protective clothing separated from employees removing contaminated clothing to prevent spread of contamination to street clothes.
3. All dirty coveralls must be placed into separate containers. This container must be marked “CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH STATE, LOCAL, and FEDERAL REGULATIONS”
4. Provide a clean lunch area, separate from change area. Employees must HEPA-vac themselves off before entering clean areas.

EMPLOYEE LEAD MEDICAL SURVIELLANCE

It is assumed that any employee that is to be exposed above the action level of 30 ug/m3 will be placed in a medical surveillance program as stated in OSHA 29 CFR 1926.62(j).

Section 19: Lockout / Tagout Policy (LOTO)

"ONE LOCK --- ONE KEY --- ONE LIFE"

SCOPE

Prevent uncontrolled release of energy or prevent operation of machinery/equipment when critical work is being performed.

GENERAL

All employees shall have proper training before working with Lockout/Tagout Energy Control procedures. This applies to the installation, service, maintenance, or removal of any type of machinery, equipment, or components in which the unexpected start-up or release of stored energy could cause injury.

PROGRAM DESCRIPTION

It is our goal at Harris Companies to control hazardous energies in the workplace to the greatest extent feasible. Harris Companies has developed a Lockout/Tagout (LOTO) Program to ensure that their employees' health is protected from hazardous energies in the work environment. Harris Companies is required by OSHA regulations to provide and maintain a Hazardous Energies Control and LOTO Program for all operations where employees may be potentially exposed. This written program is available, upon request, to any Harris Companies employee.

DEFINITIONS

AFFECTED and OTHER EMPLOYEE – Any employee in an office or industrial setting who works around outlets, electrical panels, or electrical switches, and whose job requires them to be near or around the hazard zone (but not within the hazard zone) when equipment is being serviced or maintained under a LOTO condition. For example, a machine operator that must stay near the machine during a lockout is classified as an Affected Employee. Office staff working on computers and electrical equipment when nearby equipment is being serviced or maintained during a lockout is also classified as Affected Employees. The Affected Employee must be instructed never to attempt to re-start or re-activate equipment that is locked out or tagged out. *See also the definition for "Authorized Lockout/Tag-out Employee."*

ASSIGNED INDIVIDUAL LOCK – A padlock issued to an employee for whom no other person has the key or means of opening without using destructive force. The lock shall be uniquely identified and shall not be used for any other purpose.

AUTHORIZED LOCKOUT/TAG-OUT EMPLOYEE – A person who is authorized to lockout or tagout a specific machine or equipment to perform service or maintenance. A person must be an Authorized LOTO Employee in order to apply a lock or tag to control hazardous energy. All Authorized LOTO Employees must be trained in lock-out/tag-out.

"CAPABLE OF BEING LOCKED OUT" – An energy isolating device will be considered capable of being locked out if it is designed with a hasp or other means of attachment to which devices are capable of being locked out, or if lockout can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device, and/or permanently alter its energy control capability. An appropriate lockout attachment, designed for such an application, is available through a supplier.

ENERGY FORMS:

1. Electrical
2. Chemical
3. Pressure – Pneumatic & Hydraulics
4. Vacuum
5. Potential – Flywheels, springs, differences in elevation, elevated parts that could drop, capacitors, batteries, and all other hazardous energy sources.

ENERGY ISOLATING DEVICE – A mechanical device located at an energy control point that positively blocks the flow of energy and can be locked in the "safe" position. Push buttons, selector switches, software controls, interlocks, and other control circuit devices are not considered energy isolating devices.

HAZARDOUS ENERGY - Energy, if not controlled, of such a magnitude that it is capable of causing harm to a person, death, or loss of resources.

HAZARDOUS ENERGY CONTROL – The process of systematically implementing mechanical means to prevent hazardous energy from flowing to a person. This includes using mechanical means to achieve the following conditions:

1. **Isolated** – A condition where all sources of hazardous energy have been controlled by breaking the energy path so that the energy cannot flow to workers. The term "isolated" is commonly used with electrical circuits and fluid lines.
2. **Dissipated** – A condition where all stored energy has been reduced to a non-hazardous level. Most commonly used with energy storing devices such as capacitors, pressure receivers, or springs.

BLOCKED – A condition where a mechanical device is inserted into the energy path to physically prevent movement. It is most commonly used with mechanical machinery or fluid filled lines.

HAZARD ZONE – The space around a source of hazardous energy where a person could be harmed if the hazardous energy was suddenly or unexpectedly released; such as the unexpected release of stored pressure, the unexpected movement of a machine, or the spray from a hazardous chemical that was unexpectedly released.

LOCKOUT – The method of applying a mechanical lockout device and a tag on an energy-isolating device by an authorized employee in accordance with established written procedures, in order to control hazardous energies.

LOCKOUT DEVICE – Padlocks or other methods (such as disconnecting conductors or removing fuses), which will effectively prevent unexpected or inadvertent energizing of a designated circuit or release of equipment or machinery. These devices shall not be used for other purposes, and shall include a means to indicate the identity of the employee applying the device.

TAGOUT - The placement of a tag out device on an energy-isolating device in accordance with established written procedures to control hazardous energy. Using tag out as a form of hazardous energy control is not a positive means of controlling hazardous energy and shall not be used whenever lockout is possible.

TAGOUT DEVICE– A prominent warning tag capable of being securely attached that provides a warning not to use the equipment. The tag should include: Reason for tag, name of person placing the tag and how that person may be contacted, supervisor, and the time and date the tag was placed. Tags must be durable and able to withstand the environment to which they are exposed for the maximum time exposure expected. These tags shall not be used for any other purposes.

STORED ENERGY SOURCE – Any device that is capable of holding energy after equipment shutdown. This includes, but is not limited to, capacitors, tanks, pipes, springs, and flywheels.

GENERAL APPLICATIONS

This program is applicable to all employees at Harris Companies. The purpose of this program is to prevent injuries and accidents from occurring while:

1. Servicing or maintaining machinery or equipment that is capable of sudden energy release; **and**
2. Working with machinery or equipment that is capable of storing hazardous energy.

(Note: Stored energy may be in the form of electricity [capacitors], air pressure [pneumatics], liquid pressure [hydraulics], springs, or potential energy of position, but it is not limited to the above.)

This program requires a systematic approach to servicing and maintaining equipment and machinery; and, strives to ensure the safety of all personnel and contractors, and compliance with the applicable regulations. This approach involves:

1. Following approved and written equipment-specific procedures to shut down and lock out equipment and machinery.
2. Dissipating all hazardous energy.
3. Blocking parts where necessary.
4. Verifying that the energy has been controlled before all work is initiated.

Persons who fail to follow established written procedures for lockout of equipment and machinery, or who fail to take appropriate steps to protect the safety of all persons who are performing work under locked out conditions are subject to disciplinary action. This includes persons performing lockout that are not previously trained and authorized, working on a Harris Companies job site, who do not follow established policies and procedures.

No employee shall install, service, remove, or perform electrical or mechanical maintenance on any electrical equipment or machinery until that equipment is turned off or de-energized, all stored hazardous energy has been bled down, dissipated, or blocked-off, and the machinery has been locked out and blocked as provided in the section below.

Lockout is required for mechanical service and maintenance operations if the procedures to be performed could involve employee exposure to energized electrical parts, to machinery that could unexpectedly start up, or to a stored energy source on the equipment or machinery.

Servicing or maintenance on equipment that is powered through an electrical cord and plug shall be worked on with the cord unplugged. The person performing the work must have exclusive control of the plug at all times. If necessary, this can be accomplished by applying some form of a plug lock or cord cap lock-over device that is secured with the worker's personal lock and tag.

WHAT IS LOCKOUT/TAGOUT?

A lockout is a method of keeping equipment from being set in motion and endangering workers.

1. **In a lockout**:
    a. A disconnect switch, circuit breaker, valve, or other energy isolating mechanism is put in the safe or off position.
    b. A device is often placed over the energy isolating mechanism to hold it in the safe position.
    c. A lock is attached so that the equipment cannot be energized.

A tag out is a written warning attached to the energy isolating device after it has been placed in the safe position.

2. **In a tagout**:
    a. A tag is filled out completely with the necessary information.
    b. The tag is attached to the device in the proper position.
    c. A tagout situation DOES NOT utilize a physically locking device, it is a paper version only.

All LOTO materials are supplied by the Harris Companies for the use by its employees. Each device must be:

1. Durable, to withstand wear.
2. Substantial, so it will not come off easily.
3. Capable of identifying the person who applied it.

Situations most likely to require LOTO include, but are not limited to:

1. Necessary removal of a guard or safety device.
2. Positioning yourself where any part of your body could be caught by moving machinery.

Some jobs for which LOTO should be used include:

1. Repairing electrical circuits.
2. Cleaning or oiling machinery with moving parts.
3. Clearing jammed mechanisms.

*LOCKS AND TAGS BY THEMSELVES **DO NOT** DE-ENERGIZE EQUIPMENT. ATTACH THEM ONLY **AFTER** THE EQUIPMENT HAS BEEN ISOLATED FROM ITS ENERGY SOURCES AND POTENTIAL ENERGY HAS BEEN REMOVED AND VERIFIED.*

RESPONSIBILITIES

1. **Supervisor**
    a. Ensuring that all affected employees (including new and transferred employees) are trained in the safety significance, purpose, and use of these lockout/tag-out procedures.
    b. Ensuring all authorized LOTO employees receive the appropriate level of training and that these employees are provided with the proper equipment and PPE to perform the job safely.
    c. Writing equipment specific LOTO procedures.
    d. Ensuring that only authorized LOTO employees perform LOTO operations on necessary equipment.
    e. Maintaining an inventory of all equipment in their department that requires equipment specific LOTO procedures.
    f. Receiving appropriate training to become an authorized LOTO employee and perform LOTO procedures on equipment.
2. **Safety Department**
    a. Assisting supervisors who perform electrical work, to interpret the standards and regulations as they apply to the work being performed.
    b. Assisting supervisors in writing equipment specific LOTO procedures.
    c. Assisting in the coordination of appropriate training for authorized LOTO employees and providing training for the assigned LOTO coordinator.
    d. Overseeing and managing the implementation of the intent of this program and resolving any situations not directly addressed by this program.
    e. Performing annual review of all LOTO policies.

LOCKOUT/TAG-OUT PROCEDURES

A. Applying Energy Controls

1. Only trained employees authorized to perform service or maintenance can apply energy isolation and lockout/tagout.
2. Notify all employees working in the affected area before lockout/tagout is applied.
3. Fill out the Lockout/Tagout forms in Appendix 2.

B. OSHA Regulations require that control of hazardous energy be done according to the following 6-step procedure:

1. **Preparation for Shutdown:**
    a. Complete the **Lockout/Tag-out Checklist** for each specific piece of equipment by number in order to locate all necessary areas to be locked out.
    b. Before equipment is turned off, in order to lockout and tagout the following must be investigated:
        - The types and amounts of energy that power it.
        - The hazards of that energy.
        - How the energy can be controlled.
2. **Equipment Shutdown**:
    a. Follow the proper shutdown procedure for that particular piece of equipment.
    b. Shut the system down by using its operating controls.
    c. Be certain that no one is endangered during shutdown.
3. **Equipment Isolation:**
    a. Operate all energy isolating devices so that the equipment is isolated from its energy sources.
    b. Be sure to isolate all energy sources - secondary power supplies as well as the main one.
    c. Never pull an electrical switch while it is under load.
    d. Never remove a fuse instead of disconnecting.
4. **Applying Lockout/Tagout Devices:**
    a. All energy-isolating devices are to be locked and tagged according to Harris Companies energy control program.
    b. Only the standardized devices supplied by Harris Companies are to be used for lockout/tagout; they are not to be used for anything else.
    c. Use a lockout device if your lock cannot be placed directly on the energy control.
    d. When lockout is used, every employee in the work crew must attach his personal lock.
    e. More than one employee can lock out a single energy-isolating device by using a multiple-lock hasp.
    f. For large jobs, a lockout box can be used to maintain control over a large number of keys.
    g. Attach the tag as close to the lock(s) or lockout device as possible.
    h. Fill tags out completely and correctly.

5. **Control of Stored Energy:**

   To guard against energy left in the equipment after it has been isolated from its energy source, take the necessary following steps:

   a. Inspect the system to make sure all parts have stopped moving.
   b. Install ground wires.
   c. Relieve trapped pressure.
   d. Release the tension on springs or block the movement of spring-driven parts.
   e. Block or brace parts that could fall because of gravity.
   f. Block parts in hydraulic and pneumatic systems that could move from loss of pressure.
   g. Bleed the lines and leave vent valves open.
   h. Drain process piping systems and close valves to prevent the flow of hazardous materials.
   i. If a line must be blocked where there is no valve, use a blank flange.
   j. Purge reactor tanks and process lines.
   k. Dissipate extreme cold or heat, or wear protective clothing.
   l. If stored energy can re-accumulate, monitor it to make sure it stays below hazardous levels.

6. **Verifying Isolation of Equipment:**

   a. Make sure all danger areas are clear of personnel.
   b. Verify that the main disconnect switch or circuit breaker cannot be moved to the “on” position.
   c. Use a voltmeter or other equipment to check the switch.
   d. Press all start buttons and other activating controls on the equipment itself.
   e. Shut off all machine controls when the testing is finished.

C. Performing the Work

1. Look ahead to avoid doing anything that could re-activate the equipment.
2. **DO NOT** bypass the lockout when putting in new piping or wiring.

D. Removing Lockout/Tag-out

1. Make sure the equipment is safe to operate.
   a. Remove all tools from the work area.
   b. Be sure the system is fully assembled.
2. Safeguard all employees.
   a. Conduct a head count to make sure everyone is clear of the equipment.
   b. Notify everyone who works in the area that lockout/tag-out is being removed.

3. Remove the lockout/tag-out devices.
    a. Except in emergencies, each device must be removed by the person who put it on.
    b. The last person to remove his lock will do a final check.
    c. The hasp and lockout device may also have to be removed.
    d. Tags should be removed, signed, and turned in.
    e. Follow a checklist of required steps to re-energize the system. This will be site/situation specific.

SPECIAL SITUATIONS

When contractors or other outside workers are performing service or maintenance at your workplace:

1. Either the outside work force uses their lockout/tag-out system while adhering to Harris Companies rules or Harris Companies employees must "lock over" the outside work force so they can only energize after the Harris Companies employees have been notified.
2. Be alert for new types of lockout or tag-out devices.

If it is necessary to temporarily re-activate equipment being worked on:

1. Remove unnecessary tools from the work area and make sure everyone is clear of the equipment.
2. Remove the lockout/tag-out devices and re-energize the system.
3. As soon as the energy is no longer needed, isolate the equipment and re-apply lockout/tag-out, using the 6-step procedure.

If servicing lasts more than one work shift:

1. Lockout/tag-out protection must not be interrupted.
2. When employees change shifts, the lock(s) must be switched out so an employee is utilizing their personal lock.

If possible, a lock should never be removed by anyone other than the person who installed it. However, if the situation should arise when the employee who applied a lock is not available to remove it, then:

1. The lock can be removed but only in a very serious emergency, and only under the direction of the site supervisor or competent person.
2. The person who installed the lock should be contacted by phone if possible before removing the lock.
3. Never remove the lock without making sure it is safe.

EXCEPTIONS

This program does not cover the following conditions:

1. Certain tasks such as minor tool changes and adjustments that are part of normal production operations and can be accomplished without removing protective guards; or, with the use of tools where the employee is not potentially exposed to hazardous energy; or, inadvertent start-up of the equipment.
2. Work on electrical equipment or systems where the work must be done on exposed, energized electrical parts or where there may be a potential for electric shock or electric burns. This type of work is to be done only after responsible supervision has determined that the work must be performed with the equipment energized. Only qualified and authorized employees will be allowed to perform energized electrical work while wearing appropriate PPE using approved work techniques.

POLICY/PROGRAM/PROCEDURE REVIEW

This policy shall be reviewed to ensure proper procedures are being followed. The review shall occur following any major project where the lockout/tagout program was utilized extensively, or annually. The review shall address the effectiveness of the program and correct any deficiencies that were noted throughout the procedures/year. The review shall be documented accordingly.

TRAINING

All Affected and Other employees must attend LOTO training. In order for Harris Companies employees to be considered authorized LOTO employees, they must attend the same classes as affected employees. Supervisors may require authorized employees to take further training as needed for job specific work.

1. Training will be given annually thereafter.
2. On new construction when power is connected.
3. When new equipment is added or replaced.
4. When Supervisor deems necessary but not less than annual, and less than time of hire.

Employees must participate in refresher training every year. All procedures must be inspected on an annual basis and as the need arises due to new job assignments, changes in procedures, or changes in equipment that present new hazards. Refresher training will also be conducted when deficiencies are found during the annual program review, when there have been deviations from established procedures, or if the employee's knowledge of the energy controls procedures appear to be inadequate.

Training records shall be maintained at the job site and a copy sent to HARRIS COMPANIES corporate office.

CONCLUSION

These procedures give you the tools and instructions you need to work safely around hazardous energy sources. It is up to you to guard your life, health, and the safety of others by putting these rules into action.

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Section 20: Material Handling and Storage

SCOPE

The policy of Harris Companies is to perform work in the safest possible working conditions for its employees' work place. It is each employee's responsibility to ensure they are performing their job in the safest most efficient manner possible.

The purpose of the Harris Companies Material Handling Program is to inform its employees of the efficient handling and storing of materials. These operations provide a continuous flow of raw materials, parts, and assemblies through the workplace, and ensure that materials are available when needed. Yet, the improper handling and storing of materials can cause costly personal injuries.

GENERAL REQUIREMENTS

OSHA applicable standards are found in CFR 1910, Subpart N and CFR 1926, Subpart H – Materials Handling and Storage. Following are the general requirements for Harris Companies employees.

1. Storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage. Vegetation control will be exercised when necessary.
2. All materials stored in tiers shall be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling or collapse.
3. Scrap material and debris shall be piled neatly in work area and disposed of properly as work progresses.
4. Materials shall not be stored on scaffolds or runways in excess of supplies needed for immediate operations.
5. Whenever materials are dropped more than 20' to any point lying outside the exterior walls of the building, an enclosed chute of wood, or equivalent material, shall be used.
6. Materials stored inside buildings under construction shall not be placed within 6' of any hoist- way or inside floor openings, or within 10' of an exterior wall which does not extend above the top of the material stored.
7. All stacked loads must be correctly piled and cross-tiered, where possible.
8. When stacking materials, consider the need for availability of the material. Material that cannot be stacked due to size, shape, or fragility can be safely stored on shelves or in bins.
9. Structural steel, bar stock, poles, pipe, and other cylindrical materials, unless in racks, must be stacked and blocked to prevent spreading or tilting.
10. Blocking materials and timbers should be large and strong enough to support the load safely.
11. Blocking materials with evidence of cracks, rounded corners, splintered pieces, or dry rot should not be used for blocking.
12. Follow hoist manufacturer's instructions when using hoist equipment.

