SAFETY MANUAL



2022

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HEALTH AND SAFETY PROGRAM
INTRODUCTION

The Company will institute and administer a comprehensive and continuous occupational Injury and Illness Prevention Program. The health and safety of the individual employee takes precedence over all other concerns. In support of this commitment, the Company provides measures to control workplace hazards through communications, periodic inspections, incident investigation, mitigation, compliance audits and employee training. Under all circumstances, it is the intent of the Company to comply with all applicable federal, state and local regulations and to provide a safe and healthful work environment for our employees.

To help us achieve an injury-free workplace, we have developed this Safety Manual, an integrated plan to manage and improve Company safety performance. As part of this process, we intend to hire employees and contractors with an exemplary safety attitude. We do this knowing we must cooperate and work as a team to obtain the desired results.

This manual communicates our safety expectations and should serve as a guide to develop and maintain a successful safety partnership.

#1 SAFETY
Our unwavering commitment to operational excellence and safety are the foundations of our success and continued growth.

#2 ENVIRONMENT
Responsibility as a steward of the environment through dedication to safe and best production practices

#3 PRODUCTION
DCOR relies on technology and decades of operational experience to Safely and responsibly to optimize production and recovery from our assets.

SAFETY

ENVIRONMENT

PRODUCTION

We are committed to conducting operations in a manner that protects personal safety, the environment, and maximizes production.

Scott Knight
Vice President – HSE & Regulatory

Alan Templeton
Chief Executive Officer

SAFETY INCENTIVE PROGRAMS

The Company management enthusiastically supports the protection of employee safety and health. This support is demonstrated in part through programs to provide recognition and extra incentives for employees who work safely. Management provides employees the opportunity to earn special awards for their own safe work and the safe work of the employees they work with daily.

The safety incentive awards are intended to help maintain constant safety and health awareness. They are not to be considered a substitute for any element of The Company Safety Rules and Regulations. At no time should this program be used to intimidate or pressure an individual to not report an injury.

A. Safety Observation Incentive Program

DCOR will reward employees for participating in the DCOR Safety Observation Program. Choosing winners will vary throughout the year, but may include monthly random selections, top observation, top observations by a team, etc. The Company will choose the quantity of winners and frequency of rewards.

Awards: Awards will vary and be chosen by the Company

B. Personal Milestone Program

The Personal Milestone Award will be awarded to individuals who are able to go the full year without an injury resulting in a loss of work time (LTA) or restricted work time (RWD). Additionally, individuals are required to submit 5 safety observations per quarter.

Eligibility:

Individuals who sustain an injury that results in an LTA or RWD, will receive no awards from the Personal Milestone Program for the calendar year.

Employee must be employed for a minimum of 180 days in the calendar year.

Employees who miss greater than 180 days of active duty will be ineligible for the calendar year.

Personal Milestone is only available to DCOR employees. Contract personnel are ineligible.

Management and office personnel are ineligible for the Personal Milestone Award.

All issues will be reviewed objectively, but final decisions will rest with the Company.

Awards:

Individuals who are eligible to receive the Personal Milestone Award will receive a gift chosen by DCOR Management at the beginning of each year.

Notes:
All incentive programs are for the term of one calendar year. Management may extend the program annually.

C. Facility Milestone Program

The Facility Milestone Award will be awarded to individuals who are able to go the full year without being present on a facility when an injury resulting in a loss of work time (LTA) or restricted work time (RWD). Employees who are on a facility but off work at the time of the incident will still maintain eligibility. Using safety observations and stop work authority, The Company believes all individuals on a facility have the capability to reduce the injury rate on the facility.

Eligibility:

Individuals who sustain an injury that results in an LTA or RWD, will receive no awards from the Facility Milestone Program for the calendar year.

Employee must be employed for a minimum of 180 days in the calendar year.

Employees who miss greater than 180 days of active duty will be ineligible for the calendar year.

Facility Milestone is only available to DCOR employees. Contract personnel are ineligible

Management and office personnel are ineligible for the Facility Milestone Award.

All issues will be reviewed objectively, but final decisions will rest with the Company.

Awards:

Individuals who are eligible to receive the Facility Milestone Award will receive a gift chosen by DCOR Management at the beginning of each year.

Notes:
All incentive programs are for the term of one calendar year. Management may extend the program annually.

RESPONSIBILITIES

The Injury and Illness Prevention Program (IIPP) Manager, Riston Francis, has the authority and responsibility for implementing the provisions of this program for DCOR LLC.

All managers and supervisors are responsible for implementing and maintaining the IIPP in their work areas and for answering worker questions about the IIPP. A copy of this IIPP is available from each manager and supervisor.

A safe and healthy workplace is everyone's responsibility, not only the area safety coordinator, but manager, supervisor, foreman, operator, employee and contractor. DCOR relies on all employees including it's contractors to actively support its safety and health policies and comply with all safety, health and environmental rules and standards.

A. Safety Manager Responsibilities (Responsible Person)

DCOR has designated Riston Francis, the ultimate responsibility of ensuring implementation and maintenance of the Safety Program. The Safety Manager oversees all of the DCOR facilities, thus an important link in the chain of command between corporate and field activities.

Responsibilities are as follows:

1. Encourage all managers to solicit input from safety department prior to using new contractors, and award contracts using past safety performance as a criteria.

2. Convey the importance of safety to the overall growth of the Company.

3. Set safety goals and milestones and provide incentives to employees when accomplished,

4. Incorporate safety into job planning. Involve the safety department in job site safety analysis and pre-job start ups.

5. Hold employees accountable through Annual Performance Reviews, counseling or disciplinary action.

6. Promptly direct the correction of unsafe conditions.

7. Allocate sufficient resources to provide and maintain a quality safety program.

8. Portray a commitment to safety, and reinforce the Company safety philosophy to “comply with all applicable rules and regulations governing our business”.

9. Lead by example, a quality safety program starts from the top down.

B. Safety Coordinator Responsibilities

The Safety Coordinator(s) shall have the authority to enforce Company policies and procedures that are put into place upon the agreement of the supervisory personnel. Safety Coordinator(s) are given specific jurisdiction of responsibility in the Company, usually assigned to an individual facility (s). Responsibilities of the Safety Coordinator(s) are as follows:

1. Regularly visit facilities and work sites for scheduled and unscheduled inspections and audits.

2. Track and monitor individual safety performance for assigned facilities. Meet regularly with HSE Staff and Management to share this information, and address problem areas.

3. Communicate safety concerns to employees through postings, inter-Company memos, training programs and regularly scheduled safety meetings.

4. Ensure that records on training, inspections, and corrective measures are properly maintained as required by this Injury and Illness Prevention Program and required OSHA programs.

5. Study and provide current information on federal, state and local government regulations that apply to occupational safety and health. Also, keep management advised of revisions, or new regulations applicable to the company operations.

6. Utilize the established accident reporting procedures to investigate incidents and implement corrective actions to prevent reoccurrence.

7. Meet regularly with the field supervisors to discuss periodic inspections, incident investigations, verify abatement actions and to communicate general safety concerns.

8. Provide the tools necessary for a safe working environment, including requiring safety and operations training, proper equipment, and safety support.

C. Foreman and Lead Operator Responsibilities

The Field Foreman and Lead Operators are an essential part of the success of the Company safety program. No other supervisor has the daily contact with employees as do Foreman and Lead Operators. Open two-way communication is essential to the success of the Company safety program. The Foreman and Lead Operators must act as a liaison between facility operations and management. Responsibilities are as follows:

1. Ensure correction of safety related problems in the field and solicit help from the Safety Department or Management for those problems that can not be resolved without their involvement.

2. Communicate and strictly enforce safety rules and standards, according to the Company's safety program.

3. Immediately inform the Safety Coordinator(s) of all accidents, near misses, injuries and exposures, no matter how minor they may seem.

4. Report and investigate all incidents and injuries.

5. Hold and document regular monthly / daily safety meetings.

6. Encourage employee participation in safety meetings and programs.

D. Individual Responsibilities

Every employee should believe that all injuries can be prevented and act accordingly. Individual employee(s) must look out for each other, practice the buddy system and work together as a team. The cooperation of every individual is essential to the success of the Company. Individual responsibilities are to:

1. Perform your job using safe work practices, for your personal safety, the safety of fellow workers, and the protection of facilities.

2. Comply with all safety rules and standards, including knowing and using appropriate safety equipment and devices.

3. Report every injury immediately, as well as unsafe conditions or practices, to your supervisor,

4. Actively participate in safety meetings and programs.

5. Be familiar with the Company safety policies outlined in the safety manual.

E. Contractor Responsibilities

Contractors must meet or exceed the requirements of the Company's safety policies and take responsibility for the initiation of their own safety programs. Contractors shall take all necessary precautions for the safety of every person on the worksite. In addition, contractors shall provide provisions for the prevention of damage to property. Contractors shall:

1. Comply with all Company safety rules and standards and applicable Federal, state and local safety laws and regulations,

2. Demonstrate an active injury and illness prevention program,

3. Perform all work using safe work practices manner,

4. Provide all necessary safety equipment for their employees,

5. Report injuries and incidents (including property damage) immediately to the Company Supervisor and provide a detailed incident report to the effected Safety Coordinator(s).

6. Not operate valves or equipment without the Supervisor's approval, except in a life-threatening emergency situation.

7. Perform job site safety analysis and hold daily safety meetings as required during the execution of the job.

8. Instruct Contractor Employees in the applicable Company rules and practices.

9. Ensure Contractor Employees receive all necessary training.

10. Only perform tasks in which they are trained and qualified to perform.

COMPLIANCE

Management is responsible for ensuring that all safety and health policies and procedures are clearly communicated and understood by all employees. Managers and supervisors are expected to enforce the rules fairly and uniformly.

All employees are responsible for using safe work practices, for following all directives, policies and procedures, and for assisting in maintaining a safe work environment.

Our system of ensuring that all workers comply with the rules and maintain a safe work environment includes:

- Informing Workers of the provisions of our IIPP;
- Evaluating the safety performance of all workers;
- Recognizing employees who perform safe and healthful work practices;
- Providing training to workers whose safety performance is deficient;
- Disciplining workers for failure to comply with safe and healthful work practices

EMPLOYEE STANDARDS OF CONDUCT AND CORRECTIVE ACTIONS

Any willful violations of safe work practices will result in disciplinary action in accordance with the company policies developed by the Human Resources Dept. Refer to Performance and Conduct in the Employee Handbook.

COMMUNICATIONS

We recognize that open, two-way communication between management and staff on health and safety issues is essential to an injury-free, productive workplace. The following system of communication is designed to facilitate a continuous flow of safety and health information between management and staff in a form that is readily understandable and consists of the following items:

- New worker orientation including a discussion of safety and health policies and procedures.
- Review of our IIPP.
- Workplace safety and health training programs.
- Regularly scheduled safety meetings.
- Effective communication of safety and health concerns between workers and supervisors, including translation where appropriate.
- Posted or distributed safety information.
- A system for workers to anonymously inform management about workplace hazards.
- Safety and health committees meet regularly, prepare written records of the committee's meetings. Established committees review: results of the periodic scheduled inspections, investigations of accidents and exposures and makes suggestions to management for the prevention of future incidents. Committees also review investigations of alleged hazardous conditions and submits recommendations to assist in the evaluation of employee safety suggestion.

A. Monthly Safety Meetings

Monthly safety meetings shall be performed at each production facility. These meetings will be organized and instructed by the facility supervisor and / or Safety Coordinator. At times the monthly safety meetings may include required training and may be instructed by invited guest speakers, such as industry consultants or insurance representatives.

Planned monthly safety meetings may also include training topics according to Company's required training schedule, or other training programs deemed necessary by the area Safety Coordinator.

B. Daily Safety Meetings

Daily safety meetings shall be required for any non-routine, hazardous, or large-scale projects (i.e., spill clean up, confined space entry, lockout tagout, in service hot tapping, and excavations greater than five feet deep.) The Company recommends that daily safety meetings be required for all contractors involved in projects at the Company's facilities. It shall be standard practice to include both

contractor and Company personnel into all safety meetings relating to an effected project.

C. Anonymous Communication

A system for communicating safety concerns without fear of reprisal has been established by the Company through the DCOR Compliance Alert Hotline. This system can be used as a tool to communicate Health, Safety, Environmental, or Regulatory Compliance suggestions and comments to your HSE Department by calling anonymously to (888) 225-1522 or by visiting the Company website at www.dcorllc.com/safety.

In addition to these communication tools the Company shall use other bulletin board postings and inter-company memos to inform employees of company safety performance.



ANONYMOUS REPORTING PROCEDURE

Please follow the steps below for anonymous reporting:

1. Resolve the problem yourself
   If you cannot solve the problem;

2. Contact the Foreman, Lead Operator/PIC
   If the problem is not resolved to your satisfaction;

3. Contact Superintendent
   If the problem still is not resolved to your satisfaction;

4. Contact VP of Operations at (805) 535-2030
   If the problem Still is not resolved to your satisfaction;

5. Call the Compliance Alert Hotline (anonymously) at (888) 225-1522
   If the problem Still is not resolved to your satisfaction

6. Call BSEE Toll Free at (877) 440-0173

IDENTIFICATION AND CORRECTION OF WORKPLACE HAZARDS

PURPOSE

The purpose of this program is to: identify unsafe conditions and practices that exist at the work place, describe how to correct those hazards, and initiate steps to prevent their recurrence.

SCOPE

Company assigned personnel shall perform detailed work place inspections to include involvement by all employees. The three specific types of work place inspections utilized by the Company include Site Specific Inspections, Planned General Inspection/Planned Level III Internal Audit, and Safety/Environmental Hazard Observation

Compliance Audits and Process Hazard Analysis (PHA)'s for PSM/SEMP facilities will be completed according to those sections of the Company Safety Manual and SEMS Plan. These inspections may be performed in lieu of the Company Planned General Inspection.

A. SITE SPECIFIC INSPECTIONS

Site specific inspections are the responsibility of the Facility Supervisor and/or designee. They consist of routine inspections that vary according to location but will typically include: inspections of fire control and suppression equipment, first aid supplies, eye wash station adequacy, and emergency life saving equipment. The frequency of these inspections varies and is typically determined by a maintenance specification or regulation.

B. PLANNED GENERAL INSPECTIONS / LEVEL III INTERNAL AUDIT

The Facility Foreman with the Safety Coordinator and selected facility operators will be responsible for ensuring that a Planned General Inspection of each facility under their control is done on an annual basis and shall facilitate the inspection. Additional inspections shall be made to identify and evaluate hazards when any new program is established, whenever new substances, processes, procedures, or equipment are introduced into the workplace that represent a new occupational safety and health hazard; and when the company is made aware of a new or previously unrecognized hazard.

Each planned general inspection will be recorded on the appropriate document for proof of inspection and future reference and follow up.

The reporting procedure is as follows:

1. Identify the inspector and date of inspection by initialing and dating each line item on the Field Worksheet

2. Identify and record any Unsafe Action or Condition noticed during the inspection under the “Deficiency Description” sections.

3. Prioritize the deficiencies, giving precedence to items that pose the greatest hazards.

4. Define the Corrective Action to be taken to prevent recurrence of each deficient item in the recommendations section.

5. Assign the Corrective Action to be taken to a responsible person at the facility or appropriate Supervisor/Foreman

6. Assign an expected completion date for the Corrective Action required by the responsible person.

7. Upon completion of the Corrective Action duties the facility supervisor must contact the appropriate member of the HSE Department to inform of the completion. The date of completion will be documented on the working PGI Document for that facility.

Any hazards found during an inspection of a facility that would cause bodily harm or damage to equipment will be communicated to affected personnel immediately and work will not be allowed to continue until the problem is made safe.

C. SAFETY OBSERVATIONS PROGRAM

The Company Safety Observations Program allows for all company personnel to document identified hazards not detected by the Planned General Inspections. The procedure for completing a safety observation are as follows:

1. General Information
    - Facility
    - Date
    - Employee Count (if applicable)
    - Project Type
    - Contractor
    - Observer

2. Using the comments section, explain the hazard(s) involved being as specific as possible. Do not use any names of personnel or specific job titles

3. Using the selections available, mark any of the listed items that apply as “At Risk”

4. Submit the observation

Safety observations are reviewed regularly by Management and Safety personnel.

Planned General Inspection
AUDIT MODULE

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MODULE 2 - GENERAL SAFETY

MODULE 3 - EMERGENCY RESPONSE AND CONTROL

MODULE 4 - AIR QUALITY

MODULE 5 – DOT PIPELINES

Planned General Inspection Field Worksheet

Initials	Date	Requirements	Deficiency Description	Remarks
		Enviromental/Hazardous Materials		
		Records Review/Inspection:		
		Review Non-Haz and Hazardous Waste Storage and Record Keeping (accumulation time requirements, manifest copies, proper containers etc.) Is hazardous and non-hazardous waste stored properly?		
		Are Hazardous and Non Hazardous manifests properly completed and submitted?		
		Are Hazardous Materials stored and handled properly (labels, placards, PPE, etc.)? Hazardous waste in storage must have documented weekly inspections.		
		Review evidence of MSD testing (chlorine tests and visual inspections). Do these records appear to be in order?		
		Verify potable water testing documents and chlorine content. Facility in compliance?		
		Review NPDES record keeping (disch. Monitoring, daily tests, visual observations, etc.) Do NPDES records appear to be in order?		
		Facility Inspection:		
		Are waste streams identified (Haz & Non-Haz)? Analytical backup available? Samples collected?		
		Review Instrument calibration records (IR monitors, OVA, Tri-Gas, etc.). Do instruments appear to be kept in working order?		
		Review chemical storage inventory and leak inspections (containment devices, residual accumulation). Do these items appear to be in compliance?		
		Are Pollution Prevention devices operating correctly? (Example: Turbitity meters, O & G Analyzers)		
		Verify discharge water testing. Ask for a snap shot of oil & grease content. Is the facility in compliance with applicable discharge permit(s)?		
		Examine liners on bins. Are bins double lined as per USCG requirements?		
		Personnel Interviews:		
		Interview a representative number of operations personnel to determine if they know the facility NPDES discharge limits? Ask what is discharged from the facility? If known are they in authorized within the NPDES permit? Floating solids in other than trace amounts in receiving water is in violation.		

Facility:

Planned General Inspection Field Worksheet

Initials	Date	Requirements	Deficiency Description	Remarks
		Safety Department		
		Communication:		
		Safety Alerts, Exception report, Memos, etc received and posted?		
		Is the Compliance Alert Number available and posted?		
		HSE answering service number posted?		
		Person with Ultimate Work Authority posted?		
		Personnel on Board updated? Posted? Archived appropriately?		
		Review Safety Meeting sign in sheets. Are safety meetings held as required? Topics match JSAs?		
		Facility Inspection:		
		Does the facility have appropriate signage for PPE and other hazards?		
		First Aid kits available and readily stocked?		
		Fire Extinguishers properly labeled and inspected? Inspection records available?		
		Lock out / Tag out stations available and maintained?		
		Areas of concern for corrosion and structural integrity?		
		Helipads clean? Markings and limits clearly marked? Lights Functioning?		
		General Walkaround Inspection: Trip Hazards? Clear walkways? Other Hazards?		
		Are the employees at the facility performing safe work, hot work and confined space tasks in compliance with company policy? Are permits and/or JSAs being completed for non-routine tasks?		
		Sound Survey completed and documented on plot plan? Significant changes?		
		Are employees and contractors using proper PPE and other necessary safety equipment?		
		Record Keeping:		
		Audit SDS binders, ensure recent updates have been added to the binder and old versions removed.		
		Do chemicals at facility match online database?		
		Review facility orientation records		

Facility:

Planned General Inspection Field Worksheet

		Review testing records for ASH, OSH, Fire and Smoke Detection devices.		
		Review Monthly Inspections: Life Rafts, Fire Supression Equipment, PFDs, Swing and Escape Ropes ect…		
		Audit JSAs accompanying each Permit. JSA meet company standards? Meet SEMS requirements?		
		Review archived JSAs. Being filed correctly and scanned into the database?		
		Review crane inspection records. Are the Daily, Monthly, Quarterly and Annual inspections complete?		
		Review EILs. Verify EILs are being completed correctly and used when necessary. Compaire active EILs with locks in the field.		
Interviews:				
		Explain the company policy on hand protection and impact resistant gloves?		
		Explain the process of reporting an injury/incident?		
		Explain the concept of using multiple JSAs		

Facility:

Planned General Inspection Field Worksheet

Initials	Date	Requirements	Deficiency Description	Remarks
		Emergency Response and Control		
		General:		
		Are Station Bills posted? Up to date?		
		Are emergency phone numbers (medical, helicopter, DCOR, etc.) and phone stickers posted?		
		Plans:		
		Are all appropriate Oil Spill, Emergency Response, Evacuation Plans available?		
		Are existing plans up to date?		
		Does the facility have an up to date OSRO certificate, onshore contractors, and COFRs/OSFRs?		
		Annual plan reviews and/or training completed?		
		Inspection:		
		Review inspection documentation for Oil Spill response equipment		
		Have annual/semi-annual/quarterly drills been completed? Boom Deployment? Qualified Individual?		
		Review Weekly and Monthly Drill documentation		
		Does the equipment listed in EEP and OSPR appear to be in working order and in place?		
		Site Security:		
		Is Security Status Board posted? Is Security Status Board up to date?		
		Security Gates functioning and locked as appropirate?		
		Site cameras in working order and presenting clear images?		
		Interviews:		
		Interview LO1 and relief LO1 to determine knowledge of: Who are the Qualified Individuals? When do they need to be contacted in the event of spill?		
		Interview individual on items that need to be reported, when does a spill need to be reported?		
		Ask facility personnel and visitors on where are the primary egress routes.		
		Interview operations personnel to determine understanding of: 24 hour emergency phone number (888) 225-1522, proper notification procedures, initial and sustained response, etc.		

Facility:

Planned General Inspection Field Worksheet

Initials	Date	Requirements	Deficiency Description	Remarks
		Air Quality		
		General:		
		Is the current air permit available on site?		
		Are the air permit recordkeeping logs current and correctly completed?		
		Are breakdown forms available? UWA and UWA relief know how submit breakdown report?		
		Emissions:		
		Is there any smoking exhaust visible from any combustion source? (engines, cranes, heaters, flares)		
		Are there any VOC emissions being vented into the atmosphere without a properly functioning control device		
		Are there any open-ended lines (lines ending in only one valve w/plug, plugs missing, or no plug or valve) Are there any leaking fugitive components? (valves, flanges, fittings)		
		Are leak repair records available on site? Does the leak repair data demonstrate compliance with leak repair deadlines?		
		Do all engines have District permits, statewide portable equipment registrations, or qualify for an exemption?		
		Paints, Solvents and Abrasives:		
		Are all paints (<250 gr/l) and solvents in compliance with the District VOC and total permitted usage limits?		
		Are paint and storage lockers in compliance? No open solvent or paint containers?		
		Is there an SDS or product data sheet available for all paints and solvents?		
		Is the abrasive blasting material ARB-certified?		
		What is the horsepower rating of paint and blasting compressors?		
		Are these engines District-permitted, Statewide portable equipment registered, or exempt?		
		Flaring:		
		Is the air compliance report file in good order?		
		Are flare logs being completed properly? (planned/unplanned, sulfur content, reason for flaring)		
		Does facility have a secondary method of lighting flare?		
		Have flare limits been exceeded?		

Facility:

Pipeline Gathering System
Integrity Management (IM)
Planned General Inspection (PGI)
BSEE/CSLC/DOT/OSFM

REQUIREMENTS	YES	NO	N/A	DEFICIENT ITEMS/COMMENTS
Facility:_____ **Lead Operator:**_____ **Date:**_____ Are Pipeline Standard Operating Procedures available onsite?				
Is there an Operator Qualification (OQ) Plan onsite?				
Is a Pipeline Emergency Response Plan (ERP) onsite?				
Is there a process in place to report pipeline abnormal operation conditions (AOCs)? **This element can be satisfied by noting abnormal conditions in the facility log book.*				
Are qualified operators completing required DOT tasks? **Confirm OQ records with Training Coordinator*				
Review work performed by an operator(s). Are procedures being followed?				
Are contractor(s) on facility? If so, are they qualified to perform DOT tasks? **Confirm OQ records with Training Coordinator*				
Facility Inspection Sample a number of DOT SDVs. Are they properly identified and labeled?				
Check pipeline valves, launchers, risers, etc. for signs of external corrosion. Document condition of equipment found (atmospheric, active, etc.)				
Sample a number of PSVs. Are they properly identified and labeled? Is documentation available showing inspection? **Verify vendor*				
Review required pipeline patrols. Are pipeline patrols being completed as appropriate?				
Review corresponding DOT pipeline(s) that are located onshore. Are they adequately marked with emergency phone numbers and description of contents? **Check for pipeline markers*				
Review rectifier reading log. Are weekly/daily readings documented?				
Interviews Interview operators to determine their understanding of abnormal events/conditions. **How are these events documented and what type of action is initiated?*				

ADVISORIES

Per 5.1.6.3 of Section 3.04 of DCOR Gas and Liquid O&M manual, DOT designated emergency valves (including manual block valves, automatic or remotely operated valves and blowdown valves) must be given a unique number for identification purposes. The number must be on maps and drawings, as well as physically on the valve in the facility. Review the facility ERP & PSOM for a list of DOT emergency valves.

Check the drilling deck for holes in the I-beams where joined (Platform Esther spill incident - 3/25/13)

Check flange bolting on receivers, launchers, valves, risers, etc. Ensure complete engagement of thread bolt around the flange. (DOT/PHMSA GGM Audit, 12/2016)

Verify atmospheric corrosion condition reporting (DOT/PHMSA GGM Audit, 12/2016)

Complete Operation, Maintenance & Emergency (OME) Plan, “Review Work Performed by Operators” (supplemental, 12/2016)

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A. PURPOSE

All accidents, injuries or potential accidents involving company employees, contractors or properties shall be reported and investigated, and measures shall be taken to prevent reoccurrence of the incident. The following outlines the basic procedure for personnel to follow after an incident. This procedure defines specific responsibilities, incident reporting, and investigation criteria.

B. RESPONSIBILITIES

FIRST RESPONDER MUST:

1. Notify the facility supervisor of any accident, injury, unsafe condition or practice
2. Control the scene, i.e. ensure proper care for injured personnel, evacuate the area, and tag unsafe equipment.

SUPERVISOR MUST:

1. Ensure local emergency services are provided, if required,
2. Immediately notify the on call HSE representative, at 888-225-1522
3. Issue report, investigate and implement corrective measures
4. Route reports using Incident Reporting Program via the DCOR Intranet.

HSE (ON CALL) REPRESENTATIVE MUST:

1. Determine if a post accident drug test is warranted.
2. Review reports for accuracy,
3. Ensure reports are routed to specified company departments,
4. Determine whether further investigation is warranted,
5. Ensure appropriate government agencies are notified.
6. Notify appropriate clients; as required.

C. INCIDENT REPORTING

Employees who are injured at work must report the injury to their supervisor **immediately**, regardless of severity. Contractors who are injured or involved in an accident must also report the incident to Company personnel immediately. In either case, if immediate medical treatment beyond first aid is needed, use a site-specific emergency phone list to call emergency services. The injured party must be taken to the appropriate hospital or medical center. If non-emergency medical treatment for work-related injuries, or illnesses, is needed you must still inform your supervisor as to the extent of the injury.

If the injured employee received medical treatment, the supervisor must obtain a medical release form before allowing the employee to return to work. The health care provider may stipulate work tasks that must be avoided or work conditions that must be altered before the employee resumes his or her full duties.

GUIDELINES FOR REPORTING AN INCIDENT:

- Contact the on-call HSE representative.
- Interview witnesses. Obtain the names and phone numbers of affected parties.
- Obtain a driver license number and insurance policy information from the other driver if the report is for an auto accident.
- Give specific and factual details of what took place. For example, stating “Injury to hand” is not as specific as “abrasions to right index finger.”
- Input incident report using the DCOR Intranet Incident Reporting Program. To access Incident Reporting, open a web browser on any DCOR network computer and go to the DCOR Intranet (web-dcor/). Once on the DCOR Intranet, go to Departments, and click on HSE. Once the HSE page has opened click on the incident reporting tab. Once the incident reporting tab has opened, choose the correct form from the list of choices that corresponds to the incident type you are reporting. When the form has been completed click Submit. Once submitted, the report will be automatically disseminated to HSE, Foreman, and Superintendent. A final report will be completed by HSE Department and disseminated to incident reporting groups.

If an incident involves a contractor, request an internal report from the contractor and attach a copy of the contractor’s accident report to the company report.

D. INCIDENT INVESTIGATION

Every incident must be investigated to determine cause. Measures must then be taken to prevent reoccurrence. All company accident reports have a provision for identifying the root cause/contributing factors of an accident, and corrective action required to prevent any similar accident in the future. A separate Investigation Report will be required for vehicle accidents and incidents deemed needing closer examination by the on call HSE representative.

The employee's supervisor is responsible for ensuring an investigation is performed to determine and correct the cause(s) of the incident. Specific procedures that can be used to investigate workplace accidents and hazardous substance exposures include the following:

GUIDELINES FOR INVESTIGATING AN INCIDENT:

- Interviewing injured personnel and witnesses.
- Examining the injured employee's work site for contributing factors.
- Reviewing established procedures to ensure they are adequate and were followed.
- Reviewing training records of affected employees.
- Determining all contributing causes to the accident.
- Recording all findings and actions taken.
- Following up on findings to ensure hazards are abated.

The supervisor's findings and corrective action required shall be documented and presented to the on-call HSE representative. If the supervisor is unable to determine the cause(s) and appropriate corrective action, other resources should be sought. Available resources include the area Superintendent, Foreman, Safety Coordinator, and/or other HSE personnel.

The Safety Coordinator will review each accident or injury report to ensure that the investigation was thorough and that all corrective action was taken. A report with incomplete data, or inconclusive root cause and corrective action identified will be routed back to the supervisor for further follow-up. The on-call HSE representative will bring action items that are not implemented to the attention of the site Supervisor and /or Operations Manager in a timely manner.

Company Injury Incident Report

ID #

Basic Information

Date of Incident	Time of Incident	Location	HSE Contact	Initially Reported By

Region	Lease	PIC/UWA	Facility Foreman	Reported to Agency

Injured Person Information

First Name	Last Name	Postion/Title	Phone Number	Address

Type of Work	Body Part	Severity	Hire Date	Years Experience

Witness Information

First Name	Last Name	Phone Number
First Name	Last Name	Phone Number

Additional Information

Need for Further Medical Evaluation	Medical Refusal	DWC-1 Form	Medivac Required

Report Summary

Description of Incident

Contributing Factors

Corrective Action(s)

Person Responsible for Corrective Action	Investigated By	Report Prepared By	Report Closed

Corrective Action Completed	Corrective Action Comments

Incident Invesitgation

ID #

Incident Information

Date of Incident	Time of Incident	Location	HSE Contact	Initially Reported By

Region	Lease	PIC/UWA	Facility Foreman	Reported to Agency

Additional Information

Wind Speed	Visibility	Rain	Structural Damage	Muster

Reason for Resumption of Work

Employer Information

Company	Company Contact	Phone Number	Company Adress

Person(s) Involved

First Name	Last Name
First Name	Last Name

Report Summary

Description of Incident

Contributing Factors

Corrective Action(s)

Person Responsible for Corrective Action	Investigated By	Report Prepared By	Report Closed

Corrective Action Comments

Corrective Action Completed

Crane Incident Investigation Report

ID #

Basic Information

Date of Incident	Time of Incident	Date Reported	Time Reported	Initially Reported By

Location	Region	Lease	Facility Foreman	Reported to Agency

HSE Contact	Crane Damaged	Injuries	Equipment Damage	Structure Damage

Crane Information

Crane Used	Crane Type	Lift Type	Hoist Type	Crane Smart

Crane Operator

First Name	Last Name	License	License Exp Date	Years Experience

Person(s) Involved

First Name	Last Name	Company Name
First Name	Last Name	Company Name

Additional Information

Wind Speed	Type of Rigging	Rain	Critical Lift	Critical Lift Form Completed

Report Summary

Description of Incident

Contributing Factors

Corrective Action(s)

Person Responsible for Corrective Action	Investigated By	Report Prepared By	Report Closed

Corrective Action Completed	Corrective Action Comments

Fire Incident Investigation

ID #

Incident Information

Date of Incident	Time of Incident	Location	HSE Contact	Initially Reported By

Region	Lease	PIC/UWA	Facility Foreman	Reported to Agency

Additional Information

Visible Flame	Visible Smoke	Extinguished	Equipment Damaged	Structural Damage

Reason for Resumption of Work

Person(s) Involved

First Name	Last Name	Company Name
First Name	**Last Name**	**Company Name**

Report Summary

Description of Incident

Contributing Factors

Corrective Action(s)

Person Responsible for Corrective Action	Investigated By	Report Prepared By	Report Closed

Corrective Action Completed	Corrective Action Comments

SWA Incident Invesitgation

ID #

Incident Information

Date of Incident	Time of Incident	Location	HSE Contact	Initially Reported By

Region	Lease	PIC/UWA	Facility Foreman	Reported to Agency

Additional Information

Wind Speed	Visibility	Rain	Structural Damage	

Reason for Resumption of Work

Employer Information

Company	Company Contact	Phone Number	Company Adress

Person(s) Involved

First Name	Last Name	Company Name
First Name	Last Name	Company Name

Report Summary

Description of Incident

Contributing Factors

Corrective Action(s)

Person Responsible for Corrective Action	Investigated By	Report Prepared By	Report Closed

Corrective Action Completed	Corrective Action Comments

TRAINING

The Company requires a rigorous training program tailored to the needs of individual job tasks. As a minimum all employees shall receive specific training in the following areas:

1. General safety and health work practices according to the Company required training program and;

2. Specific instruction with respect to hazards unique to a particular job assignment such as Process Safety Facilities;

Employee training at the Company shall be performed according to the required training schedule maintained by the Safety Department (as listed below) and will be provided:

1. When the program is first established,

2. To all new employees,

3. To all employees given a new job assignment for which training has not previously been received,

4. When new substances, processes, procedures or equipment are introduced to the work place and represent a new hazard and,

5. When the Company is made aware of a new or previously unrecognized hazard.

6. Supervisors shall be required to complete additional training specific to hazards employees under their immediate direction and control may be exposed.

Newly-hired or transferred employees shall be provided with orientation instruction, which addresses environmental, safety, operational, and mechanical subject matter.

Employees at PSM facilities involved in the operations or maintenance of a covered process shall receive and successfully complete training applicable to the employee's job task before assuming responsibilities for a covered process and refresher training there after in accordance with applicable process safety regulations. Additionally, prior to start-up of process, changes or new equipment, employees shall be trained in the hazards associated with that change.

DCOR ACTIVE LEARNER TRAINING PROGRAM WITH PETROSKILLS

DCOR strives to provide a working environment where its employees fully understand the facility processes where they work. This understanding improves safety and reduces operating costs. The Company also recognizes that employees with less experience could use more training to improve their knowledge and professional capabilities.

In addition to DCOR's technical programs, the Company requires online training through Active Learner for all designated Employees. The program is designed to help ensure that employees, during their hitch, satisfy their various training requirements per regulatory compliance. Courses are assigned based on employee's job title and job description.

The Active Learner program will be implemented in the following ways:

1. Lead Operators will schedule working hours for Operators to train,

2. DCOR Operating Procedures will be reviewed through Active Learner and signed off once completed,

3. All courses are to be completed during work hours.

4. Complete course information can be found on the Company Intranet.

Course			Offshore			Onshore			Offshore/Onshore						Support Staff			Required		
TRIM	Reference	Description	Foreman	Operator Lead, II, III	I&E Technician	Foreman	Operator Lead, II, III	I&E Technician	Crane Operator	Rig Crew	Mechanic	Electrical	Paint Crew	Welder	Management	Engineering	Administration	Duration	Frequency	Mandated by Agency
Code	Regulation																			
DOT01	49 CFR 199.19(c), 199.241	Supervisor Drug/Alcohol	ALL	Lead Op	N/R	ALL	Lead Op	W/R	W/R	W/R	W/R	W/R	W/R	W/R	ALL	W/R	W/R	2hr	W/R	Yes
DOT02	49 CFR 195.403(a))	O&M,Maint.Manual-Line Specific	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	N/R	N/R	N/R	W/R	Yes
DOT03	49 CFR 193.2713, 192R	Personnel Qualification/LNG Plants	W/R	W/R	N/R	W/R	W/R	W/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	W/R	Yes
DOT04	49 CFR 192.615(2),194.11	Emergency Response Plan-Specific	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	N/R	1yr	Yes
DOT05	49 CFR 193.2513	LPG.Transfer/Dispensing(Optional)	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	N/R	N/R	N/R		Yes
DOT06	49 CFR172.700	HazMat Handling	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	1hr	2yr	Yes
DOT07	49CFR 192.801	Operator Qualification (Gas P/L)	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	3yr	Yes
DOT08	49CFR 195.501	Operator Qualification (Oil P/L)	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	3yr	Yes
DOT09	49 CFR 192.615	Emergency Response Plan DRILL	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	W/R	No
DOT10		Drug Awareness Training Online (4 courses: Drug, Alcohol, Employee, Supervisor)	ALL	Lead Op	W/R	ALL	Lead Op	W/R	W/R	W/R	W/R	W/R	W/R	W/R	ALL	W/R	W/R	N/R	W/R	Yes
EPA01	40 CFR 112.7(c)(10)	Spill - SPCC Plan (Onshore-except MOSF) (Offshore-Eva&Esther Only)	W/R	W/R	W/R	ALL	ALL	ALL	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	1yr	Yes
EPA02	40 CFR 717.10, TSCA-8 (e)	TSCA (Toxic Substance Control Act)	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	New Hire Orientation	Yes
EPA03	8 CCR 22 , 40 CFR (Ref)	Env. Compliance-Air,Water Waste	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	N/R	1yr (Block Training)	Yes
GEN01	8 CCR 3203	IIPP (SB198) / Safety Rules	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	N/R	New Hire Orientation	Yes
GEN02	DCOR	New Employee Orientation (All)	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	N/R	New Hire Orientation	Yes
GEN03	29 CFR 1910.95(k)(2)	Hearing Conservation,	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	N/R	N/R	N/R	N/R	1yr (Block Training)	Yes
GEN04	29 CFR 1910.151_1030	CPR/A.E.D.	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	N/R	N/R	N/R	2hr	1yr (Block Training)	W/R
GEN05	CFR 1910.178	Forklift Operating and Rules	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	N/R	N/R	N/R	3yr	Yes
GEN06	29 CFR 1910.157(g), 30CFR 250, API RP 14G	Fire Equipment/Fire Watch	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	N/R	N/R	N/R	N/R	1yr (Block Training)	Yes
GEN08	CFR 1910.269(a)(1)(ii)	Electrical Safety (high voltage)	W/R	W/R	ALL	W/R	W/R	ALL	N/R	N/R	N/R	ALL	N/R	N/R	N/R	N/R	N/R	N/R	W/R	Yes
GEN09	CFR 1910.331	Electrical Safety (low voltage)	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	N/R	1yr	Yes
GEN10	CFR 1910.9(k)(2)	Audiometric Testing, Req.>85Dba	W/R	ALL	ALL	W/R	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	N/R	N/R	N/R	N/R	1yr (Block Training)	Yes
GEN11	CFR 1910	First Aid/Blood Borne Pathogens	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	N/R	N/R	N/R	N/R	2yr	Yes
GEN12	DCOR	Vehicle Policy Compliance	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R		W/R
GEN13	29 CFR 1926.104	Fall Protection	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	ALL	1yr	Yes
GEN 15	8 CCR 3472	Stinger Crane Certification	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	N/R	N/R	N/R	3yr	W/R
GEN 16		Food Safe Handling	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	N/R	N/R	N/R	W/R	W/R
GEN17		Pipeline Locating & Marking & Damage Prevention Training	W/R	W/R	W/R	ALL	LO Only	W/R	W/R	W/R	W/R	W/R	W/R	w	W/R	N/R	N/R	N/R	W/R	Yes
GEN18		Drilling Structures Training	N/R	N/R	N/R	N/R	N/R	N/R	W/R	ALL	W/R	W/R	N/R	N/R	W/R	W/R	N/R	N/R	W/R	W/R
HAZ01	30 CFR 254.41, .42(B)(2)	I.C.S. / Table Top Exercise	IMT	W/R	W/R	IMT	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	IMT	IMT	IMT	N/R	1yr	Yes
HAZ02	29 CFR 1910.120	24hr On Site Worker	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	24hr	8 Refresher Annually Minimum Req. for new employees	Yes

Course			Offshore			Onshore			Offshore/Onshore						Support Staff			Required		
TRIM Code	Reference Regulation	Description	Foreman	Operator Lead, II, III	I&E Technician	Foreman	Operator Lead, II, III	I&E Technician	Crane Operator	Rig Crew	Mechanic	Electrical	Paint Crew	Welder	Management	Engineering	Administration	Duration	Frequency	Mandated by Agency
HAZ03	29 CFR 1910.120	40hr On Site Worker/8hr Supervisor	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	48hr	8 Refresher Annually	W/R
HAZ04	29 CFR 1910.120	8Hr HazMat Refresher (HAZ02-03)	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	8hr	1yr	W/R
HAZ05	30 CFR 254.41, .42(B)(2)	IMT Training Meeting	IMT	W/R	W/R	IMT	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	IMT	IMT	IMT	N/R	1yr	W/R
HAZ06		Oiled SHORELINE Response Training (SCAT)	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	W/R	W/R	W/R	72hr		No
SEMS01	30 CFR 250.1520, API RP T-2	OCS-Production Safety Systems	ALL	ALL	ALL	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	32hr	3yr	Yes
SEMS02	30 CFR 250.1520	OCS-Production Safety Systems Review Test	ALL	ALL	ALL	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	1yr	No
SEMS03	30 CFR 250.1520, API RP T-6	Well Control School - Floor Hand	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	30hr	4yr	W/R
SEMS04	30 CFR 250.1520, API RP T-6	Well Control School Supervisor	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	30hr	4yr	W/R
SEMS05	30 CFR 250, 40 CFR 112.7(e)	Spill – SPCC/Contingency Plan (Off-Shore)	ALL	ALL	ALL	N/R	N/R	N/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	1hr	1yr	Yes
SEMS06	30CFR 250.120,APIRP2D	Crane-Offshore Operator Cert.	W/R	W/R	W/R	W/R	W/R	W/R	ALL	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	4yr	Yes
SEMS07	30CFR 250.120,APIRP2D	Crane-Offshore INSPECTOR Cert.	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	4yr ?	Yes
SEMS08	30CFR 250.120,APIRP2D	Crane Operator Physical Exam	W/R	W/R	W/R	W/R	W/R	W/R	ALL	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	4yr	Yes
SEMS09	30CFR 250.120,APIRP2D	Crane-Basic Rigger Training	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	N/R	4yr	Yes
SEMS12	30CFR 250, API RP T1,T4	Offshore Orientation Program	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	N/R	New Hire Orientation	Yes
SEMS13/ PSM01	29 CFR 1910.119(g)	Operating Procedures Training	W/R	PSMSEMP	ALL	W/R	PSMSEMP	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	N/R	N/R	N/R	3yr	Yes
SEMS14	API RP T1,DCOR	Boat Safety/Swing Rope Procedure	ALL	ALL	ALL	N/R	N/R	N/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	1 time	
SEMS15	29 &30 CFR PSM, SEMS	MOC Training	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	ALL	1 Time	Yes
SEMS16	29 CFR 1910.38,49 194.117, 30 CFR	Emergency Evacuation Plan	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	ALL	1yr	Yes
SEMS17	30 CFR 250	Job Safety Analysis	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	N/R	1 time	Yes
SEMS18	30 CFR 250	Qualified Welder	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	ALL	W/R	W/R	W/R	N/R		Yes
SEMS19		Hazardous Identification Training	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	N/R		Yes
SEMS20	SEMS	SEMS Plan Audit	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	ALL	W/R	W/R	W/R	N/R	3yr	Yes
SEMS21	SEMS	HAZOP Participation	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	ALL	W/R	W/R	W/R	N/R	3yr	Yes
SEMS22	SEMS	SEMS I & II Awarness Training	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	N/R	1 time	Yes
SEMS23	SEMS	Spill Drill/ First Line Supervisor Classroom	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	N/R	1yr (Block Training)	Yes
SEMS24	SEMS	Marine Wildlife Awareness	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	N/R	1yr (Block Training)	Yes
SEMS25	SEMS	TAPROOT Incident Investigation	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	Safety Pers.	W/R	W/R	N/R		Yes
SEMS26		Mechanical Integrity	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	N/R	1yr	Yes

Course			Offshore			Onshore			Offshore/Onshore						Support Staff			Required		
TRIM	Reference	Description	Foreman	Operator Lead, II, III	I&E Technician	Foreman	Operator Lead, II, III	I&E Technician	Crane Operator	Rig Crew	Mechanic	Electrical	Paint Crew	Welder	Management	Engineering	Administration	Duration	Frequency	Mandated by Agency
Code	Regulation																			
SEMS27	SEMS OSHA	Supervisor Safety Leadership	ALL	LO Only	W/R	ALL	LO Only	W/R	W/R	W/R	W/R	W/R	W/R	W/R	ALL	Mgmt	Mgmt	N/R	1 time	No
SEMS28	SEMS 2	Fatigue Risk Management	ALL	LO Only	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	1 time	Yes
QET01	29 CFR 1910.146	Permit Required Confined Space	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	N/R	N/R	1yr	Yes
QET02	29 CFR 1910.119, 1910.252	Hot Work/Safe Work	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	N/R	N/R	N/R	N/R	1yr	Yes
QET03	29 CFR 1910.147	Lockout/Tagout/Blockout	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	N/R	N/R	N/R	N/R	1yr	Yes
QET04	30 CFR 250.67, APIRP-55	Hydrogen Sulfide & SCBA	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	N/R	1yr	Yes
QET05	29 CFR 1910.132-138	Personal Protective Equipment	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	N/R	1yr	Yes
QET06	29 CFR 1910.1200	Hazardous Communication	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	W/R	W/R	W/R	N/R	1yr	Yes
QET07	29 CFR 1910.	Qualified Scaffold Erection & Safety	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	ALL	W/R	W/R	W/R	W/R	N/R	1 time	Yes
QET08		High Pressure Drain Lancing Safety	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	ALL	W/R	W/R	W/R	W/R	N/R		No
QET09		Spider Suspended Access & Rigging Safety	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	ALL	W/R	W/R	W/R	N/R		No
USCG/SEMS 10	33 CFR 146.125,130; API RP T4	Station Bill/Emergency Evacuation	W/R	ALL	ALL	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	Monthly	Yes
USCG/SEMS 11	API RP T7	Survival Raft Training	ALL	ALL	ALL	N/R	N/R	N/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	N/R	N/R	N/R	(Annual Drills)	Yes
OPT05		Thermographer	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	Maintenance Planners			N/R	5 yrs	No
OPT09	29 CFR 1910.134 (REF.)	Respiratory Protection Plan	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	N/R	N/R	N/R	N/R	1yr	Yes
OPT 10	29 CFR 1910.134	Pulminary Function Evaluation	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	ALL	ALL	N/R	N/R	N/R	N/R	1yr	Yes
OPT 11	29 CFR 1910.134	Respiratory Fit Test (Prereq. PFE)	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	ALL	ALL	N/R	N/R	N/R	N/R	1yr	Yes
COMPANY TRAINING																				
DCOR 01		Back Safety	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	1 Time	No
DCOR 02-A		Pre-Employment Physical Therapy																		
DCOR 02-B		Return to Work Physical Therapy																		
DCOR 03		CA - MRSA (Staph) Awareness	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	W/R	No
DCOR 04		Monorail &/or Jib Crane Rig Training	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	W/R	N/R	1 time	No

DCOR,LLC

Support Operations Required Training Schedule

Course			Support Group			Required			Provider
TRIM	Reference Regulation	Description	Management	Clerical	Engineer	Duration	Frequency	Mandated by Agency	#'s
DOT01	49 CFR 199.19(c), 199.241	Supervisor Drug/Alcohol	W/R			2hr	W/R	Yes	
DOT04	49 CFR 192.615(2),194.117	Emergency Response Plan-Specific	W/R			N/R	W/R	Yes	
EPA03	8 CCR 22 , 40 CFR (Ref)	Env. Compliance-Air,Water Waste	W/R			N/R	1yr	No	
GEN01	8 CCR 3203	IIPP (SB198) / Safety Rules	ALL			N/R	W/R	Yes	
GEN02	DCOR	New Employee Orientation	ALL			N/R	1day	Yes	
GEN04	DCOR	CPR/A.E.D. – Refresher Training	W/R			N/R	1yr	Yes	
GEN06	29 CFR 1910.157(g)	Fire Extinguisher Training	W/R			N/R	1yr	Yes	
GEN07	CFR 1910.38,49 194.117	Emergency Response Action Plan	ALL			ALL	W/R	Yes	
GEN09	CFR 1910.269(a)(1)(iii)	Electrical Safety Awareness	ALL			N/R	W/R	Yes	
GEN12	DCOR	Vehicle Policy Compliance	ALL			ALL	New Hire Orientation	Yes	
HAZ01	30 CFR 254.41, .42(B)(2)	I.C.S. / Table Top Exercise	W/R			N/R	W/R	W/R	
HAZ02	29 CFR 1910.120	24hr On Site Worker	W/R			24hr	8Ref	W/R	
HAZ03	29 CFR 1910.120	40hr On Site Worker/8hr Supervisor	W/R			48hr	8Ref	W/R	
HAZ04	29 CFR 1910.120	8Hr HazMat Refresher (HAZ 02 - 03)	W/R			8hr	1yr	W/R	
MMS01	30 CFR 250.1520	OCS-Production Safety Systems (T-2)	W/R			40	3yr	Yes	
MMS03	30 CFR 250.1520	Well Control School	W/R			30hr	4yr	W/R	
QET03	29 CFR 1910.147	Lockout/Tagout/Blockout	W/R			N/R	W/R	Yes	
QET04	30 CFR 250.67, APIRP-55	Hydrogen Sulfide & SCBA	W/R			N/R	1yr	W/R	
QET05	29 CFR 1910.132-138	Personal Protective Equipment	W/R			N/R	W/R	W/R	
OPT06	DCOR	Boat Safety/Swing Rope Procedure	W/R			N/R	1 time	W/R	
OPT07	29CFR 1910.119	Process Hazard Analysis (HazOp)	W/R			N/R	N/R	W/R	

Abbreviation Key

8Ref. = Annual 8 Hr Refresher
N/R = NoTime Requirement

priority	Group Code	Course Code	Course Title	Course Hours	Audience	Total Cum Hours	Level 1	Level 2	Level 3	Due Dates	
1	Basic Training	A1120a	Accident Control Techniques: Introduction	3	O/M Beginning	3				14	14
2	Basic Training	A1120b	Accident Control Techniques: Safe Work Practices	3	O/M Beginning	6				14	28
3	Basic Training	A1197	Job Hazard Analysis and Stop Work Authority	1	O/M Beginning	7				28	28
4	Basic Training	A1139	First Aid Procedures	2	O/M Beginning	9				28	42
5	Basic Training	A1105	Environmental Awareness	2	O/M Beginning	11				42	42
6	Basic Training	A1190	Safe Laboratory Operations	4	O/M Beginning	15				42	56
7	Basic Training	A1201	Working with Hand Tools	1	O/M Beginning	16				56	56
8	Basic Training	A1208	Working with Power Tools	1	O/M Beginning	17				56	70
9	Basic Training	A1202	Pipe Fitting Basics	1	O/M Beginning	18				70	70
10	Basic Training	A1203	Tubing	2	O/M Beginning	20				70	70
11	Basic Training	A1204	Small Threaded Pipe	2	O/M Beginning	22				84	84
12	Basic Training	A1205	Flange Piping	2	O/M Beginning	24				84	84
13	Basic Training	A1207	Cleaning Activities	1	O/M Beginning	25				98	98
14	Basic Training	A1610a	Fundamentals of Fluids: Fluid Behavior	4	O/M Beginning	29				98	98
15	Basic Training	A1610b	Fundamentals of Fluids: Gases and Static Pressure	3	O/M Beginning	32				112	112
16	Basic Training	A1630	Oil and Gas Production Overview	3	O/M Beginning	35				112	112
17	Basic Training	A1540a	Oil Field Electricity: Fundamentals	4	O/M Beginning	39				126	126
18	Basic Training	A1638	SEMS Standard and Requirements	1	O/M Beginning	40				126	126
19	Operator Level 1	A1021	Nature of Heat: Heat and Temperature	4	O/M Beginning	44	4			140	140
20	Operator Level 1	A1041a	Mechanics of Fluids: Introduction to Process Fluids	4	O/M Beginning	48	8			140	140
21	Operator Level 1	A1041b	Mechanics of Fluids: Units of Fluid Measurement	4	O/M Beginning	52	12			154	154
22	Operator Level 1	A1042	Mechanics of Fluids: Behavior of Gases	4	O/M Beginning	56	16			154	154
23	Operator Level 1	A1043	Mechanics of Fluids: Static Pressure and Head	5	O/M Beginning	61	21			168	168
24	Operator Level 1	A1044	Mechanics of Fluids: Fluids In Motion	4	O/M Beginning	65	25			168	168
25	Operator Level 1	A1130	Process Plant Mathematics	5	O/M Beginning	70	30			182	182
26	Operator Level 1	A1632	Well Control and Production Safety Regulations	3	O/M Beginning	73	33			182	182
27	Operator Level 1	A2060	Instrumentation: Fundamentals of Control	3	O/M Beginning	76	36			196	196
28	Operator Level 1	A1451a	Oil Well Performance and Surveillance: Fundamentals	4	O/M Beginning	80	40			196	196
29	Operator Level 1	A1451b	Oil Well Performance and Surveillance: Testing	3	O/M Beginning	83	43			210	210
30	Operator Level 1	A1411	Flowing Wells: Introduction to Pressure and Flow	4	O/M Beginning	87	47			210	210
31	Operator Level 1	A1051	Introduction To Compression	4	O/M Beginning	91	51			224	224
32	Operator Level 1	A1071a	Centrifugal Pumps: Introduction	3	O/M Beginning	94	54			224	224
33	Operator Level 1	A1072a	Positive Displacement Pumps: Introduction	4	O/M Beginning	98	58			238	238
34	Operator Level 1	A1461	Gas Measurement: Fundamentals	3	O/M Beginning	101	61			238	238
35	Operator Level 1	A1185	Understanding Electricity	4	O/M Beginning	105	65			252	252
36	Operator Level 1	A1575a	Water Treatment and Disposal: Fundamentals	3	O/M Beginning	108	68			252	252
37	Operator Level 1	A1140a	Valves: Introduction to Valves	4	O/M Beginning	112	72			266	266
38	Operator Level 1	A1140b	Valves: Operating Valves	3	O/M Beginning	119	75			266	266
39	Operator Level 1	A1206	Valve Maintenance	2	O/M Beginning	121	77			280	280
40	Operator Level 1	A1540b	Oil Field Electricity: Electrified Equipment	4	O/M Beginning	116	81			280	280
41	Operator Level 1	A1111	Fire Fighting: Fuels and Combustion	3	O/M Beginning	124	84			294	294
42	Operator Level 2	A1470	Oil and Gas Separators	3	O/M Beginning	127		3		294	294
43	Operator Level 2	A1555a	Heater-Treaters: Fundamentals	3	O/M Beginning	130		6		308	308
44	Operator Level 2	A1565	Vapor Recovery Systems	3	O/M Beginning	133		9		308	308
45	Operator Level 2	A1570a	Lease Instrumentation: Sensing and Measuring Equipment	3	O/M Beginning	136		12		322	322
46	Operator Level 2	A1570b	Lease Instrumentation: Final Control Devices	2	O/M Beginning	138		14		322	322

47	Operator Level 2	A1585	Glycol Dehydration	5	O/M Beginning	143		19		336	336
48	Operator Level 2	A1600	Gas Processing	3	O/M Beginning	146		22		336	336
49	Operator Level 2	A1631	Production Safety Equipment and Support Systems	5	O/M Beginning	151		27		350	350
50	Operator Level 2	A2067	Instrumentation: Process and Instrumentation Drawings	2	O/M Beginning	153		29		350	350
51	Operator Level 2	A1412	Flowing Wells: Pressure and Flow in Producing Wells	5	O/M Beginning	158		34		364	364
52	Operator Level 2	A1022	Nature of Heat: Heat Transfer	3	O/M Beginning	161		37		364	364
53	Operator Level 2	A1023	Nature of Heat: Fuels and Combustion	4	O/M Beginning	165		41		378	378
54	Operator Level 2	A1052a	Positive Displacement Compressors: Introduction	3	O/M Beginning	168		44		378	378
55	Operator Level 2	A1053a	Centrifugal Compressors: Introduction	3	O/M Beginning	171		47		392	392
56	Operator Level 2	A1620	Electrical Fundamentals	4	O/M Beginning	175		51		392	392
57	Operator Level 2	A1085a	Couplings, Gear Trains, and V-Belts: Machine Connections and Couplings	3	O/M Beginning	183		54		406	406
58	Operator Level 2	A1085b	Couplings, Gear Trains, and V-Belts: Gear Trains and V-Belt Drives	4	O/M Beginning	187		58		406	406
59	Operator Level 2	A1112	Fire Fighting: Extinguishing Agents	4	O/M Beginning	191		62		420	420
60	Operator Level 2	A1113	Fire Fighting: Portable Fire Extinguishers and Foams	4	O/M Beginning	195		66		420	420
61	Operator Level 2	A1462a	Gas Measurement: Equipment and Calculations	6	O/M Beginning	201		72		434	434
62	Operator Level 2	A1462b	Gas Measurement: Orifice Meters	4	O/M Beginning	205		76		434	434
63	Operator Level 2	A1055	Working with Pipeline Systems	2	O/M Beginning	214		78		448	448
64	Operator Level 2	A1540c	Oil Field Electricity: Conservation and Classification	2	O/M Beginning	216		80		448	448
65	Operator Level 2	A1545a	ESP Equipment	3	O/M Beginning	222		83		462	462
66	Operator Level 2	A1545b	ESP Ammeter Recording and Charts	3	O/M Beginning	225		86		462	462
67	Operator Level 2	A1421a	Well Pumping: Introduction to Sucker-Rod Systems	3	O/M Beginning	228		89		476	476
68	Operator Level 2	A1570c	Lease Instrumentation: Control Equipment	3	O/M Beginning	231		92		476	476
69	Operator Level 2	A1575b	Water Treatment and Disposal: Processes and Equipment	3	O/M Beginning	234		95		490	490
70	Operator Level 2	A1575c	Water Treatment and Disposal: Facilities and Testing	2	O/M Beginning	236		97		490	490
71	Operator Level 2	A1633	Production Safety Systems Regulations and Device Identification	2	O/M Beginning	242		99		504	504
72	Operator Level 2	A1634	Process Component Safety Analysis and System Testing	4	O/M Beginning	246		103		504	504
73	Operator Level 2	A1635	Safety Device Operation	4	O/M Beginning	250		107		518	518
74	Operator Level 2	A1636	Testing and Setting Safety Devices	4	O/M Beginning	254		111		518	518
75	Operator Level 2	A1541	Oil Field Electricity: Offshore Oil Field Electricity	3	O/M Beginning	219		114		532	532
76	Operator Level 2	A1081	AC Motors	5	O/M Beginning	180		119		532	532
77	Operator Level 2	A1580	Oil Field Corrosion	4	O/M Beginning	240		123		546	546
78	Operator Level 3	A1122	Corrosion Control	4	O/M Beginning	258			4	560	560
79	Operator Level 3	A1160a	Heat Exchangers: Introduction	4	O/M Beginning	262			8	574	574
80	Operator Level 3	A1165	Fired Heaters: Equipment and Design	3	O/M Beginning	265			11	588	588
81	Operator Level 3	A1413a	Flowing Wells: The Wellhead, Wellbore, and Christmas Tree	3	O/M Beginning	268			14	602	602
82	Operator Level 3	A1413b	Flowing Wells: Packers and Valves	3	O/M Beginning	271			17	616	616
83	Operator Level 3	A1413c	Flowing Wells: Chokes	3	O/M Beginning	274			20	630	630
84	Operator Level 3	A1414	Flowing Wells: Operating Flowing Wells	3	O/M Beginning	277			23	644	644
85	Operator Level 3	A1535	Lease Automatic Custody Transfer (LACT)	3	O/M Beginning	212			26	658	658
86	Operator Level 3	A2061	Instrumentation: Measuring Temperature	2	O/M Beginning	279			28	672	672
87	Operator Level 3	A2062	Instrumentation: Measuring Pressure	3	O/M Beginning	282			31	686	686
88	Operator Level 3	A2063	Instrumentation: Measuring Liquid Level	3	O/M Beginning	285			34	700	700
89	Operator Level 3	A2064	Instrumentation: Measuring Flow	3	O/M Beginning	288			37	714	714
90	Operator Level 3	A1462c	Gas Measurement: Orifice Flow Calculations	4	O/M Beginning	209			41	728	728

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MAINTENANCE OF RECORDS

Our establishment is on a designated high hazard industry list. We have taken the following steps to implement and maintain our IIPP:

1. Records of hazard assessment inspections, including the person(s) or persons conducting the inspection, the unsafe conditions and work practices that have been identified and the action taken to correct the identified unsafe conditions and work practices, are recorded on a hazard assessment and correction form; and

2. Documentation of safety and health training for each worker, including the worker's name or other identifier, training dates, type(s) of training, and training providers are recorded on a worker training and instruction form

Pertinent records will be maintained a minimum of three years, five years for PSM facilities. These records may include audit results, minutes of safety meetings, training records, incident reports, Safety/Environmental Condition Alerts, and reports of completed hazards analyses.

Records of inspections including the person(s) conducting the inspections, the unsafe conditions and work practice that have been identified and the action taken to correct the identified unsafe conditions and work practices shall be recorded on a Company "**Planned General Inspection Report**".

Records of other hazard assessments such as Process Hazard Analysis (PHA), Hazops or other analysis will be maintained according to all applicable regulation and standards.

Training records shall include the identity of the employee, dates of training, type of training, instructor's name and instructor's signature. Documentation of required employee training shall be performed on the company's Environmental & Safety Training Sign-In Sheet.

All supporting documents relating to the company Safety Program shall be maintained by the area Safety Coordinator(s) in a central file located at the affected district office(s).

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GENERAL SAFETY RULES.....2

GENERAL SAFETY RULES

This section outlines the basic rules that apply to all areas. They shall be endorsed by the area Operations Manager and posted at each facility by the effected Safety Coordinator. It is a condition of employment to follow all set rules by The Company. Willful deviation of said rules shall include disciplinary action up to and including termination.

1. All near misses, contained spills, uncontained spills, overboard items, physical damage, and injuries are to be reported immediately to your supervisor and, if necessary, treated at the nearest appropriate medical facility.

2. All fires / electrical arc flash are to be reported immediately to your supervisor.

3. Every employee shall immediately report any unsafe condition or practice to the supervisor. Unsafe equipment must be tagged and taken out of service to prevent use.

4. Horseplay or fighting on Company premises is prohibited.

5. Operator of company vehicles must obey all State, County and Local transportation laws.

6. The use, possession, transportation or sale of illegal drugs, alcoholic beverages, firearms, deadly weapons or unauthorized explosives while on Company premises or in Company vehicles is prohibited.

7. Smoking is permitted in designated areas only.

8. Whenever a safety device is removed from service and/or defeated, the appropriate supervisor shall be notified, the device tagged and the action properly documented.

9. No work may be started in any area or on any equipment without the knowledge and consent of the person in charge. An employee shall not operate equipment on which they are not trained.

10. Operation of equipment having a ***"DANGER, DO NOT OPERATE"*** tag is prohibited.

11. Under normal operations, all operating machinery and electrical switchgear must have all safety guards, switches and alarms in place and functional.

12. All block valves on pressure relief systems must be locked or sealed open.

13. When ascending or descending stairways, you must always utilize three points of contact, use the handrail and take only one step at a time. Running in work areas, except for emergency purposes, is prohibited.

14. At a minimum, all personnel, including contractors and visitors are required to wear ANSI approved hard hats, safety glasses, impact resistant gloves and ASTM approved safety toe boots in all operation areas.

15. The proper type of eye protection (safety glasses, goggles and/or a face shield) must be worn during grinding, welding, drilling, chipping, scraping or any operation where foreign objects may enter the eye. Persons assisting in or observing the above operations must also wear proper eye protection.

16. Proper eye or face protection, rubber gloves and aprons must be worn by personnel handling chemicals or hazardous liquids. Review appropriate Safety Data Sheet (SDS) before handling.

17. Hearing protection must be worn in high noise areas (85 db or higher, or where posted).

18. Use only proper tools and equipment maintained in good working condition.

19. Barricades marked with red danger tape or equivalent shall be erected around areas of hazardous work, such as, holes in decking / work areas, trenches, where overhead hazards are present and hazardous materials storage. Permission for entry into these areas must be granted only by the person in charge.

20. Barricades marked with yellow caution tape or equivalent shall be erected around areas of overhead work, welding grinding or chipping, painting and similar work activities. Personnel may enter area if they are aware of the hazards associated with the work being performed.