POTENTIAL HAZARDS WHEN MOVING MATERIALS

Workers can be injured by falling objects, improperly stacked materials, or by various types of equipment. When manually moving materials, however, workers should be aware of:

1. Strains and sprains from improperly lifting loads, or from carrying loads that are either too large or too heavy.
2. Fractures and bruises caused by being struck by materials, or by being caught in pinch points.
3. Cuts and bruises caused by falling materials that have been improperly stored, or by incorrectly cutting ties or other securing devices.
4. Employees should seek help when a load is so bulky it cannot be properly grasped or lifted, when they cannot see around or over it, or when a load cannot be safely handled.
5. When an employee is placing blocks under raised loads, the employee should ensure that the load is not released until his or her hands are clearly removed from the load.
6. Handles and holders should be attached to loads to reduce the chances of getting fingers pinched or smashed.
7. Workers should use appropriate protective equipment.
    a. For loads with sharp or rough edges, wear gloves or other hand and forearm protection.
    b. To avoid injuries to the hands and eyes, use gloves and eye protection.
    c. When the loads are heavy or bulky, the mover should also wear steel-toed safety shoes or boots to prevent foot injuries if the worker slips or accidentally drops a load.
8. When mechanically moving materials, avoid overloading the equipment by letting the weight, size, and shape of the material being moved dictate the type of equipment used for transporting it.
9. All materials handling equipment has rated capacities that determine the maximum weight the equipment can safely handle and the conditions under which it can handle those weights.
10. The equipment-rated capacities must be displayed on each piece of equipment and must not be exceeded except for load testing.
11. When picking up items with a powered industrial truck, the load must be centered on the forks and as close to the mast as possible to minimize the potential for the truck tipping or the load falls.
12. A lift truck must never be overloaded because it would be hard to control and could easily tip over.
13. Extra weight must not be placed on the rear of a counterbalanced forklift to offset an overload.
14. The load must be at the lowest position for traveling, and the truck manufacturer's operational requirements must be followed.
15. Precautions also should be taken when stacking and storing materials.

HAZARDOUS MATERIAL STORAGE AND DISPOSAL

1. Flammable material is always stored in separate closed containers.
2. Store and transport gasoline, when in amounts of 5 gallons or less, in safety cans only. Plastic gas cans are not to be used.
3. Incompatible chemical products (which may cause a hazardous reaction if they come in contact) shall not be stored together.
4. Flammable liquids are not to be stored near sources of ignition (sparks, electricity, flames, or hot objects).
5. Where more than 25 gallons of flammable liquids are present, they are to be kept in a storage cabinet approved by the Nation Fire Protection Association (NFPA).
6. Flammable and combustible scrap, debris, and waste are to be removed promptly from buildings or structures.
7. Appropriate cleanup materials are available for leaks or spills of flammables or other hazardous materials.
8. Secure compressed gas cylinders in an upright position. Gauges must be removed and caps must be on when stored. ANSI Z49.1:2005, 8.6.4 & 5 Standard says Cylinder valves should be closed and capped when equipment is unattended for an extended time, such as for several days.
9. Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20’ or by a non-combustible barrier at least 5’ high having a fire-resistance rating of 30 minutes.
10. Leftover hazardous products and waste are to be properly stored, labeled, and disposed of according to the instructions on the product’s Safety Data Sheet (SDS).

TRAINING

OSHA recommends using a formal training program to reduce materials handling hazards. Instructors should be well-versed in matters that pertain to safety engineering and material handling and storing. The content of the training should emphasize those factors that will contribute to reducing workplace hazards including the following:

1. Alerting the employee to the dangers of lifting without proper training.
2. Showing the employee how to avoid unnecessary physical stress and strain.
3. Teaching workers to become aware of what they can comfortably handle without undue strain.
4. Reinforce using the proper material handling equipment for heavy and awkward loads.
5. Instructing workers on the proper use of equipment.
6. Teaching workers to recognize potential hazards and how to prevent or correct them.

Because of the high potential for back injuries, safe lifting techniques for manual lifting should be demonstrated and practiced at the work site by supervisors as well as by employees.

A training program to teach proper lifting techniques should cover the following topics:

1. Awareness of the health risks to improper lifting.
2. Knowledge of the basic anatomy of the spine, the muscles, and the joints of the trunk, and the contributions of intra-abdominal pressure while lifting.
3. Awareness of individual body strengths and weaknesses—determining one's own lifting capacity.
4. Recognition of the physical factors that might contribute to an incident, and how to avoid the unexpected.
5. Use of safe lifting postures and timing for smooth, easy lifting, and the ability to minimize the load-moment effects.
6. Use of handling aids such as stages, platforms, or steps, trestles, shoulder pads, handles, and wheels.
7. Knowledge of body responses—warning signals—to be aware of when lifting.

SUMMARY

It is the desired intent to keep our employees aware of the dangers and hazards while at their workplace.

Section 21: Personal Communication, Electronics and Radio Policy

SCOPE

The means for instituting and enforcing a carefully planned program regulating the use of company issued cell phones, PDA's, and personal cell phone usage. The amount of time employees spend on cell phones while at work has become a problem in our industry. The use of personal electronic devices (i.e., MP3 players, personal radios, portable stereos, and other electronic devices that are comparable) reduces work productivity. This is a disruption and creates the potential for safety hazards, particularly on construction job sites, due to diverted attention.

GENERAL

Harris Companies issues and/or pays individual cellular phones to company representatives who are required to be in close contact with the company at all times. While personal communication devices are a necessary convenience of the business world, we require that our employees follow the guidelines listed below for their safety and the safety of others. Company issued cell phones are to be used responsibly as a work tool. Personal cell phone use (other than work phones) must be limited to break times, with the exception of emergencies.

REQUIREMENTS

A. Company Issued Cell Phones, or Smart Cell Phones

1. If you have been issued a company cellular phone, or other PDA, you should use this communication equipment for business purposes and minimize personal usage.
2. Harris Companies reserves the right to request reimbursement for personal use of a company cell phone.

B. Personal Cell Phones, or Smart Cell Phones

1. Use of personal communication devices is prohibited on the job during working hours. All personal cell phones should be turned off during working hours or left in a vehicle where they can be retrieved during breaks to make phone calls or check messages. Exceptions may be granted for family emergency situations, but must be approved by the managing supervisor.
2. Personal communication devices are not allowed on the jobsite and will result in disciplinary action as outlined in the Harris Companies disciplinary procedures policy, found in Section 30.

C. CELL PHONE USE IN VEHICLES POLICY

Harris Companies has a large potential liability from accidents resulting from an employee's negligent use of a cell phone while operating a motor vehicle. The safe operation of motor vehicles is dependent upon a number of factors. One of the most important is staying focused on the task of driving. The use of cell phones can be a distraction and can cause or contribute to an incident. While simple conversation may not significantly affect driving ability adversely, complex business related conversation might disrupt a driver's ability to concentrate on driving conditions.

The use of cell phones in motor vehicles must never compromise safety. *Some jurisdictions have enacted laws regulating cell phone use in vehicles and employees are expected to become familiar and comply with these laws.* In the absence of and/or to supplement specific laws, driver cell phone use should comply with the following requirements when operating company vehicles, or driving rentals or personal vehicles on company business:

1. When possible, allow voicemail to pick up incoming calls while the vehicle is in motion.
2. Advise the person with whom you are speaking that you are on a cell phone in your vehicle and you will call them back.
3. When engaged in conversation on a cell phone while driving, actively compensate for the potential distraction created by cell use:
    a. Move to slower travel lanes,
    b. Decrease your speed,
    c. Increase your following distance, and
    d. Frequently check your mirrors to assess the immediate driving environment.
4. Hang up without warning if hazardous driving conditions should develop.
5. Do not use the phone during heavy traffic or hazardous weather conditions.
6. When using hands-free devices, position the phone as close as possible to your line of vision.
7. Program emergency numbers and frequently called numbers in your speed dial and voice activated features.
8. Minimize the length of the conversation.

DO NOT TAKE NOTES, TEXT MESSAGE, OR E-MAIL WHILE DRIVING

D. MP3 Players, Personal Radios, Portable Radios on Jobsites

The use of MP3 players, personal radios or music players with headphones, and/or any equipment which is used to play music, CD's, radio, etc., by Harris Companies employees, for purposes other than training, is not allowed on a construction jobsite.

It is Harris Companies policy that radios shall not be used on any jobsite setting because the noise may contribute to an unsafe work environment. By masking the noises of hazards (e.g., venting gas tanks or other audible noises such as sirens or warning signals) employees may be subjected to unsafe work environments.

Although some general contractors may allow radios or other music playing devices on a jobsite, Harris Companies employees are not allowed to use any CD player, radio, MP3 player, boom box, or their equivalent at any time, on any jobsite unless the player is being used to provide training, and is used in an appropriate setting.

This policy will be enforced in accordance to the disciplinary procedures policy established by Harris Companies management.

E. Policy History

Harris Companies reserves the right to amend or alter the terms of this policy as necessary to provide a safe work environment for its employees.

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Section 22: Personal Protective Equipment Policy – PPE

SCOPE

Identify personal protective equipment designed to provide an effective barrier between a person and potential hazards that may remain after engineering controls are established.

GENERAL

Personal protective equipment must be used in addition to proper clothing. Proper clothing consists of long pants and shirts with a minimum 4" sleeve. Dragging, baggy pants, baggy shirts, torn or loose long sleeves, boots with bad or torn toes, soles or heels, will not be allowed. Supervisors will monitor/evaluate the use and effectiveness of all personal protective equipment and recommend improvements.

REQUIREMENTS

A. Basic Equipment

1. Harris Companies shall ensure that the following personal protective equipment is available before the start of any construction activity.
    a. Hard hats (meeting ANSI z.89.1 standards)
    b. Safety glasses and side shields for prescription safety glasses. (meeting ANSI Z.87.1 standards)
    c. Gloves appropriate for the task (see section F. below).
2. The following will be available for project specific requirements:
    a. Hi Visibility vests
    b. Full body safety harness with shock absorbing lanyards.
    c. Respiratory protective equipment as dictated by hazard.
    d. Hearing protection.
    e. Cutting goggles, shields, welding hoods, lenses, and welding gloves, if welding and burning operations are anticipated.
    f. Full face shields (for operations producing flying chips, particles, or sparks.) and chemical goggles.
    g. Rubber boots, gloves, etc.
3. Project management shall ensure that an adequate stock of the required equipment is available.
4. Employees are required to provide their own ANSI approved work boots with steel toe protection or equivalent, if applicable.
5. Hi-Visibility Vests/Shirts will be mandatory on construction sites with earth moving equipment, heavy mobile equipment traffic and anytime we are working on public roads. We strongly encourage usage of this PPE on any construction site and it's a mandatory requirement of the majority of our large projects.

B. Personal Protective Equipment

1. Personal protective equipment must meet the following requirements:
    a. Provide the maximum protection against the hazard to which the employee will be exposed.
    b. Maximum comfort combined with minimum weight.
    c. Minimum restrictions of essential body movement, vision, etc.
    d. Durability and the ability to be maintained on the project.
    e. Manufactured in accordance with the accepted standards for performance and materials, i.e., American National Standards Institute (ANSI), and National Institute for Occupational Safety and Health (NIOSH).
2. When the use of personal protective equipment is necessary, the use of such protection shall be mandatory. Failure to use protective equipment when necessary shall result in disciplinary action.
3. Personal protective equipment will be provided by Harris Companies. Employees are requested to only use the provided and approved PPE. Personal PPE brought from home or another company shall not be authorized for use on Harris Companies jobsites unless approved and documented through Harris Companies Safety Department.

C. Head Protection

1. Company approved hard hats must be worn at all times on the job. Hard hats need not be worn in the field office.
2. Hard hats cannot be altered in anyway.
3. Hair must be contained by some means or manner that shall not cause danger to an employee from fire or entanglement in machinery.
4. Hard hats shall be worn to manufacturer recommendations.

D. Hearing Protection

1. Engineering controls shall be utilized to reduce noise to below occupational exposure limits whenever possible.
2. Employees exposed to noise in excess of the Occupational Exposure limits shall have hearing protection provided.
3. Employees are to be informed of the hazards associated with exposure to noise and the purpose and limitations of protective hearing devices. The wearing of this equipment *is* mandatory in areas where noise is in excess of Occupational Exposure Limits.

E. Eye and Face Protection

1. Approved safety glasses with side shields shall be worn by all employees and visitors engaged in work activities requiring safety glasses in areas outside the office.
2. Additional eye and/or face protection such as goggles, face shields, and welding shields are required at all times when engaged in operations such as welding, burring, grinding, chipping, handling chemicals, corrosive liquids or molten materials, drilling, driving nails, and pouring concrete.

3. A full face shield is required while performing any work with flying material (cutting, grinding, etc.) and is mandatory when performing any work overhead that could cause loose debris to land on the employees face i.e. hammer drilling, drilling tech screws, cutting material (such as insulation) etc.

F. Hand Protection

Gloves must be selected for the specific hazard encountered, according to procedures outlined by Harris Companies' Safety Department. Gloves shall be worn at all times, when it is necessary to protect workers from rough, sharp-edge objects, temperature extremes, toxic or corrosive chemicals, and energized electrical sources, according to the policy. Any deviation from this policy must be detailed on a task-specific pre-task plan.

1. TASKS: Employees should be protected by suitable gloves when engaged in operations hazardous to their hands.
2. ELECTRICAL GLOVES: Rubber electrical gloves shall be used to protect workers against electrical shock while working around energized systems. Gloves shall not be used as primary protection when deactivation of the system could be used. Gloves must be visually inspected before use to verify integrity. Each glove must be conspicuously marked with the test date. Rubber protective gloves for electrical workers shall conform to ANSI Standards.
3. HEAT-RESISTANT GLOVES: Heat-resistant gloves shall be used for handling hot work and working near excessively hot equipment. Gloves shall be asbestos-free.
4. LEATHER GLOVES: Leather gloves are tough and offer resistance to abrasion and sparks. Leather gloves shall be used to protect the hands from rough, sharp objects that may penetrate canvas gloves.
5. CANVAS GLOVES: Canvas gloves should be worn to protect workers from wooden splinters, rough edges, and friction burns.
6. CUT-RESISTANT GLOVES: Cut-Resistant gloves shall be used in areas that regularly require handling sharp objects such as knives or sharp metal. Kevlar gauntlets may be used in addition to cut resistant gloves, to provide additional arm protection.
7. WELDERS' GLOVES: Specialized gloves shall be worn by welders to protect their hands from sparks, heat and molten metal splashes.
8. CHEMICAL RESISTANT GLOVES: All employees required to work with chemicals shall be provided with chemical resistant gloves. Chemical resistant gloves must be selected based on the chemical being handles. Gloves are not impermeable to all chemicals. In general, neoprene gloves protect against acids, bases, oils, grease, and solvents; nitrile gloves offer protection from acids, bases, lubricants, and chlorinated solvents; natural rubber resists mild acids, caustics, and detergents; and PVC gloves protect from bases and oils. The manufacturer's catalog or the safety office should be consulted for specific information concerning glove resistance to various chemicals.
9. BLOOD: Workers will wear gloves made of vinyl, latex, or nitrile when it can be reasonable anticipated that hand contact with blood, other potentially infectious body fluids, mucous membranes, or non-intact skin is possible. Rubber household utility gloves will be used for housekeeping chores that involve handling items or surfaces contaminated with blood or body fluids to which universal precautions apply.
10. PROPER USE: Gloves shall be inspected before use for discoloration, punctures, or tears. Gloves should be cleaned or replaced periodically depending on the frequency of use and the permeability of the chemical. When handling highly corrosive and toxic chemicals, two

pairs of gloves should be worn. The outer pair may be of a different material to increase the range of protection against a variety of compounds. Gloves should fit comfortably without restricting motion and they should be long enough to protect the wrist, forearm, or the entire arm depending on the application.

G. Foot Protection

1. Employees are required to wear sturdy work boots, or boots with safety toe protection where applicable.
2. Employees shall be required to wear approved foot guards when safety toe work boots do not provide sufficient protection.
3. Tennis shoes, running shoes, light canvas shoes, sandals, etc., are not authorized for wear in construction areas.

H. Full Body Safety Harness, Lanyards, and Life Lines

Employees whose work places them outside of any secured area otherwise protected by guardrails or where their work is to be performed on suspended scaffolds or any other working surface where they may be subject to a fall greater than 6' (construction) or 4' (industrial) shall wear and use, a full body safety harness with a shock absorbing lanyard or retractable.

I. Respiratory Protection

Employees who are or may be exposed to hazardous concentration of gases, vapors, smoke, fumes, mist, or dust shall be provided, and required to wear, respiratory protective equipment designed to protect the employee from such concentrations. Any employee required to wear a respirator shall receive a medical evaluation, a respirator fit test and be trained. A written work site-specific respiratory program shall be established and administered by a trained program administrator.

TRAINING

All employees shall receive training on the proper use of PPE upon initial hire. Retraining shall be conducted anytime an individual fails to demonstrate proper use of PPE when required, or within one calendar year of initial hire, whichever condition precedes the other. Retraining shall also be conducted anytime a change in the work environment dictates a change in appropriate PPE. All training shall be documented and recorded as per record keeping requirements.

REFERENCES

29 CFR 1926.52

29 CFR 1926.100-105

29 CFR 1910.132

29 CFR 1910.134

29 CFR 1910.138

Section 23: Portable Fire Extinguishers

SCOPE

Harris Companies will ensure that potential fire hazards within our facilities and jobsites are evaluated. This standard practice instruction is intended to address comprehensively the issues of: Evaluating and identifying potential fire hazards, providing firefighting equipment, and providing training concerning these hazards to employees.

GENERAL

Over 150 major fires occur in workplaces on an annual basis. Fire is the third leading cause of accidental deaths in the United States. OSHA has established 29 CFR 1910.157 regulations that cover portable fire extinguishers and their proper use. OSHA also has a general directive for employers to maintain a work place free of hazards. Under authority of this directive, OSHA requires that "employers shall provide portable fire extinguishers and shall mount, locate, and identify them so that they are readily accessible to employees without subjecting employees to possible injury." OSHA requires that education and training be provided to employees as well.

OUTLINE

Contents of the Fire Extinguisher Program for Incipient Fires:

1. Written Program
2. Selection and distribution of Fire Extinguishers
3. Labeling of Fire Extinguishers
4. General Requirements
5. Inspection, Maintenance, and Testing
6. Training and Education

WRITTEN PROGRAM

Harris Companies will review and evaluate this standard practice instruction:

1. On an annual basis
2. When changes occur to 29 CFR that prompt revision of this document
3. When facility operational changes occur that require a revision of this document
4. When there is an incident, close call, or near-miss that relates to this area of safety
5. Review the program any time these procedures fail.

Effective implementation of this program requires support from all levels of management within Harris Companies. This written program will be communicated to all personnel that are affected by it. It encompasses all field workers, warehouse personnel, and fabrication facility employees across all divisions and includes management personnel, regardless of the number of workers employed or the number of work shifts. It is designed to establish clear goals and objectives.

SELECTION and DISTRIBUTION OF FIRE EXTINGUISHERS

Portable fire extinguishers shall be provided for employee use and selected and distributed based on the classes of anticipated workplace fires and on the size and degree of the hazard that would affect their use. Although there are five recognizable fire classes (A,B,C,D,K), fire extinguishers used by Harris Companies are for three classes of fires (A,B,C). Harris Companies will rarely be in an area where the hazard of a Class D or Class K fire would exist. If a Harris Companies employee is presented with a job location having the potential for a Class D or Class K fire, specific jobsite training will be provided to the employee before work in that area commences. A brief description of all five fire extinguisher classes and their travel distances to a fire extinguisher are:

A. Class A Fire Extinguishers. Use on ordinary combustibles or fibrous material, such as wood, paper, cloth, rubber, and some plastics. A good reminder of Class A fires is: *A = ASH.* Class A fires will produce or contain ash. Fire extinguishers for Class A fires should be located within a maximum travel distance of 75'. Harris Companies shall keep portable fire extinguishers within 25' of all hot work on construction sites. All permanent Class A fire extinguisher locations shall be placed no further than 150' from another fire extinguisher and all locations will be clearly marked so that they can be seen from any approachable direction.