21. Climbing or standing on equipment, piping or valves is discouraged. Approved scaffolding, ladders or safety belt/harness shall be used if the height is greater than 6 feet from the working surface, or less when conditions justify, e.g., near platform edges.

22. Fire extinguishers, alarm boxes, fire-doors, air-packs, eyewash stations, first aid kits and all other emergency equipment must be in good condition, inspected regularly and kept clear of any obstructions.

23. All visitors must report to a DCOR representative immediately upon arrival at a site. No work may be started in any area or on any equipment without the knowledge and consent of the person in charge.

24. Plastic cups/buckets shall not be used while drawing samples of pressurized hydrocarbons. Sample containers shall be clearly labeled.

25. Walking on tank tops is prohibited except in designated walking areas.

26. Proper lifting techniques such as bending of knees, obtaining assistance and use of mechanical lifting aids must be used in lifting loads.

27. Do not walk, stand or work under suspended loads. A load must be tied off, blocked or otherwise secured as soon as it has been raised.

28. Personal Flotation Device shall be worn anytime you are working over water or in an area without and/or outside of handrails. PFD shall be type III or V and properly worn per USCG and manufacture standards.

COMPRESSED GAS CYLINDERS

GENERAL REQUIREMENTS

1. Employees in charge of the oxygen or fuel-gas supply equipment including generators, and oxygen or fuel-gas distribution piping systems shall be instructed for this work before being left in charge.

2. Rules and instructions covering the operation and maintenance of oxygen or fuel-gas supply equipment including generators, and oxygen or fuel-gas distribution piping systems shall be readily available.

3. Specific procedures must be used when possible evolutions of hazardous fumes, gases or dust to the metals are involved. Any welding, cutting or burning of lead base metals, zinc, cadmium, mercury, beryllium or exotic metals or paints not listed here shall have proper ventilation or respiratory protection.

4. A fire prevention and suppression procedure shall be established whenever any welding and cutting operations are taking place.

5. Cylinders must be kept in the upright position during use and storage. Welding fuel-gas cylinders shall be placed with valve end up whenever they are in use. Liquefied gases shall be stored and shipped with the valve end up.

6. Cylinders shall be handled carefully. Rough handling, knocks, and falls are liable to damage the cylinder, valve or safety devices and result in leakage.

7. Cylinders containing oxygen, acetylene, other fuel or gas shall not be taken into confined spaces.

A. Handling Cylinders

1. Do not move or store cylinders without properly installing the protective cap over the valve.

2. Cylinders are smooth, heavy and difficult to hand carry. When they must be moved without a cart, use a carrier or get help.

3. Cylinders moved by a crane or other mechanical lifting device, should be secured in a proper rack or similar device and should not be dropped. Use of slings, ropes or electromagnets is prohibited.

4. Cylinders should not be allowed to strike each other.

5. Cylinders shall not be used for rollers, supports, or any purpose other than to contain gas.

B. Using Cylinders

1. Threads on a regulator or fitting must correspond to those on the cylinder valve outlet. Do not force or modify connections.

2. Never use a cylinder of compressed gas without a pressure-reducing regulator to the cylinder valve, except where the total system is specifically designed to handle maximum cylinder pressure.

3. Use regulators and pressure gauges only with gases and pressure ratings for which they are designed and intended.

4. Close the cylinder valve before attempting to stop leaks between the cylinder and regulator.

5. Never permit sparks, molten metal, electric currents, excessive heat or flames to contact the cylinder or attachments.

6. Never use oil or grease as a lubricant on valves or attachments to oxygen cylinders.

C. Storing Cylinders

1. Cylinders shall be properly secured with chain to prevent falling.

2. Oxygen cylinders shall not be stored within 20 feet of combustible gas cylinders or near any other substance where a fire could result, unless protected by a wall at least five feet high having a fire resistance rating of at least 30 minutes.

3. Cylinders shall be stored in a safe, dry, well-ventilated area that limits corrosion damage and deterioration. Hydro-test should be current.

4. Empty and full cylinders shall be stored separately, and plainly identified.

5. Compressed gas cylinders shall be legibly marked, for the purpose of identifying the gas content, with either the chemical or the trade name of the gas. Such marking shall be by means of stenciling, stamping, or labeling, and shall not be readily removable. Whenever practical, the marking shall be located on the shoulder of the cylinder.

6. Cylinders of compressed gas shall be stored in areas where they are protected from external heat sources such as flame impingement, intense radiant heat, electric arc, or high temperature steam lines.

7. Inside of buildings, cylinders shall be stored in a well-protected, well-ventilated, dry location, at least 20 feet from highly combustible materials such as oil or excelsior. Assigned storage spaces shall be located where cylinders will not be damaged by passing or falling objects, or subject to tampering by unauthorized persons. Note: Cylinders should be stored in assigned places away from elevators, stairs, or gangways.

8. Cylinder valves shall be closed when work is finished or when cylinders are empty.

ELECTRICAL AWARENESS

ELECTRICAL AWARENESS

1. Training requirements for employees in safety related work practices that pertain to their respective job assignments include: Employees who face a risk of electric shock but who are not qualified persons shall be trained and familiar with electrically related safety practices. Employees trained in safety related work practices that pertain to their respective job assignments. Electrical clearance distances for personnel working around live feeds.

2. Safe work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contact and when work is performed near or on equipment or circuits which are or may be energized.

3. Conductors and parts of electrical equipment that have been deenergized but not been locked or tagged out shall be treated as live parts.

4. While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been deenergized, the circuits energizing the parts shall be locked out or tagged or both.

5. Employees shall not work on or near exposed energized parts. This applies to work performed on exposed live parts (involving either direct contact or by means of tools or materials) or near enough to them for employees to be exposed to any hazard they present.

6. Only qualified persons may work on electric circuit parts or equipment that have not been deenergized. Such persons shall be made familiar with the use of special precautionary techniques, PPE, insulating & shielding materials and insulated tools.

7. When working under overhead lines clearance distance must be provided or lines shall be deenergized and grounded.

8. Unqualified persons must maintain an approach distance of 10' for 50kV plus 4" for every additional 10kV.

9. Qualified employees must adhere to the approach distances in Table S5. Refer to table for higher line voltages. Unqualified personnel shall not approach live electrical.

TABLE S5

Voltage range (phase to phase) | Minimum approach distance
300V and less .....| Avoid Contact
Over 300V, not over 750V .....| 1 ft. 0 in. (30.5 cm).
Over 750V, not over 2kV .....| 1 ft. 6 in. (46 cm).
Over 2kV, not over 15kV .....| 2 ft. 0 in. (61 cm).
Over 15kV, not over 37kV .....| 3 ft. 0 in. (91 cm).
Over 37kV, not over 87.5kV .....| 3 ft. 6 in. (107 cm).
Over 87.5kV, not over 121kV .....| 4 ft. 0 in. (122 cm).
Over 121kV, not over 140kV .....| 4 ft. 6 in. (137 cm).

10. Vehicular and mechanical equipment must always maintain clearance distances of 10 ft. .

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

12. Protective shields, protective barriers or insulating materials as necessary shall be used when working in confined or enclosed workspaces where electrical hazards may exist.

13. Portable ladders shall have non-conductive side rails.

14. Conductive items of jewelry or clothing shall not be worn unless they are rendered non-conductive by covering, wrapping or other insulating means.

GENERAL REQUIREMENTS

1. Only qualified persons shall work on electrical equipment or systems.

2. Work shall not be performed on exposed energized parts of equipment or system until the following conditions are met:

   - Responsible supervision has determined that the work is to be performed while the equipment or systems are energized.

   - Involved personnel have received instructions on the work techniques and hazards involved in working on energized equipment.

   - Suitable personal protective equipment and safeguards are provided.

3. Duties of the authorized person after the required work on an energized system or equipment include: (1) Removing from the work area any temporary personnel protective equipment and (2) reinstalling all permanent barriers or covers.

4. All electrical equipment and systems shall be treated as energized until tested or otherwise proven to be de-energized.

5. While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been deenergized, the circuits energizing the parts shall be locked out or tagged or both.

6. Suitable temporary barriers, or barricades, shall be installed when access to opened enclosures containing exposed energized equipment is not under the control of an authorized person.

7. Conductive measuring tapes, ropes or similar devices shall not be used when working on or near exposed energized conductors or parts of equipment conductive fish tapes shall not be used in raceways entering enclosures containing exposed energized parts unless such parts are isolated by suitable barriers.

8. Only Electricians are authorized to switch breakers greater than 480V.

USE OF PORTABLE ELECTRIC EQUIPMENT (Cords and Plugs)

1. All cord and plug connected electric equipment, flexible cord sets (extension cords), and portable electric equipment shall be handled in a manner that will not cause damage.

2. Company policy and the National Electric Code (NEC) requires the use of an approved ground fault circuit interrupter (GFCI) for used on all portable equipment tool cords.

3. Flexible electric cords connected to equipment may not be used for raising or lowering the equipment.

4. Flexible cords may not be fastened with staples or otherwise hung in such a fashion as could damage the outer jacket or insulation.

5. Portable cord and plug connected equipment and flexible cord sets (extension cords) shall be visually inspected for external defects (such as loose parts, deformed and missing pins, or damage to outer jacket or insulation) and for evidence of possible internal damage (such as pinched or crushed outer jacket) before use on any shift. However, cord and plug connected equipment and flexible cord sets (extension cords) which remain connected once they are put in place and are not exposed to damage need not be visually inspected until they are relocated.

6. If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged item shall be removed from service, and no employee may use it until necessary repair and tests have been made to render the equipment safe.

7. Whenever an attachment plug is to be connected to a receptacle (including any on a cord set), the relationship of the plug and receptacle contacts shall first be checked to ensure that they are of proper mating configurations.

8. A flexible cord used with grounding-type equipment shall contain an equipment grounding conductor.

9. Attachment plugs and receptacles may not be connected or altered in a manner that would prevent proper continuity of the equipment grounding conductor at the point where plugs are attached to receptacles. Additionally, those devices may not be altered to allow the grounding pole of a plug to be inserted into slots intended for connection to the current-carrying conductors.

10. Adapters that interrupt the continuity of the equipment grounding connection may not be used.

11. Portable electric equipment and flexible cords used in highly conductive work locations (such as those inundated with water or other conductive liquids), or in job locations where employees are likely to contact water or conductive liquids, shall be approved for those locations.

POWER LINES

All power lines should be considered energized unless proper measures have been taken to de-energize. When work is being performed near energized overhead power lines, any part of the crane, boom, mast, gin poles or machinery should not be permitted within 10 feet of the power lines rated 50 KV or below. For energized lines rated above 50 KV, the minimum distance between power lines and the boom, mast, crane or it's load should be twice the length of the line insulator - **BUT NEVER LESS THAN 10 FEET** unless the power line is de-energized.

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FALL PROTECTION

PURPOSE

This standard establishes procedures necessary for protection of Company employees working in elevated positions. It is designed to maintain a safe environment for personnel working above four (4) feet from ground level.

SCOPE

This standard describes the personnel training requirements, minimum fall protective equipment, and safe work practices to be taken while working in elevated positions.

REFERENCE

TITLE 8 CCR, subsection 3299, Personal Fall Protection
TITLE 8 CCR, subsection 1670, Personal Fall Arrest Systems
29 CFR 1926.503, Fall Protection
29 CFR 1910.140, Fall Protection Systems

WORKING SURFACES ELEVATED MORE THAN FOUR (4) FEET

Working surfaces that are more than four feet above ground or more than four feet above an adjacent platform or work surface must be equipped with protective handrails/guardrails, or another means of fall protection must be provided.

WORKING AT ELEVATIONS GREATER THAN SIX (6) FEET

Appropriate fall protection must always be used while personnel are working at elevations greater than six feet above the ground or an adjacent platform/working surface (measured by the level of the workers' feet). When working on a portable ladder, personal fall protection is not required under CCR Title 8 or 29 CFR Safety Standards

GENERAL REQUIREMENTS

1. A training program shall be provided for each employee who might be exposed to fall hazards. Employees shall receive training pertaining to the recognition and elimination of fall hazards. Training shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to follow to minimize these hazards.

2. Re-training shall be provided when the following are noted: 1) Deficiencies in training. 2) Workplace changes. 3) Fall protection systems or equipment changes that render previous training obsolete.

3. Written certification records shall be maintained showing who was trained, when and the dates the training occurred.

4. Site Supervisors shall provide for prompt rescue of employees in the event of a fall or shall assure the employees are able to rescue themselves when working from heights.
    - A Fall Rescue Plan (Appendix A) needs to be completed and submitted with JSA and work permit when Personal Fall Protection is going to be used as part of the scope of work.
        - Use of fixed SRL, as used for work on the derrick monkey board or in the sub base of a workover/drilling rig is excluded.

5. Full body safety harnesses are required anytime a person is working over 6 feet off the ground or above the existing walking or working surface except when working on a portable ladder. Standard waist type safety belts are strictly prohibited.

6. Any time a person is working over 6 feet off the ground they must be tied off to a stationary object capable of withstanding 5,400 pounds except when working on a portable ladder.

7. Approved rope grabs and safety lines shall be used any time a worker is required to work in an area without adequate tie off protection, such as while using a spider basket or shuttling.

8. A full body harness **must** be worn whenever fall protection is required. Safety harnesses **should** fit snugly and comfortably.

9. When safety harnesses are used for fall protection, they **must** use lanyards with shock/absorber systems.

10. When working at elevations where it is necessary to disengage a lanyard to move around equipment or obstacles, a double lanyard **must** be utilized to assure fall protection.

11. All equipment **must** be inspected for excessive wear or damage prior to each use.

12. Modifications to any fall protection equipment, other than those performed by the manufacturer, may result in premature failure of the equipment and are **strictly prohibited**.

13. All equipment **must** be worn in accordance with the manufacturer's recommendations.

14. Any fall protection equipment that is worn or damaged **must** be destroyed so that it is no longer usable, and then discarded.

15. Safety belts, harnesses, and lanyards that have been used to stop a fall **must** be destroyed and discarded.

16. Safety harnesses shall be stored properly and inspected on a regular basis for excessive wear. Warn or damaged harnesses shall be destroyed prior to discarding.

17. Lifelines shall be protected against being cut or abraded, tie-off of a rope lanyard or lifeline around an "H" or "I" beam or similar support can reduce its strength as much as 70 percent due to the cutting action of the beam edges.

18. The Fall Prevention/ Rescue Plan shall be filled out by DCOR or contractor employees whenever work must be done from heights that require fall protection per 250.1914.

INSTRUCTIONS ON HOW TO FILL OUT APPENDIX A

1. DCOR and/or contractor employees should reference section 3.04 Fall Protection from the DCOR Safety Manual prior to performing work from heights that require fall protection.

2. **Job Information:** Fill out the information accurately & legibly. Make sure to assess the job site and document any obstructions/ hazards. Obstructions would be anything that impedes or prevents passage or progress. Hazards would be anything that could potentially damage, harm or cause adverse health effects on something or someone. If there are no obstructions or hazards, then please write N/A.

3. **Emergency Contacts:** Emergency contacts will be listed as a rescuer in the case that something occurs while an employee is working from heights and requires rescue. At least one rescuer must be listed. The rescuer only needs specific training if a special piece of equipment is being used for the task. This training must be completed prior to starting the job. The rescuer may assist the employee working from heights during normal work but must be present until the work is completed in case rescue is needed.

4. **Rescue Equipment:** Only check what applies in the rescue equipment section that will be used for the job. If something other than what is listed is to be used, check the Other box and list what the equipment is.

5. **Rescue Equipment Location:** Check the box where the rescue equipment is located. Check the Other box if there is another location that is not listed, then list the location on the line provided.

6. **Pre-Job Checklist:** Prior to the job start, go through each question and check Yes or No. If No has been checked for any question then reassess until Yes can be checked with confidence. These questions are listed to help those working from heights to ensure the job will be done as safely as possible.

7. **Signatures:** Once this form has been completed it will need to be signed by the Job Supervisor & Lead Operator. The 2nd page of the signed form must remain at the job site until the work has been completed. The first copy must be scanned and sent over with other safety paperwork as usual.

Appendix A

Fall Prevention/ Rescue Plan

Reference Section 3.04 Fall Protection - DCOR Safety Manual

This form is to be filled out anytime fall protection is needed and before work commences

JOB INFORMATION

Facility: _____ Date: _____

Job Details: _____

_____

Obstructions/ Hazards: _____

_____

EMERGENCY CONTACTS

Rescuer: _____ Rescuer: _____

RESCUE EQUIPMENT

☐ Aerial Lift	☐ Rescue Rope	☐ Rescue Winch
☐ Ladder	☐ Rescue SRL's	☐ Rescue Watch
☐ Crane	☐ AED	☐ Scaffold
☐ Descent Device	☐ CPR Certified Person	☐ Other
☐ First Aid Kit	☐ Life Ring	

If Other, please describe: _____

RESCUE EQUIPMENT LOCATION

☐ Jobsite ☐ Gangbox ☐ Toolbox ☐ Other

If Other, please describe: _____

PRE-JOB CHECKLIST

If answered No, then stop and reassess

Yes	No	
☐	☐	Have alternatives to fall arrest equipment been considered?
☐	☐	Is rescue equipment regularly inspected and in good condition?
☐	☐	Is the available equipment appropriate for the rescue plan?
☐	☐	Are all communication devices identified, located, and tested?
☐	☐	Have all rescuers been trained in the use of the rescue equipment?
☐	☐	If working above water, does everyone have access to a life jacket?

Job Supervisor Signature: _____

Lead Operator Signature: _____

HEAVY EQUIPMENT

1. Never get under a backhoe bucket or reach through the lift arms when the bucket is raised.

2. Use care in attaching towing lines to the backhoe. Pulling from the tractors rear axle or any point above the tractors rear axle may cause an accident.

3. Standing under any suspended load is strictly prohibited.

4. Heavy equipment always has the right-of-way.

5. Anybody riding on a backhoe other than the operator is prohibited.

6. Locate utility lines and overhead power lines before starting to dig. Do not operate a backhoe within fifteen feet of overhead electrical lines.

7. Never attempt to lift loads in excess of the backhoe capacity.

8. When working near any piece of operated equipment such as a stinger truck, backhoe, crane, tractor, A-frame or pick-up truck, make sure the operator of the equipment is aware that you are in the vicinity of the work area. You should always try to make eye contact with an operator to be sure that they see you.

9. When working with or near heavy equipment, frequently check around yourself and make sure you are not between the equipment or load and a stationary object. If you see others in a potential "pinch point" warn them immediately.

10. Operate excavators and backhoes only on grades specified by the manufacturer.

11. Always wear a seatbelt when operating heavy equipment.

12. Keep a safe distance while a backhoe is operating or moving the stabilizers. Individuals should remain a minimum of 20 linear feet from the backhoe end of the tractor while it is operating, especially in trenches or other excavations where the ability to move quickly and freely is adversely affected. No one is allowed in a bell hole while a backhoe is excavating.

LADDERS

1. Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced, when the ladder is in position for use.

2. Ladder safe work practices must be followed. This includes not standing on the top two rungs of a step ladder, facing the ladder when ascending or descending, and instructing employees to not carry objects that could cause injury in the event of a fall.

3. Ladders shall not be loaded beyond the maximum intended load for which they were built, nor beyond the manufacturer's rated capacity.

4. Ladders shall be used only for the purpose for which they were designed. Never use a ladder in a horizontal position or as scaffolding, do not place ladders on top of boxes, barrels, crates, etc.

5. Ladders shall be inspected by a competent person for visible defects prior to each use, on a periodic basis and after any occurrence that could affect their safe use.

6. Portable and fixed ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty or defective components, shall either be immediately marked in a manner that readily identifies them as defective, or be tagged with "Do Not Use" or similar language, and shall be withdrawn from service until repaired.

7. The ladder side rails shall extend at least 3 feet (.9m) above the upper landing surface. When ladders are not able to be extended then the ladder shall be secured at its top to a rigid support that will not allow walking or movement of the ladder.

8. Ladders shall be used at an angle such that the horizontal distance from the top support to the foot of the ladder is approximately one-quarter (1/4) of the working length of the ladder. (The distance along the ladder between the foot and the top support.)

9. Ladders shall be placed on stable, level surface. Employees may not stand on top two rungs, or top of step ladders. Employees may not carry anything in hands that could cause injury in case of fall. Employees must face the ladder when ascending or descending.

10. Always face the ladder when climbing or descending.

11. No ladder shall be erected within 10 feet of a power line.

12. All ladders must be secured to prevent movement.

13. Extension ladders must have both top and bottom tied off before work is performed.

14. Metal ladders must never be used where there is an exposure to electrical hazards.

15. Ladder used in the presence of potential electrical hazards shall have non-conductive side rails.

16. All ladders shall be erected so at least three feet of the rails extend over the landing.

17. Ladders shall be of the proper size and design for which it is used.

18. Any ladder found in an unsafe condition shall be removed from service.

19. It is prohibited to place a ladder in front of doors opening toward the ladder except when the door is blocked open, locked or guarded.

20. It is prohibited to place ladders on boxes, barrels, or other unstable bases to obtain additional height.

21. Employees are prohibited from using ladders that are broken, missing steps, rungs, or cleats, broken side rails or other faulty equipment.

22. It is required that when portable rung or cleat type ladders are used the base is so placed that slipping will not occur, or it is lashed or otherwise held in place.

23. Employees are prohibited from using ladders as guys, braces, skids, gin poles, or for other than their intended purposes.

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LOADING AND HAULING

INTRODUCTION

The Company has developed a policy for loading and handling goods at all Company facilities and work locations. This policy does not cover all tasks associated with handling goods.

The following statements describe recognized industry and accepted Company practices.

GENERAL SAFETY PRECAUTIONS

1. Proper protective equipment (e.g., hard hart, safety shoes, impact resistant gloves, etc.) as required by local Company rules should be worn by all Company and carrier personnel when handling tubular goods.

2. All personnel not assisting in the operation shall stand clear of the operation at all times. Truck drivers and other visitors shall not get involved in operations other than their own.

3. All personnel shall adhere to applicable laws and regulations, as well as to any Company policies and procedures.

4. Forklift and crane operators shall be properly trained.

EQUIPMENT

1. **Chocks** - can be of two types:

   a) Chain Chocks are metal blocks held together by dual chains and adjusted by resetting the chain links in the chock. Chain chocks should use dual chains in good condition and the chain chock system should be sufficient size to meet load requirements.

   b) Loose Chocks are manufactured items and must be sized according to load requirements. The small version (+/-2 1/4" high at peak) may be used on pipe up to 12 3/8" O.D. The large version (3 1/2" high at peak) may be used on all sizes. Two nails of sufficient size and quality are required in the small version, three in the larger one.

2. **Forklifts and Cranes** should not be used in excess of their load rating and shall be maintained in good operating condition.

3. **Stripping** should be constructed of 4" x 4" or 2" x 4", preferable hardwood material and used on all loads. Stripping should be between the truck bed and load.

4. **Securing Equipment** such as chains, binders, slings, straps and other load securing equipment should be sized according to load requirements and be in good condition.

5. **Dock Stands or Stakes** should be used on all loads. A minimum of two vertical members per side are required. The dock stands or stakes should remain in place during loading and unloading.

   Dock Stands: Dock stands should be a minimum of 3½" O.D. tubing and should extend vertically 3½ feet.

   Flattened tubing should not be used for dock stands.

   Stakes: Stakes should be a minimum of 18" above the truck bed.

   Stakes should be snug fitting in the bed pocket and in good condition.

   Stakes should be constructed of 4" channel iron, 4" x 2" square heavy walled tubing or equivalent. Flattened round tubing should not be used.

6. **Truck** drivers are responsible for ensuring that the truck is road-worthy and complies with all applicable local, state and federal regulations.

LOADING AND UNLOADING PRECAUTIONS

1. All loads hauled on vehicles must be securely tied down with approved rope, straps, or chains.

2. Under no circumstances shall a load be hauled without proper tie downs.

3. Land-based loading/unloading operations should be conducted on level ground whenever practical.

4. The carrier is responsible for providing sufficient load securing equipment, e.g., chains, straps, binders, stakes, etc.

5. When loading a flat bed, place load as far forward as possible preferably against a stationary object such as a headache rack. When this is not feasible, place the load centered over the rear axle.

6. All loads should conform to local, state and federal load capacity regulations.

7. Proper guidelines for loading or unloading "pyramid" or "stripped" loads and proper chocking should be followed.

8. For pipe removed in bundles, the pipe should be bundled or slung and off-loaded in approximately equal loads.

9. The loading and unloading practices for onshore operations are applicable to offshore operations. The captain of the marine vessel has ultimate authority for positioning, spacing, safety and weight conditions on the vessel.

10. Drivers should check in with the person-in-charge immediately upon entering a facility or well location.

11. Before hauling a load, walk around the vehicle to assure all toolboxes are closed and the load is secure.

OFFICE SAFETY RULES

Many people have the misconception that office work is not hazardous and consider office injuries inconsequential. The listed precautions, along with each individual's safe behavior, can serve as a basis for an effective office safety program and the prevention of unsafe acts and conditions.

EXAMPLES OF OFFICE INCIDENTS

1. Falls from chairs
2. Slips, trips and falls on the same level or from elevations.
3. Lifting or moving heavy or bulky objects.
4. Repetitive or awkward movements (ergonomics).
5. Falling objects or encounters with fixed or moving objects.
6. Pinches, mashes or abrasions.
7. Eye strain or muscle aches.

PRECAUTIONS

1. Safety meetings should be held at regular intervals by office supervisors.
2. Office personnel going to field locations should be aware of the training and personal protective equipment that will be required for their visit. Ensure you bring the equipment with you or make arrangements for the field to furnish the equipment before you arrive.
3. Be familiar with the location of the fire alarm pull station nearest to your workstation.
4. Become familiar with emergency procedures and know the appropriate evacuation route for your workstation. Evacuation routes for each floor and building area are clearly marked. DCOR personnel are responsible for performing visitor orientation and making visitors familiar with evacuation routes.
5. During fire alarms, floor wardens *(Management or HSE representative)* should make last minute searches of their areas to ensure all personnel are evacuated. Help the Floor Wardens by clearing the area quickly and aid

them if they request assistance. If a Floor Warden requests you to leave an area, do so. Close the door on your way out.

6. During evacuations, do not use elevators. Use the stairwells, following the nearest exit signs and evacuation drawings. Remove high heels to avoid falling downstairs. Check closed doors for temperature and smoke before opening.

7. Properly position a chair before sitting down, and once seated, keep at least one foot and all chair legs on the floor at all times.

8. Keep all passageways, entryways, aisles, storerooms, service rooms and work areas clean, orderly, sanitary and well maintained, with no obstructions.

9. Aisles and hallways shall provide unobstructed movement and immediate access to emergency exits and to fire protection equipment.

10. Safely stack materials and boxes to avoid creating a hazard.

11. File drawers and desk drawers should not be left open. Do not overload top drawers so that files tip over. Secure file cabinets and bookcases as appropriate. Keep heavy files in lower drawers.

12. Do not open a file drawer if someone is working underneath.

13. Each workstation should be arranged to meet specific individual needs. Select the proper chair, adjust the chair height, organize the desk, position the video display terminal (VDT) screen, and position the keyboard to suit the individual.

14. When working at a VDT or PC for long hours, periodically change position, stand up, or stretch to relieve muscle tension and eye strain.

15. Lighting should be installed or positioned to minimize direct or reflected glare or harsh shadows and to counteract potential stress and eye fatigue in VDT users.

16. Use of extension cords should be minimized and arranged to avoid tripping hazards and electrical overload.

17. Do not pull an electrical cord to shut off power to any equipment.

18. Disconnect (unplug) the power source before trying to remove jammed materials from a machine.

19. Installation or repair of any electrical equipment shall be done by qualified workers using only approved materials.

20. Office machines with moving parts, high temperature hazards, and electrical shock potential shall not be operated without proper safeguards in place.

21. Keep flammable or combustible material and residue in a building or operating area to a minimum. Store them in metal safety cans or storage cabinets which meet Underwriter's Laboratories, Inc. or Factory Mutual approval.

22. Keep food, drink and excessive combustible materials away from electrical equipment, computers, workstations or PC's. Damage to circuitry or destructive fires may result.

23 Secure paper cutter blades in the down position when not in use.

24. Store Xacto knives, thumb tacks and other sharp objects in proper containers or with the blades and points covered or shielded. Secure sharp edges before disposing of these items.

25. Do not scoot across the floor while sitting in a chair and do not lean sideways from a chair to pick up an object.

26. Use only step stools or step ladders to reach materials stored above eye level. Rolling step stools and ladders should be equipped with brakes that operate automatically when weight is applied. Chairs are unacceptable to use as climbing devices.

27. When moving equipment, furniture, or boxes, use proper carts, dollies or trucks.

28. When carrying material from one floor to another, use the elevator whenever possible.

29. Use plywood to spread out the load when moving heavy loads across raised floors (computer floors).

30. Check for raised or unsecured floor titles to prevent tripping hazards.

31. When material must be carried, use proper lifting and carrying techniques:

    a. Keep feet apart, one along side and one behind the object to be lifted. Feet should be comfortably spread to give stability.

b. Keep back arched. An arched back means the spine, back muscles and body are in correct alignment.

c. Grip the object with your whole hand, both the palm and fingers.

d. Keep the elbows and arms tucked to side of body. This reduces fatigue in chest and arm muscles and is the position where the most power can be generated for lifting. This position also helps control the body's center of gravity.

e. Keep head high and chin tucked in.

f. Keep your body weight (center of gravity) directly over your feet. Start the lift with the thrust of the foot behind the object being lifted. Bring the load close to your body for the most efficient carrying position. Lift smoothly. Do not jerk up, back or rotate quickly.

g. To raise an object above shoulder height, first lift the waist height.

h. To change direction, turn the entire body, including the feet. DO NOT twist your body at the waist while lifting.

i. Do not carry an object that is to big to see over or around.

j. For objects that are too large or bulky to be carried by one person, use proper moving equipment or GET HELP.

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PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment (PPE) is among the most obvious forms of controlling incidents in the work place. Each person employed at the Company shall be made available the proper PPE for the task at hand, but it is the employee's responsibility to then follow proper maintenance and replacement procedures to ensure paramount protection during their course of employment. There are no excuses for not donning the proper PPE. When in doubt, an employee should consult a Supervisor, safety representative, or review the requirements listed on the safety data sheet.

PPE shall be provided, used and maintained in a sanitary and reliable condition. PPE hazard assessments shall be performed via appropriate Job Safety Analysis (JSA) and/or applicable safe work procedures. It is essential that each employee is properly fitted to the PPE selected. Defective or damaged PPE shall not be used.

EYE and FACE PROTECTION

1. ANSI Z87.1 approved safety glasses with side shields are required on all job sites by all personnel.

2. Full face shields in combination with ANSI approved safety glasses are required when engaging in any activity that includes hazards to the unprotected face and eyes from chipped or flying particles. Some examples are chipping, scraping, buffing, grinding, needle gunning, etc.

3. Contact lenses shall not be worn on job sites where there is a risk of liquid spray from hydrocarbons, chemicals, acid, caustics, or any liquid substances that can burn or be corrosive to the eye.

4. Splash proof goggles are required when handling hazardous chemical liquids, powders, or vapors. Goggles are also required when an individual is in the immediate vicinity of these chemicals.

5. Beards that constitute a hazard while a person is near moving machinery or rotating tools are not permitted.

6. Safety glasses meeting the ANSI Z87.1 standard are issued to employees whose job assignments indicate the need for this protection. Plain spectacle type safety glasses will be issued to those employees who do not require corrective lenses. Prescription safety glasses are available to employees through the Company’s prescription safety eyewear program.

HEAD PROTECTION

Hard hats meeting ANSI Z89.1 Type 1, Class E standards are approved and provided by Company and shall be worn by employees, contractors and visitors at all times while in operations areas. Hard hats should be clean and regularly inspected for visible cracks and defects.

1. Metal hardhats are not allowed under any circumstances.

2. Hardhats must be worn in the appropriate manner. Hardhats are not to be worn backwards.

3. Long hair enough to constitute a hazard while a person is working near moving machinery or rotating tools and equipment must be secured or tied back. Hair styles that make it impossible for a person to properly wear a hard hat are not permitted.

HEARING PROTECTION

1. Signs should be posted in areas of high noise levels (85 dba or higher). Employees required to work in these areas should wear ear plugs, ear muffs, or both. Working in an area of high noise levels can cause both temporary and permanent hearing loss. Hearing loss can occur with no physical pain or other obvious warning.

2. Unusual operating conditions can sometimes cause high noise levels. Wear hearing protection as the noise level warrants.

3. Appropriate hearing protection is provided by the Company and must be worn by all personnel in areas where signs are posted warning of excessive noise levels. Hearing protection must also be worn in areas that are not posted but suspected of temporary excessive noise.

4. Refer to the Hearing Conservation Program section for additional information regarding hearing protection.

HAND PROTECTION

Wear the following types of gloves to protect the hands:

1. Leather or leather-palmed impact resistant gloves when handling wire rope and/or rigging for the crane.

2. Approved impact resistant gloves shall be worn for all job tasks with the potential for hand pinch points and impact hazards. Soil resistant impact gloves are available for work with chemicals and crude oil. Exceptions may be granted by the person in charge for precision instrumentation work, administrative tasks and other similar situations where gloves may hinder work and/or become a safety hazard to personnel.

3. Appropriate gloves for handling acids, caustic soda, and soda ash.

4. Approved rubber gloves for electrical work. Inspect the gloves before each job. Use the air test to check the gloves. Inspect the glove "protector" before each use for worn spots, holes or tears. Do not use defective gloves. Complete a comprehensive voltage-leakage test on the gloves every 6 months.

5. Insulated or heat-resistant gloves when handling steam hoses or when performing other duties in which regular work gloves do not afford burn protection.

6. Appropriate gloves when working in cryogenic operations (LPG, nitrogen, CO_2, cryogenic).

7. Hydrocarbon-resistant rubber gloves to protect the hands when using Kerosene, Varsol or other solvents as a cleaning agent.

FOOT PROTECTION

Wear safety shoes suitable for working conditions on the job.

1. Shall be safety toe with a 6” to 8” ankle support.

2. Shall have a defined heel.

3. Soles shall be slip, chemical and oil resistant.

4. A puncture resistant foot bed is recommended

5. Electrical workers should use safety footwear approved for electrical use.

6. Tennis shoe style work shoe are unacceptable.

7. Flat soles are unacceptable.

Approved boots meeting the ASTM F 2413-05 standard shall be required by the Company, and must be worn by field employees, and contractors while working in operation areas. On rare occasions an exception to the foot protection policy may be granted to infrequent visitors that do not enter a work area where foot hazards exist.

BODY PROTECTION

1. The wearing of jewelry such as rings, watchbands or neck chains on the job is discouraged because it can contribute to accidents and injuries.

2. Loose clothing is prohibited. This includes neck ties, oversized jackets, and baggy clothes.

3. In the event an employee's clothing becomes saturated with oil, gasoline, or other chemicals, the employee should immediately wash the exposed skin area with soap and water and change clothes to prevent skin irritation and risk of combustion.

4. Shirts with sleeves and long pants are required. Cotton or FR clothing is preferred.

5. Casual visitors are required to dress appropriately for local conditions.

6. Wear U.S. Coast Guard approved life jackets in offshore and over the water operations.

PPE HAZARD ASSESSMENT

Tasks, Job Classification or Workstation	Potential Hazard	Type of PPE Required
Arc Welding or Cutting	Electric shock, metal sparks, molten and hot metal, UV, IR, arc visible light, falling, dropping, rolling and sharp objects.	Insulated/heat and puncture resistant gloves, safety toed boots, hard hat, safety glasses, welding shield or helmet with appropriate eye shade.
General Mechanical	Flying particles, falling, falling objects, cuts/puncture, pinch points, lifting/carrying, noise	Safety glasses, safety toed boots, hard hat, cut/puncture/impact resistant gloves, fall protection when working at elevations. Appropriate respirator. When using high speed power tools, a face shield.
Metal Grinding	Flying particles, falling, falling objects, cuts/punctures, lifting/carrying	Safety glasses, safety toed boots, hard hat, cut/puncture/impact resistant gloves, fall protection when working at elevations. When using high speed power tools, a face shield.
General Maintenance Work	Rough surfaced materials, pinch points, lifting/carrying	Impact resistant gloves, safety glasses, safety toed boots.
Welder Helper	Flying particles, falling, falling objects, cuts/puncture, lifting/carrying, noise	Safety glasses, safety toed boots, hard hat, cut/puncture/impact resistant gloves, fall protection when working at elevations. When using high speed power tools, a face shield.
Painting Work	Flying particles, falling, falling objects, cuts/puncture, respiratory hazards, lifting/carrying, cleaning solvents	Safety glasses, safety toed boots, hard hat, soil/cut/puncture/impact resistant gloves, fall protection when working at elevations. Appropriate respirator. When using high speed power tools, a face shield.
Working with chemicals (corrosives, solvents, toxics, etc.)	Refer to chemical specific SDS for health and physical hazards.	Safety glasses, goggles for splash hazard soil/impact resistant gloves Lab coat, closed shoe, pants Use PPE for applicable tasks as identified on the specific SDS.
Working with small volumes of human blood, body fluids or other potentially infectious materials (OPIM) as defined in the Blood Borne Pathogen Exposure Control Plan	Potentially infected with infectious disease (BBP) Potential spread of infectious disease	Safety glasses, disposable nitrile gloves, closed shoe, pants.
Rigging for Crane	Falling objects, overhead hazards, flying debris/objects, pinch points, slip, trips and falls	Safety glasses, hard hat, leather impact resistant gloves, safety toed boots

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DCOR RIGGING POLICY / SLING INSPECTION

INTRODUCTION

This policy is intended to standardize sling inspection and rigging procedures company wide, and to help all personnel working at DCOR facilities to safely manage the hazards and complexities of offshore (and onshore) rigging operations.

SLING, RIGGING AND CARGO EQUIPMENT INSPECTION FREQUENCY

1. All slings, rigging and cargo equipment will be visually checked prior to use by a qualified operator (A.P.I rigger certified). This pre-load inspection check list (pg 6) must be completed and signed off by Supervisor, Crane Operator and Rigger.

2. A monthly, documented inspection shall be done on all facility slings. (pg 5)

3. A post-use inspection must be done anytime a sling and/or rigging component is subjected to harsh use such as **shockloading** or **overloading.**

INSPECTION PROCEDURES

1. Each facility shall have a documented inventory of all slings assigned to that facility.

2. Each individual sling (or sling set where applicable) will be identified with a tag or a unique cert number/facility specific I.D tag that correlates with the inventory list.

3. Each facility sling (or sling set where applicable) will be inspected each month. This will involve close inspection of all sling components. A sling inspection checklist shall be used to document the inspection. See page six of this section for the **Monthly Inspection Checklist.** Also, refer to the Certex **Rigging Inspection Guide** included in the back of this section.

4. Damaged slings must be taken out of service immediately and rendered unusable (cut damaged leg(s) of multi-leg bridles). Nylon or synthetic slings are to be cut and thrown away. Slings without readable load rating tags are to be taken out of service and red flagged, not to be used until recertified.

5. All slings removed from service must be promptly sent in to be repaired or replaced by a certified wire rope service company.

6. All non-useable and non-repairable slings shall be destroyed to avoid inadvertent use. Tag numbers associated with these destroyed slings shall be retired.

7. All lifting containers shall be visually inspected and documented on inspection check list prior to each use. Containers that are damaged, have cracked welds, bent pad eyes, etc., must not be used and taken out of service (red flagged and sent to the beach for repair in most cases).

8. Immediately discard / destroy all defective lifting equipment.

9. Slings used to pre-rig items going offshore will be inspected by DCOR Shorebase or SCSS personnel prior to being loaded on the boat. This is a ‘’monthly’’ type documented inspection that includes contractor rigging.

PROPER RIGGING PROCEDURES

1. All rigging used must be rated to lift 1.5 times the weight of the load. For example, to lift a load weighing 10,000 lbs. the rigging used must be rated to lift 15,000 lbs.

2. All lifting containers (baskets, bins, etc.) must be labeled indicating the MGW (maximum gross weight) for which the container is rated.

3. Rated pad eyes must always be used at all lifting points.

4. Inspect all rigging equipment before each use.

5. Know the safe lifting capacity of hoist, rigging and containers; Do not overload them.

6. Items such as drums, plate steel, etc. should be put into a basket or other approved cargo carrying apparatus.

7. Sling angles should not be less than 60 degrees, as this greatly reduces lifting capacity.

8. All slings must have legible load rating tags, if not, do not use.

9. All shackles and hooks must have legible load ratings, if not, do not use.

10. All shackles shall be Crosby forged shackles. Foreign shackles are unacceptable.

11. Use stingers or multi-leg bridles on main lines and whip lines to prevent the block or headache ball from swinging into the rigger(s).

12. Care must be taken not to damage slings when they are used in the choke or basket configuration.

13. Only **''locking type''** pallet bars are to be used to lift palletized loads. Approved pallet carriers are to be used for palletized loads being lifted to and from the boat. Non-locking pallet bars are not to be used offshore.

14. ''Super sacks'' shall not be lifted using the straps woven into the sack. They must be put into a basket or similar approved lifting apparatus.

15. Wing pallets (used to lift palletized material) must be visually inspected prior to use. As these are made of wood, which can become cracked or rotten, wing pallets require extra attention to be inspected properly.

16. Only certified slings and rigging shall be used.

17. Flat nylon slings (eg: lift-it slings) are unacceptable without the authorization of the crane supervisor or safety department.

18. Wire rope rigging is the preferred sling application.

19. Do no tie knots in rigging (to shorten or for any other reason).

20. Do not place bolts or other material between links of chain to shorten or splice.

21. Modify lifting equipment only after engineering approval, and do so strictly as designed.

22. Slings and other rigging shall be stored per manufacturers recommendation (typically a dry place out of the elements).

23. Wire rope slings shall be properly maintained (lubricated as needed with wire rope lube).

24. Sling certifications must be kept in a readily accessible file at the facility to which the slings are assigned.

25. Do not use rope for rigging or lifting loads except where it is impractical to use other methods.

26. Tag lines shall be utilized on all loads unless circumstances make it less safe to do so. Taglines must be long enough to be used a safe distance from the load. Multiple tag lines may be required for larger loads.

LIFTING METAL PLATES

1. For static lifts, only continuous round slings with nylon protectors shall be used to move metal plates.

2. For dynamic lifts, one of the following two options must be utilized: (a) shackles attached to holes in the plates or (b) transport bins.

3. Only one plate shall be moved at a time.

4. Keep plates as low to the deck as possible.

CONTRACTOR EQUIPMENT & RIGGING

1. All containers, skids, baskets, etc. must be pre-rigged with the appropriate rigging prior to boat delivery.

2. Equipment to go offshore must be packaged / configured in such a way as to minimize hazards such as loose or unsecured parts, protruding pieces (valve handles, etc.), as well as caps and plugs where needed to prevent leaks/spills.

3. Contractors working at DCOR facilities must comply with DCOR's Rigging Policy.

MONTHLY SLING INSPECTION CHECK LIST

FACILITY NAME	SLING I.D. #	SLING TYPE & SIZE	DATE	INSPECTORS INITIAL	SLING CONDITION	COMMENTS

Pre-load Cargo Inspection Checklist

Date: _____

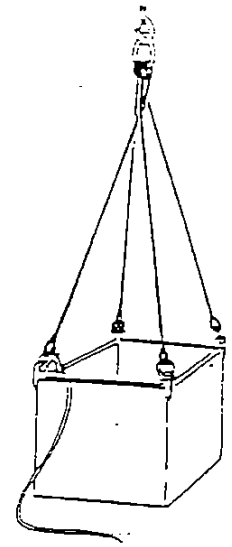
Platform or Facility Name: _____

- □ Perform pre-use inspection on all rigging per DCOR rigging policy and API RP 2D.
- □ Inspect all shackles for damage and verify all shackle pins are secure with hitch pins or tie wraps.
- □ Ensure all doors, lids, hatches, etc. are secure. This includes food bin door handles and roll-off bin lid latches.
- □ Ensure cargo in container bins do not exceed gross weight of cargo bin.
- □ Verify rigging is rated for a minimum of 1.5 times the load weight.
- □ Verify rigging has a proper tag that has been attached by the manufacturer.
- □ Ensure that loose or irregular shaped items are put into baskets or bins. This may include plate steel, super sacks, life rafts and any other items that cannot be safely rigged and loaded onto the boat without the use of a bin or basket.
- □ Ensure that all palletized material is loaded on wing pallets or pallet carrier. Non-wing pallets are <u>not</u> to be rigged in any way.
- □ Ensure that loads are free of debris. This includes sand, scale, mud, etc.
- □ Ensure that loads have no loose items such as hand tools, nuts and bolts, pieces of steel, etc., that may fall off the load during crane operations.
- □ Verify that all loads (going to the boat or otherwise) have tag line(s) attached.
- □ Ensure that all ends of bundling chains are zip tied to the main body of the chain.

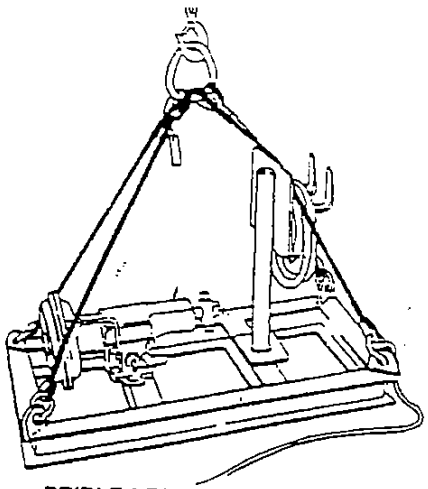
_____ _____

(Signature API Certified Rigger) (Date)

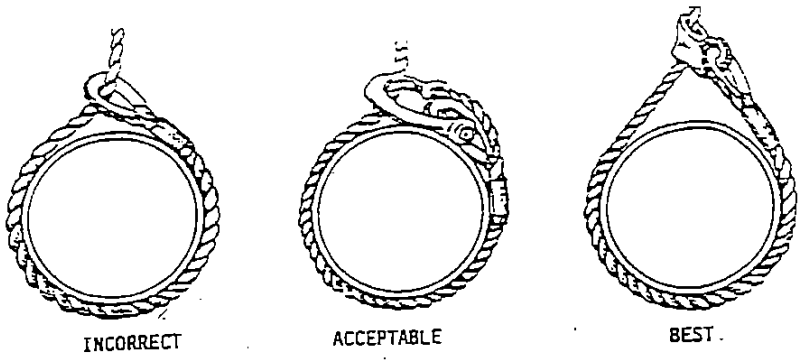
By signing this document you declare after close inspection and reasonable inquiry that this load conforms to the rigging policy set forth in the DCOR, LLC Safety Manual.

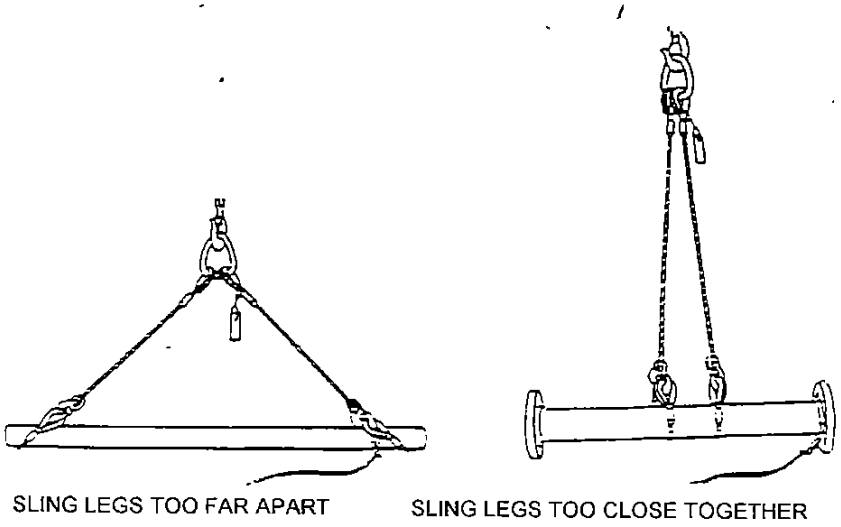


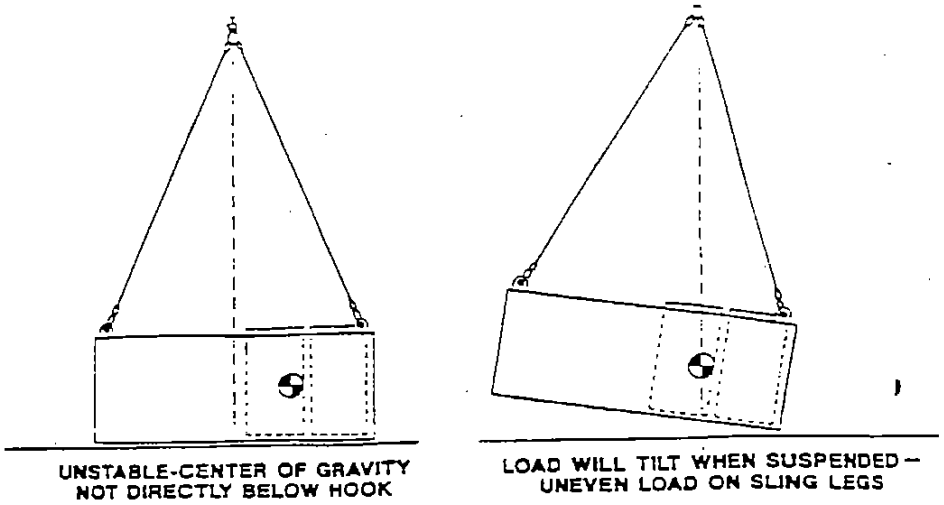
SLING LEGS SHOULD NOT BE CROSSED



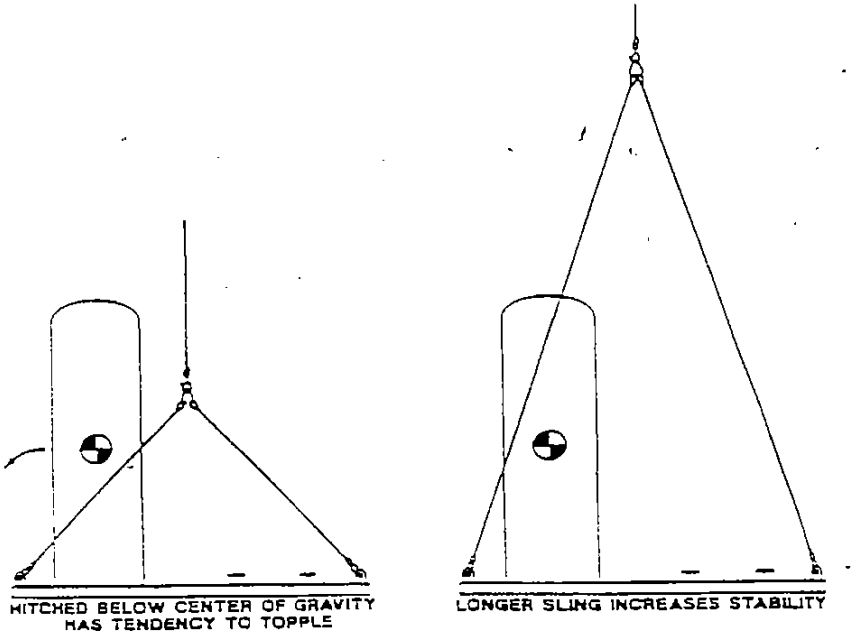
BRIDLE LEGS SHOULD NOT BE BENT BY CONTACT WITH LOAD


INCORRECT
ACCEPTABLE
BEST

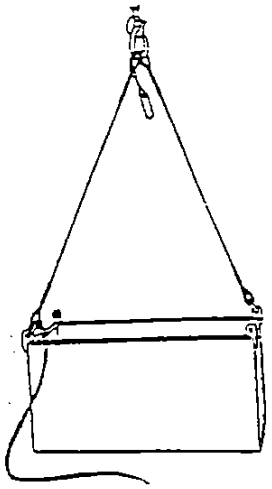

SLING LEGS TOO FAR APART
SLING LEGS TOO CLOSE TOGETHER



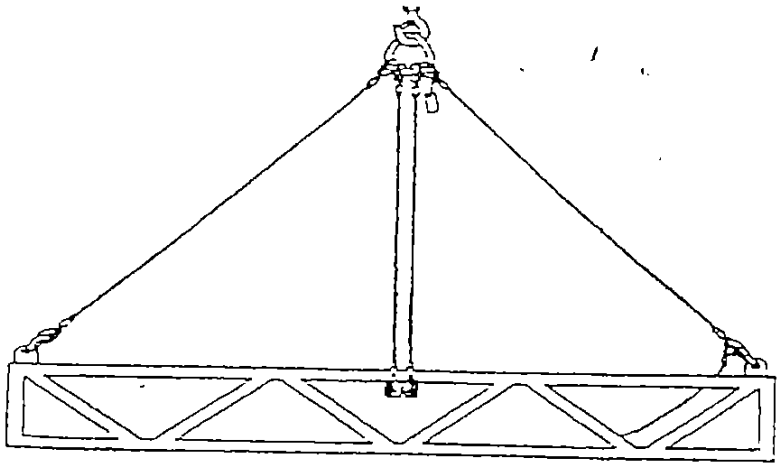
UNBALANCED CARGO BASKET



UNBALANCED SKID UNIT



THIS LIFT REQUIRES A FOUR PART BRIDLE



IMPROPER USE OF FOUR PART BRIDLE
This Lift Requires a Two Part Bridle

$ 6.95

CERTEX

RIGGING INSPECTION GUIDE



This document is intended as a layman's guide to the subject of sling and rigging hardware inspection. Thorough training should include both knowledge and skill enhancement in the appropriate regulations and standards, combined with a hands-on session.

Inspector Action Steps

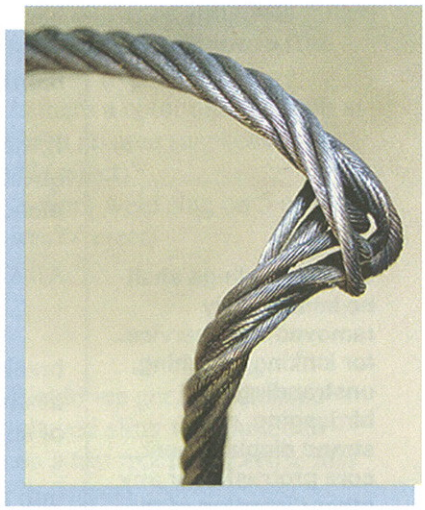
Accept - The inspector has determined that the physical condition of a piece of rigging equipment does not meet any imposed or implied criteria for removal or rejection from service.

Evaluate - The inspector should pursue and confirm information about the piece of rigging equipment to insure its proper fabrication and suitability for its working environment.

Remove - The inspector recognizes damage or irregularity in a piece of rigging equipment. It should be immediately withdrawn from service. The inspector may ask the original manufacturer or fabricator to evaluate the item, to determine if it is repairable or if it should be destroyed beyond use.

Reject - The piece of rigging equipment has been visibly damaged or improperly fabricated, leaving no question that the item should be destroyed beyond use.

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Wire Rope Slings

Inspection Tips and Removal Criteria

CERTEX
Lifting Products and Services

OSHA/ASME/ANSI

Wire rope slings shall be immediately removed from service.. for kinking, crushing, unstranding, birdcaging, main strand displacement, core protrusion or any other distortion of the wire rope structure.

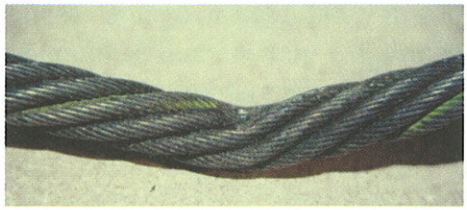
Tough Questions and Real Answers

Wire rope slings come in all shapes, sizes, types and lengths. From an inspection standpoint, we should always be concerned with the question: "Is there a significant loss of strength due to the damage I see in this sling?"

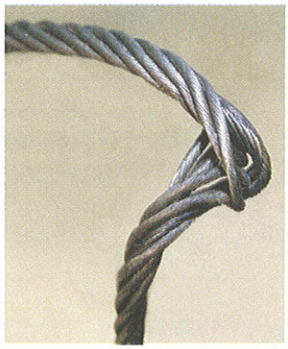
If the answer to any of the following questions is 'Yes', then act on the recommendation to evaluate, remove or reject.

A] Kinks, Crushing and Distortion

1. Would we get a low tensile break if the kinked sling was pulled to destruction on a test machine [>10% loss of strength] ? (reject)
2. Are the outside strands pushed into the core area, much like a folded piece of cardboard? (reject)



3. Is there a gentle curl to the rope body, which under load will generally disappear? (evaluate)
4. Are any wires and strands bent out of alignment? (evaluate)
5. Are the strands on the outside of the kink long and straight, completely out of alignment with the rope body's centerline? (reject)



OSHA/ASME/ANSI

Tough Questions and Real Answers

Wire rope slings shall be immediately removed from service.. if there is evidence of heat damage.

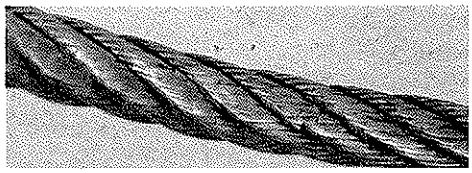
B] Weld or Heat Damage

1. Would we get a low tensile break if the heat damaged sling was pulled to destruction on a test machine [>10% loss of strength] ? (reject)
2. Is there a color change such as blue or brown in an area suspected of being heated? (reject)
3. Is there weld slag on 5 or more clustered wires? (reject)

Wire rope slings shall be immediately removed from service.. if there is wear or scraping of one-third of the original diameter of outside individual wires.

C] Abrasion

1. Would we get a low tensile break if the shaved sling was pulled to destruction on a test machine [>10% loss of strength] ? (reject)
2. Are the tops of the wires [crown wires] shaved to the point where you can't easily place a knife blade between two adjacent wires? (reject)



3. Is there a localized area which displays metal loss? (evaluate)
4. Is this shaved condition present all around the rope body? (reject)

Wire rope slings shall be immediately removed from service.. if there is evidence of corrosion of the rope or end attachements.

D] Corrosion

1. Would we get a low tensile break if the corroded sling was pulled to destruction on a test machine [>10% loss of strength] ? (reject)
2. Do metal flakes shake out of the sling when tapped on a hard surface? (reject)



3. Does the surface of the individual wires appear to have a dimpled or pitted appearance? (reject)

4. Can you quickly get to bare shiny steel by gently rubbing the wire surface? (accept)

5. Is the sling body unusually stiff and holds it's position when bent by hand? (reject)

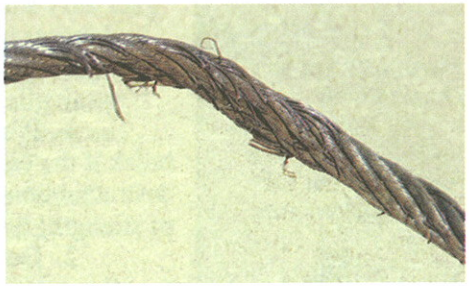
Wire rope slings shall be immediately removed from service.. if there are 10 randomly distributed broken wires in one rope lay, or 5 broken wires in one strand in one rope lay.

E] Broken Wires

1. If the sling is a single part body, are there any broken wires present? (evaluate)

2. Are there 10 or more broken wires in one length of lay? (reject)

3. Are there 5 or more broken wires in one strand in one length of lay? (reject)

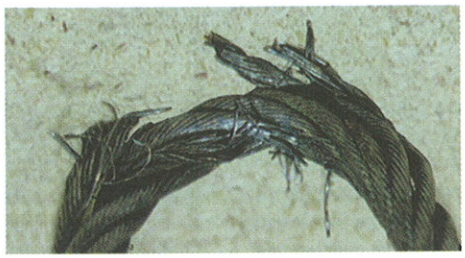


4. Do any broken wires present an immediate hazard to employees due to hand or body punctures? (reject)

5. Are there any broken wires on the inside of a distortion? (reject)

6. Are there any broken wires at an area subjected to weld slag? (reject)

7. Is there severe scrubbing or metal loss on wires adjacent to one or two wires which are broken? (evaluate)



8. Are there any broken wires within a lay length of an end fitting? (reject)

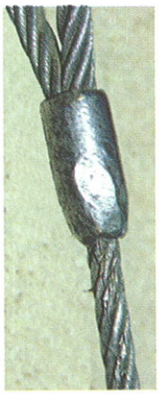
9. Are any of the broken wires in the core of the sling? (reject)

Wire rope slings shall be immediately removed from service.. if any end attachments are cracked, deformed or worn. If hooks have been spread more than 15% or twisted more than 10º.

F] Damaged End Attachments

1. Is a sling hook spread or twisted, cracked, display heat damage or severe metal loss? (reject)

2. Are there indications of heat damage, severe grinding, yielding or bending of the swage sleeves, poured or swage sockets? (reject)



Wire Rope Slings

OSHA/ASME/ANSI

Wire rope slings shall have a minimum clear length of 10 rope diameters between splices, sleeves or fittings [eye & eye], 40 rope diameters between loops or end fittings for braided slings, or a minimum circumferential length of 96 rope diameters for an endless or grommet type sling.

Tough Questions and Real Answers

3. Does there appear to be any slippage or movement of the wire rope in the splice or socket area? (remove from service immediately and evaluate)

4. Is a wire rope thimble collapsed or deformed enough to cause damage to the wire rope sling? (reject)

G] Fabrication

1. Are there sufficient rope diameters between splices? (evaluate)



2. Have any additional fittings been swaged to the rope body which raise concern about rated capacity or tensile strength? (evaluate)

3. Is the wire rope out of alignment with attached sleeves or sockets which would create imbalanced loading of the wires and strands? (reject)

4. Have the proper end attachments been applied to the wire rope sling based on rated capacity? (evaluate)

5. Is there a rated capacity tag on multiple leg sling assemblies? (evaluate)



Synthetic Roundslings

Inspection Tips and Removal Criteria

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Tough Questions and Real Answers

Synthetic roundslings come in a variety of types, sizes and lengths. From an inspection standpoint, we should always be concerned with the question: "Is there a significant loss of strength due to the damage I see in this sling?"

If the answer to any of the following questions is 'Yes', then act on the recommendation to evaluate, remove or reject.

A synthetic roundsling shall be removed from service.. if there is no legible identification stating code or stock number, rated loads for types of hitch, manufacturer, core material and cover material if different from core. Temporary repairs shall not be permitted. Repairs to protective covers shall be done by a roundsling mfgr. or qualified person. No repairs of load bearing yarns or fittings are permitted.

A] Marking and Fabrication

1. Are the sling's identification for rated capacities, material type or manufacturer's information illegible? (reject)



2. Has the sling been field repaired? (remove)
3. Do any permenantly attached fittings appear to have been field straightened, re-welded or repaired? (remove)

A synthetic roundsling shall be removed from service.. due to broken or worn stitches which exposes the core yarns.

B] Stitching Damage

1. Is stitching in the cover separating, exposing the core yarns? (remove)
2. Has stitching in the cover been visibly cut or completely abraded? (remove)

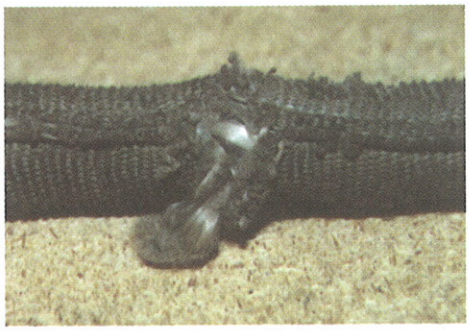
OSHA/ASME/ANSI

A synthetic roundsling shall be removed from service.. due to holes, tears, cuts, abrasive wear or snags that expose the core yarns. Also remove for other conditions including visible damage that cause doubt as to the continued use of the roundsling.

Tough Questions and Real Answers

C] Cuts, Punctures and Abrasion

1. Are the core yarns visible due to a damaged cover? (remove)

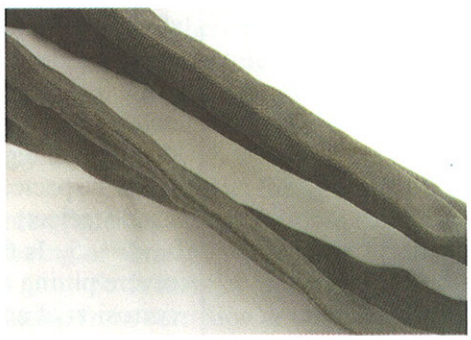


2. Are there small hard locations inside the sling which feel like hand-tied knots? (evaluate)

3. Are there any sections of the core yarns which feel like they have been wrapped with masking or packaging tape? (evaluate)

4. Does the sling body feel superdense or bunched up in one or two areas? (remove)

5. Does the sling body cross-



sectional area feel greatly reduced in a given length? (remove)

6. Is there a knot in the sling body which cannot be removed or has caused permanent distortion? (reject)



7. Are there metal filings or other sharp foreign materials impacted in the sling's cover? (remove)

D] Chemical Damage

The synthetic roundsling manufacturer shall be consulted before roundslings are used in a chemically active environment.