B. Class B Fire Extinguishers. Use on flammable or combustible liquids such as gasoline, kerosene, paint, paint thinners, and propane. A good reminder of Class B fires is: *B = BOIL*. Class B fires will produce a boil and flash of the material, resulting in release of more fuel. Fire extinguishers for Class B fires should be located within a maximum travel distance of 50'. Harris Companies shall keep portable fire extinguishers within 25' of all hot work on construction sites. All permanent Class B fire extinguisher locations shall be placed no further than 100' from another fire extinguisher and all locations will be clearly marked so that they can be seen from any approachable direction.

C. Class C Fire Extinguishers. Use on energized electrical equipment, such as appliances, switches, panel boxes, and power tools. A good reminder of Class C fires is: *C = Circuit*. Class C fires will involve an electrical circuit. If you remove the electrical circuit, Class C fires will become any other class of fire and can be treated as such. Fire extinguishers for Class C fires should be located within a maximum travel distance of 50'. Harris Companies shall keep portable fire extinguishers within 25' of all hot work on construction sites. All permanent Class C fire extinguisher locations shall be placed no further than 100' from another fire extinguisher and all locations will be clearly marked so that they can be seen from any approachable direction.

D. Class D Fire Extinguishers. Use on combustible metals such as magnesium, titanium, potassium, and sodium. Travel distance from the combustible metal working area to any extinguishing agent is 75' or less.

E. Class K Fire Extinguishers. Use on cooking oils and greases such as animal fats and vegetable fats. Travel distance from the combustible metal working area to any extinguishing agent is 50' or less. This type of fire is typically in commercial kitchens where fire extinguishers are generally automatic.

LABELING OF FIRE EXTINGUISHERS

All fire extinguishers used by Harris Companies will be labeled in accordance with NFPA 10, Standard for Portable Fire Extinguishers. Locations where fire extinguishers are mounted will also comply with NFPA 10 for labeling purposes.

GENERAL REQUIREMENTS

Harris Companies has provided portable fire extinguishers for employee use in the event of an incipient fire. All fire extinguishers shall be mounted no higher and no lower than 4' from the floor. All jobsite fire extinguishers shall be located in an area free of obstructions and within easy access for employees. All fire extinguishers shall be maintained as follows:

1. Fully charged and in operable condition
2. Clean and free of defects
3. Readily accessible at all times.

INSPECTION, MAINTENANCE, AND TESTING

Harris Companies will visually inspect all portable fire extinguishers on a monthly basis. This inspection shall include a check of at least the following items:

1. Located in a designated space
2. No obstructions to access or visibility
3. Operating instruction on nameplate legible and facing outward
4. Seals and tamper indicators not broken or missing
5. Determines fullness by weighing or "lifting"
6. Examine for obvious physical damage, corrosion, leakage, or clogged nozzle
7. Pressure gauge reading or indicator in the operable range or position
8. Inspection tag securely attached, legible, and protected from elements if necessary.

This inspection will be recorded on the inspection tag and kept with the extinguisher, as well as on the Fire Extinguisher Inspection Report found in Appendix 2.

Harris Companies will contract for all annual inspections with a qualified service provider.

A replacement fire extinguisher or an equivalent protection will be provided when portable fire extinguishers are removed from service for maintenance and recharging.

A. How to Inspect your Fire Extinguisher

1. Know the locations of the fire extinguishers in your work area.
2. Make sure the class of the extinguisher is safe to use on fires likely to occur in the immediate area.
3. Check the plastic seal holding the pin in the extinguisher handle. Has the extinguisher been tampered with or used before? Report any broken/missing seals/pins to the Safety Coordinator for your jobsite.

4. Look at the gauge and feel the weight. Is the extinguisher full? Does it need to be recharged?
5. Water, some foam, and dry chemical extinguishers have gauges indicating the pressure inside the extinguisher. The pressure needle should be in the "green" area *(generally 100-175 lbs., depending on the type of agent)*.
6. CO_2 (carbon dioxide) extinguishers are high-pressure cylinders with pressures ranging from 1500 lbs to 2150 lbs. These extinguishers DO NOT have gauges and must be weighed by Harris Companies' safety staff to determine the amount of contents remaining.
7. Make sure pin, nozzle, and nameplate are intact.

TRAINING AND EDUCATION

The purpose of this section is to establish training procedures which are necessary for the proper use and understanding of a fire and extinguishing the fire. Employees will be provided with an educational program to familiarize them with the general principles of fire extinguisher use and the hazards involved with incipient stage fire-fighting. Training will require annual updating to ensure the proper procedures are being followed.

A. Initial Training Outline

1. General principles of a fire
2. Hazards employed with an incipient stage fire(s)
3. When to "back off" (Evacuate) from incipient stage fire(s)
4. General fire principles of a fire extinguisher
5. Hazards employed with the use of a fire extinguisher
6. Use of a fire extinguisher (simulated hand-on)

B. Retraining

Retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary. Retraining shall be provided for all authorized and affected employees whenever there is:

1. A change in job assignment
2. A change in machine, equipment, or process that presents a new potential fire hazard
3. There is a change in the fire prevention procedures
4. Harris Companies has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of fire extinguishers or fire prevention procedures.

C. Training Documentation

All fire extinguisher training will be documented. Documentation will be recorded on the Harris Companies standard training roster.

HOW FIRES START

Fire is a chemical reaction involving rapid oxidation or burning of a fuel. It needs three elements to occur:

FUEL - Fuel can be any combustible material - solid, liquid or gas. Most solids and liquids become a vapor or gas before they will burn.

OXYGEN - The air we breathe is about 21 percent oxygen. Fire only needs an atmosphere with at least 16 percent oxygen.

HEAT - Heat is the energy necessary to increase the temperature of the fuel to a point where sufficient vapors are given off for ignition to occur.

Take any one of these factors away, and the fire cannot occur or will be extinguished if it was already burning.

HOW FIRES ARE CLASSIFIED

CLASS A

Ordinary combustibles or fibrous material, such as wood, paper, cloth, rubber and some plastics.

CLASS B

Flammable or combustible liquids such as gasoline, kerosene, paint, paint thinners, and propane.

CLASS C

Energized electrical equipment, such as appliances, switches, panel boxes and power tools.

CLASS D

Certain combustible metals, such as magnesium, titanium, potassium, and sodium. These metals burn at high temperatures and give off sufficient oxygen to support combustion. They may react violently with water or other chemicals, and must be handled with care.

HOW TO PREVENT FIRES

Class A — Ordinary combustibles:

Keep storage and working areas free of trash. Place oily rags in covered containers.

Class B — Flammable liquids or gases:

Do not refuel gasoline-powered equipment in a confined space, especially in the presence of an open flame such as a furnace or water heater. Do not refuel gasoline-powered equipment while it is hot. Keep flammable liquids stored in tightly closed, self-closing, spill-proof containers. Pour from storage drums only what you will need. Store flammable liquids away from spark-producing sources and use flammable liquids only in well-ventilated areas.

Class C — Electrical equipment:

Look for old wiring, worn insulation and broken electrical fittings. Report any hazardous condition to your supervisor. Prevent motors from overheating by keeping them clean and in good working order. A spark from a rough-running motor can ignite the oil and dust in it. Utility lights should always have some type of wire guard over them. Heat from an uncovered light bulb can easily ignite ordinary combustibles. Do not misuse fuses. Never install a fuse rated higher than specified for the circuit. Investigate any appliance or electrical equipment that smells strange. Unusual odors can be the first sign of fire. Do not overload wall outlets. Two outlets should have no more than two plugs.

Class D — Flammable metals:

Flammable metals such as magnesium and titanium generally take a very hot heat source to ignite; however, once ignited are difficult to extinguish as the burning reaction produces sufficient oxygen to support combustion, even under water. In some cases, covering the burning metal with sand can help contain the heat and sparks from the reaction. If you are planning a project using a large amount of flammable metals you should consider purchasing a five or ten pound container of Class-D extinguishing agent as a precaution. Pure metals such as potassium and sodium react violently *(even explosively)* with water and some other chemicals, and must be handled with care. Generally these metals are stored in sealed containers in a non-reactive liquid to prevent decay *(surface oxidation)* from contact with moisture in the air. White phosphorus is air-reactive and will burn/explode on contact with room air. It must be kept in a sealed container with a non-reactive solution to prevent contact with air.

WHEN NOT TO FIGHT A FIRE

Never fight a fire:

- If the fire is spreading beyond the spot where it started
- If you can't fight the fire with your back to an escape exit
- If the fire can block your only escape
- If you don't have adequate fire-fighting equipment

In any of these situations,

DO NOT FIGHT THE FIRE YOURSELF.
CALL FOR HELP.

HOW TO EXTINGUISH SMALL FIRES

Class A - Extinguish ordinary combustibles by cooling the material below its ignition temperature and soaking the fibers to prevent re-ignition. Use pressurized water, foam or multi-purpose *(ABC-rated)* dry chemical extinguishers. DO NOT USE carbon dioxide or ordinary *(BC-rated)* dry chemical extinguishers on Class A fires.

Class B - Extinguish flammable liquids, greases or gases by removing the oxygen, preventing the vapors from reaching the ignition source or inhibiting the chemical chain reaction. Foam, carbon dioxide, ordinary *(BC-rated)* dry chemical, multi-purpose dry chemical, and Halon extinguishers may be used to fight Class B fires.

Class C - Extinguish energized electrical equipment by using an extinguishing agent that is not capable of conducting electrical currents. Carbon dioxide, ordinary *(BC-rated)* dry chemical, multi-purpose dry chemical and Halon* fire extinguishers may be used to fight Class C fires. DO NOT USE water extinguishers on energized electrical equipment.

** Even though Halon is widely used, EPA legislation is phasing it out of use in favor of agents less harmful to the environment.*

Class D - Extinguish combustible metals such as magnesium, titanium, potassium and sodium with dry powder extinguishing agents specially designated for the material involved. In most cases, they absorb the heat from the material, cooling it below its ignition temperature.

NOTE: *Multipurpose (ABC-rated) chemical extinguishers leave a residue that can harm sensitive equipment, such as computers and other electronic equipment. Because of this, carbon dioxide, or Halon extinguishers are preferred in these instances because they leave very little residue.*

ABC dry powder residue is mildly corrosive to many metals. For example, residue left over from the use of an ABC dry powder extinguisher in the same room with a piano can seriously corrode piano wires.

HOW TO IDENTIFY THE PROPER FIRE EXTINGUISHER

All ratings are visible on the extinguisher faceplate. Some extinguishers are marked with multiple ratings such as AB, BC and ABC. These extinguishers are capable of putting out more than one class of fire.

Class A and B extinguishers carry a numerical rating that indicates how large a fire an experienced person can safely put out with that extinguisher.

Class C extinguishers have only a letter rating to indicate that the extinguishing agent will not conduct electrical current. Class C extinguishers must also carry a Class A or B rating.

Class D extinguishers carry only a letter rating indicating their effectiveness on certain amounts of specific metals.

HOW TO USE A PORTABLE FIRE EXTINGUISHER

Remember the acronym, "P.A.S.S."

P .....*Pull* the Pin.

A .....*Aim* the extinguisher nozzle at the base of the flames.

S .....*Squeeze* the trigger while holding the extinguisher upright.

S .....*Sweep* the extinguisher from side to side, covering the area of the fire with the extinguishing agent.

REMEMBER:

- Should your path of escape be threatened
- Should the extinguisher run out of agent
- Should the extinguisher prove to be ineffective
- Should you no longer be able to safely fight the fire

...THEN LEAVE THE AREA IMMEDIATELY!

WHAT TO DO IF SOMEONE CATCHES ON FIRE:

If you should catch on fire:

STOP - where you are

DROP - to the floor

ROLL - around on the floor

This will smother the flames, possibly saving your life.

Just remember to STOP, DROP, and ROLL.

If a co-worker catches on fire, smother flames by grabbing a blanket or rug and wrapping them up in it. That could save them from serious burns or even death.

Section 24: Pre-Task Planning

PURPOSE

Pre-task Planning (PTP) allows the entire project team to begin everyday on the same page. Each morning, before work begins, time is set aside for all work crews to participate in a task planning process that identifies hazards and provides a safe way of accomplishing that day's tasks.

Each step of a job is carefully studied and recorded to identify existing or potential hazards and determine the best way to perform the job to eliminate these hazards. Ideally, it can be used as a tool for safety training, accident prevention, and job planning for all of the employees involved.

Pre-Task Planning identifies the following:

1. The day's work activities;
2. Steps to take to complete the work and hazards associated with each work step activity;
3. The proper steps crews will take to avoid or eliminate the identified hazards.

If conditions change throughout the day, the crew should stop and adjust the PTP accordingly. They may even be required to complete an entirely new PTP depending on the conditional changes.

PTP gives each employee a voice in creating the best and safest plan for completing his or her assignments. It's also a way for team members to take responsibility for their own safety, the safety of their team members, and the safety of other tradespeople working in the same vicinity.

POLICY STATEMENT

Harris Companies shall require its employees and signed subcontractors to preplan their work activities on a daily basis. Prior to the actual start of work, the foreman shall conduct a Pre-Task Planning session with all involved employees and subcontractors performing the individual task. The pre-task plan meeting will define the work plan and the associated hazards for the particular task being performed.

PROCEDURES

There are six core components of any effective pre-task planning session:

1. DEFINE THE SCOPE OF WORK – A clear understanding of the work assignment is critical to each day's work. This step requires the crew to review pertinent documents before listing the steps to be performed for the day to ensure the task is clearly understood.
2. ANALYZE THE HAZARDS – It is vital for crews to identify situational and inherent hazards or potential hazards. To identify the hazard, each crew member should discuss how someone may be injured while performing the task. Examples could include materials being used, equipment/tools being utilized, work locations, crew knowledge, worksite conditions, crew cohesiveness, and a host of other conditions.
3. DEVELOP AND IMPLEMENT HAZARDS CONTROLS – Once the hazards have been identified, the crew should then devise solutions to eliminate the hazards by implementing control measures. Specified methods, tools, and equipment might be used to reduce or eliminate the hazards. When the hazards cannot be eliminated, safeguards must be put in place.

4. PERFORM WORK WITHIN HAZARD CONTROL – This step requires crew members to discuss how work will be performed within the identified hazard controls. Crew members have to carefully think through their tasks so that they are able to satisfactorily address hazards. This may include changing the basic approach to performing work or by rearranging the sequence of performing the work activities.
5. ACKNOWLEDGE AND SIGN – This step requires employees to acknowledge that they are aware of the hazards involved in the task; that they know the proper procedures to be used to protect themselves from the identified hazards; and that the employee agrees to work within the steps and hazard controls to complete their work.
6. PROVIDE FEEDBACK AND CONTINUOUS IMPROVEMENT – During this stage, supervisors are expected to regularly review their work processes and provide feedback. Pre-task planning meetings are necessary when changes to the scope of work or hazard control measures occur or subsequent tasks are required. The crew may have a single pre-task planning meeting or several for various tasks throughout a single day. Any changes which result in improved work practices, more efficient procedures, or generally improve how work is conducted, should be noted and communicated to employees.

HAZARD IDENTIFICATIONS

Harris Companies realizes that not all hazards are readily identifiable. Some hazards may be secondary or afterthoughts of the work being conducted by our team members, or hazards created by other trades. Here are some hazards that could be overlooked when preparing a Pre-Task Plan:

1. Mechanical Hazards – The energy of the components of a mechanical system, such as rotation, vibration, or motion within an otherwise stationary piece of equipment or machinery. (Rotating equipment, compressed springs, drive belts, motors)
2. Electrical Hazards – The presence and flow of an electric charge. (Power lines, transformers, static charges, lightning, energized equipment, wiring batteries, transformers)
3. Pressure Hazards – Energy applied by a liquid or gas that has been compressed or is under a vacuum. (Pressure piping, cylinders, control lines, vessels, tanks, hoses, hydraulic lines, pneumatic lines)
4. Temperature Hazards – The measurement of differences in the thermal energy of objects or the environment, which the human body senses as either heat or cold. (Welding/cutting/brazing, refrigeration lines)
5. Chemical hazards – The energy present in chemicals that inherently or through reaction, has the potential to create a physical or health hazard to people, equipment, or the environment. (Chemical vapors, reactive hazards, carcinogens, or other toxic compounds)
6. Biological hazards – Living organisms that can present a hazard (animals, bacteria, viruses, insects, blood-borne pathogens, improperly handled food, contaminated water.)
7. Radiation hazards – The energy emitted from radioactive elements or sources and naturally occurring radioactive materials (NORMS). (Welding arcs, microwaves, lasers, x-rays)
8. Sound hazards – Sound is produced when a force causes an object or substance to vibrate and the energy is transferred through the substance in waves. (noise)
9. Motion Hazards – The change in position of objects or substances (lifting, straining, twisting, vehicular motion)

Section 25: Process Safety Management

SCOPE

Safe working practices to minimize or prevent catastrophic results inherent from hazardous environments associated with process plants.

GENERAL

All employees working at a facility operating under OSHA's Process Safety Management standard are to have training in the safety requirements that are necessary to perform work at that facility. In addition, records shall be kept and available for inspection to document this training, level of competency, and basic craft training for each employee.

REQUIREMENTS

Harris Companies will ensure that employees assigned to work on process facilities are qualified in their crafts and are trained in applicable aspects of safety. Implementation of Harris Companies "Process Safety Management Program" will begin by requiring the customer to submit all pertinent information required by the standard to conduct work safely.

RESPONSIBILITIES

A. Customer:

1. Provide Harris Companies with all data pertaining to all technological processes where work is to be performed. Information shall include, flow diagrams, block flow diagrams, toxicity information, corrosive data, chemical stability, and hazards involved.
2. Provide information on all equipment used in the process, a Process Hazard Analysis (PHA) if appropriate, temporary changes to the process system, and an emergency action plan for the facility. In cases where this information is confidential, Harris Companies Management shall sign the appropriate confidentiality agreement prior to the receipt of this information.

B. Harris Companies Project Management

1. General

a. Receive and study all information provided by the client in order to have a complete understanding of the highly hazardous materials used in the process system.

b. Obtain all SDS regarding chemicals, and other materials used on the project.

c. Analyze all information provided, noting all existing potential hazards, have all safety and personal protective equipment available, and provide orientation/training classes.

2. **Skill Level Identification**
    a. Responsible for testing all employees to find their level of training and experience for each craft. If a Supervisor has the knowledge of an employee's experience in a process unit and feels confident that they fully understand the procedures, he may, in lieu of training, certify in writing that the individual has the knowledge and skills to safely carry out the work in accordance with the established procedures.
    b. Assign helpers to experienced foreman/craftsmen to enhance the helper's knowledge and gain experience in their craft and ensure they follow safe work practices.
    c. Not allow an employee to work in a facility for which he/she has no knowledge.
3. **Training and Documentation**
    a. Train employees assigned to new work areas in a facility to assure they have all the knowledge and skills to conduct their work safely. Upon completion, the training shall be logged on the job safety assignment form that notes the process system, type of work to be performed, date/time of training, and the signature of trainer. Copies of this form shall be placed in the individual's personnel file.
    b. Test results shall be sent to the area office and placed in their personnel file.

C. Process Management Program

1. **Employee training**: Employees shall be provided a safety orientation from host employer.
2. When work requires additional training, selected employees shall receive training in the areas of need.
3. Only employees that have completed the initial safety orientation and training will be allowed to access the work area. A list of trained employees shall be submitted to the customer.
4. Project management shall maintain a master list of all personnel that have received training including the date it was conducted. A list of trained personnel shall be on file for specific subjects that require retraining by federal or state regulations.
5. Employees who are new to the craft shall be given additional training.

D. Permits

Permits shall document the protection requirements, such as barricades and fire watch, indicate the authorized date(s), identify the process and unit to be worked on, and the need (if any) for PPE.