1. Does the sling smell of an odor similar to an acid or caustic? (remove)
2. Does the sling appear to have a localized or overall coating of unknown origin? (evaluate)
3. Is there localized or overall discoloration of the sling? (remove)
4. Is the cover easily shredded or disintegrate when inspected by hand? (reject)
5. Is there severe pitting or corrosion of any end fittings attached to the sling? (reject)



6. Can it be confirmed that the sling has contacted known detrimental acids or caustics? (reject)

OSHA/ASME/ANSI

A synthetic roundsling shall be removed from service.. due to melting or charring of any part of the sling or attached fittings.

A synthetic roundsling shall be removed from service.. when fittings are damaged, stretched, cracked, worn, pitted or distorted in any way.

Tough Questions and Real Answers

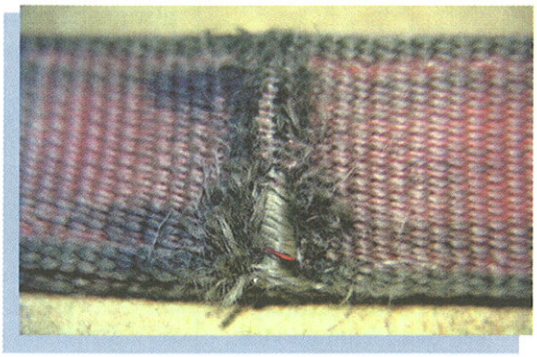
E] Heat Damage

1. Is the cover stiff? (evaluate)
2. Does the cover visibly and audibly crack when the sling is bent? (reject)
3. Does any portion of the sling feel super hard and have a plastic like finish on the cover? (reject)
4. Is there weld splatter on the sling body? (reject)
5. Is any portion of the sling body surface melted or does it display plastic puddles or bubbles? (reject)



F] Fittings Damage

1. Do any fittings display yielding, collapsing, bending or twisting? (reject)
2. Are there any fittings which show cracks or fractures? (reject)
3. Do any fittings have more than 10% material loss from abrasion or wear? (reject)
4. Due to the fitting's manufactured finish or field condition, can it cause cutting or abrasion to the sling ? (remove)
5. Is there evidence of severe pitting from corrosion or chemicals on a fitting? (reject)
6. Does the fitting display discoloration or material movement due to high heat? (reject)
7. Is there any weld splatter on the fitting's surface? (reject)



Synthetic Web Slings

Inspection Tips and Removal Criteria

OSHA/ASME/ANSI

Tough Questions and Real Answers

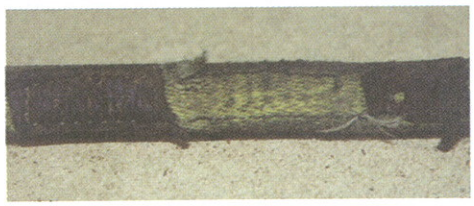
Synthetic web slings come in a variety of types, plys, widths and lengths. From an inspection standpoint, we should always be concerned with the question: "Is there a significant loss of strength due to the damage I see in this sling?"

If the answer to any of the following questions is 'Yes', then act on the recommendation to evaluate, remove or reject.

Synthetic web slings shall be immediately removed from service.. if there is visible damage that causes doubt as to the strength of the sling, or if there is a missing or illegible sling identification.

A] Marking and Fabrication

1. Are the sling's identification for rated capacity(s), material type or manufacturer's code illegible? (reject)

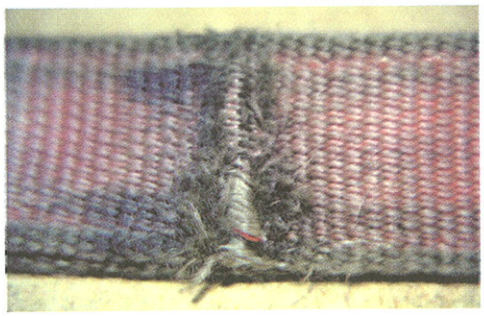


2. Has the sling been field repaired? (reject)

Synthetic web slings shall be immediately removed from service.. due to snags, punctures, tears or cuts.

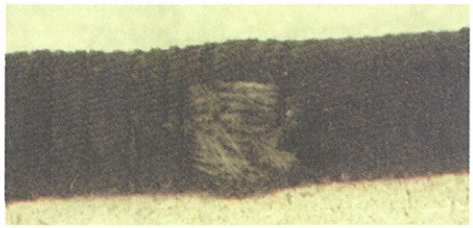
B] Cuts, Punctures, Crushing and Abrasion

1. Has 10% or more of the sling's cross-sectional area been directly affected by cutting, pinching or material loss by abrasion? (reject)

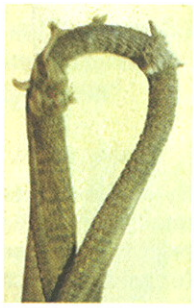


Tough Questions and Real Answers

2. Are there any depressions, soft or hollow spots in the webbing material with visible disturbance of the surface fibers? (reject)



3. Has less than 10% of the sling's cross-sectional area been directly affected by cutting, pinching or material loss by abrasion? (evaluate)





4. Are the outer fibers in a localized area super elongated, yet no evidence of cutting? (reject)

5. Do the surface or edges of the sling appear to be "peeled", with a fluffy or cottony finish? (reject)

6. Does a surface disturbance appear to pass all the way through a ply or layer of webbing? (reject)

7. Has a knot caused permanent distortion in the sling body? (reject)



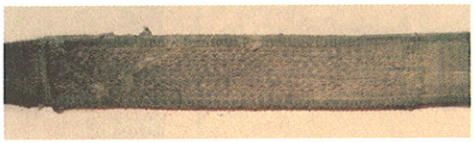
OSHA/ASME/ANSI

Tough Questions and Real Answers

Synthetic web slings shall be immediately removed from service.. due to broken or worn stitches.

C] Splice Damage

1. Is there any abrasion, chemical, cutting, heat or ultraviolet ray damage to the threads which form the splice? (reject)



2. Are there any broken threads inside the throat of a splice? (reject)

3. Are there any broken or worn threads along the sling body, but not in the splice area? (evaluate)

Synthetic web slings shall be immediately removed from service.. for acid or caustic burns.

D] Chemical Damage

1. Is the webbing stiff, discolored and does it smell of chemicals? (remove)

2. Is there localized or overall discoloration of the sling? (remove)

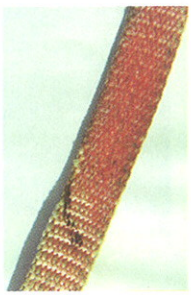


3. Does the sling appear to have a localized or overall coating of unknown origin? (evaluate)

4. Do synthetic fibers fall off the sling surface when rubbed with a fingernail? (reject)

5. Is there severe pitting or corrosion of any end fittings attached to the sling? (reject)

6. Can it be confirmed that the sling has contacted known detrimental acids or caustics? (reject)



OSHA/ASME/ANSI

Tough Questions and Real Answers

Consult the mfgr. if a sling has had extensive exposure to sunlight or ultraviolet light.

E] Ultraviolet Ray Damage

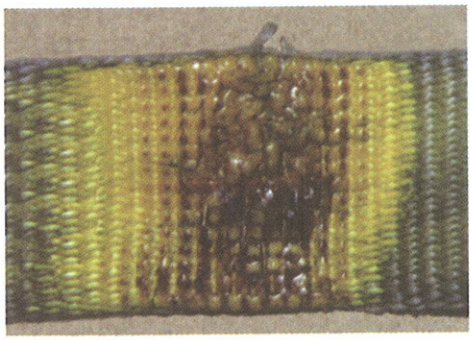
1. Has the sling's outer surface been bleached from a color to white? (reject)
2. Do synthetic fibers of a white colored sling fall off the surface when rubbed with a fingernail? (reject)
3. Is the webbing stiff and are the fibers brittle in a white sling? (remove)

Synthetic web slings shall be immediately removed from service.. due to melting or charring of any part of the sling surface.

F] Heat Damage

1. Is the webbing stiff? (evaluate)
2. Does the webbing surface visibly crack when the sling is bent? (reject)
3. Does any portion of the sling feel super hard and have a plastic like finish on the surface? (reject)
4. Is there weld splatter on the sling body? (reject)
5. Is any portion of the sling body surface melted or does it display plastic puddles or bubbles? (reject)





Synthetic Web Slings

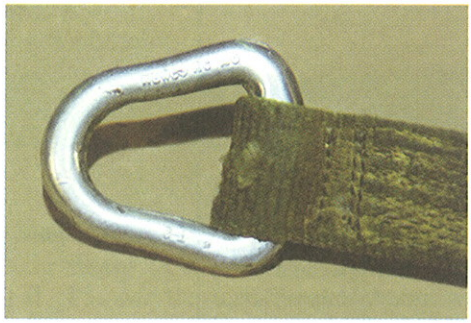
OSHA/ASME/ANSI

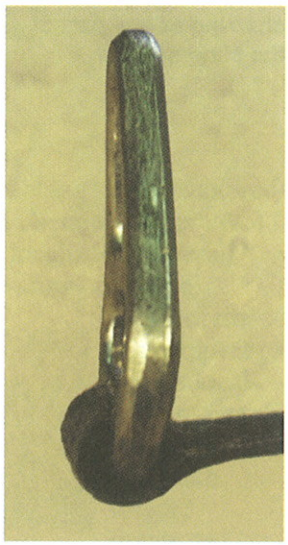
Synthetic web slings shall be immediately removed from service.. due to excessive pitting, corrosion, cracked or distorted fittings.

Tough Questions and Real Answers

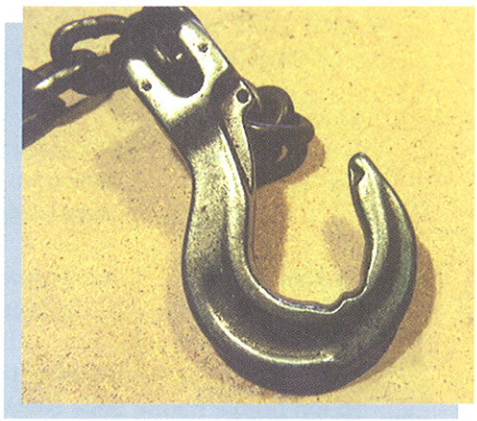
G] Fittings Damage

1. Do any fittings display yeilding, collapsing, bending or twisting? (reject)





2. Are there any fittings which show cracks or fractures? (reject)
3. Do any fittings have more than 10% material loss from abrasion or wear? (reject)
4. Due to the fitting's manufactured finish or field condition, can it cause cutting or abrasion to the sling ? (remove)
5. Is there evidence of severe pitting from corrosion or chemicals on a fitting? (reject)
6. Does the fitting display discoloration or material movement due to high heat? (reject)
7. Is there any weld splatter on the fitting's surface? (reject)



Alloy Chain Slings

Inspection Tips and Removal Criteria

Tough Questions and Real Answers

Alloy chain slings come in a variety of types, sizes and lengths. From an inspection standpoint, we should always be concerned with the question: "Is there a significant loss of strength due to the damage I see in this sling?"

If the answer to any of the following questions is 'Yes', then act on the recommendation to evaluate, remove or reject.

An alloy chain sling shall be immediately removed from service.. if there is no legible identification stating size, grade, rated capacity, manufacturer, number of legs and reach.

A] Missing or Illegible Identification

1. Is there a difference in the number of legs as stated on the identification (tag) and what actually exists? (remove)



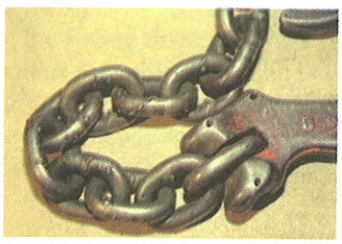
2. Does the rated load expressed on the identification sensibly match the general sling's overall design? (evaluate)

3. Is the sling shorter than the identification's stated reach? (reject)

Alloy chain slings shall be inspected for.. weld splatter or discoloration from excessive temperature.

B] Heat Damage

1. Is there weld splatter evident on the surface of the links or components? (remove)



Alloy chain slings shall be immediately removed from service.. if makeshift links or fastners formed from bolts or rods, or other such attachments are used. Broken lengths of chain shall not be repaired. Links or attachments which are cracked, broken or bent shall not be repaired; they shall be replaced.



2. Is there dark, brittle, carbon-like material flaking off the chain links or attachments? (remove)

3. Is there an unusual blue or brown hue to the links or components? (remove)

C] Makeshift Links or Fasteners

1. Are there any nonrated components in the sling which would not be regarded acceptable by the original manufacturer or fabricator? (remove)



2. Do any legs have low carbon components, which do not appear to match the sling's rated capacity? (remove)



3. Are there any attachments which do not appear to be an original component, as documented by the sling's identification or serial number and file? (remove)



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Tough Questions and Real Answers

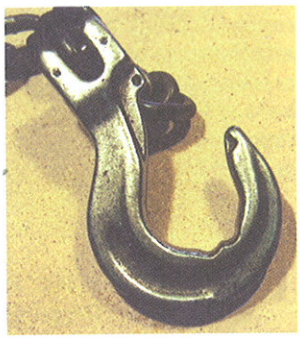
Alloy chain slings shall be inspected for.. severe pitting or corrosion of the chain and fittings when subjected to strongly oxidizing environments.

D] Corrosion Damage

1. Does the corroded steel surface of the links or components have a golf ball dimple texture or moon crater appearance? (reject)
2. Do metallic particles fall off the sling by gently tapping it on a hard surface? (reject)
3. Is clean bright steel visible after rubbing a rusty link's surface with a rag? (evaluate)
4. After scrubbing a corroded link vigorously with a rag, is there still a covering of rust? (reject)

Alloy chain slings shall be inspected for.. wear of chain links and attachments, nicks, cracks, breaks, gouges, stretch, bends and throat openings of hooks. Chain links and attachments should hinge freely.

E] Structural Damage



1. Has any attachment or any chain link experienced more than 10% loss of cross sectional area of steel? (remove)

2. Will the appropriate chain manufacturer's go/no-go gauge slide over any chain link for the correct size of chain? (remove)

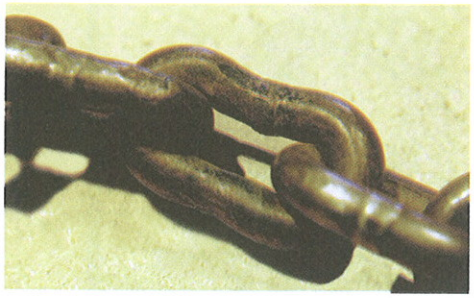


3. Has the sling truly elongated or stretched according to the reach stated on the sling's identification? (reject)

Alloy Chain Slings

Tough Questions and Real Answers

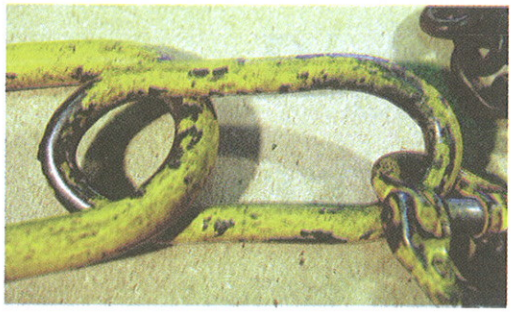
4. Do any sling components appear to be collapsing or display permanent deformation? (reject)



5. Does the sling appear to be elongated, yet contains inner-link wear? (evaluate)

6. Are there any cracks or breaks in any component of the sling? (remove)

7. Are there any twisted or bent sling components? (remove)



8. Have two contacting components rubbed together, forming gouges which restrict easy movement or hinging? (remove)

9. Are any spring roll pins or keepers missing, which retain load bearing components? (remove)





Rigging Hardware

Inspection Tips and Removal Criteria

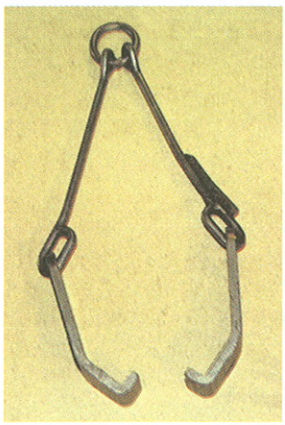
Tough Questions and Real Answers

Rigging hardware in this context will include shackles, eye bolts, universal hoist rings, hooks, master links and turnbuckles. From an inspection standpoint, we should always be concerned with the question: "Is there a significant loss of strength due to the damage I see in this piece of rigging hardware?"

If the answer to any of the following questions is 'Yes', then act on the recommendation to evaluate, remove or reject.

Typical manufacturer's guideline.. rigging hardware maintained in original state. Custom rigging which has not been manufactured according to ASME B30.20 should not be used. Hooks shall be inspected and if a hazard exists, a determination made if a more detailed inspection is warranted. Other types of rigging hardware not currently covered by any regulations or standards will be inspected according to the manufacturer's recommendations.

A] Markings and Components



1. Is the hardware legibily marked according to the manufacturer's standard practice i.e. shackles with size, rated capacity and mgr's identifier? (remove)
2. Have any removable components been improperly replaced with items not from the original manufacturer? (remove)
3. Do components not mate well without hinging or binding problems? (remove)

Typical manufacturer's guideline.. remove the rigging hardware if damaged by harsh chemicals or corrosion which has reduced the item's tensile strength.

B] Chemical or Corrosion Damage



1. Does the corroded steel surface of the piece of rigging hardware have a deep golf ball dimple texture or moon crater appearance? (remove)

Tough Questions and Real Answers

2. Do metallic particles fall off the piece of rigging hardware by gently tapping it on a hard surface? (reject)

3. Is clean bright steel visible after rubbing a rusty surface with a rag? (evaluate)

Typical manufacturer's guideline.. remove the item if it has been repaired, altered reworked or reshaped by welding, heating, burning or bending.

C] Heat Damage

1. Has the hardware been approved for limits and capacities if used in furnace type application? (evaluate)



2. Is heat damage visible due to weld slag or arcing? (reject)

3. Have components been attached to the hardware by means of welding? (reject)

4. Is there dark, brittle, carbon-like material flaking off the piece of rigging hardware? (remove)

5. Is there an unusual blue or brown hue to the piece of hardware? (remove)



Rigging Hardware

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Typical manufacturer's guideline.. remove the item for distortion such as bending, twisting, yielding or cracks. Remove if nicks, gouges or metal loss exceeds 10% of the original cross section or per manufacturer's recommendation. Hook throat opening 15% max. and twist or bend 10º max.

Tough Questions and Real Answers

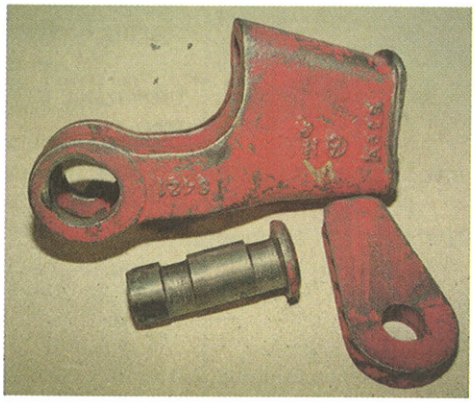
D] Structural Damage



1. Does the piece of rigging hardware display yielding, collapsing, bending or twisting? (reject)



2. Are there cracks or fractures in the hardware? (reject)
3. Do any fittings have more than 10% material loss from abrasion or wear? (reject)







Rigging Hardware

4. Due to the hardware's manufactured finish or field condition, can it cause cutting or abrasion to a sling ? (remove)

5. Does the piece of hardware have threads which are corroded, stripped or worn? (reject)



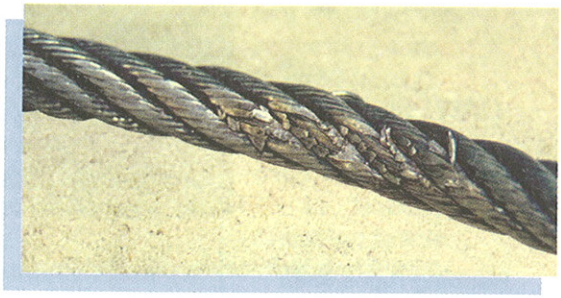
6. Does the hardware piece have bearings or hinge pins which are not functioning properly? (reject)

7. Are any spring roll pins or keepers missing, which retain load bearing components? (remove)

8. Has the hardware been reshaped or realigned? (reject)



Rigging Hardware



Wire Rope on Cranes

Inspection Tips and Removal Criteria

OSHA/ASME/ANSI

Tough Questions and Real Answers

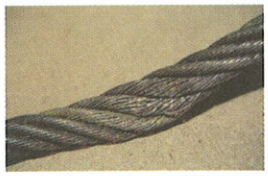
Wire ropes are used on cranes in running and standing applications. From an inspector's perspective, we should always be concerned with the question: "Is there a significant loss of strength due to the damage I see in this wire rope?"

If the answer to any of the following questions is 'Yes', then act on the recommendation to evaluate, remove or reject.

Running ropes shall be removed from service if they constitute a safety hazard due to .. severe kinking, crushing, cutting, unstranding, birdcaging, main strand displacement, core protrusion or any other distortion of the wire rope structure.

A] Kinks, Crushing and Distortion

1. Is the distortion severe enough to induce crown wire chaffing as the rope passes through a sheave or onto drums that are smooth or grooved? (evaluate)
2. Does the main working section of the rope body's diameter vary ±5% in a kinked area when comparing width and depth? (reject)
3. Are the outside strands pushed into the core area, much like a folded piece of cardboard? (reject)
4. Is the rope oval or almost ribbon flat due to crushing? (reject)



5. Are the strands on the outside of the distortion long and straight, completely out of alignment with the rope body's centerline? (reject)
6. Is there a gentle curl to the rope body, which under load will generally disappear? (evaluate)



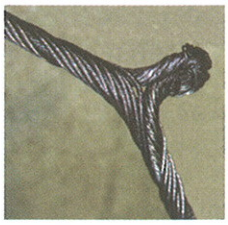
7. Are any strands bent out of alignment? (reject)

OSHA/ASME/ANSI

Tough Questions and Real Answers

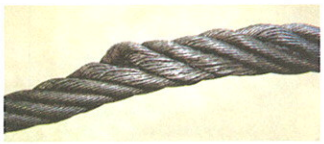
8. Is the rope body ballooned out due to torsion or severe rebound? (reject)

9. Are the outer strands elongated in a localized area, suggesting core failure? (reject)



10. Is the IWRC pushing through the outer strands? (reject)

11. Is the rope distortion severe enough to cause spooling problems? (reject)



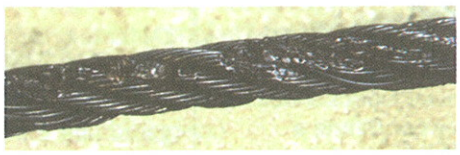
Running or standing ropes shall be immediately removed from service.. if there is evidence of heat damage.

B] Weld or Heat Damage

1. Is there weld splatter on the rope surface? (reject)

2. Is there a color change such as blue or brown in an area suspected of being heated? (reject)

3. Are any wires fused together or melted due to high voltage contact? (reject)



4. Has the wire rope been in a travel path of electricity such as a lightning strike? (reject)

5. Was the rope's end cut with a torch, yet is not exposed to direct loading? (accept)

6. Has the lubricant been melted away in a localized area? (evaluate)

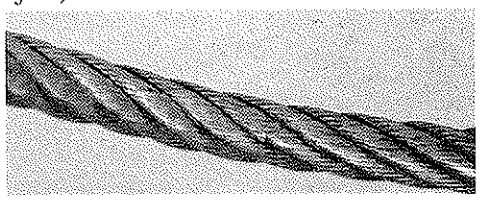
OSHA/ASME/ANSI

Tough Questions and Real Answers

Running ropes shall be removed from service if they constitute a safety hazard due to .. wearing or scraping of one-third of the original diameter of outside individual wires.

C] Abrasion

1. Would we get a low tensile break if the abraded rope was pulled to destruction on a test machine [>10% loss of strength] ? (reject)
2. Are the crown wires shaved to the point where you can't easily place a knife blade between two adjacent wires? (reject)



3. Is there a localized area which displays metal loss? (evaluate)
4. Is this abraded condition present all around the rope body? (reject)
5. Do the wires appear to be flattened or worn, when in fact the rope may be a compacted rope by design? (evaluate)

Running or standing ropes shall be removed from service if they constitute a safety hazard due to .. reduction of diameter below nominal due to loss of core support.

D] Loss of Diameter

1. Are the outside strands elongated and the diameter reduced? (reject)
2. Is there a snapping or clicking sound coming from the rope body, when physically bending it at a reduced diameter area? (reject)

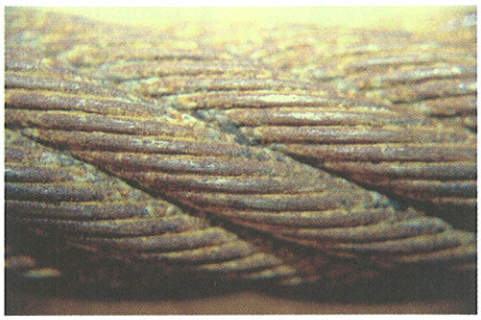
OSHA/ASME/ANSI

Running or standing ropes shall be removed from service if they constitute a safety hazard due to .. evidence of corrosion of the rope or end attachements.

Tough Questions and Real Answers

E] Corrosion

1. Would we get a low tensile break if the corroded rope was pulled to destruction on a test machine [>10% loss of strength] ? (reject)
2. Do metal flakes shake out of the rope when tapped on a hard surface? (reject)
3. Does the surface of the individual wires appear to have a dimpled or pitted appearance? (reject)



4. Can you quickly get to bare shiny steel by gently rubbing the wire surface? (accept)
5. Does the corroded rope crackle and grind when physically bent? (reject)
6. Does corrosion penetrate more than 10% of the original material thickness of an attached end fitting, such as the bail of a spelter socket? (reject)
7. Is there a noticeable variation in the diameters of the corroded outer strand wires? (reject)

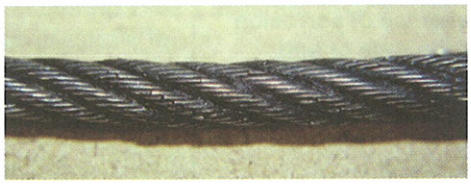
OSHA/ASME/ANSI

Running or standing ropes shall be removed from service if they constitute a safety hazard due to .. a number of broken wires.

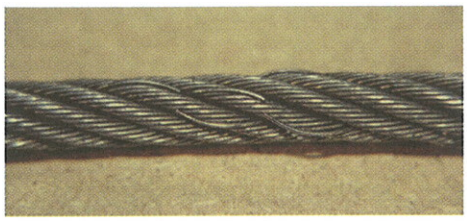
Tough Questions and Real Answers

F] Broken Wires

1. Are there any crown wire breaks? (evaluate)



2. Are there any broken wires recognized as valley breaks? (reject)



3. Are any strand wires looping out of the strand cross-section? (reject)

4. In an overhead crane hoist rope, are there 12 or more broken wires in 1 rope lay, and 4 or more in 1 strand in 1 rope lay? (reject)



5. In a standard hoist rope for a mobile crane, are there 6 or more broken wires in 1 rope lay, and 3 or more in 1 strand in 1 rope lay? (reject)

6. In a rotation resistant rope are there 2 or more broken wires in six rope diameters, or 4 or more broken wires in thirty rope diameters? (reject)

Wire Ropes on Cranes

7. In a standing rope (pendant lines) are there more than 2 broken wires in 1 rope lay beyond an end connection, or more than 1 broken wire within a rope lay at an end connection? (reject)

8. Are there any broken wires in the IWRC? (reject)

9. Are there any broken wires on the inside of a bent area of rope? (reject)

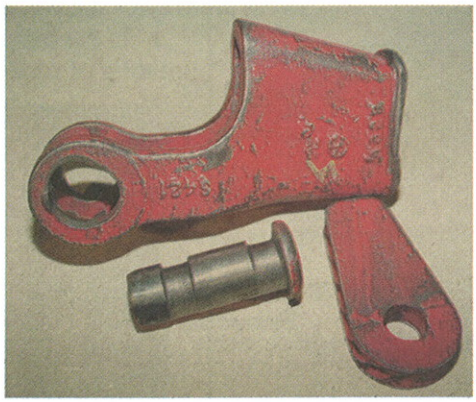


10. Is there severe scrubbing or metal loss on wires adjacent to one or two wires which are broken? (evaluate)

Running or standing ropes shall be removed from service if they constitute a safety hazard ... if any end attachments are cracked, deformed or worn.

G] End Connections

1. Is a detachable end connection twisted, cracked, or show heat damage or severe metal loss? (reject the connection and evaluate the rope)



2. Are there cracks, deformation, signs of heat damage or metal loss on a permanently attached end connection? (reject)

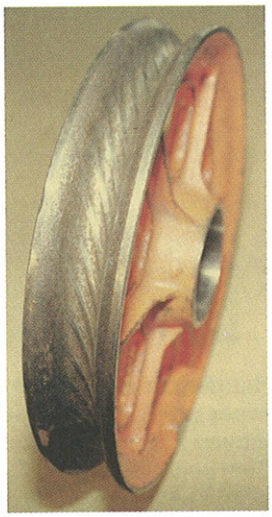
3. Is the rope slipping out of a permanent end connection? (reject)

4. Is the rope axis out of alignment with a socket? (reject)

5. If wire rope clips are being used, are they properly installed per the manufacturer's instructions? (evaluate)

Sheave grooves shall be smooth and free from surface defects which could cause rope damage.

H] Sheaves

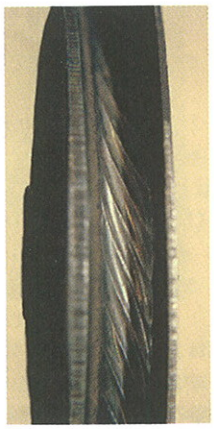


1. Is the sheave groove corrugated and creating ridges and dimples on the rope crown wires? (reject the sheave and the rope)

2. Is the sheave wearing deep? (evaluate)

3. Does the rope show two lines of wear along its length? (confirm proper mating of rope diamter to sheave, reject sheave, evaluate rope)

4. Is the rope oval? (confirm proper mating of rope diamter to sheave, reject sheave, evaluate rope)



5. Is the sheave spoke cracked or distorted? (reject)

6. Is there side wall wear on the sheave? (evaluate the sheave, fleet angle and the rope)

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BAC Lamb Wire Line Services
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Wes's Wire Rope
1-405-756-8738

Oklahoma City
United Rigging
1-405-789-3065

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CERTEX ■ FOR CERTAINTY

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All over the world people work in jobs where their lives depend on safe lifting equipment. Auto workers in Germany, miners in the United States, longshoremen in the Netherlands, loggers in Scandinavia, construction workers in Singapore and offshore oil drillers in the Gulf of Mexico share a common reliance on lifting and rigging expertise. For these and for people everywhere who perform many other everyday tasks, CERTEX symbolizes a new standard in product quality, lifting safety and customer service. That new standard is certainty.

- Certainty that our global expertise will be shared with all our customers.
- Certainty that only quality products will be offered
- Certainty that safety will never be compromised
- Certainty that our customers will always come first

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SCAFFOLDING AND PLATFORMS

PURPOSE

The purpose of this safety policy and procedure is to establish guidelines for the protection of employees who work on scaffold work surfaces.

APPLICABILITY

Scaffolding has a variety of applications. It is used in new construction, alteration, routine maintenance, renovation, painting, repairing, and removal activities. Scaffolding offers a safer and more comfortable work arrangement compared to leaning over edges, stretching overhead, and working from ladders. Scaffolding provides employees safe access to work locations, level and stable working platforms, and temporary storage for tools and materials for performing immediate tasks. Scaffolding accidents mainly involve personnel falls and falling materials caused by equipment failure, incorrect operating procedures, and environmental conditions. Additionally, scaffolding overloading is a frequent cause of major scaffold failure. This safety policy and procedure provides guidelines for the safe use of scaffolds and includes training provisions and guidelines for scaffold erection and use.

REFERENCE

This safety policy and procedure is established in accordance with Occupational Safety and Health Standards for General Industry (29 CFR 1910.28) and Occupational Safety and Health Standards for Construction Industry (29 CFR 1926.451).

POLICY

Scaffolds shall be erected, moved, dismantled, or altered only under the supervision of a competent person and will have guardrails and toe boards installed. When scaffolding hazards exist that cannot be eliminated, then engineering practices, administrative practices, safe work practices, Personal Protective Equipment (PPE), and proper training regarding Scaffolds will be implemented. These measures will be implemented to minimize those hazards to ensure the safety of employees and the public.

RESPONSIBILITY

It is the responsibility of each manager, supervisor, and employee to ensure implementation of the company safety policy and procedure on Scaffolds. It is also the responsibility of each employee to report immediately any unsafe act or condition to his or her supervisor. Specific responsibilities are found in Section 6.3

PROCEDURE

This section provides applicable definitions, establishes general provisions, and identifies specific responsibilities required by company safety policy and procedure on Scaffolds.