E. Safety Audits

Harris Companies shall ensure that all requirements of the Harris Companies Safety Program are in compliance, including the following records:

1. Training records on all assigned employees.
2. Respirator training records.
3. Hazard communications program (SDS).
4. Air monitoring logs.
5. Crane inspection forms.
6. Rigging inspection forms.
7. First aid logs.
8. OSHA 300 and incident reports.
9. Weekly safety meeting reports.
10. All monthly inspection reports.
11. Master list of all training conducted.
12. All records required by PSM of this manual.

REFERENCES

29 CFR 1926.64

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Section 26: Proper Lifting

Almost everyone has experienced a sore back. *Back injuries result from:*

1. *Lifting wrong.*
2. *Not understanding lifting instructions.*
3. *Not considering the instructions important.*
4. *Not given specific instructions.*
5. *Deliberately disregarding instructions.*
6. *Not properly trained.*
7. *Not warming up before heavy lifting.*

To Avoid Back Strains – Learn to Lift Properly!

Do not lean forward to pick up an object without bending the knees. Squat and lift with your leg muscles. If you lift with the knees straight, the work must be done with the lower back muscles and they are not built for this task. Also, as the back approaches an upright position, the lower back sways in.

Be very careful if you must lift anything higher than your chest, especially if you must hold it away from your body. If you hold a weight in this way, it will pull you forward causing a back strain.

1. *Warm up and stretch before completing heavy lifting.*
2. *Keep the load near your body.*
3. *Lifting and twisting with a load is dangerous.*
4. *Be careful not to slip or trip with or without a load.*

Other injuries can be sustained by lifting or moving objects the wrong way.

Sprains A weakening of a joint and related muscles by a sudden or excessive exertion. These might be wrists, knees, etc.

Hernia A protrusion of an organ (often the intestines) because of a pulling apart of the body's muscle lining.

Wounds Cuts and bruises, usually on the hands, fingers, or toes

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Section 27: Rigging and Signaling

SCOPE

Rigging and hoisting refers to the lifting and moving of loads using mechanical devices such as hoists, slings, wire ropes, shackles, chain-falls, etc. Improper design, use, or maintenance of hoists, lifting devices, and rigging equipment can cause equipment to fail or a load to be dropped, which can result in personnel injury, death, or significant property loss. Employees that perform rigging activities have a critical role in helping to make sure each lift is a safe lift. The fact that an object is lifted off the ground does not mean it was rigged properly. Take the time to have your rigging checked, then double-checked by your supervisor or a competent person.

GENERAL RIGGING SAFETY REQUIREMENTS

1. Only qualified personnel are authorized to perform rigging and signalperson activities.
2. A Pre-Lift Checklist MUST be utilized when using a crane to lift or set materials and/or equipment into place.
3. A Crane Personnel Platform MUST be used only as a last resort.
4. Personnel who perform rigging activities MUST be familiar with standard hand signals for controlling and directing the crane operator. **If the operator sees that the signal person does not know proper signal techniques—STOP the lift and get a qualified signal person.**
5. ***Communication is a critical part of the lift procedure—not only with the crane operator, but also with other employees working in close proximity to the hoisting operation. Make sure everyone in the area is aware a lift is taking place.***
6. Have materials delivered as close to the work area as possible.
7. **ALWAYS** inspect hoists, lifting equipment, cables, straps and rigging equipment before using them each day.
8. Defective equipment SHALL be removed from service immediately and destroyed to prevent inadvertent reuse.
9. Rigging equipment not in use shall be removed from the immediate work area so as not to present a hazard to employees.
10. **NEVER** exceed the designed load capacity (Working Load Limit - WLL) for any lifting device or rigging equipment.
11. ***DO NOT walk or stand under any suspended loads.***
12. **DO NOT** place your hands/fingers between a sling and its load while the sling is being tightened around the load.
13. Keep all body parts away from the areas between the sling and the load and between the sling and the crane or hoist hook.
14. Remain clear of loads about to be lifted and suspended. Use tag lines when necessary.
15. Employees are prohibited from riding on any lift, hook chain, or cable sling suspended from a crane or hoist.
16. Keep suspended loads clear of all obstructions.
17. Ensure that, in a chock hitch, the choke point is only on the sling body, **NEVER** on a splice or fitting.

18. **DO NOT** rest or drop load on chain.
19. **DO NOT** pull a sling from under a load when the load is resting on the sling.
20. **DO NOT** drag slings on the floor or over abrasive surfaces.
21. Ensure that slings are not constricted, bunched, or pinched by the load, hook, or any fitting.
22. Eliminate all twists, knots or kinks before lifting.
23. **DO NOT** shorten or lengthen a sling by knotting or twisting.
24. **DO NOT** point load hooks. The load should be seated properly within the throat opening and centered in bowl of the hook.
25. Balance the load to avoid undue stress on one leg of multi-leg slings.
26. **NEVER** bounce, jerk or shock load a sling when lifting or lowering items. Remove slack by slowly applying the load to the chain.
27. Avoid sudden starts and stops when moving loads.
28. **DO NOT** use slings, eye bolts, shackles, or hooks that have been cut, welded, or brazed.
29. The load capacity limits **SHALL** be stamped or affixed to all rigging components. If missing, remove from service.
30. Makeshift links or fasteners or other such attachments **SHALL NOT** be used.
31. **DO NOT** use manila rope for rigging.
32. Install wire rope clips (cable clamps) properly. Use the correct size and number of clips.
33. **NEVER** install U-bolts on the live end of the wire rope. The live end is where the saddle goes, so remember, "**NEVER** saddle a dead horse".
34. Store slings in a dry area out of direct sunlight, extreme temperatures, moisture, mechanical damage or corrosive environments. **DO NOT** leave them in the back of a pickup bed.


Figure 5

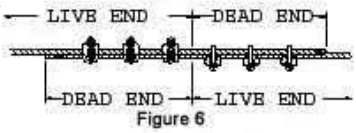


Figure 6

PLAN EVERY LIFT

Ask the following questions when planning a lift:

1. Who is the designated competent person/qualified rigger for the rigging?
2. Who is the designated qualified signal person?
3. Has communications been established between signalperson and operator?
4. Has the rigging equipment been inspected?
5. Does the rigging have proper identification?
6. Does all rigging equipment have known working load limits?
7. What is the weight of the load?
8. Where is the load's center of gravity?
9. What is the sling angle?
10. Will there be any side or angular loading?
11. Are the slings padded against sharp corners?
12. Are the working load limits adequate?

13. Is the load rigged to the center of gravity?
14. Is the hitch appropriate for the load?
15. Is a tag line required to control load?
16. Will personnel be clear of suspended loads?
17. Will the load lift level and be stable?
18. Any unusual environmental concerns?
19. Any special requirements?

Rigging must be used within manufacturer's recommendations and industry standards that include OSHA, ASME, ANSI, API and others.

RIGGING A LOAD

Perform the following when rigging a load:

1. Determine the weight of the load. **DO NOT GUESS**.
2. Determine the proper size for slings and components. Look for a permanently attached identification tag on each sling stating the size, grade, rated capacity and the name of the sling manufacturer. If the identification is not attached, take the defective equipment out of service.
3. Make sure that shackle pins and shouldered eye bolts are installed in accordance with the manufacturer's recommendations.
4. Make sure that ordinary (shoulder less) eye bolts are threaded in at least 1.5 times the bolt diameter.
5. Use safety hoist rings (swivel eyes) as a preferred substitute for eye bolts wherever possible.
6. Use wear pads to protect slings from sharp edges. Remember that machinery foundations or angle-iron edges may not feel sharp to the touch, but could cut into rigging when under several tons of load. Wood, tire rubber, or other pliable materials may be suitable for padding.
7. Verify that each sling is capable of supporting the load based on the projected horizontal angle of the sling during the lift.
8. Calculate the sling tension before the lift to ensure that it can support the load.
9. Determine the center of gravity and balance the load before moving the load. Initially lift the load only a few inches to test the rigging and balance.
10. Tag lines **SHALL** be used as required to prevent the load from swinging during the lift.

USER RESPONSIBILITY

1. Must be trained on rigging procedures.
2. Utilize appropriate rigging gear suitable for overhead lifting.
3. Utilize the rigging gear within industry standards and the manufacturer's recommendations.
4. Conduct regular inspection and maintenance of the rigging gear.

INSPECTION OF RIGGING HARDWARE

1. A visual inspection shall be performed by the user or designated person each day before the rigging hardware is used.
2. A periodic inspection shall be performed by a designated person, at least annually. The rigging hardware shall be examined and a determination made as to whether they constitute a hazard. Written records are not required.
3. Semi-permanent and inaccessible locations where frequent inspections are not feasible shall have periodic inspections performed.

REJECTION CRITERIA OF RIGGING HARDWARE PER ASME B30.26

1. Missing or illegible manufacturer's name or trademark and/or rated load identification (or size required)
2. A 10% or more reduction of the original dimension
3. Bent, twisted, distorted, stretched, elongated, cracked or broken load bearing components.
4. Excessive nicks, gouges, pitting and corrosion.
5. Indications of heat damage including weld spatter or arc strikes, evidence of unauthorized welding.
6. Loose or missing nuts, bolts, cotter pins, snap rings, latches or other fasteners and retaining devices.
7. Unauthorized replacement components or other visible conditions that cause doubt as to the continued use of the sling.
8. Additionally inspect wedge sockets for:
    a. Indications of damaged wire rope or wire rope slippage
    b. Improper assembly
9. Additionally inspect wire rope clips for:
    a. Insufficient number of clips
    b. Incorrect spacing between clips
    c. Improperly tightened clips
    d. Indications of damaged wire rope or wire rope slippage
    e. Improper assembly

INSPECTION OF SLINGS

1. A visual inspection for damage shall be performed by the user or designated person each day or shift the sling is used.
2. Additional inspections shall be performed during sling use where service conditions warrant.
3. A complete inspection for damage shall be performed periodically by a designated person, at least annually.
4. Damaged or defective slings shall be immediately removed from service.
5. Written records of the most recent periodic inspection shall be maintained.

REJECTION CRITERIA FOR SLINGS

1. Missing or illegible sling identification.
2. Evidence of heat damage.
3. Slings that are knotted.
4. Fittings that are pitted, corroded, cracked, bent, twisted, gouged, or broken.
5. Other conditions, including visible damage, that cause doubt as to the continued use of the sling.

A. WIRE ROPE SLINGS

1. Excessive broken wires, for strand-laid and single part slings, ten randomly distributed broken wires in one rope lay or five broken wires in one strand in one rope lay.
2. Severe localized abrasion or scraping, kinking, crushing, birdcaging.
3. Any other damage resulting in damage to the rope structure.
4. Severe corrosion of the rope or end attachments.
5. Evidence of heat damage.
6. Hooks opened more than 15% at the throat.
7. Hooks twisted sideways more than 10 degrees from the plane of the unbent hook.

B. CHAIN SLINGS

1. Cracks or breaks.
2. Excessive wear, nicks or gouges.
3. Stretched chain links or components.
4. Bent, twisted or deformed chain links or components.
5. Excessive pitting or corrosion.
6. Lack of ability of chain or components to hinge freely.
7. Weld splatter.

C. WEB SLINGS

1. Acid or caustic burns.
2. Melting or charring of any part of the sling.
3. Holes, tears, cuts or snags.
4. Broken or worn stitching in load bearing splices.
5. Excessive abrasive wear.
6. Discoloration and brittle or stiff areas on any part of the sling, which may mean chemical or ultraviolet/sunlight damage

D. ROUNDSLINGS

1. Acid or caustic burns.
2. Evidence of heat damage.
3. Holes, tears, cuts, abrasive wear or snags that expose the core yarns.
4. Broken or damaged core yarns.
5. Weld splatter that exposes core yarns.
6. Discoloration and brittle or stiff areas on any part of the slings, which may mean chemical or other damage.

HOW ANGLES EFFECT SLING STRESS

As the angle between the legs of the sling increase, the load each leg has to lift increases. This applies to a single sling used in a basket hitch as well as a multi-leg sling or bridle.

First, divide the total load to be lifted by the number of legs to be used. This provides the load per leg if the lift were being made with all the legs lifting vertically.

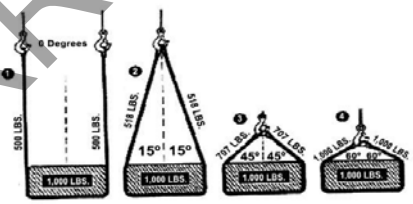
Determine the angle between the legs of the sling and the vertical.

Then MULTIPLY the load per leg by the Load Factor for the leg angle being used (from the table at the right) to compute the ACTUAL LOAD on each leg for this lift and angle.

NOTE: THE ACTUAL LOAD MUST NOT EXCEED THE RATED SLING CAPACITY.

Example: In the illustration below (sling angle of 45 degrees): 1000 ÷ 2 = 500 (Load per Leg if a vertical lift) 500 x 1.414 (45° Load Factor) = 707 lbs. = the ACTUAL LOAD on each leg at the 45-degree horizontal angle being used.

LEG ANGLE (Degrees)	LOAD FACTOR
0	1.000
5	1.003
10	1.015
15	1.035
20	1.064
25	1.103
30	1.154
35	1.220
40	1.305
45	1.414
50	1.555
55	1.743



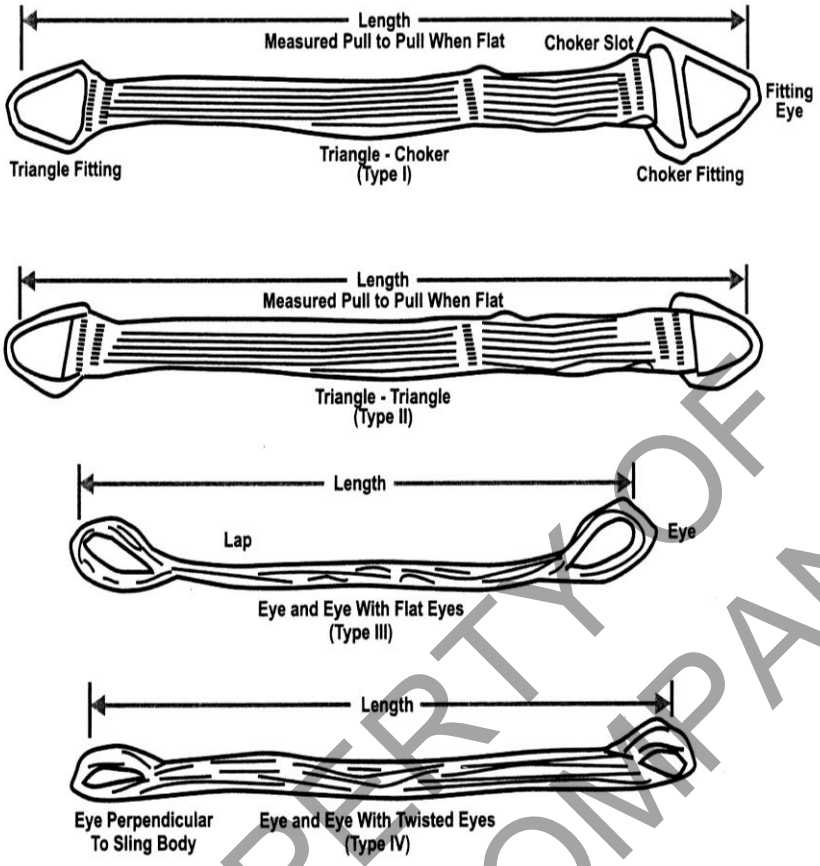


Table N-184-20 - Synthetic Web Slings - 1,000 Pounds per Inch of Width - Single-Ply
[Rated capacity in pounds]

Sling body width, inches	Triangle - Choker slings, type I; Triangle - Triangle slings, type II; Eye and eye with flat eye slings, type III; Eye and eye with twisted eye slings, type IV						Endless slings, type V						Return eye slings, type VI					
	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket
1	1,000	750	2,000	1,700	1,400	1,000	1,600	1,300	3,200	2,800	2,300	1,600	800	650	1,600	1,400	1,150	800
2	2,000	1,500	4,000	3,500	2,800	2,000	3,200	2,600	6,400	5,500	4,500	3,200	1,600	1,300	3,200	2,800	2,300	1,600
3	3,000	2,200	6,000	5,200	4,200	3,000	4,800	3,800	9,600	8,300	6,800	4,800	2,400	1,950	4,800	4,150	3,400	2,400
4	4,000	3,000	8,000	6,900	5,700	4,000	6,400	5,100	12,800	11,100	9,000	6,400	3,200	2,600	6,400	5,500	4,500	3,200
5	5,000	3,700	10,000	8,700	7,100	5,000	8,000	6,400	16,000	13,900	11,300	8,000	4,000	3,250	8,000	6,900	5,650	4,000
6	6,000	4,500	12,000	10,400	8,500	6,000	9,600	7,700	19,200	16,600	13,600	9,600	4,800	3,800	9,600	8,300	6,800	4,800

1. All angles shown are measured from the vertical.
2. Capacities for intermediate widths not shown may be obtained by interpolation.

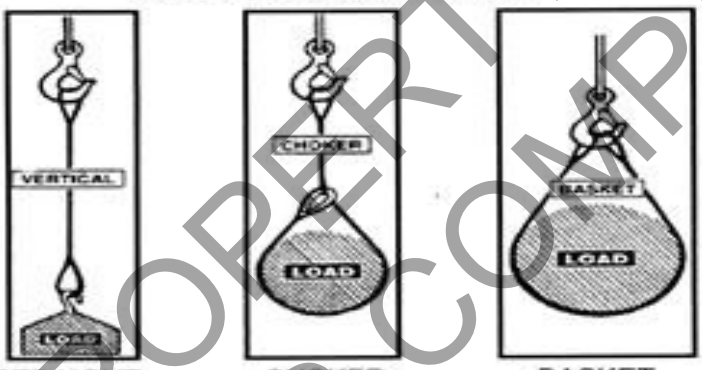
WIRE ROPE SLING CAPACITY RATINGS 1 TON = 2000 LBS. FS = 5 to 1

DIAMETER OF SLING INCHES	STRAIGHT PULL TONS	CHOKER HITCH TONS	BASKET HITCH TONS	TWO PART BRIDLE SLING		
				SLING ANGLE θ = 30°	SLING ANGLE θ = 45°	SLING ANGLE θ = 60°
1/4	0.56	0.42	1.1	0.97	0.79	0.56
3/8	1.2	0.93	2.5	2.1	1.8	1.2
1/2	2.2	1.6	4.4	3.8	3.1	2.2
5/8	3.4	2.5	6.8	5.9	4.8	3.4
3/4	4.9	3.6	9.7	8.4	6.9	4.9
1	8.5	6.4	17.0	15.0	12.0	8.5
1-1/8	10.0	7.8	21.0	18.0	15.0	10.0
1-1/4	12.0	9.2	24.0	21.0	17.0	12.0
1-3/8	15.0	11.0	29.0	25.0	21.0	15.0
1-1/2	17.0	13.0	35.0	30.0	25.0	17.0
1-3/4	24.0	18.0	47.0	41.0	33.0	24.0
2	30.0	23.0	61.0	53.0	43.0	30.0
2-1/2	47.0	35.0	94.0	81.0	66.0	47.0
		MULTIPLIER:		1.00	.75	.60

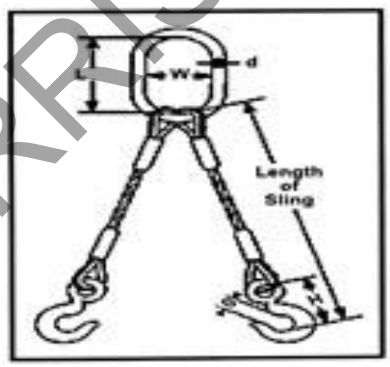
Formula to find sling length: Load Width x Multiplier = Sling Length

THE ABOVE RATED LOADS ARE BASED ON 6 x 37 AND 6 x 19 CLASSIFICATIONS, IPS, IWRC, MECHANICALLY SPLICED WIRE ROPE, SLING LOADINGS BASED ON OSHA STANDARDS 29 CFR 1926/1910 PART 1926.251 1985. SLING RATINGS GOOD FOR D/d RATIOS OF 20 OR GREATER. WHERE D = DIAMETER OF LOAD, d = DIAMETER OF SLING COMPONENT WIRE ROPE.