DEFINITIONS

Brace: A tie that holds one scaffold member in a fixed position with respect to another member. Brace also means a rigid type of connection holding a scaffold to a building or structure.

Coupler: A device for locking together the component tubes of a tube and coupler scaffold.

Harness: A design of straps which is secured about the employee in a manner to distribute the arresting forces over at least the thighs, shoulders, and pelvis, with provisions for attaching a lanyard, lifeline, or deceleration device.

Hoist: A mechanical device to raise or lower a suspended scaffold. It can be mechanically powered or manually operated.

Maximum Intended Load: The total load of all employees, equipment, tools, materials, transmitted loads, wind, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time.

Mechanically Powered Hoist: A hoist which is powered by other than human energy.

Outriggers: The structural member of a supported scaffold used to increase the base width of a scaffold in order to provide greater stability for the scaffold.

Platform: The horizontal working surface of a scaffold.

Safety Belt: A strap with means for securing about the waist or body and for attaching to a lanyard, lifeline, or deceleration device.

Scaffold: Any temporary elevated or suspended platform and its supporting structure used for supporting employees or materials or both, except this term does not include crane or derrick suspended personnel platforms.

TRAINING

Affected employees will receive instruction on the types of scaffolds which they are to use. Training should focus on proper erection, handling, use, inspection, and care of the scaffolds. Training must also include the installation of fall protection, guardrails, and the proper use and care of fall arrest equipment. This training should be done upon initial job assignment. Retraining shall be done when job conditions change. Periodic refresher training shall be done at the discretion of the supervisor.

Company designated “competent person(s)” will receive additional training regarding the selection of scaffolds, recognition of site conditions, recognition of scaffold hazards,

protection of exposed personnel and public, repair and replacement options, and requirements of standards.

Safe use of scaffold is important in minimizing and controlling the hazards associated with their use. Scaffold work practices and rules should be based on:

- Sound design
- Selecting the right scaffold for the job
- Assigning personnel
- Fall protection
- Guidelines for proper erection
- Guidelines for use
- Guidelines for alteration and dismantling
- Inspections
- Maintenance and storage

Types of Scaffolds:
There are many different types of scaffolds. The three major categories are:

- Self-supporting scaffolds
- Suspension scaffolds
- Special use scaffolds

Special use scaffolds and assemblies are capable of supporting their own weight and at least 4 times the maximum intended load. The types of special use scaffolds include:

- Form and Carpenter Bracket
- Roof Bracket
- Outrigger
- Pump Jack
- Ladder Jack
- Window Jack
- Horse
- Crawling Boards
- Step, Platforms, and Trestle Ladder

RESPONSIBILITES - SPECIFIC

Managers:
Managers will ensure adequate funds are available and budgeted for the purchase of scaffolds in their areas. They will also identify the employees affected by this safety policy and procedure. Managers will also ensure compliance with this safety policy and procedure through their auditing process.

Supervisors:
Supervisors will not allow any employee who has not received the required training to perform any of the tasks or activities related to scaffold erection and/or dismantling. Supervisors will ensure that employees are provided with PPE as necessary for their job. Supervisors will

ensure that a competent person is in charge of scaffold erection according to the manufacturer's specifications.

Competent Person:
The competent person will oversee the scaffold selection, erection, use, movement, alteration, dismantling, maintenance, and inspection. The competent person will be knowledgeable about proper selection, care, and use of the fall protection equipment. Additionally, the competent person shall assess hazards.

Employees:
Employees shall comply with all applicable guidelines contained in this safety policy and procedure. Employees will report damaged scaffolds, accessories, and missing or lost components. Employees will assist with inspections as requested.

Safety Department:
Safety department will provide prompt assistance to managers, supervisors, or others as necessary on any matter concerning this safety policy and procedure. Safety department will assist in developing or securing required training. Safety department will also work with Purchasing to ensure that all newly purchased scaffolds comply with current safety regulations and this safety policy and procedure.

SAFETY REQUIREMENTS

- The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, or loose items shall not be used to support scaffolds or planks.

- No scaffold shall be erected, moved, dismantled, or altered except under the supervision of competent persons or as requested for corrective reasons by the Safety Department.

- Guardrails and toe boards shall be installed on all open sides and ends of platforms more than 10 feet above the ground or floor, except needle beam scaffolds and floats. Scaffolds 4 feet to 10 feet in height having a minimum horizontal dimension in either direction of less than 45 inches shall have standard guardrails installed on all open sides and ends of the platform.

- Guardrails must be 2 X 4 inches, or the equivalent, not less than 36 inches or more than approximately 42 inches high, with a mid-rail, when required, of 1 X 4 inch lumber, or the equivalent. Supports must be at intervals not to exceed 8 feet. Toe board and the guardrail shall extend along the entire opening.

- Scaffolds and their components must be capable of supporting without failure at least 4 times the maximum intended load.

- Any scaffold, including accessories such as braces, brackets, trusses, screw legs, ladders, couplers, etc., damaged or weakened from any cause must be repaired or replaced immediately, and shall not be used until repairs have been completed.

- All load-carrying timber members of scaffold framing shall be a minimum of 1,500 fiber (Stress Grade) construction grade lumber.

- All planking must be Scaffold Grades, or equivalent, as recognized by approved grading rules for the species of wood used. The maximum permissible span for 2 X 9 inch or wider planks is shown in the following:

- The maximum permissible span for 1-1/4 X 9 inch or wider plank of full thickness shall be 4 feet with medium duty loading of 50 p.s.i.

- All planking or platforms must be overlapped (minimum 12 inches) or secured from movement.

- An access ladder or equivalent safe access must be provided.

- Scaffold plank must extend over their end supports not less than 6 inches or more than 18 inches.

- The poles, legs, or uprights of scaffolds must be plumb and securely and rigidly braced to prevent swaying and displacement.

- Overhead protection must be provided for all persons on a scaffold exposed to overhead hazards.

- Slippery conditions on scaffolds shall be eliminated immediately after they occur.

- No welding, burning, riveting, or open flame work shall be performed on any staging suspended by means or fiber of synthetic rope. Only treated or protected fiber or synthetic ropes shall be used for or near any work involving the use of corrosive substances or chemicals.

- Wire, synthetic, or fiber rope used for scaffold suspension shall be capable of supporting at least 6 times the intended load.

- Scaffolds shall be provided with a screen between the toe board and guardrail, extending along the entire opening, consisting of No. 18 gauge U.S. Standard wire one-half inch mesh or the equivalent, when personnel are required to work or pass underneath the scaffolds.

- A safe distance from energized power lines shall be maintained.

- Tag lines shall be used when hoisting materials.

- Suspension ropes shall be protected from contact with heat sources (welding, cutting, etc.) and from acids or other corrosive substances.

- Scaffolds shall not be used during high wind and storms.

- Ladders and other devices shall not be used to increase working heights on scaffold platforms.

- Scaffolds shall not be moved while employees are on them.

- Loose materials, debris, and/or tools shall not be accumulated to cause a hazard.

- Employees working on suspended scaffolds shall employ a fall-arrest system.

- Scaffold components shall not be mixed or forced to fit which may reduce design strength.

- Scaffolds and components shall be inspected at the erection location. Scaffolds shall be inspected before each work shift, after changing weather conditions, or after prolonged work interruptions.

- Casters and wheel stems shall be pinned or otherwise secured in scaffold legs. Casters and wheels must be positively locked if in a stationary position.

- Tube and coupler scaffolds shall be tied to and securely braced against the building at intervals not to exceed 30 feet horizontally and 26 feet vertically.

WELL SERVICING OPERATIONS

1. Each well servicing unit shall be equipped with a derrickman emergency escape device.

2. Each well servicing unit shall be leveled and properly guyed before work on the well begins.

3. Guy wires and safety slide lines shall be attached to approved anchors and flagged at head level for visibility.

4. Anchors shall be set and tested according to Company or regulatory guidelines.

5. When removing the Wellhead Tree or Master Valve use appropriate devices, such as, back pressure valves or tubing plugs.

6. Pressure test and document blow out preventers (BOPs), lubricators, and coil tubing prior to use. Use methanol or glycol/water where cold or hydrate conditions exist.

7. A quick opening, full-bore tubing valve shall be readily available for an emergency.

8. The well servicing unit shall not operate near any power line.

9. The derrickman shall not ride the blocks, up or down.

10. No one shall be allowed in or under the derrick while it is being raised or lowered.

11. No open flames shall be allowed within 100 feet of a well, vessel or tank.
    See Hot work Procedure.

12. Rig pump and lines shall be secured and tested before use and a check valve installed as close to the well as possible.

13. Use, maintenance and functional testing of BOP or Annular Diversion Device, such as a stripping is required on all tubing movements during well service operation on all wells known to contain hydrocarbons. Water service wells which will not flow to surface are exempt.

14. A heat fusible cap shall be placed on the surface safety valve (if applicable) during well servicing operations.

15. Equipment shall be tested to the rated working pressure of the lowest rated component of each system.

16. Special precaution may be required due to the chemicals being used in the stimulation. SDS for all chemicals being used on location shall be covered at the pre-job meeting.

17. Where practical, hot oil units shall be located no closer than 50 feet upwind from the well bore, flow line, tank, vessel, or other equipment. Fire and Safe Work Permit is required if the hot oil unit is located less than 100 feet from the well bore. Hot oil units should be equipped with a flame arrester.

18. When pumping heated oil under high pressure, a check valve shall be installed as close to the well or flow line as possible to prevent spraying hot oil in case of a line rupture.

19. Swabbing or hot oiling operations shall only be performed in daylight or where adequate lighting is provided.

20 Consider using a stripping type annular preventer for situations where hydrocarbon releases may be anticipated. Situations that should be reviewed are well workover operations that may be hampered by the inability to fully circulate out hydrocarbon or excessive fluid losses.

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WELL DRILLING OPERATIONS

PURPOSE

The purpose of this section is to ensure safety of personnel during drilling operations.

COMPANY POLICY

All **Company and Contract Personnel** will adhere to the procedures in this section to ensure safety of personnel while working in drilling operations.

REFERENCES

API RP 500; 29 CFR 1910.1200; API RP 54

ELECTRICAL AREA CLASSIFICATION

Rig lighting and fixtures must be of the appropriate electrical classifications for the area in which they are located.

Adding winter or storm curtains, sound baffling, or tarpaulins on a rig may change the area classification from non-hazardous or from Division 2 to Division 1. Electrical equipment must be suitable for the enclosed area.

Temporary windbreaks can sometimes change the electrical classification of the area and should only be used around the rig floor or engines when required by adverse weather conditions.

SPILLS

Spilled materials that could cause slipping must be cleaned up as soon as practical.

MUD MATERIALS

Mud materials containing asbestos or sodium dichromate must not be used.

RELIEF VALVE INSTALLATION AND MAINTENANCE

A properly rated pressure-relief valve must be installed between the pump and shut-off valve on any rig positive displacement pump (i.e. mud pump) discharge hose or line. The relief valve must be cleaned and tested periodically to maintain serviceability.

Reference: For more information on testing and anchoring of pressured lines, refer to the topic “Testing tubing, drill pipe and lines” in this section.

DAMAGED DERRICK EQUIPMENT

Report bent, kinked, field welded, or missing derrick members to the Drill Site Manager (DSM). Damaged or missing derrick members should be evaluated and repaired or replaced as necessary.

BOP REQUIREMENTS FOR CONTRACTORS

The Company DSM must ensure that:

- The contractor's BOP equipment conforms to Blowout Prevention and Well Control practices, or
- An exception has been approved in writing by the Company drilling manager.

Inspections

Elevators, bails, deadline anchor, fastline sheave, and traveling equipment should be visually or dry-magnetic particle inspected for:

- Cracks
- Worn areas
- Weak springs, and
- Condition of hinge pins

NOTE: A washer, slotted safety pin, or other device must be attached to the bottom of elevators by the manufacturer to prevent hinge pins from falling out if they break while tripping.

Schedule

Inspections should be done at the following times:

- At initial rig pick up
- On a routine basis, or
- Prior to lifting heavy loads

HYDROSTATIC TUBING AND DRILL PIPE TESTING

Follow the guidelines listed below when hydrostatically testing tubing as it is going in the hole, before pressure is applied:

- Enclose the connection being tested in a protective device such as a mud bucket when testing above the rotary table, or
- Lower the connection or full joint being tested below the rotary table.
- Use slips to hold the string steady, but do not set string weight on slips.

RIG MOVES

Planning

The Company DSM, or designated individual/contractor, will drive or walk the route to the new location with the rig Toolpusher prior to the rig move. The route is to be examined for height, width and possible weight restrictions. All information and concerns are to be transferred to all members of the rig mobilization team prior to any piece of the rig moving. If any problems are encountered during the rig move, all movement is to stop and communicated to the DSM immediately.

Overhead Electrical and Communications Lines

If the route selected takes the rig under any overhead electrical or communications lines, a representative from the DCOR electrical department will be included in the Planning phase of the rig move. On the day of the move, they will be onsite and will monitor all travel underneath identified lines. If necessary, they will move the line to provide adequate clearance. No one in drilling is to move an electrical or communication line.

Skidding Derricks

An approved subsurface safety device must be installed in the tubing on all producing wells or proper waiver obtained before skidding a rig offshore.

Staking a Drilling Location

The following rules must be used when staking a drilling location:

- Take precautions to locate and mark all pipelines under the pad and reserve pit area.
- Look for old right-or-ways and ditch lines.
- Use metal detectors.
- Consult production, contractor, service, company and utilities personnel to help locate lines.
- Check for power lines and document the location and height or depth of all overhead or buried lines.

LIFT LINE GUIDELINES

Lift lines should be made of soft-laid or plaited cable in the following sizes (do not exceed rated capacity of lift lines):

- At least ⅜ inch line for 2-⅞ inch and smaller pipe.
- At least ⅝ inch line for 3 inch to 5-½ inch and smaller, and
- At least ¾ inch line for 6 inch to 13-⅜ inch pipe.

SIGN POSTING REQUIREMENTS

As a minimum, the following signs must be posted in the appropriate areas according to OSHA regulations:

- Hard hats
- No smoking
- Authorized Personnel Only

- High Noise Level, and
- Hearing Protection Required

NOTE: All tanks and vessels on location must be labeled according to the Code of Federal Regulations, 29 CFR 1910.1200 requirements.

EMERGENCY EQUIPMENT

The following emergency equipment items must be maintained on the rig floor:

- First aid kit
- Fire blanket
- Eyewash station
- Fire Extinguisher
- Caution Tape
- A personnel carrier must be maintained on location

Additional Eyewash Stations

An eyewash station must also be located at or near any location where chemicals are mixed and/or added to the system. A full body shower may also be required for specific chemicals.

LIFTING AND HOISTING

Lifting and hoisting require close communications. Take necessary precautions when performing these operations.

OPERATIONS

Secure a chain or rope across the V-door or the rig floor, except when picking up and laying down the drill string or casing, or conducting other activities which require equipment to be moved through the V-door.

Confined space rules may apply when entering cellars, tanks, or pits or rotary opening.

Reference: For more information on entering confined spaces, refer to the topics “Hot Work” and “Confined Space Entry”.

Unexpected Pressure

During drilling and workover operations inside the casing and tubing, procedures, crew training, and job safety planning need to address the potential for unexpected pressure releases. Emphasis must be placed on well control issues, such as the potential effects of the migration of oil and gas, and the use of well control barriers.

Fundamental concepts such as killing the well, keeping the well dead, use of pills to slow fluid loss to formation, handling the migration of oil and gas, and use of back pressure valves and down hole plugs must be considered.

Operating personnel must be aware of conditions that allow hydrocarbons to enter the wellbore. They should expect oil and gas to migrate to the surface and potentially expand and erupt violently. Personnel must:

Expect hydrocarbons to rise through the work fluid (especially when working with clear fluids)

Keep the well dead, or fluid going into the well at a rate that maintains a “head”, which exceeds the BHP (or the well must be killed again) and

Expect pressure under the plugs and be equipped to safely handle the situation.

NOTE: Don’t underestimate the power or energy of fluids and gas under pressure. Secure surface equipment and remove unnecessary personnel when necessary.

Trapped Pressure

If pressure is suspected of being trapped by an unknown means, such as debris in the drill pipe, take appropriate steps to guard against an unexpected release of the trapped pressure. Consider the use of hot tapping joints or milling out debris to clear trapped pressure.

Operational Precautions

All pins in the derrick, substructure, etc., must have safety keepers installed in the pins. Machine and equipment guards must be in place before operating equipment.

Adequate safety chains or lines must be installed on the rotary hose and all pump vibrator hoses in the event hoses part under pressure.

Reference: For more information on safeguards, refer to API RP 54: Recommended Practices for Occupational Safety and Health for Oil and Gas Well Drilling and Servicing Operations.

FALL PROTECTION

Fall protection must be worn at all times when personnel are working with their feet more than 6 feet above the ground or adjacent floor/platform, such as when climbing or working in the derrick, substructure, etc.

- Riding the pipe elevators is prohibited.
- Scaffolding or fall protection harness should be used around BOPs to

facilitate working on the stack.

- The mouse hole and other openings in the rig floor must be covered when not in use.
- Handrails or other means of fall protection consistent with OSHA regulations must be located in at least the following areas:
  - Around the rig floor
  - On all stairs, and
  - On walkways around mud pits.

- Around the rotary when open and drilling activity is not occurring.
- Use handrails and stairs when exiting the rig floor. DO NOT walk on the V-door ramp.

SMOKING AND FIRE PREVENTION

Fire Extinguishers

All rigs must have fire extinguishers located so they are readily accessible. Fire extinguishers must be conspicuously marked and periodically inspected.

Smoking Areas

Smoking must be limited to appropriately marked designated areas.

Rig Engines

Rig engines located 100 feet or less from the well must have:

- Shielded ignition systems and
- Spark arresting mufflers or water spray exhausts.

Restrictions

Field welding is prohibited on tongs, elevators, bails, blowout preventers, or other heat-treated equipment.

Cutting or welding on any derrick or derrick substructure is prohibited without approval of the Company DSM and the derrick manufacturer.

Permits

A “Hot Work-Entry Permit” may be required when Welding, burning, or chipping during open-hole operations where hydrocarbons may be present, or Welding, cutting or working with open fires within 100 feet of the well bore or steel circulating pits.

NOTE: Hot work performed within 100 feet of the wellbore, pits or lines, which may have contained hydrocarbons must utilize a Hot work permit.

A-SECTIONS AND COMPANION FLANGES

A-sections and companion flanges must be field welded by a Company certified

welder, or equivalent according to API Specification 6A: Wellhead Equipment.

Drill Lines

Care must be taken to prevent arcing through the drill line. The draw-works and derrick must be properly grounded, and the welder's ground lead should be attached in close proximity to the weld site. The drill line should also be protected from welding sparks and cutting slag.

DRILL STEM TESTING

- Drill stem testing must address unexpected pressure releases (UPR) procedures prior to initiation of testing.
- Surface flow should be initiated only in daylight hours.
- Before the control-head valve is opened, a suitable flowline should be:
- Laid from the derrick floor to the reserve pit or tank, and Connected to the control head.

NOTE: This line must be properly anchored. Hose connections to the control head must be securely fastened to the elevator bails. Hoses are to have properly sized whip-checks installed. Hard lines are to be properly anchored.

During Testing

Monitor the area around the rig floor and test separator for the presence of hydrogen sulfide (H_2S) and combustible gas. All unauthorized personnel are to stay clear of the test equipment and flow lines.

Completing the Test

In order to prevent unexpected pressure releases, *before* pulling the drill string:

The drill string should be filled with fluid, and always be reversed or circulated free of hydrocarbons.

If unable to circulate, consider other options, such as, perforating the drill pipe before tripping.

NOTE: Company DSM approval is required to pull the drill string without circulating. This operation must be done during daylight hours.

Restrictions

Open fires and welding are not permitted during drill stem tests, except with an approved Hot Work Permit.

H_2S DRILLING AND DRILL STEM TESTING

Pre-Planning

H_2S contingency plans must be developed for wells drilled to a known or suspected H_2S production zone.

H_2S Monitoring

The drilling rig must be equipped with a fixed monitoring system capable of Detecting low levels of H_2S and activating an audible and visible alarm.

In addition to the fixed system, a portable detector must be available on location.

H_2S Detector Testing/Calibration

H_2S detectors must be tested at least once every 24 hours during drilling, drill stem testing and work over operations. If the results of a sensor test are not within 2 ppm or 10 percent, whichever is greater, of the applied concentration, the sensor must be recalibrated. Follow manufacturer's suggested practices and procedures when calibrating detectors. In the absence of a regulatory requirement, refer to the company's Hydrogen Sulfide Contingency Plan or contact the Safety Department for a recommendation.

Rig Equipment

The drilling rig must have at least two wind direction indicators on location that are visible from the rig floor.

At least one blower should be provided and kept in operating condition on the rig floor.

Rig BOP equipment, choke manifold equipment and tubular goods exposed to sour fluids must be designed for the pressure and H_2S concentrations anticipated.

Hazard Indicators

The following warning signs must be used to indicate that the work area is potentially hazardous. For well operations on land an operating condition sign with a warning flag indicating the potential hazard must be located no more than one-quarter mile from the well on the approach to the well. All entrances leading to the location must be marked with appropriate H_2S warning signs that inform the pubic of the potential danger of the operations.

Personnel Training

All personnel working on location must have completed approved H_2S training given by a qualified instructor or credible online training program.

Breathing Units

To facilitate escape to a designated safe briefing area, you must keep an approved number of escape breathing units:

- On the floor

- On the monkey board
- At the shale shaker
- At the mud mixing pit and
- At other locations

-An approved self-contained breathing apparatus (SCBA), or other source of approved breathing air, must be available for all personnel required to control the well.

-SCBAs must be available for all personnel if escape is restricted or limited.

Safe Briefing Areas

The location must have a minimum of two pre-designated safe briefing areas. At least two SCBAs should be located in each briefing area.

Sour Gas Exposure

Follow the precautions for potential sour gas exposure presented on the table below:

If sour gas is expected when. . .

- Pulling a wet drill string or removing cores
- Only those personnel directly involved in the operations should be on the rig floor

Then…….

- All personnel must wear approved respiratory equipment and,
- Bug blowers should be used as needed.

Drill stem testing

Approved respiratory equipment and Blowers should be placed on the rig floor flowing, reversing out, or pulling the test string.

Approved respiratory equipment should be placed at the test separator.

References

For more information on drilling or drill stem testing when H_2S exposure is anticipated, refer to the following references:

- API RP 49: Recommended Practices for Safe Drilling of Wells Containing Hydrogen Sulfide
- National Association of Corrosion Engineers (NACE) Standard MR-01-75
- The topic Hydrogen Sulfide in this manual, and
- The topic Drill Stem Testing in this section.
- Company H_2S Contingency Plan

TONGS

General Rules

- The proper size of tong jaws must be used on each size of pipe.
- DO NOT stand on tongs while working above the rig floor.
- Tong dies, slip segments and snub lines must be checked on each tour and before each trip.
- Power tongs should be adjusted to a height that enables the operator to stand flat-footed on the rig floor or on a secure false floor. DO NOT use ladders, boxes or stools.
- Power tongs should be disengaged from drill pipe prior to any pipe movement.
- Tongs and air hoists in the derrick should have safety chains/lines installed.

Breaking Tool Joints

Two sets of tongs should be used to break tool joints. The rotary table and slips must not be used for power when breaking out tool joints or drill bits. The use of a cathead and soft rope to assist in breaking out tool joints is not recommended. If drill pipe is over-torqued, set the tool joint as low as possible to prevent damage to pipe, and have personnel move to a safe area before applying full force.

Working Torque Down a Tubular String

If it is necessary to use tongs to work torque down any tubular string, be sure all unnecessary personnel are a safe distance from the rig tongs.
Whenever trapping torque in the drill string, always tie the slip handles together to prevent the slips from jumping out of the rotary table, and double line the tong snub lines.

Pulling Pipe

When pulling pipe with drill pipe rubbers installed, conventional tongs should not be put around moving drill pipe until the last tool joint has cleared the rotary table.

Hydraulic Tongs

Use only hydraulic tongs that have a closing door installed.
Be sure the door is closed before applying torque to minimize the likelihood of getting caught in the mechanism.

Making up / Breaking out Heavy Weight Drill Pipe

When making up or breaking out heavy weight drill pipe, the tool joint must be set as low as possible. This is done so the tongs can be adjusted to a safe working height.

Securing Lines

Properly secure and fasten snub lines and breakout lines using:

- Wire rope clips, or
- Zinc wire-rope sockets

AIR DRILLING

Emergency Control Valve

A minimum of one emergency control valve, with a bleed line routed a safe distance from the rig and anchored, must be installed in the air supply line at least 50 feet from the derrick floor.

Monitoring the Air System

At least one person should be stationed off the rig floor to monitor the air system while air is being used for circulation.

Personnel Training

All crew members should be trained in the use and location of air line connections and control valves.

Rotary Chain

The rotary chain must operate in an oil-bath guard and it must be sealed to prevent leaks.

Air Flowline

The air flow line / blooey line should be:

- A minimum of five-inch nominal diameter pipe
- At least 100 feet long, and
- Straight, with no bends or elbows.
- All connections should be welded or weld-neck flanged.
- The air inlet line and the blooey line must be anchored securely.
- A pilot light should be kept burning at the end of the flowline.

Downhole Explosions and Fires

Downhole explosions may produce hot discharge gases which may be present for several seconds and damage the rotating head. If you suspect that a downhole explosion has occurred, all workers should move clear of the area since the rotating head seal may fail.

If you suspect the occurrence of a downhole explosion you should:

- Discontinue air circulation, and check the string weight to determine if a burn-off has occurred.

Shutting off Air Supply

A manifold should be installed on the rig floor to direct air to the Kelly and gas evacuation line to facilitate making connections.

Evacuating Gas

To evacuate gas, you must install an air jet line from the standpipe manifold:

- Into the air flowline four pipe diameters from the end of the flowline, and/or
- Right outside the substructure at an angle of 40-45 degrees.
- With air flowing through the flowline, this will create a vacuum to evacuate gas from beneath the rig floor when the rotating head is removed.

Anchoring the BOP Stack

Anchor the BOP stack in four directions with turnbuckles to prevent rotating head vibration which could cause excessive wear and possible failure.

Float Valves

A bottom-hole float should be run in the bottom drill collar. Additional string float valves may be run as needed to facilitate making connections.

NOTE: Consider using a fire ring where liquid hydrocarbons may be encountered.

LIVE DRILLING

Equipment Locations

Equipment, such as, skimmer systems, flares, oil storage, and rig components must be positioned to meet or exceed regulatory and drilling requirements. Due consideration should be given to the:

Prevailing wind directions, and Proximity to public housing, roadways, or environmentally sensitive areas.

NOTE: Casual traffic and unauthorized personnel should not be permitted around the skimmer system, oil storage, or flare system.

Rotating Head

Personnel should be aware of pressure on the rotating head equipment. Non-essential personnel should be kept at a safe distance when making connections and/or tripping pipe until movement has stopped.

While utilizing the high-pressure rotating head, the surface pressure must be limited to 1000 psi, or the manufacturer's rated working pressure, whichever is less.

The rotating head rig-up must be designed to ensure that there are sufficient

outlets to:

- Monitor pressure
- Bleed trapped pressure between the rotating head and the annular preventer, and
- Provide positive isolation from the trip tank.
- The driller must be able to monitor the rotating head from the rig floor via the:
    - Porthole
    - Trap door, or Grated floor plate

Gas Separator

Equipment and procedures (i.e. continuous purge, water leg, or isolation valve), must be in place to prevent back flash in the separator and/or flare line during cuttings clean-out operation.
A check valve should be in place on the line from the choke manifold to the gas separator to prevent a negative pressure condition in the flare line in the event of lost returns.

OTHER DRILLING OPERATIONS

Coring Precautions

Be aware of possible trapped pressure inside the core barrel.

DO NOT place hands or feet underneath the core barrel when a core is being extracted. A section of core may break loose and fall from the barrel.

Use the proper eye protection and respiratory equipment as required when cutting up cores.

Wireline Precaution

Do not walk underneath or over wireline cables during any wireline operations. The work area shall be identified and isolated by red / yellow caution tape. Walk around the front of the truck or behind the skid unit.

Keep hands away from moving parts.

Reference: For additional information, see the topic “Wireline Operations” in the Workover section.

Plug and Abandon Operations

Casing and wellhead removal during plugging operations should conform to current requirements.

WINCH TRUCK SAFETY

1. Do not overload winch, truck or A-frame poles. If weight is not known or cannot be calculated, use weight indicator.

2. Do not leave winch controls unattended while winch is operating.

3. Ensure that A-frame poles are evenly anchored. Setting poles too far back could overload the anchor chains or lift front of truck.

4. Center the load under the hoist or directly in front of the winch.

5. Attach slings to skid loads so that the angle between the sling and the skid base will not be less than 45 degrees.

6. Ensure that the load is balanced since skid mounted loads can be "top heavy".

7. Make sure chains or slings are placed properly in the hook.

8. Secure load before moving. The distance that suspended loads are being carried should be minimized.

9. Stand clear and keep fingers clear whenever tension is being applied to a winch line.

10. Never stand under a suspended load or in front of a skidded load.

11. Slowly take up slack. Do not let line slip through hands. Use leather impact resistant gloves when handling winch line.

12. During lifting, or pulling, always use slings: never wrap the winch line around the load.

13. Observe winch line to ensure it does not "tangle" in the winch spool.

14. Lift or pull load a few inches to test balance and reset slings as necessary to balance load.

15. Use soft lines for tag lines to control motion when moving short distances.

16. Keep clear of overhead power lines; vertical clearance should be at least 10 feet.

17. Lower or pull loads slowly.

18. Carefully release load binders (boomers). Stand to the side of binder handle.

19. Secure winch line when not in use. Keep fingers clear of tail board when securing hook.

20. Never attach hook to cable using a knot in end of cable.

TANK TOP SAFETY

All resources should be exhausted before resorting to climbing on/at top of or working on tank tops. The following guideline will be followed when walking on tank tops.

1. Tank tops with a thickness of 1/8" or greater and a slope of 2" per foot or less can be walked on if the top is regularly inspected (once a year) and is in good condition.

2. Tank tops with less than an 1/8" thickness shall not be walked on until sufficient planking, capable of safely supporting employees, has been securely installed. The planking shall allow a safe ingress and egress to the workstation on top of the tank.

3. Work performed on the edge of tanks if possible and feasible, shall be performed with other means, such as a manlift, in lieu of walking on the tank top.

4. Employees shall be provided with an approved safety harness with safety lines attached to safe supports. The safe supports will be constructed and attached to the tank tops. The safe supports and the attached safety line will be configured in such a way that an employee maximum fall can be no more than 6 feet.

5. A Safe Work Permit shall be issued, and all areas monitored before work commences on/at top of the tanks. At a minimum, in areas with a potential for H2S concentrations of greater than 10 PPM, a SCBA shall be worn until the tank top atmosphere has been monitored safe and free of hazards. Continuous monitoring shall be continued while work is being done on the tank top. Non H2S areas do not require the SCBA for initial monitoring.

6. At a minimum, in areas with a potential for H2S concentrations of greater than 10 PPM, all employees performing duties on/at a tank top shall wear a 15-minute escape pack after the initial monitoring has been performed with a SCBA. A SCBA shall always be available on standby while duties are performed. Non H2S areas do not require a 15-minute escape pack or SCBA on standby.

7. A standby employee will stand watch and be available within sight and sound to offer assistance should an emergency arise.

8. All employees shall exit the tank top if a hazardous condition is encountered after the work is started. The situation will be reevaluated, and proper precautions and procedures initiated.

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SAFE WORK PERMITS

SAFE WORK PROCEDURE

PURPOSE

The purpose of the Safe Work Permit Standard is to establish a systematic method for ensuring safe working conditions and procedures are followed during Simultaneous Operations and Non-Routine Work.

SCOPE

This standard will define: the type of work requiring a Safe Work Permit, the qualifications of personnel allowed to authorize and sign the Permit, and instructions on how to properly complete the form.

APPLICABILITY

This procedure applies to all company and contract personnel. It does not apply to Hot Work and /or Confined Space Entry. Refer to the SAFETY STANDARDS 4.02 and 4.03 for specific instructions on Hot Work and Confined Space Entry.

A Safe Work Permit is required for any Simultaneous Operation and/or Non-Routine Work.

DEFINITIONS

Job Supervisor/Permit Initiator: The person controlling the execution of work. Typically, this is a company supervisor, contract supervisor, or lead maintenance person.

Non-Routine Work: Defined as any work with an unusual nature, with inherent danger, or unusual work site conditions.

Shift Change: When the Job Supervisor/Permit Initiator is relieved by another person, or the person(s) under the supervision of the Job Supervisor/Permit Initiator reaches the end of their shift.

Simultaneous Operations: Operations at a facility by more than one work group, such as, operations, drilling, production and/or construction. When simultaneous operations occur at one facility, each of the individual Job Site Supervisors must endorse the other Work Permit(s), i.e., sign the "Simultaneous Operations/Co-Signatures" section of the permits. This method ensures all parties are informed of the work activities at hand.

Site Supervisor: Person(s) authorized to approve and sign a Safe Work Permit, usually the Lead Operator (PIC/UWA) or designee. When the permit expires or when the work has been completed, the site supervisor shall be responsible for inspecting the work, ensuring no hazards exist and closing out completed permit.

RESPONSIBILITIES

Job Supervisor/Permit Initiator must:

- Initiate the "Safe Work Permit" by following the permit instructions outlined in this policy
- Review and sign simultaneous work permits, i.e. (Safe Work, Hot Work, Confined Space), when applicable.
- Review the "Safe Work Permit" conditions and sign the permit, acknowledging that conditions are understood.
- Contact the Site Supervisor to inspect and authorize the work.
- Conduct pre-job safety meeting to review job scope, Safe Work Permit conditions and applicable simultaneous operations.

Site Supervisor Must:

- Ensure all elements of the Safe Work Permit Procedure are followed.
- Conduct a site inspection is completed prior to issuing permit (refer to Site Inspection checklist on the Safe Work Permit).
- If applicable, ensure the atmospheric tests for safe Oxygen content, flammables, and toxics (O_2, LFL/LEL, and H_2S) are performed.
- Ensure permit initiator has signed applicable simultaneous operational permits.
- Review, sign and approve the Safe Work Permit.
- Inspect work site when job is complete and close the permit

QUALIFICATIONS OF PERSONNEL ISSUING PERMIT

Any person, including contract personnel, can initiate a Safe Work Permit. However, only a qualified Site Supervisor or designee may authorize and sign the permit. In addition, the Site Supervisor must have sufficient knowledge of the applicable company procedures to be utilized.

APPENDIX A
SAFE WORK PERMIT INSTRUCTIONS (Completing the Form)

SECTION I WORK

This section of the permit is to be completed by the Permit Initiator and/or Site Supervisor. The effective and expiration date/time must be listed. A permit is not valid beyond the duration of job scope or beyond a shift change, whichever is less. If a shift change, as defined in the definitions, has occurred a new safe work permit is required. A complete description of the proposed task and work location must be identified.

SECTION II EMERGENCY

The emergency service section is to be completed by the Site Supervisor, and discussed with all affected parties prior to commencement of work. Appropriate emergency service providers must be identified and means of contacting them in the event of an incident must be provided. This section will typically have the name and phone number of the nearest fire department, hospital and/or ambulance service.

SECTION III SITE INSPECTION

This section is to be completed by the Lead Operator (PIC/UWA), or designee. The Site Inspection cannot be completed by the Permit Initiator / Job Supervisor or anyone from the work group covered by the permit. The Lead Operator (UWA/PIC), or designee initials indicate that an inspection has been made and that applicable precautions have been taken and will remain in effect until the work listed is completed or until the permit expires.

SECTION IV PERSONAL PROTECTIVE EQUIPMENT (PPE)

Appropriate Personal Protective Equipment (PPE) to be used shall be specified in this section. The Site Supervisor must review this section prior to authorizing the work permit.

SECTION V SIGNATURES

This section requires the signatures described below:

1. Permit Initiator/Job Supervisor -The person to whom the permit is issued shall acknowledge that they understand and will comply with all conditions, precautions and restrictions of the permit by signing their signature to the permit.

2. Simultaneous Operation/Co-Signature - If a simultaneous operation is in effect at one facility, each of the individual Job Supervisors must also sign the co-authorized section. The co-authorized signature ensures all appropriate parties are informed of additional work activities.

3. Site Supervisor - The person responsible for the job site/ location shall authorize the work by signing their signature only after:

- ♦ Ensuring all elements of the Work Permit Procedure are followed.
- ♦ Ensuring permit initiator has signed applicable simultaneous work permits, i.e.(Safe Work, Hot Work, Confined Space).

- Ensuring that the person to whom the permit is issued fully understands the conditions, restrictions, and precautions of the permit.
- If the Site Supervisor who has signed the Safe Work Permit designates another person, that person has the authority to add their signature to the active safe work permit. Designee examples include: Another Lead operator or Night Operator.

DISTRIBUTION OF PERMIT

COPY 1 Post with Site Supervisor until work is completed, usually in the control room or office. Archived for minimum of 2 years

COPY 2 Post at Job Site

SAFE WORK PERMIT

SECTION I — WORK

Effective _____ Time _____ AM/PM Expires _____ Time _____ AM/PM

(PERMIT VALID FOR DURATION OF JOB, OR UNTIL SHIFT CHANGE, WHICHEVER IS LESS)

Permit Issued To: _____

Name Company

Description of Work _____

Specific Location _____ No. of Workers_____

SECTION II — EMERGENCY

EMERGENCY SERVICE

Name of Service Phone Number Method of Contact

_____

_____

SECTION III — SITE INSPECTION

INSPECTION ITEMS	Initials Verified	Initials N/A	INSPECTION ITEMS	Initials Verified	Initials N/A
Ensure adequate lighting			Protect cable trays or other electrical		
Ensure Ground Fault Circuit Interrupter (GCFI) use on temporary circuits. Ground / bond equipment.			Competent person has inspected scaffolding or trench		
Use power ventilation equipment			SDS on location		
De-pressurize / vent piping and equipment			Ensure the correct tools for the job are used		
Blind, blank or disconnect / misalign piping and equipment – refer to blind/equipment isolation list			Control hazards to adjacent operations / locations		
Disconnect, lock and tag ALL energy sources			Clean / wash equipment first		
Cover or plug drains			Purge equipment / piping		
Identify overhead / underground hazards			Hold pre-job safety meeting		
Applicable safety systems bypassed, flagged, Logged and monitored			Job Site Safety Analysis (JSA) for task		

Other conditions: _____

_____

SECTION IV — PPE

- ☐ Hard Hat
- ☐ Safety Glasses
- ☐ Steel Toed Boots
- ☐ Gloves (Impact, Leather, Chemical)
- ☐ Safety Harness/Retrieval Line
- ☐ Anti-Fall Device
- ☐ Face Shield
- ☐ Safety Goggles
- ☐ Protective Clothing
- ☐ Rubber Boots
- ☐ Welder Helper Glasses
- ☐ Hearing Protection
- ☐ Rescue Retrieval Winch (Required for entries over 5' deep)
- ☐ SCBA / Airline Unit
- ☐ Cartridge Respirator
- ☐ Dust Mask
- ☐ Other _____

SECTION V — SIGNATURES

We have received instructions on safety procedures and hazards of this job and the permit is complete.

Permit Initiator / Job Supervisor _____

Simultaneous Operations Co-Signatures _____ _____

_____ _____

Site Supervisor / Designee _____

Permit Closed Out by: ☐

4091

POST AT JOB SITE

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HOT WORK PERMIT

APPENDIX A

Bump Testing Procedure

HOT WORK PROCEDURE

PURPOSE

This standard establishes proper safety precautions to be taken when work could create a source of ignition in an area that is normally free of ignition sources. It does not apply to designated "Safe Welding and Burning Areas". This written document includes a work authorization system (Hot Work Permit) and the precautions to follow in order to complete work safely.

REFERENCE

Cal OSHA, Title 8 CCR, subsection 4848, *Fire Prevention*
Fed OSHA, 29 CFR 1910.252-255, *Oxygen-Fuel Gas Welding and Cutting*
BOEM, 30 CFR 250.109-114, *Welding and Burning Plans*
NFPA Standard, 51B, *Fire Prevention During Welding*

APPLICABILITY

This procedure applies to all company and contract personnel, as defined above. The *Hot Work Procedure* does not apply to designated "Safe Welding and Burning Areas".

A Hot Work Permit is also required when a motorized vehicle enters an area classified Class I, Division 1. If it remains stationary to perform work, all applicable provisions of this policy apply. Vehicles may temporarily enter a Class I, Division 2 area providing it has been determined safe by appropriate lower flammable/explosive limits (LFL/LEL) tests, and continuous monitoring occurs during the duration of the work.

DEFINITIONS

Bump Test: A qualitative function check where a challenge gas is passed over the sensor(s) at a concentration and exposure time sufficient to activate all alarm indicators. The purpose of the bump test is to confirm that gas can get to the sensor(s) and that all alarms are present and functional.

Classified Area: Electrical classification - Includes all areas of the facility which have been classified by Class I Division 1 or Class I Division 2, by the *National Electric Code.*

Designated Safe-Welding and Burning Areas: Some facilities have designated safe-welding and burning location(s). When welding operations are conducted in these approved areas a Hot Work Permit and/or Fire Watch is not required, providing the provisions of the designated area are satisfied.

Fire Watch: The qualified person with associated fire protection equipment, and communication equipment assigned to stand by during and at least thirty (30) minutes after welding, cutting or open flame operations.

Ignition Source: An open flame, welding, hot tapping, burning, grinding, abrasive blasting, open and energized electrical junctions, or any spark producing device. Electrical hand tools, vehicles and other spark ignited engines are ignition sources.

Job Supervisor/Permit Initiator: The person controlling the execution of work, typically the welder or contract supervisor.

Shift Change: When the Job Supervisor/Permit Initiator is relieved by another person, or the person(s) under the supervision of the Job Supervisor/Permit Initiator reaches the end of their shift.

Simultaneous Operations: Operations at a facility by more than one work group, such as, operations, drilling, production and/or construction. When simultaneous operations occur at one facility, each of the individual Job Site Supervisors must endorse the other Work Permit(s), i.e., sign the "Simultaneous Operations/Co-Signatures" section of the permits. This method ensures all parties are informed of the work activities at hand.

Site Supervisor: Person(s) authorized to approve and sign a Hot Work Permit, usually the Lead Operator (PIC/UWA) or designee.

WELDER QUALIFICATION

Welder standard certification shall be verified by the site supervisor or designated person in charge prior to allowing welding operations. If required certification cannot be produced, the welder must not be allowed to perform any welding operation. Typical welder certification requirements are as follows:

DOT Pipelines: Certifications of welders welding on DOT jurisdictional transmission piping or facilities must meet section III of API 1104 specifications, or other specifications defined in DOT Pipeline O&M procedures.

Pressure Vessels: Qualification and certification of welders welding on ASME Section I or Section IV boilers, or ASME Section VIII hydrocarbon vessels must meet ASME Boiler and Pressure Vessel Code, Section IX specifications.

Gas Plants: Qualification and certification of welders welding on all Gas Plant or Offshore platform process piping (ANSI B31.3 piping) must meet ASME Boiler and Pressure Vessel Code, Section IX specifications.

Flowlines: Certifications of welders welding on field liquid transmission piping or flowlines (ANSI B31.4 piping) or field gas transmission piping flowlines (ANSI B31.8 piping) must meet ASME Boiler and Pressure Vessel Code, Section IX, or API 1104 specifications.

Structural: Certification of welders welding major structural members must meet AWS D1.1 specifications (Examples include: Deck beams, deck extensions, boat landing and structural supports).

Other Welding: Any burning or welding on anything other than main structural or process equipment shall be performed by personnel acceptable to the Site Supervisor. Welders shall be fully aware of all safety regulations. "Other Welding" should be limited to minor structural welding (Examples include: handrails, grating, pipe supports, fire tubes, etc.).

RESPONSIBILITIES

Job Supervisor/Permit Initiator must:

- Initiate the "Hot Work Permit" by following the permit instructions outlined in this policy.
- Review and sign simultaneous work permits, i.e. (Safe Work, Hot Work, Confined Space), when applicable.
- Complete Bump Test and Initial Atmospheric Testing and document outcome on the permit.
- Review the "Hot Work Permit" conditions and sign the permit, acknowledging that conditions are understood.
- Contact the Site Supervisor to inspect and authorize the work.
- Conduct pre-job safety meeting to review job scope, Hot Work Permit conditions and applicable simultaneous operations.

Site Supervisor Must:

- Ensure all elements of the Hot Work Permit Procedure are followed.
- Inspect Welder Qualification/Certification(s) in accordance with the definition of "Qualified Welder" above.
- Conduct a site inspection (refer to Site Inspection checklist on the Hot Work Permit).
- Ensure the atmospheric tests for safe Oxygen content, flammables, and toxics (O_2, LFL/LEL, and H_2S) are performed.
- Ensure permit initiator has signed applicable simultaneous operational permits.
- Ensure variance(s), if applicable, are posted and have not expired.
- Review, sign and approve the Hot Work Permit.
- Inspect the work site when job is completed and close the permit.

Designated Fire Watch Must:

- Ensure adequate fire extinguisher and /or charged fire hose is at the site during the hot work. Two fire protection devices must be available for hot work operations in Class I, Division 1 and Class I, Division 2) areas.
- Alert personnel entering the permitted area of hazards, i.e., flashes, grinding, cutting, overhead hazards, etc.
- Stop the hot work if sparks, flame or heat project outside the permitted area.
- Activate the fire alarm and/or emergency shut down (ESD) and then attempt to extinguish any incipient stage fires.
- Continuously monitor the area during and thirty (30) minutes after the hot work (welding, cutting or open flame operations) is completed.
- Maintain atmospheric log and document readings from gas monitoring device

A FIRE WATCH MAY HAVE NO OTHER DUTIES!

GENERAL REQUIREMENTS

1. Training shall be required in the use of fire extinguishing equipment for employees assigned to fire watch. Assigned fire watchers must be trained in the use of fire extinguishing equipment and familiar with the facilities for sounding an alarm in the event of a fire.
2. Welders and their supervisors must be suitably trained in the safe operations of their equipment and the safe use of the process.
3. If the object to be welded or cut cannot readily be moved, all moveable fire hazards should be removed. A thirty-five (35) foot clearance must be maintained from all flammable/combustible hazards without guards in place.
4. If all the fire hazards, flammables/combustibles cannot be removed, then guards shall be used to confine the heat, sparks and slag and to protect the immovable fire hazards. If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards shields, fire blankets, tarps, etc. shall be used to confine the heat, sparks and slag and to protect the immovable fire hazards.
5. If welding cannot be conducted safely the welding and cutting shall not be performed. If fire hazards cannot be taken to a safe place or guards cannot be used to confine heat, sparks, slag and protect the immovable fire hazards, the welding and cutting shall not be performed.
6. Fire watch personnel shall have at least one fire extinguisher readily available. A backup means of fire protection, i.e. additional fire extinguisher, fire hose, buffalo, or water truck), should also be available.
7. A hot work permit must be completed before performing hot work. Precautions that are to be taken shall be in the form of a written permit. Before cutting or welding is permitted the area shall be inspected and the written permit shall be used to authorize welding and cutting operations.
8. A fire watch shall remain on duty at least thirty (30) minutes after the welding or cutting operation has been completed.
9. Any welding, cutting or burning of lead base metals, zinc, cadmium, mercury, beryllium or exotic metals or paints not listed here shall have proper ventilation or respiratory protection.
10. Operators of equipment must report any equipment defect or safety hazards and discontinue use of equipment until its safety has been assured. Repairs shall be made only by qualified personnel.
11. Atmospheric tests for safe oxygen content, flammables, and toxics (O_2, LFL / LEL, and H_2S) must be performed prior to issuing hot work permit.
12. Drains / vents within thirty-five (35) feet (minimum) radius must be sealed and adjacent areas inspected.
13. Spent welding materials and rods are to be placed in metal buckets containing water to prevent ignition.
14. If Hot Work is conducted within ten (10) feet of a well bay, variance is issued and producing wells are shut in at the surface safety valve.
15. Verify that there are no combustible materials on the backside of bulkhead or fire watch must be posted on each side.

16. Applicable safety systems are bypassed, flagged, logged and monitored.
17. Gas monitoring devices shall be bump tested before each use.

If the general requirements stated above to weld safely cannot be satisfied, welding cannot be conducted.

WELDING EQUIPMENT

Welding equipment must be maintained in a safe and workman like manner. Equipment must be visually inspected prior to each use.

The following welding equipment standards must be verified in place by the site supervisor or designated person in charge prior to hot work activities:

- Spark arrestors and drip pans on portable welding machines,
- Welding leads insulated and in good condition,
- Hoses free of leaks and equipped with proper fittings, gauges, and regulators,
- Oxygen and fuel gas bottles secured.
- Caps must be secured on cylinders and gauges removed prior to storage and/or transport.
- Oxygen and fuel in storage separated by 20’ or 5’ high noncombustible barrier.

PERFORMING THE HOT WORK

After the Hot Work Permit is approved and the hot work has begun, operating personnel will make periodic checks with an approved gas detector. If combustible gases are found greater than 10% of the Lower Flammable Limit (LFL/LEL), the job will be shut down and the area re-permitted.

Operations personnel must verify that designated Fire Watch personnel are continuously monitoring the area during the job.

COMPLETION OF THE HOT WORK

- Immediately after the work is completed, the work area and adjacent areas will be inspected to ensure there has been no spread of sparks or heat.
- The fire watch will remain at the work site for a minimum period of thirty (30) minutes after hot work has ceased, to ensure that the area is secure.
- The person(s) doing the work will return their copy of the permit to the Site Supervisor after the job is complete and the area is secure.
- Upon completion of job, the site supervisor and/or designee must close out the permit by reviewing/initialing within the acknowledgement box.
    - Copies of the permit, job safety analysis (JSA) and atmospheric log will be properly archived for a period of 2 years

WELDING IN A CONFINED SPACE

Welding in a confined space is extremely dangerous. Provisions must be taken to obtain a confined space permit in addition to the hot work permit. At a minimum ensure adequate ventilation is in place, cylinders bottles are secure, lifelines are used, electrodes are removed, gas cylinders are shutoff and warning signs are posted. Refer to the company confined space entry procedure.

TRAINING

Fire Watch: The training for a Fire Watch should include: 1) hands-on fire extinguisher training, 2) demonstration of their ability to properly use gas detection equipment, 3) demonstration of their ability to use a fire hose reel, and 4) demonstration of applicable fire prevention procedures.

Additionally, assigned fire watch personnel must be trained in the use of fire extinguishing equipment and be familiar with the facilities for sounding an alarm in the event of a fire.

Welders/Cutters: Cutters, welders must be suitably trained in the safe operations of their equipment and the safe use of the process.

Site Supervisor: The Site Supervisor must attend general fire protection training and be familiar with the applicable provisions of this procedure.

APPENDIX A

HOT WORK PERMIT INSTRUCTIONS (Completing the Form)

SECTION I WORK

This section of the permit is to be completed by the Permit Initiator and/or Site Supervisor. The effective and expiration date/time must be listed. A permit is not valid beyond the duration of the job scope, or beyond a shift change, whichever is less. If a shift change, as defined in the definitions, has occurred a new hot work permit is required. All designated Fire Watch(s) must be listed and a complete description of the proposed task and work location must be identified.

SECTION II EMERGENCY SERVICE/VAPOR TEST

The emergency service section is to be completed and discussed with all affected parties prior to commencement of work. Appropriate emergency service providers must be identified and means of contacting them in the event of an incident. This section will typically have the name and telephone number of the nearest fire department, hospital and/or ambulance service.

The vapor test portion of this section is to be completed and initialed by a Company employee, or contract personnel who are qualified by training to perform the required tests. Tests shall be repeated at sufficient intervals of time to ensure that conditions do not change during the work activities. Sufficient time intervals range from continuous monitoring to every four hours depending on hazard potential.

SECTION III SITE INSPECTION

This section is to be completed by the Lead Operator (PIC/UWA), or designee. The Site Inspection cannot be completed by the Permit Initiator / Job Supervisor or anyone from the work group covered by the permit. The Lead Operator (UWA/PIC), or designee initials indicate that an inspection has been made and that applicable precautions have been taken and will remain in effect until the work listed is completed or until the permit expires.

SECTION IV PERSONAL PROTECTIVE EQUIPMENT (PPE)

Appropriate Personal Protective Equipment (PPE) to be used shall be specified in this section. The Site Supervisor must review this section prior to authorizing the work permit.

SECTION V SIGNATURES

This section requires signatures described below:

1. Permit Initiator/Job Supervisor -The person to whom the permit is issued shall acknowledge that they understand and will comply with all conditions, precautions and restrictions of the permit by signing their signature to the permit.

2. Fire Watch - All designated Fire Watch personnel must sign, acknowledging precautions will be followed.

3. Simultaneous Operation/Co-Signature - If a simultaneous operation is in effect at one facility, each of the individual Job Supervisors must also sign the co-authorized section. The co-authorized signature ensures all appropriate parties are informed of additional work activities.

4. Site Supervisor - The person responsible for the job site/ location shall authorize the work by signing their signature only after:

    - Ensuring all elements of the Hot Work Procedure are followed.
    - Inspecting Welder Qualification/Certification(s) in accordance with the definition of "Qualified Welder".
    - Conducting a site inspection (refer to Site Inspection checklist on the Hot Work Permit).
    - Ensuring the atmospheric tests for safe oxygen content, flammables, and toxics (O_2, LFL/LEL, and H_2S) are performed.
    - Ensuring permit initiator has signed applicable simultaneous work permits, i.e. (Safe Work, Hot Work, Confined Space).
    - Ensuring that the person to whom the permit is issued fully understands the conditions, restrictions, and precautions of the permit.
    - If the Site Supervisor who has signed the Work Permit designates another person, that person has the authority to add their signature to the active hot work permit. Designee examples include: Another Lead operator or Night Operator.

DISTRIBUTION OF PERMIT

COPY 1 Post with Site Supervisor until work is completed, usually in the control room or office. Archived for a minimum of 2 years.

COPY 2 Post at the Job Site.

HOT WORK PERMIT

SECTION I — WORK

Effective _____ Time _____ AM/PM Expires _____ Time _____ AM/PM

(PERMIT VALID FOR DURATION OF JOB, OR UNTIL SHIFT CHANGE, WHICHEVER IS LESS)

Permit Issued To: _____ Designated Firewatch(s):_____

Name Company

_____

Description of Work _____

_____

Specific Location _____ No. of Workers _____

SECTION II — EMERGENCY/ VAPOR TEST

EMERGENCY SERVICE

Name of Service Phone Method of Contact

_____

_____

_____

ATMOSPHERIC TESTING RECORD

	Acceptable Range	Bump Test	Initial Test
Oxygen	19.5% - 23.5%	Pass / Fail	
Flammables	0 – 10% LFL / LEL	Pass / Fail	
H_2S	0-10 PPM	Pass / Fail	
Toxics	0 - PEL	Pass / Fail	

Monitor Information

Model: _____

Serial #: _____

Calibration Date: _____

Specify Toxic Gas/Vapor _____ PEL _____

Tester's Initials _____ Time of Initial Test _____

SECTION III — SITE INSPECTION

INSPECTION ITEMS	Initials Verified	Initials N/A	INSPECTION ITEMS	Initials Verified	Initials N/A
Designated fire watch has adequate fire extinguisher and /or charged fire hose at the site during the hot work.			Welding equipment and leads in good condition and are not creating a trip hazard.		
Atmospheric tests for safe oxygen content, flammables, and toxics (O_2, LFL/LEL, and H_2S) are performed.			There are no combustible materials on the backside of bulkhead and fire watch is posted on each side.		
Drains / vents within a **35** feet (minimum) radius are sealed and adjacent areas inspected.			Oil and other combustibles have been cleared from equipment to be welded.		
Hydrocarbon / Flammable sources located within **35** feet of work site relocated, rendered inert, or protected with flameproof covers/shields.			Engine-driven welding machines are equipped with spark arrestors, emergency shutdowns (ESD) and drip pans.		
If Hot Work is conducted within **10** feet of a well bay, variance is issued and producing wells are shut in at the surface safety valve.			Special approval / procedures are required for hot taps. Refer to Hot Tap Procedure for additional guidance.		
Oxygen and acetylene bottles secured in a safe place.			Applicable safety systems are bypassed, flagged, logged and monitored.		
Welding curtains, spark boards and shields are in place.			Job Site Safety Analysis (JSA) and/or Pre-job safety meeting completed.		

Other conditions _____

SECTION IV — PPE

- ☐ Hard Hat
- ☐ Safety Glasses
- ☐ Steel Toed Boots
- ☐ Gloves (Impact, leather, chemical)
- ☐ Safety Harness/Retrieval Line
- ☐ Anti-Fall Device
- ☐ Face Shield
- ☐ Safety Goggles
- ☐ Protective Clothing
- ☐ Rubber Boots
- ☐ Welder Helper Glasses
- ☐ Hearing Protection
- ☐ Rescue Retrieval Winch (Required for entries over 5' deep)
- ☐ SCBA
- ☐ Cartridge Respirator
- ☐ Dust Mask
- ☐ Other _____

SECTION V — SIGNATURES

We have received instructions on safety procedures and hazards of this job and the permit is complete.

Permit Initiator / Job Supervisor: _____

Fire Watch(s) :_____ _____

(Must monitor area for 30 minutes after completion of hot work.)

Simultaneous Operations / Co-Signatures: _____ _____

_____ _____

Site Supervisor / Designee: _____

Permit Closed Out by: ☐

POST AT JOB SITE

4021

Air Test Log

Document air test readings every _____ minutes.

Time	O_2 19.5% - 23.5%	LFL 0 – 10%	H_2S 0 – 10 PPM	Other: 0 - PEL	Tester's Initials

TEST EQUIPMENT INFORMATION

Analyzer type:
Serial Number:
Calibration Date:

APPENDIX B

Bump Testing Procedure

Before the initial atmospheric readings can be obtained, the gas detection device(s) needs to be properly bump tested.

Required Equipment:

- Calibration/Test Gas
- Calibration/Test cap for the selected detection device
- Regulator and tubing

Procedure:

1. Ensure calibration/test gas has not expired
2. Attach the regulator to the calibration/test gas
3. Turn on detection device
4. Attach the calibration/test cap on the device
5. Open the regulator to begin subjecting the sensors to the calibration/test gas
6. Verify all alarms activate and are audible
7. Shut off regulator and remove calibration/test cap to allow sensors to return to zero status
8. Document bump test on the hot work permit under the atmospheric testing record

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CONFINED SPACE ENTRY PROCEDURE

PURPOSE

This standard establishes procedures necessary for preparation, entry and restoration of a confined space to be entered by personnel. It is designed to maintain a safe environment for personnel working in a confined space.

SCOPE

This standard applies to any vessel, confined space or excavation greater than four (4) feet deep and to any vessel, or confined space that is large enough to be entered bodily and has one or more of the following characteristics: has a limited or restricted openings for entry and exit, contains or has potential to contain a hazardous atmosphere, is not intended for continuous occupation, has insufficient natural ventilation, and may contain known or potential hazards.

REFERENCE

TITLE 8 CCR, subsection 5157, *Permit-Required Confined Space*
29 CFR 1910.146, *Permit-Required Confined Spaces*

DEFINITIONS

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

Attendant: An individual stationed outside a permit space who is to monitor the authorized entrant(s), permit space and surrounding area. Responsibilities include, but or not limited to, knowing the hazards that may be encountered during entry, remaining outside the permit space during entry operations, maintaining adequate communication with the entrant(s), monitoring the permit space and insuring that unauthorized personnel stay out of the area. If conditions warrant, the Attendant must order the entrants to evacuate the confined space and may be required to summon rescue or emergency services to the scene.

Authorized Entrant: An employee authorized by the employer to enter a permit space. An Authorized Entrant must know the hazards that may exist during entry, the proper use of personal protective equipment (PPE), and proper communication procedures. In addition, an Authorized Entrant must recognize unsafe conditions that may arise in a confined space and be able to follow through with associated evacuation procedures in the event of an emergency.

Bump Test: A qualitative function check where a challenge gas is passed over the sensor(s) at a concentration and exposure time sufficient to activate all alarm indicators. The purpose of this bump test is to confirm that gas can get to the sensor(s) and that all the alarms present are functional.

Confined Space: A Confined Space is a space that: 1) Is large enough and so configured that an employee can bodily enter and perform assigned work: and, 2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits), and 3) Is not designed for continuous employee occupancy.

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

Entry Supervisor: The person responsible for determining if acceptable entry conditions are met prior to allowing entry into the confined space. The Entry Supervisor will authorize and oversee operations, terminate entry as required, and conduct a pre-entry safety briefing.

Job Supervisor/Permit Initiator: The person controlling the execution of work. Typically, this is a company supervisor, contract supervisor, or lead maintenance person.

Non-Permit Confined Space: Is a space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazards capable of causing death or serious physical harm.

Permit Required Confined Space: Is a confined space that has one or more of the following:

- Contains a hazardous atmosphere (or has potential to contain one).
- Contains a material that has potential for engulfing an entrant.
- Has an internal configuration in which an entrant could be trapped or asphyxiated?
- Contains any other recognized serious safety or health hazard.

Rescue Person: The person available on site when a permit required confined space is entered by an employee. A Rescue Person shall be trained equivalent to that of an Authorized Entrant. In addition, complete training in confined space rescue, First Aid / CPR, and must know how to use the rescue and personal protective equipment required for the job. Rescue personnel must have proper PPE and practice rescues at least once every 12 months.

Shift Change: When the Job Supervisor/Permit Initiator is relieved by another person, or the person(s) under the supervision of the Job Supervisor/Permit Initiator reaches the end of their shift.

Simultaneous Operations: Operations at a facility by more than one work group, such as, operations, drilling, production and/or construction. When simultaneous operations occur at one facility, each of the individual Job Site Supervisors must endorse the other Work Permit(s), i.e., sign the "Simultaneous Operations/Co-Signatures" section of the permits. This method ensures all parties are informed of the work activities at hand.

Site Supervisor: Person(s) authorized to approve and sign a Safe Work Permit, usually the Lead Operator (PIC/UWA) or designee. When the permit expires or when the work has been completed, the site supervisor shall be responsible for inspecting the work, ensuring no hazards exist and closing out completed permit.

GENERAL REQUIREMENTS

1. Each affected employee must be trained prior to initial assignment, prior to a change in assigned duties, if a new hazard has been created or special deviations have occurred.

2. Training certifications shall include employee name, trainer signature/initials, and dates of training. Certifications must be made available to employees and their authorized representative.

3. When performing confined space entry protection must be maintained from external hazards for employees including pedestrians and vehicles. Warning signs such as the one shown below must be posted on any open permit required confined space. Vehicle barriers such as k-rails and/or warning signs, caution tape, cones and delineators must be in place, if vehicles could enter the work area. These barriers are necessary to protect entrants from external hazards and to ensure conditions in the permit space are acceptable for entry during its duration.



4. An attendant must be on duty, as described within the Definitions section of this plan, outside the confined space for the duration of permit entry operations.

5. One or more properly equipped and trained attendant(s) shall be posted outside the space to remain in direct communications with workers inside. The practice of allowing one attendant monitoring more than one permit space is not allowed.

6. Duties of authorized entrants, attendants and entry supervisors are defined within the definitions section of this plan.

7. Rescue services shall be either provided by the host facility, or outside services, and for any IDLH conditions. If provided by the host facility: it must be noted on the confined space permit and safety program and it must be agreed upon by both parties. If outside services are used, outside services must be given an opportunity to examine the entry site, practice rescue, and decline as appropriate. IDLH conditions require trained rescue on site while work is being performed. Outside services must also be given an opportunity to examine the entry site, practice rescue, and decline as appropriate.

8. All permit required confined space entries shall be in accordance with Confined Space Entry Permit within the appendices of this plan. Means of preparation, issuance, use, and cancellation of entry permits are described within the Appendix A, Confined Space Entry Permit Instructions.

9. When contractors perform work at company facilities that involve a permit required confined space entry, the Company representative inform the contractor of the provisions illustrated within the Contractor Permit Confined Space Entry part of this plan. This section includes procedures for coordinating entry operations for multi employers so that employees of one employer do not endanger the employees of any other employer.

10. Procedures for terminating a confined space entry permit and closing it out after job completion are located within the Restoration of Vessel or Confined Space section.

11. A review of the permit space program will be done using the canceled permits retained within 1 year after each entry. These reviews will be done within 1 year after each entry and the program will be revised as necessary, to ensure that employees are protected. If no entry is performed during a 12-month period, no review is necessary.

12. Upon monitoring of the space the site supervisor must inform the entrants of the potential hazards and results; additionally entrants must participate in the permit review and signing. Ventilation must always be used during a permit required entry and testing must be conducted before entry and during work at intervals specified by the site supervisor.

13. Employees, or their representatives, must be given an opportunity to request the space be re-evaluated as needed.

14. Rescue services must be provided on site during permit required entry. They must be either:

    - Provided by the host facility; or
    - provided by an outside service which is given an opportunity to examine the entry site, practice rescue and decline as appropriate; or
    - Provided by the employer by selecting a rescue team that is equipped and trained to perform the needed rescue services.