HITCH TYPES: RATED CAPACITIES BASED ON A SAFETY FACTOR OF 5/1



STRAIGHT PULL | CHOKER HITCH | BASKET HITCH



TWO-PART BRIDLE SLING

DEFINITION OF REASONABLE SUSPICION

Reasonable suspicion is a broad based term used to describe a set of circumstances which indicate a reason to conduct an investigation, or assessment, of an employee's fitness for duty or to explore possible explanations for an employee's conduct, actions, or appearance. The suspicion is based on observations of the individual employee. It is not a generalized belief or "gut feeling" about a group, or category, of employees which is based on such characteristics as dress, ethnicity, age, or occupation. A reasonable suspicion is more than a hunch; it is a reasoned conclusion drawn from objective observations of the individual.

The standards applied to probable cause are generally more definitive, in a legal sense, than those applied to reasonable suspicion, especially in the context of requiring individuals to undergo a chemical test (breath, blood, or urine) for the presence of alcohol or other drugs in their body. Probable cause generally implies that there is evidence to support a probable conclusion----e.g. drug or alcohol use. Reasonable suspicion leaves room for an action to "rule out" or eliminate a particular cause for the observed phenomenon. In other words, the reasonable suspicion drug or alcohol test is used as much to determine that drugs or alcohol are not the cause of the observed behavior or appearance, as it is to prove that drugs or alcohol are the causative agent. So the behaviors, conduct, or appearance observations of the supervisor do not have to represent probable drug/alcohol misuse, but rather **possible** drug/alcohol misuse. A reasonable suspicion drug or alcohol test is not a diagnostic tool for definitive evidence of drug or alcohol abuse. A drug or alcohol test is not a clinical diagnostic test. Because an employee has used drugs or alcohol in violation of workplace policy or rules, does not mean that he/she is an alcoholic or drug addict. A reasonable suspicion drug or alcohol test is one way of determining if an employee has engaged in drug or alcohol related conduct prohibited by the Drug and Alcohol Policy and Program.

SUMMARY

Reasonable Suspicion – Definition

1. Reasonable suspicion is based on observations of an individual.
2. Reasonable suspicion is based on objective, documented criteria.
3. Reasonable suspicion testing is used to rule out or eliminate drug/alcohol use as a cause of the individual's behavior or appearance.
4. Reasonable suspicion testing is not a diagnostic tool.

CONFRONTING THE EMPLOYEE

Making a determination that a reasonable suspicion drug or alcohol test is necessary involves a confrontation with the employee. This is often the most difficult aspect of reasonable suspicion testing for supervisors. Confrontation about an employee's misconduct often is embarrassing and uncomfortable for many supervisors, especially if that misconduct involves the use of drugs or alcohol. Discomfort about someone's drug or alcohol use or abuse is not limited to supervisor/employee relationships. Experiences with friends or family; members who drink too much, leave people feeling frustrated, annoyed, angry, helpless, and confused about how to approach them on the issue. Our own experiences with alcohol affect our beliefs and our actions in response to drug or alcohol misuse or abuse by others.

The key to successful confrontation about an employee's possible alcohol-related misconduct is to focus on the specific observations of employee behavior and appearance. The supervisor should not accuse the employee of drug or alcohol use, misuse, or abuse. The supervisor should clearly and objectively articulate

his/her observations and inform the employee that a drug screen or an alcohol breath test will be conducted. If the employee protests that the signs or symptoms are due to other causes, such as fatigue, physical illness, or personal problems, the supervisor should listen to the employee, respond empathetically, and explain that if that is the case, the drug screen or alcohol breath test will serve to eliminate drug or alcohol misuse as a possible cause of the presenting behavior or appearance. The supervisor should remain firm in his/her resolve to carry through with the decision to conduct the reasonable suspicion drug screen or alcohol test.

The confrontation should also include a clear statement of the consequences of the employee's refusal to submit to the test, if appropriate. The supervisor should also be prepared to explain the procedures for obtaining the test, including such matters as transportation to and from the testing location, any documentation being made, and the employee's responsibilities. The employee may ask about the consequences of a "positive" test. The supervisor should be knowledgeable of the company's policy and the procedures for carrying it out. Oftentimes employees being confronted about their behavior and appearance are defensive or hostile. The supervisor needs to stay focused on the observations which have led to the determination to test and follow through with arrangements to have the drug screen, blood or breathe test conducted as soon as possible. Remember, if the employee is under the influence of drugs or alcohol, the defensive, hostile responses may be related to the effects of the drugs or alcohol. It is helpful to have another supervisor assist you with, or at least witness, the confrontation with the employee.

The conduct of the employee must be witnessed by at least two supervisors or other company officials, if feasible. If not feasible, only one supervisor or company official need witness the conduct. The witness or witnesses must have received training in the identification of actions, appearances, or conduct which is indicative of the use of drugs or alcohol.

SUMMARY

Confronting the Employee

1. Confrontation of the employee is often the most difficult task.
2. Confrontation should remain focused on employee behavior and appearance.
3. Collaboration with another supervisor or company official, if feasible, is helpful.
4. Supervisor must receive training on recognizing reasonable suspicious behavior for drugs or alcohol.

WHAT TO SAY (and not to say) WHEN CONFRONTING AN EMPLOYEE:

It is very important not to say things like, "You're drunk", "You're on drugs" "Have you been drinking?" "I smell alcohol…," "Are you using drugs?" etc. Using phrases like this could result in a legal battle.

1. If you notice an employee who appears to be under the influence of drugs or alcohol, the first thing you want to do is get them to an area where they cannot hurt themselves or others.
2. In your approach be direct and firm, but do not be condescending.
3. Say the person's first name and be sure you have their attention. Then say something like the following:
    a. "(First name of person), I see (or I noticed) that you're not quite your usual self today."
    b. "I think that you may not be(able to perform, fit to perform, capable of performing) your job safely today."
    c. "Since I am your supervisor, I feel (or I am) responsible for your safety."
    d. "I want you to stop what you are doing and come with me to the job trailer."
4. Now you have isolated the person from a safety sensitive area, if you are not comfortable confronting the person at this point, take the time to call the Director of Safety or the Director of Field Services or another foreman to assist you. It is always a good idea to have more than one person with you when confronting a person in this type of situation.

5. While you are waiting for support to arrive, take the time to privately document your observations of the person.
6. Next you need to tell the employee that they have to take a drug and alcohol test. To do this you could say something like:
    a. "Because I am your supervisor and your employment with us places you under the Union Drug and Alcohol Policy, I Need you to take a drug and alcohol test."
7. More than likely the employee will then protest and/or bring all sorts of excuses to you. Just listen patiently and let them say what they have to say.
8. Then repeat again that it is important that they take the test now to eliminate the misuse of drugs or alcohol as a reason for their behavior. Say something like:
    a. "I want to believe that there is a very good reason for your behavior; however, because of the policy, I still need you to take a drug and alcohol test. This will allow us to eliminate any doubt or questions."
9. Then put the ball back in their court by adding the question…"DOES THAT SOUND FAIR?"
10. This way you will get a yes or no answer without having the person feel attacked.

Remember: Do not be accusing or assuming. Treat the person as if you give them the benefit of the doubt and hope that they are clean (even if you feel positive that they are not). You are only doing this because it is your job responsibility as a supervisor; and, you care about their safety and well-being.

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PURPOSE AND OVERVIEW

The purpose of this policy is to ensure the protection of all employees from respiratory hazards through proper use of respirators. In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors; the primary objectives shall be to prevent atmospheric contamination.

This shall be accomplished as far as feasible by accepted engineering controls, measures, i.e., enclosure or confinement of operations, general and local ventilation, and substitution of less toxic materials. Appropriate respiratory protections shall be used: when engineering control of respiratory hazards is not feasible; engineering controls are being installed; or in case of emergency.

Respirators shall be used only during activities designated for their use, according to the specifications established by their manufacturers, according to the program elements specified in this document, and according to the procedures established by the Safety Department.

The Safety Department is solely responsible for all facets of this program and has full authority to make necessary decisions to insure success of this program. This authority includes hiring personnel and equipment purchases necessary to implement and operate the program.

Overview for the implementation of the Respiratory Program includes:

1. Possible conditions requiring respiratory protection shall be reported to and or investigated by the Safety Department.
2. Local testing company will test employee exposure.
3. All engineering controls will be implemented to reduce or eliminate the exposure.
4. Appropriate respirators will be selected as necessary
5. All instructions and recommendations of the respirator manufacturer will be followed.
6. Employee's medical ability to wear a respirator will be determined by a designated medical facility. This must include a medical questionnaire, pulmonary function testing, and a physical exam performed by a physician or other licensed health care professional, during normal business hours and at the designated facility. The physician or other licensed health care professional will be available at that time to discuss the results of the medical profile, prior to fit-testing the actual respirator.
7. Employee will be trained on the following respirator topics:
    a. Use
    b. Limits of use
    c. Putting on and wearing the apparatus
    d. Fit testing
    e. Maintenance, cleaning & storage
    f. Inspection
    g. Medical evaluation
    h. Surveillance
    i. Follow-up
8. Employees will sign a form showing completion and understanding of respiratory program.
9. On-going reporting to the Safety Department will be enforced regarding effectiveness of the program.

RESPONSIBILITIES

A. The Safety Department is designated as the Respiratory Program Administrator and is responsible for the following:

1. Establish the Respiratory Program and ensure that all facets of the program are completed.
2. Develop and implement a detailed and written respiratory protection program including work-site specific procedures and standard operating procedures governing the selection and use of respirators using the NIOSH Respirator Decision Logic as a guideline. Outside consultation, manufacturer's assistants, and other recognized authorities will be consulted if there is any doubt regarding proper selection and use. Only the Safety Department may amend these procedures.
3. Ensure that this written respiratory protection program includes all components listed in this policy (whenever and wherever applicable).
4. Halt any operation where there is danger of personal injury due to respiratory hazards.
5. Ensure employees are trained in the proper use of respirators and their limitations. Fit testing training should provide the employee with an opportunity to handle the respirator, have it fitted properly, test its face piece to face seal, wear it in normal air conditions, and finally to wear it in a test atmosphere. Every respirator wearer will receive fitting instructions including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to determine if it fits properly. Respirator Fit Test found on Attachment 1 of this section.
6. Conduct and maintain surveillance of work area conditions and the degree of employee exposure or stress. Perform regular inspections and evaluations where respirators are used to determine the continued effectiveness of the program and to ensure compliance.
7. Designate a clinic that will determine the pertinent health and physical conditions necessary for respirator use and send employees for physical exams to determine that they are physically able to perform the work and use the equipment. The respirator user's medical status will be reviewed annually.

B. The Foremen, Supervisors, and Project Managers are responsible for the following:

1. Anticipate and recognize conditions that may require respiratory protection.
2. Report possible conditions for respiratory protection to the Safety Department.

C. Employees using respirators are responsible for the following:

1. Abide by all policies pertaining to the respiratory program.
2. Report to the supervisor any condition that may need investigation for respiratory protection.

PROGRAM REQUIREMENTS

A. Use of Respirators

1. Employees must not wear tight-fitting face pieces under the following conditions:
    a. The presence of facial hair that comes between the sealing surface of the face piece and the face or that interferes with the respirator valves functions.
    b. Any condition that interferes with face-to-face piece seal or valve function (i.e., glass frames, the absence of dentures, personal protective equipment). Employees must perform a user seal check each time they put on a tight-fitting respirator. This check must be completed according to Appendix B-1 of OSHA 1910.134

2. Complete appropriate surveillance of the work area conditions and degree of employee exposure to stress which impacts respirator effectiveness. Ensure that employees leave the respirator use area under the following conditions:
    a. If the environmental conditions change.
    b. If detecting conditions such as vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece, the respirator must be replaced or repaired before the employee returns to the work area.
    c. To replace the respirator cartridge, filter, or canister elements.
3. For IDLH (Immediate Danger to Life or Health) atmospheres, ensure the following:
    a. At least one employee is located outside an IDLH atmosphere.
    b. Visual, voice, or signal line communication is maintained between employee(s) in the IDLH atmosphere and employee(s) outside the IDLH atmosphere.
    c. Employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue. This equipment includes: SCBA or SAR units, appropriate retrieval equipment, or equivalent means of rescue (where retrieval equipment is not required).
4. For all interior structures, ensure the following:
    a. Meet all criteria noted for IDLH atmospheres.
    b. At least two employees enter the IDLH atmosphere and remain within visual or voice contact with one another at all times.
    c. At least two employees are located outside the IDLH atmosphere.

B. Maintenance and Care of Respirators

1. Employees must be provided with a respirator that is clean, sanitary, and in good working order. Ensure that respirators are cleaned and disinfected according to procedures established in Appendix B-2 of OSHA 1910.134 or recommended by manufacturer.
2. Respirators must be cleaned and disinfected according to the following intervals:
    a. Exclusively used respirators must be cleaned and disinfected regularly to maintain a sanitary condition.
    b. Respirators issued to more than one employee must be cleaned and disinfected before being worn by different individuals.
    c. Respirators worn for emergency use must be cleaned and disinfected after each use.
    d. Respirators used for fit testing and training shall be cleaned and disinfected after each use.
3. Ensure that respirators are stored as follows:
    a. All respirators must be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals. In addition, respirators will be packed or stored to prevent deformation of the face piece and exhalation valve.
    b. Emergency respirators must be kept accessible (in the work area), stored in compartments or in covers (clearly marked as containing emergency respirators), and stored according to the manufacturer's instructions.
4. Ensure that respirators are inspected as follows:
    a. All respirators used in routine situations must be inspected before each use and during cleaning. Inspections shall be documented monthly on the Respirator Inspection Sheet found in Appendix 2.

   b. All emergency respirators must be inspected at least monthly, inspected according to the manufacturer's instructions, and must be checked for proper function before and after each use.
   c. Emergency escape-only respirators must be inspected before being carried into the workplace for use.
5. Ensure that the respirator inspection includes the following:
   a. A check of respirator function, tightness of connections, and condition of various parts (face piece, head straps, valves, connecting tube, cartridges, canisters, or filters.)
   b. A check of elastomeric parts for pliability and signs of deterioration.
   c. SCBA units must be checked monthly.
   d. Air tanks must be maintained as fully charged and must be refilled at 90% of manufacturer's recommended pressure.
   e. Regulator and warning devices function properly.
6. For respirators maintained for emergency use, the program must:
   a. Certify the respirator by documenting date of inspection, name of inspector, findings, remedial action, and a serial number or other means of identifying the inspected respirator using the Respirator Inspection Sheet found in Appendix 2.
   b. Provide this information on a tag or label attached to the respirator storage compartment, kept with the respirator, or included with inspection reports stored as paper or electronic reports.
7. Ensure that respirators that have failed an inspection or are defective are removed from service, discarded, or repaired in accordance with the following:
   a. Repairs or adjustments are to be performed by properly trained personnel only and only the respirator manufacturer's NIOSH-approved parts are to be used.
   b. Repairs or adjustments are made according to the manufacturer's recommendations and specifications.
   c. Reducing and admission valves, regulators, and alarms are adjusted and repaired only by the manufacturer or a technician trained by the manufacturer.

POSITIVE AND NEGATIVE PRESSURE FIT CHECK

NOTE: A SATISFACTORY FACE SEAL MUST BE DETERMINED EVERY TIME THE RESPIRATOR IS WORN.

POSITIVE PRESSURE FIT CHECK

1. Place palm of hand over the hole in the exhalation valve cover and exhale gently to cause a slight positive pressure inside the face piece,
    a. If the face piece bulges slightly and no air leaks are detected between the face and face piece, then a proper fit has been obtained.
    b. If air leakage is detected, reposition the respirator on the face and/or readjust the tension of the headbands to eliminate the leakage.
2. Repeat the test until a satisfactory seal has been achieved.

NEGATIVE PRESSURE FIT CHECK

1. Place palms of hand over the cartridge (RP22 filter retainers may be used to assist in the test) and/or filter retainer.
2. Inhale gently, and hold breath for five to ten seconds.
    a. If the face piece collapses slightly and no air leaks are detected between the face piece and your face, then a proper fit has been obtained.
    b. If air leakage is detected, reposition the respirator on the face and/or adjust the tension of the headbands to eliminate the leakage.
3. Repeat the test until a satisfactory seal has been achieved.

***CAUTION**: IF YOU CANNOT ACHIEVE A PROPER FIT, DO NOT ENTER CONTAMINATED AREAS. SEE YOUR SUPERVISOR OR CONTACT THE DIRECTOR OF SAFETY*

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SCOPE

For instituting and enforcing a carefully planned program of safety education, training and information.

GENERAL

This program includes new hire safety orientation, supervisor/safety orientation, and weekly safety meetings.

REQUIREMENTS

A. New Hire Orientation

Newly hired employees shall be required to have a safety orientation. The orientation is provided to all construction craft and supervisors. Safety orientation will include:

1. Employees are required to work safely and to adhere to the Harris Companies Safety Program.
2. The reporting procedures for injuries and illness.
3. Employee attendance at weekly safety meetings is mandatory. Employees are encouraged to ask questions, offer suggestions, and voice complaints regarding safety on the project.
4. Each employee is required to report all unsafe acts or conditions to their supervisor.
5. **Employee Disciplinary Notice, in Appendix 2,** will be utilized in warning of unsafe acts by employees. An employee who receives a warning letter is subject to disciplinary proceedings in accordance to Harris Companies Disciplinary Policy found in Section 30.
6. The proper use of personal protective equipment is mandatory. Every employee who is required to wear personal protective equipment shall be instructed in its proper use.
7. Each employee is to be informed on established project emergency procedures in case of serious injury, fire, or need for evacuation.

B. Supervisor Safety Training

It is necessary that each supervisor be knowledgeable of his/her safety responsibilities. This safety training shall highlight the Field Safety Manual and shall include the following items of responsibility:

1. **Safe Work Areas** – The supervisor shall be familiar with the crews' work areas and ensure that safe conditions are maintained.
2. **Safe Work Practices** – The supervisors assigning work tasks shall ensure instruction in the safety practices, work methods and PPE required.
3. **Emergency Procedures** – Each supervisor shall be completely familiar with the project emergency procedures.
4. **Accident Investigations** – Supervisors are required to actively participate in the investigation of all accidents and incidents.

C. Safety Meetings

1. Supervisors shall hold safety meetings weekly with their employees to discuss work practices and conditions related to construction safety.
2. Attendance at these safety meetings is mandatory.

D. In House Training Programs

Harris Companies provides training and education to employees on the following topics:

1. **Safety**
    a. Fall Protection/Fall Prevention
    b. Fire Safety (Fire Extinguishers)
    c. Confined Space
    d. Lock Out/Tag Out
    e. Fire watch/Hot Work Permits
    f. Trenching and Excavations
    g. Electrical Safety
    h. Cutting and Welding Safety
    i. Personal Protection Equipment
    j. Rigging – Material Handling
    k. Scaffolding
    l. Forklift Operating
2. **Health**
    a. Respiratory Protection
    b. Hydrogen Sulfide
    c. Lead
    d. Cadmium
    e. Arsenic
    f. Silica
    g. Blood-borne Pathogens
3. **Other**
    a. Hazard Communications
    b. Hazardous Waste Operations and Emergency Response
    c. First Aid/CPR/AED
    d. OSHA 10 & 30 Hours Construction
    e. MSHA
    f. Process Safety Management
    g. Incident Investigation
    h. Zero Incident Environment

DISCIPLINARY POLICY

Any employee who, in Harris Companies judgment, knowingly commits an unsafe act, creates an unsafe condition, disregards the safety policy, or is a repeated safety or health offender will face disciplinary action up to and including termination. This procedure will be coordinated through the Director of Safety.

Harris Companies has an **Employee Disciplinary Notice, found in Appendix 2**. Formal documentation to notify an employee of improper conduct will be used according to the **Harris Companies Disciplinary Guidelines**. This Disciplinary Policy is for all field employees to follow. If there is a policy in place that is site specific, held up by the unions, or more/less stringent, those guidelines will be enforced.

The work rules listed below identify basic Company work rules and are not intended to be all inclusive. Other reasons for disciplinary actions are at management's discretion.

WORK RULE INFRACTION EXAMPLES

	Category 1 Infractions Examples	1st Infraction
1.	Fighting, physical threats, verbal threats, or assaulting an individual on company or client controlled property.	In the event that a Category 1 Infraction occurs, the employee will be terminated and will not be eligible for rehire for a period not less than 6 months.
2.	Using, or threatening to use lethal weapons, ammunition or explosives on company or client controlled property.	
3.	Being under the influence of narcotics or alcohol, non-prescribed drugs and/or intoxicants, or possession of drug paraphernalia on company or client controlled property.	
4.	Unauthorized possession or theft of property belonging to the company, client, contractor, subcontractors, or other employees.	
5.	Willful action or inaction resulting in injury to personnel or damage to property, equipment, or operating services.	
6.	Acts or threats of sabotage, willful damage, vandalism or defacing of company, client, contractor, or subcontractor property.	
7.	Falsification of any records, inspections or other documents.	
8.	Gross insubordination – employee's deliberate defiance of authority.	
9.	Absence for three (3) consecutive work days without proper notification.	
10.	Riding outside equipment, on the forks of a forklift, or using a forklift as a manlift without proper manlift equipment.	
11.	A willful safety violation or lack of utilizing proper fall protection when required to be used.	

Category 2 disciplinary action will depend on the severity of the violation. The below action plan could be bypassed by immediate termination.

	Category 2 Infraction Examples	1st Infraction	2nd Infraction	3rd Infraction	4th Infraction
1.	Riding in any vehicle/equipment without a seatbelt, or in any seat/bench/stools not designed by manufacturer, for personnel transportation.	If Category 2 Infraction occurs, a verbal, documented warning will be issued	In the event that a second Category 2 Infraction occurs, the employee will be issued a formal written disciplinary form with signatures will be issued. The employee may be terminated if deemed necessary.	In the event that a third Category 2 Infraction occurs, the employee will be issued a formal written disciplinary form with signatures, and the employee will be suspended for not less than 2 working days. The employee	In the event that a fourth Category 2 Infraction occurs, the employee will be terminated and they will not be eligible for rehire for a period not less than 6 months.
2.	Unauthorized or untrained employee operating equipment or machinery.				
3.	Failure to report unsafe conditions or acts to your supervisor, or safety manager.				
4.	Failure to wear safety equipment (i.e. Safety glasses, gloves, leather work boots, hard hats, vests and all other required PPE.)				
5.	Operating any machines or tool without the proper guarding and safety devices in place and in safe operating conditions.				
6.	Negligence resulting in a health, safety or housekeeping violation.				
7.	Abusive language, or intimidation of another individual or creating a hostile work environment.				
8.	Immoral or obscene conduct, or offensive behavior that is improper for public display.				
9.	Speeding or careless driving in the shop or on company property.				
10.	Violation of corporate or state EEO and anti-harassment policies.				
11.	Failure to properly report job-related injuries or illnesses.				

12.	Irregular attendance, excessive tardiness and early quits or unsatisfactory work practices.			may be terminated if deemed necessary.	
13.	Engaging in or allowing pranks/horseplay.				
14.	Failure to operate machines and tools in a safe manner.				
15.	Leaving the workplace or project without a supervisor's authorization.				
16.	Careless waste or improper use of tool or material management.				
17.	Solicitation for donations without prior approval.				
18.	Posting of unauthorized notices or tampering with company bulletin boards.				
19.	Use of tobacco products in unauthorized areas.				
20.	Violation of radios, cell phones and cameras work rules or policies.				
21.	Failure to comply with project procedures and regulations.				

REFERENCES

29 CFR 1926.21

29CFR 1926.28

30 CFR Part 48

Section 31: Scaffolding Policy

SCOPE

To provide safe access to elevations with the use of scaffolds.

GENERAL

Basic information given for scaffolding including System Scaffolds and Two-Point Suspended Scaffolds.

REQUIREMENTS

A. General

1. Scaffolding and components shall be able to support at least four times the intended load.
2. Guardrails and toe-boards shall be installed on all open sides and ends of platforms more than 6' above ground.
3. Screens are required between toe-boards and mid-rail when persons are required to pass underneath.
4. Damaged or weakened scaffold components shall be immediately repaired or replaced.
5. An access ladder or other approved safe access shall be provided.
6. Overhead protection shall be provided for employees exposed to overhead hazards.
7. Professional engineers are required to design scaffolds over 125' in height.
8. Each end of a platform 10' or less in length shall not extend over its support more than 12".
9. Wood platforms shall not be covered with opaque finishes, except that platform edges may be covered or marked for identification.
10. Scaffold components manufactured by different manufacturer shall not be intermixed unless the components fit together without force.
11. Supported scaffold poles, legs, posts, frames, and uprights shall bear on base plates.
12. Footings shall be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement.
13. Scaffolds must be erected under the supervision of a competent person.
14. Scaffolds may not stand on end frame wheels, or base plates must be used.

B. Training

1. Harris Companies will provide training for employees involved in scaffold erection, disassembly, moving, operating, repairing, maintenance, and inspection. The training will be performed by a **competent person** who recognizes hazards associated with the work and shall include the following topics:
    a. The nature of scaffold hazards
    b. Design criteria
    c. Maximum intended load carrying capacity.
    d. Intended use of the scaffold
    e. Any other pertinent requirements

*NOTE: **Competent Person** means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to employees, and has authorization to take prompt corrective measures to eliminate them.*

2. Harris Companies will provide training for employees assigned to use (work on) scaffolds. The training will be performed by a **qualified person** in the subject matter, can recognize hazards, and understands procedures to control or minimize the hazards. The training will include:
    a. Electrical, fall, and falling object hazards.
    b. Erecting, maintaining, disassembling of fall protection and falling object protection systems.
    c. Proper use and handling of material.
    d. Maximum intended load and load-carrying capacities.
    e. Any other pertinent requirements.

*NOTE: **Qualified Person** means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.*

3. Harris Companies will provide **retraining:**
    a. When an employee demonstrates lack of skill or understanding.
    b. To regain the requisite proficiency.
    c. When a change at the project presents a hazard for which the employee has not been trained.
    d. Where changes in the types of scaffolds, fall protection, falling object protection or other equipment presents a hazard for which the employee has not been trained.

C. System Scaffolds

1. General:
    a. Inspect all components prior to erecting.
    b. Do not mix components by different manufacturers.
2. Legs and Footings:
    a. Legs shall be set on adjustable bases, plain bases, or lockable wheels.
    b. Legs shall not be set directly upon loose ground or material.
    c. The footing of the scaffold must be level, sound, and rigid, capable of supporting the necessary weight.
    d. Adjustable bases shall not be extended to a length that will cause instability.
    e. Rolling scaffold shall not be used on sloped surfaces.
    f. The legs shall be plumb and rigidly braced to prevent swaying.
3. Bracing and Securing
    a. Vertical diagonal braces shall be of the proper length.
    b. Horizontal diagonal braces shall be used to square the scaffold and to provide tie-point rigidity.
    c. Scaffolding shall be secured to the building or structure at intervals not to exceed 30’ horizontally and 26’ vertically.
4. Platforms and Walkways
    a. Platforms are to be fully decked between uprights and guardrails with not more than 1” between planks or between planks and uprights, except where the design does not allow it. Where this can be demonstrated, the platform shall be decked as tightly as possible with no more than a 9½” space between the platform and the uprights.

b. Each platform and walkway shall be at least 18” wide except in areas that will not allow for this minimum width. In areas that, by design, will not allow the minimum of 18”, the platform shall be as wide as possible and fall protection will be provided.

c. The front edge of the platform shall be no more than 14” from the face of the work unless fall protection is provided.

d. Each end of the platform must extend at least 6” over the support (bearer) and secured from movement.

e. Maximum overhang for 10’ planks or less is 12”; and for planks greater than 10’, the maximum overhang is 18”, except when the planks are secured so that workers will be supported without tipping or a guardrail prevents workers from stepping on the overhang.

5. Guardrail Systems

a. Guardrail systems shall be built on all open sides and ends of platforms before employees use the platform.

b. Each employee on a self-contained adjustable scaffold shall be protected by a guardrail system (with minimum 200 lb top rail capacity).

c. Each employee on a scaffold more than 6’ above a lower level shall be protected from falling to that lower level. To do this the deck must be fully planked with proper top rail, midrail, and toe-boards in place.

d. Guardrail systems shall be installed before the scaffold is released for use by employees other than the erection/dismantling crews.

e. Top rail must be located between 38” and 45” above the platform.

f. When midrails are used, they shall be installed at a height approximately midway between the top edge of the guardrail system and the platform surface.

g. Steel or plastic banding shall not be used as a top rail or midrail.

h. Cross bracing is not to be considered a proper handrail.

i. Toeboards must be installed to prevent objects from falling to the floor below and possibly striking another worker.

D. Swinging Scaffolds – Two Point Suspension

1. Scaffold platforms shall be no less than 20” wide and no more than 36” wide overall, and be securely fastened to the hangers.
2. The hangers shall be capable of sustaining four times the maximum load.
3. Wire, synthetic, or fiber ropes used to suspend the scaffold shall be capable of supporting at least six times the rated load.
4. Each employee working from a swinging scaffold shall be protected by a full body safety harness with shock absorbing lanyard attached to an independent lifeline. The lifeline shall be securely attached to a substantial member of the structure at a point independent of the scaffold.
    a. Anchor point must be able to support a minimum of 5000 lbs.

USE

Scaffolds and scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

1. Scaffolds shall not be moved horizontally while employees are on them.
2. The clearance between scaffolds and power lines shall be as follows:

Scaffold shall not be erected, used dismantled, altered, or moves such that they or any conductive material handled on them might come closer to exposed and energized power lines than as follows.		
INSULATED LINE VOLTAGES	**MINIMUM DISTANCES**	**ALTERNATIVES**
Less than 300 Volts	3 Feet (0.9M)	
300 Volts to 50 kV	10 Feet (3.1M)	
More than 50 kV	10 Feet (3.1M) PLUS 4.0 Inches (10 cm) for each 10 kV over 50 kV.	2 TIMES THE LENGTH OF THE LINE INSULATOR, BUT NEVER LESS THAN 10 FEET (3.1 M)
UNINSULATED LINE VOLTAGE	**MINIMUM DISTANCES**	**ALTERNATIVES**
Less than 50 kV	10 Feet (3.1 M)	
More than 50 kV	10 Feet (3.1 M) PLUS 4.0 Inches (10 CM) for each 1 kV over 50 kV	2 TIMES THE LENGTH OF THE LINE INSULATOR, BUT NEVER LESS THAN 10 FEET (3.1M)

3. Employees shall be prohibited from working on scaffolds covered with snow, ice, or other slippery material except as necessary for removal of such items.
4. Debris shall not be allowed to accumulate on platforms.
5. Ladders shall not be used on scaffold to increase the working level height of employees.

REFERENCES

29 CFR 1926.450-454

ANSI A 10.8-1988

Attachment 1: General Safety Guidelines: Planning the Job Before Erection

(Occupational Safety & Health Standards for Construction, Subpart L, Scaffolds, 1926.451, General Requirements)

A. Evaluate, Design, and Plan

A qualified person should evaluate, design, and plan the job. Since each jobsite presents unique conditions, the planner must use common sense, good judgment, and sound reasoning to evaluate the following:

1. Proximity of electric lines as detailed in OSHA 1926.451(f)(6).
2. Process piping or overhead obstructions.
3. Adequate access to the job site.
4. Weather conditions and wind/weather protection.
5. Openings, pits, and ground conditions.
6. Adequate foundations of sufficient strength to support scaffolds on a sound, stable surface that assures support of the intended loads.
7. Interference with other jobs or workers.
8. Environmental hazards.
9. Proper bracing that is rigid in all directions.
10. Safe and easy means of access and egress to the platform.
11. Proper guardrails and toeboards.
12. Adequate decking materials and overhead protection, where required.
13. Protection of people passing, working near, or underneath the scaffold.

B. Scaffold Structure Loading Calculations

The scaffold structure loading calculations are based on one of three anticipated loads: light duty, medium duty, or heavy duty. If the user will put no more than 25 lbs per square foot on the working level, it is called a light duty scaffold. The following graph illustrates a 7’ long by 5’ wide platform with 25 lbs per square foot loading.

7 X 5 = 35 SQUARE FEET
35 X 25 PSF = 875 POUNDS
MAXIMUM CAPACITY (UNIFORM)

In this 7’x5’ example, (which happens to be the most popular frame scaffold platform size), up to 875 lbs could be placed on the platform. Since a worker and tools are rated at 250 lbs by industry standard, three workers could be using this platform and still leave 125 lbs additional capacity without exceeding the 25 PSF usage. Most crafts would not need to exceed this loading during normal usage. Consequently, 25 PSF or “light” duty is adequate for most crafts. The term “light” duty is somewhat misleading; standard duty would probably be a more fitting term for 25 PSF usage.

The next rating is called medium duty, or 50 lbs per square foot. In our example of a 7’ by 5’ platform, up to 35 X 50 = 1750 lbs could be placed on the platform. Crafts that may place heavy stacks of materials on the platform will need this capacity. For example, a brick mason will place pallets of bricks, or possibly wheelbarrows full of mortar on the platform. A brick mason should plan for 50 PSF usage.

The highest rating is called heavy duty, or 75 PSF. In our 7' by 5' example, this would be 35 X 75 = 2625 lbs. It is extremely rare that this much capacity is required (stone setters may be the exception).

Most scaffold frame legs are rated to carry between 2000 and 3000 pounds per leg when the scaffold is property assembled. Consequently, the legs are strong enough to carry the light, medium, or heavy-duty loads. However, there is a limit on how many levels could be used and loaded at the same time. In the tube and coupler section of the regulations, OSHA has historically given limits on the number of levels that could be used at any one time. Unfortunately, OSHA did not give these limits in the fabricated frame section. OSHA only required an engineered drawing if the scaffold exceeded 125' in height. This has given the false impression to many users that there was no limit to the number of levels that could be planked out and used, as long as the scaffold did not exceed 125' in height. This is definitely not true! For example, a scaffold 100' high and built with 6'6" frames would have 15 levels. If all these levels were planked out and used, the scaffold would be overloaded.

The Scaffold Training Institute recommends the following conservative limits. Do not plan to use more than the following:

1. **Light Duty:**
    a. With one level in use, a maximum of 16 other planked levels ready to use
    b. With two levels in use, a maximum of 11 other planked levels ready to use
    c. With three levels in use, a maximum of 6 other planked levels ready to use
    d. With the maximum four levels in use, only 1 additional planked
2. **Medium Duty:**
    a. With one level in use, a maximum 11 other planked levels ready to use
    b. With the maximum two levels in use, one additional planked
3. **Heavy Duty:**
    a. With the maximum one level in use, 6 additional planked levels ready to use
    b. The maximum height on all the above is 125'. If you need to exceed these limits, contact your scaffolding supplier or the manufacturer for an engineered drawing.

C. Manufacturer's Specifications

Scaffolds must be designed and used according to the manufacturer's specifications and recommendations. Do not mix different brands of scaffold or use scaffolding materials in any manner that differs from the manufacturer's instructions. *Note: OSHA does not prohibit the intermingling of components manufactured by different manufacturers, but the manufacturers recommend against any intermingling.*

D. Scaffolding Equipment Inspection

All scaffolding equipment must be carefully inspected before use to ensure that it is serviceable and in good condition. Damaged or deteriorated equipment must be removed from service.

1. Do not use scaffold equipment or accessories that are obviously damaged.
2. Do not use rusty or corroded scaffold equipment. The strength of rusty, corroded equipment is unknown. If any areas show pitting, flaking, powdering, or excessive rust, immediately discard the equipment.
3. Certain atmospheric conditions (such as might be present in industrial plants) may corrode steel after short exposure. This corrosion may appear to be rust only brighter in color.

4. Check for bent components, in particular where the tube is kinked, flattened, or crushed.
5. Check for cracks around welds, joints, or around the circumference.
6. Look inside the tube and inspect for rust.
7. Check moving parts such as gravity locks for freedom of movement.
8. Check for brackets with deformed attachment hooks.
9. Check the holes in cross braces for splitting out.
10. Check manufactured planking for missing hooks, missing locks, missing rivets, bent side rails, or damaged walking surface. If the surface is plywood, check for rotten areas.
11. Check castors for damaged brakes, axles, or stems.
12. Look for any painted areas that appear blistered, cracked, or crazed which may indicate prior damage.
13. When in doubt about the condition of scaffold equipment, either discard the component, or consult your scaffolding supplier. Do not take chances with potentially defective equipment. Remember that scaffolding components are relatively inexpensive commodities to replace, especially compared to the cost of an incident/ injury.

E. Scaffold Planks

Scaffold planks fall into one of three major categories:

1. Solid sawn (Mother Nature's) wood. This lumber must be of a specific grade as determined by an NLS approved grading association.
2. Man-made wood planks specifically manufactured to be scaffold planks. These are usually a laminated veneer.
3. Aluminum or steel hook-on type planks specifically manufactured to be scaffold planks.

F. Fall Protection

Evaluate the feasibility of providing fall protection for scaffold builders during the erection and dismantling procedure. Historically, scaffold builders have not been required to have a personal fall arrest system in place during the erection and dismantling procedure. The reason is that a proper fall protection must meet all requirements set forth in subpart M, Fall Protection. In particular, this includes attachment of the lanyard to an anchorage point capable of withstanding a 5000 lb impact force, or maintaining a safety factor of two as designed by a qualified person. Locating an anchorage point, which meets these criteria, may be difficult or even impossible.

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Attachment 2: General Safety Guidelines: During the Erection

The primary consideration in the erection, use, and dismantling of scaffolding is safety. Safety is the result of proper erection procedures and proper training of personnel in the safe use of scaffolding. Everyone's safety depends on the proper erection and safe use of scaffolding; and, scaffold safety is everyone's responsibility. From this point on, all personnel must be properly trained.

1. Scaffolds shall be erected under the supervision of a competent person. This shall be performed by a trained crew selected by the competent person.
2. Personnel protective equipment such as hard hats, safety glasses, gloves, personal fall arrest equipment, and other as required must be worn. Tools should be tethered.
3. Mudsills must be sized to distribute scaffolding loads to the ground or support structure. The use of 2"x10" pads, between 12" and 18" long will be adequate for most scaffolds four levels or less in height.
4. Base plates with screw jacks should always be used so that you will be able to make leveling adjustments later.
    a. Start at high ground; try to keep screw jack extension to a minimum. While some jacks may extend to 18", the capacity decreases as extension increases.
    b. Make sure the jack handle firmly contacts the frame leg. Settling or uneven leg loading may cause a leg to "rise up" off the handle slightly.
5. Plumb, level, and square the scaffold at the base.
    a. Level the frame across from side to side and the legs in both directions.
    b. Ensure the corner-to-corner measurement is identical. This guarantees 90-degree corner angles. In other words, the scaffold is "square" (actually a rectangle).
6. The scaffold must be secured to prevent it from tipping. This may be accomplished by tying the scaffolding to an adjacent structure, using guy wires, or increasing the base width. The narrower the scaffold, the more likely it is tipped over. It is less stable in the narrow direction. Consequently, the vertical location of the first tie-in is a factor of the minimum base width (the narrower direction). As the scaffold rises, the first tie must be no higher than four (4) times the minimum base width. For example, if the scaffold is 5' wide and 21' long, the first tie should be at 20' (4x5).
7. Crossbraces shall not be used as a means of access. Follow the manufacturer's recommendations for ladders that are specifically manufactured for scaffold access and egress. Attachable ladders made specifically for scaffolding must meet the following:
    a. Be positioned so as not to tip the scaffold.
    b. Have the lowest rung within 24" of the lower level.
    c. If higher than 35', have a rest platform 35' maximum.
    d. Have a horizontal rung length of at least 11 ½".
    e. Have a maximum vertical rung spacing of 16 ¾". Note: Most manufacturers set the vertical spacing at 12" to conform to fixed ladders.
    f. Extend at least 3' above the platform (3' above the handrail is even better).
8. Most frames are not meant to be climbed. However, some frames do have integral prefabricated scaffold access rungs and must meet the following criteria:
    a. Must be specifically designed by the manufacturer as a ladder rung. *Note: most horizontal members found on frames are intended for structural bracing or shelving platforms, not as ladder rungs.*
    b. Have a rung length of at least 8".

c. Be uniformly spaced.
d. Not to be used as a work platform.
e. Have a rest platform available at maximum 35' intervals.
f. Have maximum vertical spacing of 16 ¾". *Note: This rules- out climbing the end horizontals of most mason style frames.*

9. Work platforms must be tightly planked for the full width of the scaffold. Edges must be close together (maximum 1" gap). If the last plank next to the posts will not fit completely, OSHA does allow a gap on the side next to the posts of up to 9 ½" (OSHA1926.451(b)(ii).
    a. If an overhead hazard exists, overhead protection must be provided.
    b. All planking must be scaffold grade or equivalent.
    c. All platforms must be at least 18" (two boards) wide.
    d. All planks and/or platforms should always be fastened to the scaffold as necessary to prevent uplift or displacement due to wind or other job conditions. A common way to accomplish this is by wiring the toe board down. OSHA does not require the planks to be secured, as long as the following provisions are met:
        - Planks shall extend at least 6" beyond their support unless it has cleats or is secured.
        - Planks that are shorter than 10' may extend no more than 12" unless the platform has guardrails to prevent access to the cantilevered area. Planks that are longer than 10' may extend no more than 18" unless the platform has guardrails to prevent access to the cantilevered area.
    e. Planking on runs of scaffold must overlap a minimum of 12".
    f. Any damaged or weakened planks must be immediately removed and replaced.
    g. Any spills or slippery conditions on the planking must be eliminated as soon as possible after they occur.
    h. Where the scaffold changes points of direction such as at a corner, the planks which would lie across the bearer at other than a right angle shall be laid first. The planks, which lay at a right angle, are then laid on top. This will result in the overlap end being in a straight line rather than saw-toothed, and reduces the tripping hazard.
    i. Scaffold platforms and planks shall not be painted to obscure the top or bottom, as this might hide a defect.
    j. Scaffold plank spans should be in accordance with the following: When using nominal thickness planking the maximum span is 8' for normal 25 PSF loading, or 6' for 50 PSF loading. When using full thickness (rough cut) lumber, the maximum span is 10' for 25 PSF loading, 8' for 50 PSF loading, and 6' for 75 PSF loading

10. Falling object protection must be provided as follows:
    a. Toe boards must be installed on the open sides when the platform is over 10' off the ground. Toe boards must be at least 3½" in height with a maximum ¼" gap to the platform. Toe boards must be secured to withstand 50 lbs applied in a downward or horizontal direction.
    b. If materials are stacked higher than the toe board paneling, screening must be installed from the platform to the handrail.
    c. Barricading the area below and not permitting employees to enter the area is an acceptable alternative by OSHA standards.
    d. Canopies, debris nets, or catch platforms may be alternatives in some areas.

11. Guardrails and midrails must be installed on all open sides (open sides are defined as more than 14" from a solid-faced structure) of scaffold platforms more than 10' in height.

a. Guardrails should be strong enough to withstand 200 lbs applied in a downward or horizontal direction.
b. Guardrail minimum height is 38”.
c. The midrail is installed halfway from the platform to the guardrail.
d. Wire rope may be used as a guardrail, but must not deflect more than the allowable heights.
e. Guardrails shall be smooth surfaced to prevent lacerations. Steel or plastic banding shall not be used as a guardrail.
f. On frame scaffold intermediate levels where crossbraces are present, both guardrail and midrail should be installed in addition to the crossbrace. OSHA standards do allow the crossbrace to be substituted for either the guardrail or midrail.

12. The poles, legs, or uprights of scaffolds must be plumb securely braced to prevent swaying or displacement.
13. Do not mix components made by different manufacturers unless the components fit together without force. A competent person must determine that the resulting structure still maintains the 4:1 safety factor.

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Attachment 3: Guidelines for Frame Scaffold Erection

Inspecting the surface where the scaffold is to be erected is an important first step. OSHA 1926.451(c)(2) requires the footing or anchorage for a scaffold to be sound, rigid, and capable of carrying the maximum load without settling or displacement. Unstable objects such as barrels, boxes, loose bricks, or concrete blocks must not be used to support scaffolds or planks.

1. Screw jacks should be used for height adjustment and scaffold leveling. Maximum screw jack adjustment varies from 12" to 18" depending on the manufacturer.
2. Coupling pins will be needed if two or more sections are to be added. Think ahead for preparation and add the coupling pins initially
    a. Some coupling pins are attached to the frame by spring locks. Others must be added separately. In either case, the coupling pin must be secured by a locking device to ensure that it cannot come out.
3. Plumb and level the scaffold as you add each member. A small deviation from plumb at the bottom can multiply into large problems as the scaffold becomes taller. OSHA 1926.451(c)(3) requires the plates, legs, or uprights to be plumb and securely braced to prevent swaying and displacement.
4. Measure the distance between corner posts with a tape ruler to make sure that the distance from inside post to inside post is the same. If the dimensions are identical, the corner angles must be at 90-degree angles, or "square". A horizontal diagonal may also be used to square the scaffold.
5. If scaffold planks are only used to continue erection, it is recommended that at least two 2"x10" planks be used during the erection process.
6. If the platform will be used as a working level by the user, it must be tightly planked the full width of the scaffold. Edges must be close together with maximum 1" gap. Planking must be of scaffold grade, meeting approved grading rules for the species of wood used. Overhang must be at least 6" unless secured by cleats or wire. If the platform end is guardrailed as is should be, no limit applies to the maximum overhang at the ends. Overlap on runs should be at least 12" or secured.
7. 1926.451(g)(2) requires the erectors to have fall protection if it is feasible to provide and does not create a greater hazard. Most manufacturers have issued warnings against using the scaffold itself as an anchorage point for personal fall arrest systems.
8. If the frame is 21' long but only 5' wide, it must be tied at the 20' elevation to the structure. Above the first tie the scaffold must be tied in a maximum of 26' vertical increments. *Note: if the scaffold is less than 3' wide, it must be tied in 20' maximum vertical increments*.
    a. It is not adequate to simply tie the structure at both ends only. OSHA standards also require scaffolds to be secured to the building or structure at intervals not to exceed 30' horizontally. If the scaffold is 200' long and 100' high, it needs to be tied-in at every 30' horizontally and 26' vertically. *Note: if the scaffold is less than 3' wide, the vertical tie requirement is every 20', or 3 frames high.*
9. Work platforms must be fully planked. OSHA Subpart L Appendix A states that all planking shall be scaffold grades, or equivalent. Solid sawn and laminated plank must be at least a minimum of 2" by 10" in size, or equivalent.
10. OSHA 1926.451(f)(4) states that any scaffolding that is damaged or weakened for any reason shall be immediately repaired or replaced. Do not build scaffolds with materials that appear to be damaged or with defective planking.
11. All planks must extend over their end supports by at least 6" or else be secured. Securing is usually accomplished by wiring or using boards with cleats. A cleat is a 2 x 4 nailed across the

bottom at the end. If the platform has guardrails to prevent access to the end of the plank, no maximum extension is given.

12. Guardrails are highly recommended for work platforms at any height. OSHA Subpart M requires guardrails when the scaffold height is 10 feet and also requires a top rail height of 38-45".
13. If materials will be piled higher than the toe board, screening must be installed between the toe board and guardrail along the entire opening.
14. Some frames are manufactured with built-in ladders, but most frames are not meant to be climbed. For example, most standard mason frames with intermediate horizontal members are not ladder frames. The maximum vertical rung spacing is 16 ¾".
15. When using attachable ladders, the top of the ladder should extend at least 3' above the platform.

Attachment 4: Rolling Scaffolds

1. The height of freestanding mobile scaffold towers must not exceed four times the minimum base dimensions.
    a. Outriggers on both sides of the tower may be used to increase the base width dimensions.
2. Casters must have the proper design strength and provide a positive locking device to hold the scaffold in position.
    a. The total weight of the tower must not exceed caster capacity.
    b. Casters must be securely fastened to frame legs or screw jacks.
    c. The maximum allowable screw jack extension above the caster base is 12".
    d. The tower must be level and plumb at all times.
3. Horizontal/diagonal bracing must be used at the bottom and top of the tower at intermediate 20' levels.
    a. Fabricated planks with hooks may be used to replace the top diagonal brace.
    b. Frames must be cross-braced fully.
4. Only prefabricated, cleated, or otherwise secured plank should be used.
5. Proper access should be by ladder or stairway, fixed or built into the scaffold. Access should be located so that it will not tend to tip the scaffold when used.
6. The casters must be locked at all times unless the scaffold is being moved.
7. The floor should be free of obstructions. Screw jacks may be used for leveling on unlevel floors.
8. When moving the unmanned scaffolding, apply pulling/pushing forces at the bottom of the scaffold no more than 5' above the floor.
9. Employees should not ride on rolling scaffold towers while they are being moved.
10. Before the frame is erected, it is important to ensure the coupling pins are properly secured with pigtail or rivet and hairpins. Some frames are manufactured with coupling pins permanently affixed to the frame.
11. OSHA 1926.451(g)(2) requires the erectors to have fall protection, if it is feasible to provide as determined by the competent person, and does not create a greater hazard. Most manufacturers have issued warnings against using the scaffold itself as an anchorage point for personal fall arrest systems.
12. When installing ladders to a rolling scaffold they must be installed at each level before the next level can be erected.
13. OSHA requires that platforms shall be fully planked for the full width of the scaffold. Platforms shall be secured in place.
    a. When wood planks are used as decking, the ends must have cleats to prevent them from falling off (or use equivalent means such as wiring). Planking must be scaffold grade or equivalent, as recognized by approved grading rules for the species of wood used.
14. OSHA requires that guardrails shall be installed at all open ends on all scaffolds more than 10 feet above the ground or floor. Toe boards shall be a minimum of 3 ½" in height. Wire mesh shall be installed if materials are stacked higher than the toe board.
    a. When attachable ladders are used, guardrail panels with swing gates should also be used. If frames with built-in ladders are used, the guardrail gate should have a chain-link opening so that the user can climb through the gate.

b. If guardrail posts are used, they must be securely mounted to the frame using the manufacturer's recommended fastening device.

c. Guardrails should always be attached on the inside of the posts, not the outside.

15. If the frames used to erect the scaffold required the installation of an attachable ladder assembly, the final ladder section must extend at least 3 feet above the top platform with the bracket clamp attached to the horizontal of the gate frame or frame leg.

16. With the rolling scaffold erection completed it is almost ready for use. The final step in the process is the inspection. This must be accomplished by a competent person, as prescribed by OSHA requirements.

SCOPE

The safe use, care, and maintenance of hand and power tools.

GENERAL

All hand and power tools and similar equipment, whether furnished by Harris Companies or the employee, shall be maintained in a safe condition. All hand-held power tools shall be equipped with a constant pressure switch that will shut off the power when the pressure is released. This does not apply to bench mounted tools.

REQUIREMENTS

A. Hand Tools

1. Wrenches, including adjustable, pipe, end, and socket shall not be used when jaws are sprung to the point that slippage occurs.
2. Impact tools, such as drift pins, wedges, and chisels, shall be kept free from mushroomed heads.
3. Wooden and fiberglass handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool.
4. Tools shall not be used beyond their capacity.
5. Handmade extension handles (cheaters) are not to be used.

B. Power Tools – Electric

1. Electric power operated tools shall either be of the approved double insulated type or grounded.
2. The use of electric cords for hoisting or lowering tools shall not be permitted.
3. Floor and bench mounted grinders shall be provided with work rests which are rigidly supported and readily adjustable. Work rests shall be kept at a distance not to exceed 1/8" from the surface of the wheel.
4. All power tools and cords will be inspected before use; damaged tools or cords are not to be used.

C. Fuel Powered Tools

1. Fuel powered tools shall be stopped while being refueled, serviced, or maintained.
2. If using fuel-powered tools in enclosed spaces, air monitoring is required (Continuous Air Monitoring Hourly Charting form found in Appendix 2)

D. Pneumatic Power Tools

1. Use of Compressed Air:
    a. Except where automatic shutoff valves are used, safety chains, clips, whip-checks, or other suitable locking devices shall be used at hose to machines, hose to hose, and host to tool connections of high-pressure hose lines.
    b. At no time shall compressed air be directed toward a person. Compressed air shall not be used for cleaning purposes except where reduced to less than 30 lbs per square inch (psi).

c. The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.

2. The use of hoses for hoisting or lowering tools shall not be permitted.
3. Safety clips or retainers for tools shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally released.
4. Pneumatic hand tools shall be disconnected from the power source; and, pressure in hose lines shall be released before any adjustments or repairs to the tools are made.

E. Powder-Actuated Tools

1. Only employees who have been trained and certified in the operation of the particular tool in use shall be allowed to operate a powder-actuated tool. The powder actuated tool manufacturer's representative will normally train employees.
2. The tool shall be tested each day before loading to see that safety devices are in proper working condition. The method of testing shall be in accordance with the manufacturer's recommended procedure.
3. Any tool found not in proper working order or that develops a defect during use shall be immediately removed from service and not be used until properly repaired.
4. Tools shall not be loaded until just prior to the intended firing time. Powder actuated tools shall **not** to be pointed at any employee.
5. When using powder-actuated tools on walls, ensure that no employees are working on the opposite side of the wall, prior to tool use. Also, ensure that powder actuated tools are properly sized for material use so as to prevent the driven load penetrating through surfaces.
6. Loaded powder actuated tools shall never be left unattended.

REFERENCES

29 CFR 1910.94

29 CFR 1910.134

Section 33: Waste Management Program

GOALS

The goal of Harris Companies is to reduce or generate less waste by at least 50% into landfills and that processes shall be employed to ensure that this goal is met. Typically, the same wastes are generated on each of our job sites, such as general trash and scrap metals. Harris Companies does not generate hazardous waste or wastes that would impact the environment. Contract personnel shall comply with the federal, state, local, and customer requirements for waste disposal. Many customers implement different recycling methods. Follow the environmental and waste disposal procedures at the facility you are working.

RESPONSIBILITY

1. **The Safety Department** shall be responsible for the implementation of the administrative portions of this program, including the notification of subcontractor management, the training the site supervisor and the onsite posting of this plan.
2. **The Site Supervisor** will be responsible for the implementation of the onsite portions of this program. Employees will be informed of each site disposal requirements.
3. **The Subcontractor** will be made aware of the intent of this project with respect to reduction of the waste and recycling. The subcontractor will be expected to make sure all their crews comply with the Waste Management Plan.

WASTE PREVENTION PLANNING

1. In addition to other requirements specified herein, it is a requirement for the work of this project that the contractor comply with the applicable federal, state, and local waste disposal requirements.
2. When waste is generated, the waste materials shall be salvaged for reuse and/or recycling where practical and possible. Waste disposal in landfills or incinerators shall be minimized where practical and possible. Project wastes, trash, and/or scrap materials will be taken into consideration before work begins. On new construction projects this means careful recycling of job site waste. On demolition projects this means careful removal for salvage.
    a. Salvageable materials will be diverted from disposal where feasible.
    b. There will be a designated area on the construction site reserved for materials that can be recycled.
    c. Onsite recycling containers and/or areas will be plainly marked.
    d. Hazardous waste will be managed by a licensed hazardous waste vendor.

HAZARDOUS WASTE

Hazardous waste would be products that would not be disposed of in general trash dumpsters. Designated locations must be located for proper disposal. Examples of Hazardous Waste include (but are not limited to):

1. Solvents
2. Epoxy
3. “Empty” Aerosol Cans
4. Liquid Paint Waste
5. Degreasers that contain chlorinated solvents or waste that contains: Arsenic, Mercury, or Methanol.
6. Ignitable waste (solid or liquid) with a flash point less than 140^{o}F

7. Liquid waste with a pH of <2
8. Reactive Waste (reacts violently with water)
9. Nuclear radiation devices for level gauges are used in several different locations. Only personnel specifically trained to be a Radiation Safety Officer are allowed to work on these devices. Special disposal procedures must be followed for disposal.
10. Used oil includes hydraulic fluids, lubricants, etc. and is collected for recycling. These must not be mixed with any other wastes such as antifreeze or any other process liquids. Used oil dry/absorbent is collected in designated locations and must not contain free liquids. To dispose of used oil dry material, put the material in a sealed bucket and put the entire bucket in the designated location on the job site.
11. Universal waste includes all halogen and fluorescent light bulbs, lithium batteries, NiCad batteries, lead batteries, and electronic equipment such as CPU's monitors, printers, etc. All universal waste can be taken to a designated location for disposal
12. No wastes of any kind are to be removed from a customer facility unless by an approved and licensed vendor.

HANDLING AND DISPOSAL OF WASTE BULBS

Waste fluorescent light bulbs MUST be handled properly to prevent health and environmental hazards. Fluorescent bulbs as well as certain other bulb types contain mercury in the form of mercury vapor and powder coating inside the bulb. Because of the health hazards of mercury, waste bulbs are regulated under the Resource Conservation and Recovery Act (RCRA) as "Universal Waste". Breaking bulbs on jobsites is no longer permitted.

In addition to fluorescent bulbs, thermostats, telephones, alkaline batteries, H.I.D. Lamps such as metal halide, sodium and mercury vapor lamps all contain hazardous quantities of mercury.

1. As little as 25 fluorescent lights can contaminate a 20 acre lake with enough mercury to cause health effects to people, fish and birds.
2. Improper disposal of bulbs can result in fines up to $25,000 per day, per violation.
3. Exposure to mercury can result in central nervous system damage, lung damage, and corrosive effects on exposed skin.
4. Mercury vaporizes rapidly at room temperature presenting and inhalation hazard. It can also be absorbed through the skin.
5. Containers of bulbs cannot be stored for more than one year.
6. All Universal Wastes MUST be disposed of by a licensed disposal firm.
7. Arrangements MUST be made for waste bulbs to be picked up on-site or returned to the main office for disposal. Large quantities of waste bulbs should be collected for on-site pick-up by a licensed waste disposal service.
8. Smaller quantities of bulbs can be returned to the shop for collection and proper disposal. Bulbs must be placed in individual sealed plastic bags prior to returning them to the shop.
9. Spills of PCB oil from ballasts, switchgear, or transformers MUST be properly cleaned up. Immediately cordon off the spill area and notify the project manager and any facility environmental representatives. (There are specific notification, testing, and clean-up requirements under Federal regulations).

TRASH AND RECYCLED WASTE

All trash MUST be disposed of properly. Place scrap materials in designated dumpsters marked for recycling. ALWAYS cut long pieces up. DO NOT place scrap materials in dumpster longer than the length of designated dumpster.

The following chart identifies waste materials expected on projects, their expected disposal methods and handling procedures. New items may be added as needed.

MATERIAL	DISPOSAL METHOD	HANDLING PROCEDURE
Beverage/Pop Cans	Recycle Locally	Keep separated in designated areas onsite.
Cardboard	Recycle Locally	Keep clean cardboard separated in designated areas onsite. Dirty cardboard must be placed in general trash dumpster.
Clean dimensional wood and palette wood	Keep separate for reuse by on-site construction or by site employees for either heating stoves or reuse in home projects may be offered to public.	Keep separated in designated areas onsite.
Concrete, Concrete Masonry Units	Recycle when possible.	Keep separated in designated areas onsite.
Fluorescent Bulbs	Keep separate for recycling or proper disposal.	Keep separated in designated areas onsite for pickup.
Gas Cylinders	Recycle with supplier	Keep separated in designated areas onsite for pickup.
Glass	Glass Bottles: Recycle locally	Keep separated in designated areas onsite
Gypsum Drywall (unpainted)	Recycle with supplier when possible	Keep scraps separate for recycling – stack on pallets in provided areas onsite.
Insulation	Reuse, landfill.	Use proper PPE
Metal scraps: Aluminum, Carbon Steel, Copper Wire, Galvanized Siding, Stainless Steel	Recycle off site when possible. Separate copper wire when possible.	Place in designated containers for pick up. Cut pieces so they do not extend past the outside perimeter of trash dumpster.
Oils, Fuels	Recycle when possible.	Keep separated in properly labeled containers for pick up. Oils and fuels must not be poured or flushed down drains. Environmental procedures must be followed to eliminate contamination of soil.
Paint	Reuse onsite; donate to Hearts for Hammers; paint must be in solid state before taking to landfill, spread on newspapers or cardboard and let air dry. Paint containers/cans should be opened and dry.	Keep separated in designated areas onsite.

Paper, magazines catalogs, and newsprint	Recycle locally	Keep separated in designated blue containers onsite.
Personal household or non-work related waste	Personal household or non-work related waste must be disposed of through personal means.	Do not bring onsite.
Plastics	Plastic Bottles: Recycle locally; Be aware of plastics that are acceptable to recycle facility.	Keep separated in designated areas onsite.
Plywood, OSB, Particle Board, Painted or treated wood.	Reuse onsite when possible, land fill or recycle off site	Keep separated in designated areas onsite. Place in "Trash" container if dirty or contaminated.
Pipe, fittings, flanges etc.	Recycle when possible	Cut long pieces so they do not extend longer than the dumpster.

Section 34: Hazwoper (Hazardous Waste Operations Emergency Response Program

PURPOSE

HAZWOPER is a complicated regulation, with many different elements required. The purpose of this program is to serve as an example on how to plan for and execute an organized response to hazardous waste spills or releases which may occur on Harris Companies' jobsites to effectively minimize employee exposure and injury as well as safeguard the environment. Harris Companies' official company policy is that our employees ARE NOT emergency response technicians. Our employees shall be aware of and follow all host company/controlling contractor policies in regards to personal safety measures and evacuation. Harris Companies employees may assist with the operations in a consultant fashion, provided the employees pose no risk of injury to themselves, and they remain in the controlled safe zones until suitable to assist in other operations and capacities. Our goal is to ensure our employees have the knowledge they need to work safely and adequate measures can be taken to limit exposures through safe work procedures in the workplace.

SAFE WORK PRACTICES

Our projects are typically multi-employer worksites. Communication must be made with the host facility to ensure our employees are not exposed to the above recommended levels. This will be performed during pre-job meetings, pre-job hazard identification, and at the direction of customer facilities prior to initiating any site activity and at such other times as necessary to ensure that employees are apprised of the site safety and health plan. The job supervisor must access the work site to determine the risks associated with the work tasks. All Harris Companies employees must be aware of site specific contingency and emergency plans. The project Manager is responsible that this plan is being followed.

Harris Companies does not perform hazardous waste operations, however in the event of a spill or release they must know and understand the emergency action plan for that jobsite. For major spills, a professional HAZWOPER agency will be utilized.

An emergency response plan shall be developed and implemented to handle anticipated emergencies prior to the commencement of emergency response operations. The plan shall be in writing and available for inspection by employees, their representatives and OSHA. The minimum items should be addressed:

1. Pre-emergency planning and coordination with outside parties.
2. Personal roles, lines of authority, training and communications.
3. Emergency recognition and prevention.
4. Safe distances and places of refuge.

The Senior Official at an emergency response is the most senior official on the site who has the responsibility for controlling operations at the site.

The Project Manager is the site safety and health supervisor for Harris Companies who has the responsibility and authority to develop and implement the site safety and health plan and verify compliance.

The lines of authority, responsibility, and communication are as follows: The Project Manager has ultimate responsibility for this plan and carrying out assigned duties in accordance with the developed site specific safety and health plan and required SOP's. All employees shall have a direct line of communication with the Project Manager. All employees have the authority to stop a job if hazards are identified which may jeopardize the safety of the operations at hand. Harris Companies provides the training necessary to allow our employees to identify and predict various job site hazards and the authority to take prompt corrective action.

Contractors are required to:

1. Ensure all employees working on an identified Hazwoper construction site have completed either the 24 hour or 40 hours OSHA Hazwoper Course depending on the scope of work they are performing.
2. Understand the purpose of OSHA and its role in regulating occupational health and safety.
3. Understand the purpose of EPA and its role in regulating soil, water and air contamination. Identify hazardous materials existent in the workplace and the possible methods, symptoms, and preventative measures of exposure.
4. Use site characterization to identify problems that may exist in your workplace and measures that can be implemented to eliminate hazards.
5. Encourage the use of Safety Data Sheets (SDS) to identify and properly handle hazardous materials.
6. Familiarize yourself with materials, compounds and mixtures that may present flammable explosive, chemical or radiological hazards.
7. Emphasize the importance of personal protective equipment (PPE) in limiting hazardous exposure.
8. Establish an effective Site Control Plan, Accident Prevention Plan or Health and Safety Plan to limit the risk of exposure to only those identified operations and the workers working in the hazardous work zone.
9. Implement procedures for treating workers in the event of hazardous exposure.

Our organizational structure is reviewed and updated as necessary to reflect the current status of waste site operations.

When an emergency arises, the Project Manager shall institute the Incident Command System and develop a site specific safety plan in accordance with the attachment to this written plan. This will ensure that all of the above elements have been covered.

These incorporated and adopted procedures are monitored by the Project Manager to ensure their effectiveness. When deficiencies are noted, they shall be corrected immediately.

If in the event one of our employees becomes exposed the following procedures must take place:

1. The decontamination procedures used by our organization are developed prior to the commencement of operations and are detailed in our site specific safety & health program. The purposes of SOPs are to prevent, remove, or neutralize chemical contaminants that have accumulated on personnel and equipment.

All employees and equipment shall be decontaminated, cleaned, laundered, maintained, or replaced as needed to maintain its effectiveness and control the dispersion of contaminants from the regulated areas. Impermeable clothing which becomes contaminated with hazardous substances shall be immediately

removed by employees, and said employee/s shall proceed directly to decontamination unit to remove any contaminants which may have penetrated and permeated the clothing. Equipment, solvents, and clothing which cannot be decontaminated effectively shall be disposed of in accordance with applicable regulations for the contaminants.

Decontamination units/areas shall be so located at to minimize the geographical spread of contaminants to the environment, equipment, and personnel. Examples would be locating the decontamination units upwind of the prevailing wind conditions, on higher ground out of ravines or ditches, and adjacent to the established exclusion zones.

Unauthorized employees shall not enter controlled areas or remove protective clothing and equipment from decontamination unit change rooms. Protective clothing and equipment set to commercial establishments shall be accompanied by documentation or the equivalent to ensure that the establishment is aware of the potential contaminants and the potential harmful effects of the hazardous substances.

MEDICAL SURVEILLANCE AND RECORDKEEPING

A. Emergency response employees who exhibit signs or symptoms which may have resulted from exposure to hazardous substances during the course of an emergency shall be provided with medical consultation.
B. Medical surveillance records and exposure monitoring records shall be maintained for a period of employment plus 30 years and available for review by employees, assigned representatives, or OSHA.

TRAINING DOCUMENTATION

A. Training makes workers aware of the potential hazards they may encounter and provides the necessary knowledge and skills to perform their work with minimal risk to their safety and health.

B. Training is based on the duties and functions of assigned personnel such as individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities.

C. Employees are trained prior to assignment to job duties with potential exposure. Employees must not perform any hazardous waste or emergency response operations unless they have been trained to the level required by their job function and responsibility, and have been certified by their instructor as having completed the necessary training.

D. Annual refresher training takes place for all individuals conducting hazardous waste operations and emergency response.

E. Upon completion of training, documentation is kept in the employee's safety training files and at our corporate office, and are accessible to all employees, their representatives, customer inquiries, the Secretary of Labor, or designee.

F. HAZWOPER training will be conducted by an academically qualified trainer.

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PURPOSE AND SCOPE

Harris Companies provides various services for customers at several different industrial facilities. These customers require that Harris Companies has a Sub-contractor process which ensures that our sub-contractors are following the same federal, state, local and customer regulations and procedures as Harris Companies. This program defines safety requirements in which the sub-contractor shall comply with and enforce on all Harris Companies' jobsites.

SUB-CONTRACTOR SAFETY PROCEDURES

It is the employee's responsibility for their own safety and that of their co-workers. Employees are responsible for reporting hazardous conditions and dangers to their supervisor. They must also report any job-related injury or illness to their supervisor and safety director and seek treatment promptly. All contractor employees, whether it is Harris Companies or a Harris Companies Sub-contractor, have the right to stop work, work of their co-workers or customers and refuse unsafe conditions.

All Harris Companies sub-contractors will be prequalified by reviewing their safety programs, safety training documents and safety statistics as criteria for selecting subcontractors. Safety statistics will include safety metrics such as EMR, TRIR, DART and Fatality Rates. Each sub-contractor shall submit their written safety manual, which must be approved and accepted by Harris Companies Safety Director, or designated safety representative, prior to the commencement of any work at a Harris Companies projects as our sub-contractor. At a minimum, each sub-contractor's policy must meet the policies, procedures and guidelines set forth by our customer requirements.

GUIDELINES:

- Harris Companies management has the responsibility to coordinate work being performed by our subcontractor and our customer.
- The sub-contractor is responsible for their employee's safety and to ensure that their employees perform their work in a safe and proper manner.
- Applicable contract documents shall be received by Harris Companies sub-contractors. Safety concerns shall be discussed, hazards identified and safety processes in place before work is to commence. Harris Companies management shall address the workplace and determine workplace hazards are present or likely to be present that would necessitate the use of engineering controls, administrative controls or PPE.
- No work shall begin by a Harris Companies sub-contractor until they have been approved by the customer facility where work is to be performed.
- No work shall begin by a Harris Companies sub-contractor until their employees have attended the customer safety orientation training.
- All Harris Companies sub-contractors shall attend tailgate safety meetings, safety pre-job meetings, safety kick-off meetings, job safety inspections, perform job hazard assessments, and understand the scope of work and safety procedures to be followed.
- No work shall begin by a Harris Companies sub-contractor without customer notification that they are there on their site and permission has been given to proceed.
- No work shall begin by a Harris Companies Sub-Contractor until all applicable permits have been verified an issued.
- All lockouts shall be double verified to ensure –re-energization of hazardous energy does not take place. This may be done by a Harris Companies foreman, sub-contractors foreman and customer safety coordinator issuing the permit.

- All confined space work shall follow the Harris Companies' Confined Space Program and customer procedures.
- Harris Companies shall not employ or other individual whether initially whether initially or as a replacement, against whom the customer may have reasonable objection.
- Many customers reserve the right to conduct for random or reasonable suspicion testing of any persons on their company property. Any person refusing to submit to testing or complying with the request to be tested shall be denied access to the property. Those persons refusing to comply will be escorted off of the Harris Companies jobsite and not allowed to return.
- All Harris Companies sub-contractors shall not use or disclose to any party any Confidential Information without the prior written consent of the managing customer.
- A post-job safety performance reviews will be conducted on subcontractors.
-

TRAINING REQUIREMENTS

- Each sub-contractor shall be responsible to ensure their employees have been trained on all applicable safety procedures and programs before work is to begin on a Harris Companies jobsite.
- Each sub-contractor shall attend the applicable customer safety orientation and have the opportunity to ask questions and get answers to those questions.
- All employees shall be trained on powered mobile equipment before operating. Pre-Use Checklists shall be completed before use to identify any deficiencies. Equipment that does not pass inspection shall be tagged out of service and repaired before operation is to commence.

SAFETY HEALTH & ENVIRONMENTAL VERIFICATION PROCEDURE:

Harris Companies will use the applicable customer form requesting documentation of safety policies and training specified. See Harris Companies Sub-Contractor Safety Performance Pre-Qualification Form on the following pages.

SUBCONTRACTOR PREQUALIFICATION
SAFETY INFORMATION

Subcontractor Company Name: _____

Subcontractor Address: _____

_____

Subcontractor Type of Work: _____

1. List your companies Workers Compensation Experience Modification Rate (EMR) for the three most recent years:

YEAR	EMR
_____	_____
_____	_____
_____	_____

2. List your company's number of injuries/illnesses from your OSHA 300 logs for the three most recent years.

	YEAR:			
A	Number of Fatalities			
B	Number of Recordable Injuries/Illnesses			
C	Number of Lost Workday Cases			
D	Number of Lost Workdays			
E	Number of Restricted/Transferred/Light Duty Cases			
F	Number of Restricted/Transferred/Light Duty Days			
G	Total Employee Hours Worked for Year			
H	Recordable Injury/Illness Rate			

3. Please Provide copies of the following:
   A. OSHA 300A Log for the three most recent years
   B. EMR Verification from insurance carrier for the three most recent years.

4. Do you have a written safety program? ☐ Yes ☐ No
   Date of last revision: _____

5. Do you hold weekly site safety meetings? ☐ Yes ☐ No

6. Do you conduct jobsite safety inspections? ☐ Yes ☐ No
   If so, who is responsible for conducting them (titles)? _____
   _____

7. Who is your company safety contact? _____ Phone #: _____
   Alternate _____ Phone #: _____

SUBCONTRACTOR PREQUALIFICATION
SAFETY INFORMATION

8. Does your written safety program include procedures for the following?

A.	Confined Space Entry	☐ Yes	☐ No
B.	Crane/Rigging/Hoisting	☐ Yes	☐ No
C.	Electrical Safety	☐ Yes	☐ No
D.	Emergency Response/First Aid	☐ Yes	☐ No
E.	Fall Protection	☐ Yes	☐ No
F.	Fire Protection and Prevention	☐ Yes	☐ No
G.	Hazard Recognition/Communication	☐ Yes	☐ No
H.	Ladders and Scaffolds	☐ Yes	☐ No
I.	Lockout/Tagout	☐ Yes	☐ No
J.	Substance Abuse Policy	☐ Yes	☐ No
K.	Trenching/Excavation	☐ Yes	☐ No
L.	Use of Personal Protective Equipment	☐ Yes	☐ No

9. Do you provide safety training for your employees on:

A.	Confined Space Entry	☐ Yes	☐ No
B.	Electrical Safety	☐ Yes	☐ No
C.	Emergency Response/First Aid	☐ Yes	☐ No
D.	Fall Protection	☐ Yes	☐ No
E.	Fire Protection and Prevention	☐ Yes	☐ No
F.	Hazard Recognition/Communication	☐ Yes	☐ No
G.	Lockout/Tagout	☐ Yes	☐ No
H.	New Employee Orientation	☐ Yes	☐ No
I.	Respiratory Protection	☐ Yes	☐ No
J.	Other _____	☐ Yes	☐ No

10. Has your company received any citations from a regulating agency (OSHA, MSHA, MNOSHA) in the last three years? Please describe. _____

_____

_____

_____

_____

_____

Signature of Contractor Representative: _____

_____ _____

Representative Name - *Please Print* Title

_____ _____

Phone # Date

SUBCONTRACTOR PREQUALIFICATION GUIDELINES

1. If the subcontractor has a Workers Compensation Experience Modification Rate (EMR) over 1.0, then closer examination will be required by the Safety Department. The subcontractor may need to provide the safety department with additional information. The information required shall be deemed by the situation.

2. If the subcontractor has experienced a fatality, or has a Recordable Injury/Illness Rate higher than 4.0, the subcontractor will be asked to provide additional information regarding the rate. This would include a written explanation of the injuries/illnesses, circumstances involved, investigations conducted, injury/illness outcomes, and an explanation of how has the company instituted changes to eliminate/reduce the injuries/illness from occurring again.

3. Documentation must be provided as requested, before approval.

4. A copy of the written safety policy will be required upon awarding of the contract.

5. Copies of weekly meetings shall be submitted to the project manager no later than Friday 12:00 PM of the current workweek. If the Subcontractor does not conduct routine site safety meetings, they will be required to attend Harris Companies' Weekly Toolbox Meeting.

6. Subcontractor's will be required to conduct a monthly site safety audit and submit the audit results to the project manager or site safety supervisor no later than the 10th of the following month. The subcontractor may also be requested to attend a jobsite audit on a routine monthly basis depending on the length of the contract and scope of work.

7. An On-Site Contact shall be listed so that the subcontractor can be notified in cases of emergency.

8. If a subcontractor does not have a written safety program including procedures for any of the listed hazards, they shall be required to conform to or exceed Harris Companies' Safety Program Requirements.

9. If the subcontractor does not provide its employee's with training in any of the areas, Harris Companies may be able to provide specific hazard training as necessary at the subcontractor's expense.

10. Any citations must be explained in complete detail before approval. This explanation needs to be in writing due to legality issues. Depending on the citation, the citation will not be used as a reason to disqualify the company as a subcontractor, however, it will be examined in detail and may result in denial as a possible subcontractor.

11. Any falsification of documents and/or omission of evidence shall disqualify the company for consideration as a subcontractor, and removal from the contract.

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APPENDIX 1: State Plans

SCOPE

Procedures relevant to state health and safety programs.

GENERAL

The Federal Department of Labor allows States to establish State Plans. A State Plan must be at least as stringent as the Federal Regulations. Harris Companies will comply with the more stringent of the two.

STATE PLANS

The following listed states and provincial municipalities have federal approved state plans that will require measures above and beyond those commonly recognized by OSHA. For more information regarding the state specific plans, please reference the web address listed on the bottom of the page.

If Internet access is unavailable, please contact your safety representative for further information regarding a state specific plan for a state listed below.

APPROVED STATE PLANS (as of 05/01/2014)

Alaska	**North Carolina**
Arizona	**Oregon**
California	**South Carolina**
Hawaii	**Tennessee**
Indiana	**Utah**
Iowa	**Vermont**
Kentucky	**Virginia**
Maryland	**Virgin Islands**
Michigan	**Wyoming**
Minnesota	**Puerto Rico**
Nevada	**Washington**
New Mexico	

WEB INFORMATION

http://www.osha.gov/dcsp/osp/index.html