PRE-ENTRY PROCEDURE

The entry supervisor is responsible for proper preparation of the vessel or permit confined space to be entered. Prior to entry, a pre-entry safety meeting will be conducted by the supervisor with all affected personnel.

In preparation for entry, the checklist on the **Confined Space Entry Permit (attached)** shall be initiated and completed by a qualified person. In addition, the following steps must be adhered to:

- The vessel and confined space must be properly isolated through blinding or disconnection as outlined in the SAFETY STANDARD - Lockout/Tagout and SAFETY STANDARD - Blinding procedure. Every line, including sight glasses, connected to the vessel must be blinded or disconnected as close to the vessel as possible. A sketch or drawing is recommended for identifying lines.
- The vessel must be purged, steamed, washed, etc., as much as necessary to properly free the vessel of all hazardous atmospheres.
- Signs and/or barricades shall be posted outside to notify personnel of permit-required confined space entry and prohibit unauthorized entry.
- Establish ventilation to ensure movement of fresh air in the vessel. Natural ventilation is considered insufficient. Air driven or explosion-proof electric fans are required if flammable gas or vapors are present. An approved breathing air line and escape air cylinder may be used only as an additional precaution for entry after attempts to normalize the atmosphere are complete.
- Fire extinguisher(s) and other firefighting equipment shall be available where needed.
- Proper personal protective equipment should be available -- coveralls, goggles, gloves, respirators, etc.
- At least one person trained in CPR and first aid must be available on-site, along with a first-aid kit.
- Lighting conditions, temperature, the need for climbing, scaffolding or the presence of water in deep excavations should be considered. All lighting equipment shall be explosion proof (Class 1, Division 1) and have a ground fault circuit interrupter (GFCI) device installed.
- Equipment such as air movers and vacuum truck hoses shall be properly grounded or bonded to prevent static sparks.
- Lifelines, harnesses and other rescue equipment (hoist, etc.) shall be provided for top openings on large vessels, spaces or deep excavations where rescuing workers would be difficult.

- A self-contained breathing apparatus (SCBA - 30 minute rescue type) shall be immediately available outside should rescue be necessary.
- A communication system (electronic, voice, hand signals, etc.) shall be established between workers and standby personnel prior to entry.
- All affected personnel shall be trained in and familiar with their assigned duties, any hazardous materials that may be present in the confined space, rescue equipment, procedures and emergency contacts.
- Outside services which should be summoned in the event of an emergency and the means of communication with those services shall be listed on or attached to the permit.
- A pre-entry briefing shall be held and documented for all personnel involved, in permit-confined space entries. All precautions and concerns should be discussed.
- Bump test all monitors to be used during the entry and log the test on the permit.
- Check the atmosphere for Oxygen level (should be 19.5% to 23.5%), combustible vapors (should be 0% LFL/LEL), and toxic gases in this order. In certain cases, a confined space may need to be tested for Naturally Occurring Radioactive Material (NORM). Record those results on the permit. Possible toxic gases may include, but are not limited to, hydrogen sulfide, carbon monoxide, carbon dioxide, mercaptan and benzene.
- One or more properly equipped and trained attendant(s) shall be posted outside the space to remain in direct communications with workers inside.
- One trained standby person shall be available at the site and immediately available to perform rescue and emergency services.

When all the preparation steps on the confined Space Entry Permit are complete and any additional precautions are taken, the permit to enter a space may be then signed and issued.

ENTRY PROCEDURE

- Entry may be made by authorized entrants after preparation requirements have been met and a Confined Space Entry Permit has been signed and issued.
- The attendant must not leave the confined space with someone inside, without first ensuring another standby person is present. In addition, the attendant must maintain communication with the entrants.
- Unauthorized personnel shall not be allowed entry, and if the vessel or confined space is left unattended, the signs barricades etc. shall be left in place.

- The atmospheric conditions shall be **RECHECKED** as often as necessary during entry to ensure a safe work environment.

If subsequent repairs require hot work, a separate Hot Work Permit must be issued in accordance with the SAFETY STANDARD - Hot Work Procedure.

RESTORATION OF VESSEL OR CONFINED SPACE

When all work is complete, and the vessel or confined space is ready to be returned to service, this checklist should be used for proper restoration. Additional questions to consider while restoring a confined space include:

- Are all personnel out of the space?
- Are all blinds removed using the blind list?
- Are all equipment and tools removed?
- Are all man-ways and flanges closed and sealed?
- Has the atmosphere been purged and returned to normal?
- Have start-up procedures been reviewed?

CONTRACTOR PERMIT CONFINED SPACE ENTRY

When contractors perform work at company facilities that involve a permit required confined space entry, the Company representative shall notify the contractor of:

- The work which involves a permit confined space entry. The contractor can use their own entry permit as long as it meets the requirements of the Company SAFETY STANDARD - Confined Space Entry Procedure and State and Federal regulations. Utilizing a contractor's permit does not exempt the use of a Company permit.
- The hazards associated with the vessel or confined space.
- The actions required to coordinate Company and the contractor’s activities in the area where the contractor's employees will be working.

In addition, the contractor will:

- Obtain available information regarding the vessel or confined space hazards from the Company representative before beginning work.
- Coordinate entry with other activities in the area of operations.

- Inform the Company representative of the vessel or confined space entry program that the contractor will follow.

- Immediately inform the Company representative of any hazard confronted in the vessel or confined space entry.

CLASSIFICATION OF A NON-PERMIT CONFINED SPACE

At times a Confined Space may be entered without the need for a written permit provided the space is determined not to be a permit required confined space. All spaces must be considered permit required confined spaces until pre-entry procedures determine otherwise.

If it is necessary to enter a space to eliminate hazards, such entry must be performed under permit required confined space procedures. If testing and inspection during the entry demonstrate that the hazards within the space have been eliminated, and there is no potential for hazards to develop, the space can be reclassified as a non-permit space.

As conditions, use or configuration of a confined space change over the time the space can be reclassified from a permit to a non-permit space or vice-versa. This means that sometimes a non-permit space will be reclassified as a permit space because hazards have risen within the space.

The entry supervisor must document the basis for the decision that all hazards have been eliminated. Documentation must contain the date, the location of the space and a signature. The Safe Work permit must be used for this purpose.

TRAINING

The Company shall provide training to all employees whose work is regulated by this program. Each affected employee must be trained prior to initial assignment, prior to a change in assigned duties, if a new hazard has been created or special deviations have occurred. The employer must certify that the required training has been accomplished.
The certification shall include employee name, trainer signature/initials, and dates of training. Certification must be made available to employees & their authorized representative.

APPENDIX A

CONFINED SPACE ENTRY PERMIT INSTRUCTIONS (Completing the Form)

SECTION I WORK

This section of the permit is to be completed by the Permit Initiator/Entry Supervisor and/or Site Supervisor. The effective and expiration date/time must be listed. A permit is not valid beyond the duration of job scope, or beyond a shift change, whichever is less. If a shift change, as defined in the definitions, has occurred a new safe work permit is required. All Authorized Entrants, Attendants and Rescue personnel must be listed, and a complete description of the proposed task and work location must be identified.

SECTION II HAZARDS/VAPOR TEST

The vapor test portion of this section is to be completed and initialed by a Company employee, or contract personnel who is qualified by training to perform the required tests. Tests shall be repeated at sufficient intervals of time to ensure that conditions do not change during the work activities. Sufficient time intervals range from continuous monitoring, while personnel are inside the confined space, to every four hours depending on hazard potential.

SECTION III EMERGENCY

The emergency service section is to be completed by the Site Supervisor, and discussed with all affected parties prior to commencement of work. Appropriate emergency service providers must be identified and means of contacting them in the event of an incident. This section will typically have the name and phone number of the nearest fire department, hospital and/or ambulance service (medivac if remotely located or offshore).

The type of communication means the Attendant will utilize to signal an emergency evacuation of the confined space. If all of the Authorized Entrants will be within plain site of the Attendant, state "Visual Communication".

SECTION IV SITE INSPECTION

This section is to be completed by the Lead Operator (PIC/UWA), or designee. The Site Inspection cannot be completed by the Permit Initiator / Job Supervisor or anyone from the work group covered by the permit. The Lead Operator (UWA/PIC), or designee initials indicate that an inspection has been made and that applicable precautions have been taken and will remain in effect until the work listed is completed or until the permit expires.

SECTION V PERSONAL PROTECTIVE EQUIPMENT (PPE)

Appropriate Personal Protective Equipment (PPE) to be used shall be specified in this section. The Site Supervisor must review this section prior to authorizing the work permit.

SECTION VI SIGNATURES

This section requires signatures described below:

1. Permit Initiator/Entry Supervisor -The person to whom the permit is issued shall acknowledge that they understand and will comply with all conditions, precautions and restrictions of the permit by signing their signature to the permit.

2. Authorized Entrant/Attendant/Rescue - All Authorized Entrants, Attendants and Rescue personnel must sign acknowledging precautions will be followed.

3. Simultaneous Operation/Co-Signature - If a simultaneous operation is in effect at one facility, each of the individual Job Supervisors must also sign the co-authorized section. The co-authorized signature ensures all appropriate parties are informed of additional work activities.

4. Site Supervisor - The person responsible for the job site/ location shall authorize the work by signing their signature only after:

    - Ensuring all elements of the "Confined Space Entry Procedure" are followed.
    - Conducting a site inspection (refer to Site Inspection checklist on the Confined Space Entry Permit).
    - Ensuring the atmospheric tests for safe Oxygen content, flammables, and toxics (O_2, LFL/LEL, and H_2S) are performed.
    - Ensuring permit initiator has signed applicable simultaneous work permits, i.e. (Safe Work, Hot Work, Confined Space).
    - Ensuring that the person to whom the permit is issued fully understands the conditions, restrictions, and precautions of the permit
    - Inspecting the work area when the job is completed and close out the permit.
    - If the Site Supervisor who has signed the Work Permit designates another person, that person has the authority to add their signature to the active confined space work permit. Designee examples include: Another Lead operator or Night Operator.

DISTRIBUTION OF PERMIT

COPY 1 Post with Site Supervisor until work is completed.
Usually in control room or office. Archived for minimum of 2 years

COPY 2 Post at Job Site

CONFINED SPACE ENTRY PERMIT

SECTION I — WORK

Effective _____ Time _____ AM/PM Expires _____ Time _____ AM/PM

(PERMIT VALID FOR DURATION OF JOB, OR UNTIL SHIFT CHANGE, WHICHEVER IS LESS)

Permit Issued To: _____ Authorized Entrants: _____
Name Company

_____

Description of Work _____

Attendant: _____

Specific Location _____ No. of Workers_____

Rescue: _____

SECTION II — HAZARDS/ VAPOR TEST

PERMIT SPACE HAZARDS (Indicate specific hazards with initials)

_____ Oxygen Deficiency (less than 19.5%)
_____ Oxygen Enrichment (greater than 23.5%)
_____ Flammable Gases (greater than 10% LFL/LEL)
_____ Toxic Gases/Vapors (H_2S, Benzene, SO_2, etc.)
_____ Mechanical Hazards
_____ Electrical Shock Hazards
_____ Heat Stress Hazards
_____ Slip, Trip and Fall Hazards
_____ Engulfment
_____ Skin Irritants
_____ Other _____

ATMOSPHERIC TESTING RECORD

	Acceptable Range	Bump Test	Initial Test
Oxygen	19.5% - 23.5%	Pass / Fail	
Flammables	0 – 10% LFL / LEL	Pass / Fail	
H_2S	0-10 PPM	Pass / Fail	
Toxics	0 - PEL	Pass / Fail	

Monitor Information

Model: _____

Serial #: _____

Calibration Date: _____

Specify Toxic Gas/Vapor _____ PEL _____

Tester's Initials _____ Time of Initial Test _____

SECTION III — EMERGENCY

EMERGENCY SERVICE

Name of Service Phone Number Method of Contact

_____

_____

COMMUNICATION PROCEDURES to be used by attendants and entrants:

_____

_____

Rescue service availability **verified** by Entry Supervisor? _____ yes _____ no

SECTION IV — SITE INSPECTION

INSPECTION ITEMS	Initial Verified	N/A	INSPECTION ITEMS	Initial Verified	N/A
Proposed work has been checked with Site Supervisor/ Operator in Charge			Ventilation equipment is installed, bonded and operating continuously during entry		
Hot Work permit required			Applicable SDS consulted		
ALL energy sources have been locked out and tagged			Rescue winch in place for vertical entries over 5' deep		
Equipment and piping depressurized and vented			Space has been drained, cleaned, or purged as necessary		
Piping has been properly blinded or disconnected / misaligned			Sight gauges have been drained and closed as necessary		
Explosion proof lighting in place			Personnel have had the required confined space training		
Entrants wearing harnesses w / retrieval line attached			Pre-entry safety meeting conducted		

Other Conditions: _____

SECTION V — PPE

☐ Hard Hat
☐ Safety Glasses
☐ Steel Toed Boots
☐ Gloves (impact, leather, chemical)
☐ Safety Harness/Retrieval Line
☐ Anti-Fall Device
☐ Face Shield
☐ Safety Goggles
☐ Protective Clothing
☐ Rubber Boots
☐ Welder Helper Glasses
☐ Hearing Protection
☐ Rescue Retrieval Winch (Required for entries over 5' deep)
☐ SCBA / Airline Unit
☐ Cartridge Respirator
☐ Dust Mask
☐ Other _____

SECTION VI — SIGNATURES

We have received instructions on safety procedures and hazards of this job and the permit is complete.

Permit Initiator/Entry Supervisor _____ Attendant _____

Authorized Entrants _____ _____

_____ _____

Simultaneous Operations Co-Signatures _____ _____

_____ _____

Site Supervisor / Designee _____ Rescue _____

POST AT JOB SITE

Permit Closed Out by: _____

Revision Date: 06/22

Air Test Log

Document air test readings every _____ minutes.

Time	O_2 19.5% - 23.5%	LFL 0 – 10%	H_2S 0 – 10 PPM	Other: 0 - PEL	Tester's Initials

TEST EQUIPMENT INFORMATION

Analyzer type:
Serial Number:
Calibration Date:

APPENDIX B

Bump Testing Procedure

Before the initial atmospheric readings can be obtained, the gas detection device(s) need to be properly bump tested.

Required Equipment:

- Calibration/Test Gas
  - Mixture of 50% LEL, 12% Oxygen, 25ppm H2S and 50ppm Carbon Dioxide
- Calibration/Test cap for the selected detection device
- Regulator and tubing with a flow rate of at least .25 LPM

Procedure:

1. Ensure calibration/test gas is not expired
2. Attach the regulator to the calibration/test gas
3. Turn on detection device
4. Attach the calibration/test cap on the device
5. Open the regulator to begin subjecting the sensors to the calibration/test gas
6. Verify all alarms activate and are audible
7. Shut off regulator and remove calibration/test cap to allow sensors to return to zero status
8. Document bump test on the permit in the atmospheric testing record

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LOCKOUT / TAGOUT / BLOCKOUT PROCEDURE

PURPOSE

This policy establishes procedures for the safety of personnel working on equipment that must be locked out to prevent the unexpected energization, start-up or release of stored energy. They shall be followed by all employees whose duties require them to service, repair, adjust, lubricate, or perform work activities in which the unexpected energization, start-up or release of stored energy could cause injury. Hazardous energy includes, but is not limited to, electrical, hydraulic, pneumatic, mechanical, chemical, thermal, stored and momentum/gravity. These forms of energy must be eliminated, isolated or controlled prior to servicing, repairing or maintaining equipment and machines.

SCOPE

These procedures are generic to provide direction to all operations. However, the OSHA regulation requires specific procedures for different types of machines and equipment. Therefore, each operating entity shall develop written procedures for the different types of equipment in their operation. Similar machines and/or equipment (those using the same type and magnitude energy), which have the same or similar types of controls, can be covered with a single procedure.

This procedure does not apply to cord and plug connected electrical equipment if the equipment is unplugged and the plug is in the exclusive control of the employee who is performing the servicing or maintenance of that equipment. The cord and plug is considered to be within the employee's control if it is in sight or is otherwise under their physical control. If the cord and plug is not within the employee's sight or physical control, a lockout device shall be attached to the plug in such a way that it shall not permit the plug to be inserted into the outlet.

REFERENCES

Title 8 CCR 3203 Injury and Illness Prevention Program;

Title 8 CCR 3314 The Control of Hazardous Energy for the Cleaning, Repairing, Servicing, Setting-Up, and Adjusting Operations of Prime Movers, Machinery and Equipment, Including Lockout/Tagout

29 CFR 1910.147 Control of hazardous energy (lockout/tagout)

RESPONSIBILITIES

Foremen shall be responsible for ensuring the following:

- Approving equipment specific energy control procedures
- Verifying the use of energy control procedures where the procedures are required.
- Assuring the availability of lock out devices.
- Assuring new process equipment is designed to accept a lock out device.

Lead Operators are responsible for ensuring the following:

- Developing equipment specific energy control procedures.
- Assuring that a personal lock is removed only by the employee who applied it.
- Maintaining the open EILs.
- Ensuring the lockout procedure is followed by employees and contractors.

Employees / Contractors are responsible for ensuring the following:

- Using energy control devices and following the Energy Control Procedures.
- Verifying that process equipment is disengaged or de-energized and locked out before working on the equipment.
- Helping develop Energy Control Procedures for equipment that currently does not have procedures.
- Notifying all parties affected of the Energy Control Procedures and work associated with it.
- Safely returning equipment to service.
- Assist lead operator in developing equipment specific energy control procedures.

DEFINITIONS

Affected Employee: An employee who operates equipment or machines on which service or maintenance is being performed under lockout/tagout procedures, or whose job requires him to work in an area in which such servicing or maintenance is being performed.

Authorized Employee: An employee who is authorized to initiate the lockout/tagout procedure on machines or equipment to perform servicing or maintenance, provided they have received the proper training.

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

Energy Isolating Device: A mechanical device that physically prevents the transmission or release of energy including, but not limited to, the following: manually operated electrical circuit breaker, disconnect switch, slip blind, blind flange, line valve,

a block or similar device, etc. This does not include a push button or selector type switch.

Energy Isolation List (EIL): A form used to document all instances of LOTO. This form is used to identify all potential energy sources, isolation devices, impacted work groups, individuals involved and tracking the installation and removal of locks/tags.

Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, pressurized piping, compressed air or other energy which, if unexpectedly released, could cause injury to employees.

Lockout: The placement of a lockout device or energy isolating device, in accordance with an established procedure, to ensure that the energy isolating device and equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device: A device that uses a positive means such as a keyed lock to hold any energy isolating device in a safe position and prevent the energizing of a machine or equipment. Examples include lockout hasps, valve lockouts, chain with a lock and circuit breaker lockout.

Shall: Mandatory, must be done.

Should: Advisory, may be done.

Standard Operating Procedure (SOP): A set of instructions written in such detail that the desired operation can be performed repeatedly with a consistently desirable result.

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

Tagout Device: A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and equipment being controlled may not be operated until the tagout device is removed. See Appendix A.

ENERGY CONTROL PROCEDURES

Failing to identify and control the energy of machinery and process equipment before working on it is a major cause of serious injury and death. An employee not performing a crucial step, or a coworker re-activating machinery or process equipment without proper authority usually causes the uncontrolled release of energy. Each operating entity shall develop equipment specific energy control procedures on all process equipment, process vessels, machines or operating systems that require servicing, repair or frequent maintenance.

Equipment may be grouped by type, i.e. one procedure for two Worthington reciprocating type gas compressors, but two separate procedures for a Worthington reciprocating and a Sullair screw type compressor. Equipment specific energy control procedures shall ensure that:

The Energy Isolation List (EIL) must be completed to ensure the following energy control measures have been taken and all affected employees made aware of de-energized equipment or processes in their work area. (see appendix B of this section)

- The type and magnitude of energy sources are identified and controllable.
- The location of control points and method of control are identified.
- There is a standard operating procedure (SOP) or Job Safety Analysis (JSA) to shut down, de-energize, verify zero energy potential, and start up of each piece of equipment.
- There are adequate lockout devices available to control all energy sources.
- There is a method of communicating to coworkers the status of de-energized process equipment, i.e. tags, permits, etc.

ENERGY CONTROL METHODS

Only authorized employees shall implement these energy isolation and control procedures. Affected employees in the work area shall be notified by the facility supervisor or the authorized employee of the type and duration of the work to be performed and of the application and/or removal of lockout and/or tagout devices. Notification shall be given before the controls are applied and after they are removed from the machine or equipment

Locks and tags shall be used to control hazardous energy/substance sources.

Chains used with a lock shall be considered a lockout device for equipment in which the chain is used to prevent movement, for instance in the case of a wheel type handle on a valve.

Tagout shall be used on those hazardous energy/substance isolating devices that are not capable of being locked out.

All isolation devices must be logged on the Energy Isolation List with date and time of installation and removal.

A. Blinding

Process fluids and gases in most cases require line blinding or double block and bleed to provide proper energy isolation.

- Blinds shall be tagged to identify for later removal.

- A blinding list should be used. (See Exhibit A: Energy Isolation List.)
- Blinds should be coded (by a certified vendor) or constructed using Table 1 to determine the minimum thickness required when using steel plate with yield strength of ASTM A-36 or equivalent. A facility/mechanical engineer shall approve any variance in the thickness or material of the blind.
- When isolating process piping, care shall be taken to verify pressure is not trapped in the isolated section.

TABLE 1: Minimum Plate Thickness for ASTM A-36 Material

ANSI Nominal Pipe Size (NPS)

Class	2 inches	3 inches	4 inches	6 inches	8 inches	10 inches	12 inches
50	¼"	¼"	3/8"	½"	5/8"	¾"	¾"
300	3/8"	3/8"	½"	¾"	7/8"	1 1/8"	1 ¼"
600	3/8"	5/8"	5/8"	7/8"	1 1/8"	1 3/8"	1 5/8"

Source: ASME B31.3, section 304.5.3

B. Blocking

A double block and bleed may also be used to isolate energy. All valves shall be **locked and tagged**. A simple block valve may be locked and tagged closed for a low risk maintenance operation. Examples would include site glass removal, removing/replacing instruments, and changing out relief valves and rupture disks.

Double block and bleed should **NOT** be used for high-risk isolation activities. Examples include a valve with a history of serious leakage, isolation using a butterfly valve and confined space entry operations.

Blocking may also include methods to isolate equipment with stored energy such as spring-loaded mechanisms or elevated devices subject to the force of gravity such as a raised bucket on a backhoe or the horse's head on a pumping unit. Examples of energy isolation would include using slings, blocks, cribbing, clamps or chocks to prevent movement.

C. Electrical Disconnect

The electrical disconnect switch or circuit breaker may be used to isolate electrical energy to a machine or piece of equipment only after that machine or equipment has been shutdown with its normal operating controls such as a stop button and, if applicable, all stored energy has been dissipated. The nearest operating control device should be used in performing the shutdown. An orderly

shutdown must be used to avoid any additional or increased hazards to employees.

If the equipment does not have a disconnect switch and the only way to isolate it after it has been turned off is to remove a fuse, **only a qualified electrician shall remove the fuse.** When the equipment is to be re-energized, only a qualified electrician shall replace the fuse.

IMPLEMENTATION

Although each machine or piece of equipment will have a specific lockout tagout procedure, the following steps shall be followed in the sequence listed.

Step 1. Prepare for Isolation/Control

The authorized employee shall make an evaluation of the affected equipment, prior to starting work, in order to identify the potential hazardous energy sources, their hazards, and all isolating devices (electrical disconnects, valves, blinds, etc.) and to determine the method(s) of control. The machine or equipment specific lockout/tagout procedure shall be used as a reference in the evaluation.

The authorized employee shall notify all affected employees of the pending work.

Step 2. Shut Down the Machine or Equipment

The machine or equipment/system shall be shut down by using its normal operating controls (stop button, open switch, close valve, set brake, etc.). The nearest operating control device to the machine should be used to perform the shutdown.

Step 3. Isolate the Machine/Equipment/System

Isolate the machine/equipment/system by using hazardous energy isolating devices such as closing valves, opening the appropriate disconnect switch or circuit breaker, installing a blind or performing double block and bleed.

Step 4. Apply Lockout and Tagout Devices

Lockout (individual locks or group locks with clasp-type devices) and tagout devices, whichever applies, shall be attached to **each** hazardous energy isolating device by the authorized employee. Lockout devices shall be attached in a manner that will secure the hazardous energy/substance isolating devices in a “safe” or “off” position.

Tags with a “**Danger**” legend shall be attached to the shackle of the lock. The tag must include the name of the authorized employee applying the device. In cases where lockout cannot be accomplished due to equipment

design, tagout shall be used to isolate the equipment. The tagout procedure in this policy shall be followed.

Step 5. Control/Relieve the Stored Energy

Following the application of the lockout or tagout devices, all potential hazardous stored or residual energy (such as that in capacitors, springs, elevated machine parts, rotating flywheels or motor sheaves, hydraulic systems and air, gas, steam or water pressure, etc.) shall be relieved, disconnected, restrained, blocked, bled down or otherwise rendered safe.

If there is a possibility of re-accumulation of stored energy to a hazardous level, verification of isolation shall be continued until the servicing or maintenance is completed or until the possibility of such accumulation no longer exists. The frequency of the verification should be based on knowledge of the hazard and should be established before the operation begins.

Step 6. Verify Equipment Isolation

After determining that employees are not exposed, the authorized employee shall confirm that the hazardous energy source has been disconnected or isolated. This **must** be done prior to starting the work by attempting to energize or activate the machine/equipment/system by pushing the start button or other normal operating controls to make certain the equipment will not operate.

Return the operating controls to the "neutral" or "off" position after completing the test.

Step 7. Perform Scheduled Work

The equipment is now locked and/or tagged out and ready for work to proceed. Lockout and tagout devices must remain in place until the work is completed. In situations in which lockout/tagout must be temporarily removed from the hazardous energy/isolating device to test or adjust the machine/equipment, the following procedure shall be followed:

1) The machine/equipment shall be cleared of tools and equipment.
2) Employees shall be cleared from the area
3) The lockout device shall be removed by the authorized employee
4) The machine/equipment shall be energized
5) The work or adjustment shall be performed
6) In returning to the lockout/tagout condition, the energy control measures outlined in Implementation steps 1 through 6 shall be followed in sequence.

Step 8. Remove Lockout/Tagout Devices/ Restore Equipment to Operation

After the servicing or repair work is completed and the equipment is ready for normal operation, the authorized employee shall confirm that all work is completed, and the equipment is returned to operating condition and ready for startup.

The authorized employee shall then check the area around the machine/equipment to ensure that all tools and equipment have been removed and that employees have been safely positioned or cleared from the area.

The lockout/tagout devices shall then be removed by the same authorized employee who installed the device except as provided in the policy section below. Date and time of the removal of the isolation device shall be documented on the EIL.

The affected employees shall be notified that the lockout/tagout devices have been removed. Verification shall be obtained by the UWA/PIC and initialed in the designated area on the EIL.

The hazardous energy isolating devices and/or valves will be operated to restore energy/pressure to the equipment in accordance with normal start-up procedures.

Step 9. Removal of Lockout/Tagout Devices by Someone Other Than the Authorized Employee

Under normal circumstances, only the authorized employee who installed the lockout/tagout shall remove a lockout/tagout device. **Only the site supervisor/foreman is authorized to remove another employee's lock after they accept full responsibility.** Where removal by someone elses lock/ lockout device is necessary, the steps listed below shall be followed.

1) The removal of a lockout/tagout device shall be done only under the direction of the supervisor / lead operator in charge of the job, after they have confirmed that it is safe to remove it.The supervisor/foreman shall verify in advance that the authorized employee who applied the lockout device is not at the facility.

2) All reasonable efforts shall be made to contact the authorized employee to inform them that the lockout device is being removed.

3) The supervisor / lead operator shall ensure that the authorized employee has been informed of the removal of the lockout device before they resume work at the facility.

GROUP LOCKOUT - PROCEDURE INVOLVING MORE THAN ONE PERSON

When servicing or maintenance work is performed by more than one authorized employee, one of the following procedures shall be followed as applicable.

Group Lockout – A group lockout device shall be used on each piece of equipment being locked out. Each authorized employee shall provide for their own protection by attaching a tagged lock to the group lockout device.

Individual authorized employees shall remove their own lock(s) when they (or their crew) stop working at the facility or depart from the job, i.e., at the end of the shift or conclusion of the work assignment.

Job Locks and/or Tags – Job locks or tags may be used by the supervisor/foreman of the authorized employees to assure continuity of hazardous energy/substance isolation from shift to shift as applicable.

To achieve job lockout, the UWA/PIC shall place a lock on the equipment and leave it on the lockout device for the duration of the job. The UWA/PIC or their relief shall maintain possession of the key. Each authorized employee shall place their lock on the lockout device upon coming on the job requiring lockout or tagout and remove their lock or tag whenever they depart the job, i.e., at the end of the shift or conclusion of the work assignment.

SHIFT CHANGES

When an off-going authorized employee transfers servicing duties to an on-coming employee (relieving in the presence of each other on the job during the shift change), the on-coming employee shall install their lock as soon as the off-going employee removes their lock.

When an off-going authorized employee transfers servicing duties (during a shift change) to an on-coming employee by removing their lock before the on-coming employee arrives, the employees shall observe the following procedures:

- The off-going employee shall apply a temporary tagout device at the time they remove their lock.
- The temporary tagout device shall indicate that the off-going employee's lock has been removed but the machine or equipment had not been re-energized, re-pressured, etc.

- The on-coming employee shall verify that the system is still at a zero energy state and shall remove the temporary tagout device and substitute their lockout/tagout device.

When temporary tagout devices are used in place of lockout devices, the off-going authorized employee transfers their servicing duties to the on-coming employee by signing off in the appropriate space on the tag.

The tag shall have spaces for the off-going employee to sign, date and indicate the time and for the on-coming employee to sign, date and indicate the time (see Appendix A). Each employee will verify the energy isolation of the machine or equipment for their own protection before signing onto the tag.

TAGOUT PROCEDURES – WHEN LOCKOUT IS NOT FEASIBLE

Tagout procedures shall be used **only** when a hazardous energy isolating device is not capable of being locked out. If it becomes necessary to use a tagout, the following procedures shall be followed in addition to the ones described for lockout.

- All of the procedures relating to the application and removal of lockout devices are also applicable to tagout devices.

- Additional measures shall be considered to make the protection afforded by the tagout procedure equivalent to that provided by the lockout procedure. These include, but are not limited to, removal of a valve handle, the blocking of a controlling switch, or the opening of an extra disconnecting device.

- Tagout devices shall be attached in a manner that will clearly indicate that the operation or movement of energy isolating devices from the “safe” or “off” position is prohibited.

- Where the equipment is not designed with the capability of being locked, a tagout device must be attached at the same point at which the lock would have been attached.

- The tag itself must: have a standard format; be able to withstand wear and the environment to which it is exposed; be secured so that it cannot be accidentally detached; and identify the person who applied it and the date it was applied (see Appendix A).

- The tag attachment mechanism must: be attachable by hand; be self-locking; and be non-releasable with a minimum unlocking strength of at least 50 pounds.

- Tags shall not be removed without authorization of the authorized person responsible for it.

- When tagout only is used, employees shall be trained in the limitations of tags and in the tagout procedures.

TRAINING

All employees involved in lockout/tagout operations shall be trained in the purpose, use and function of the lockout/tagout procedures. Each new or transferred employee shall be similarly trained before beginning work involving lockout/tagout.

Each authorized employee shall be trained in the requirement of the applicable OSHA standard, recognition of hazardous energy sources, the type and magnitude of the energy present in the workplace, and in the methods and means necessary for energy isolation and control.

Each affected employee shall be trained in the purpose and use of the energy control procedure.

Lockout/Tagout training shall be given to all new employees and refreshed annually. Additionally, retraining is required when there is a change in job assignments, in machines, a change in the energy control procedures, or a new hazard is introduced. All training and/or retraining must be documented, signed & certified.

Training must include recognition of hazardous energy source, type & magnitude of energy available, methods & means necessary for energy isolation & control , proper documentation of all LOTO and proper completion of an EIL. Each authorized employee shall receive adequate training. The training should address that all affected employees are instructed in the purpose and use of the energy control procedure.

All other employees whose work operations are or may be in an area where energy control procedures may be used, shall be instructed about the procedures and about the prohibition of attempting to restart or re-energize machines or equipment that is locked and/or tagged out.

Refresher training is required whenever there is a change in the energy control procedures and whenever periodic audits reveal there are inadequacies in the employees' knowledge or use of the energy control procedures.

Employee training shall also address when tagout systems are used including the limitations of a tag (tags are warning devices & do not provide physical restraint). The training shall also include that a tag is not to be removed without authorization. The tag is never to be ignored or defeated in any way.

Appendix A: Sample Tagout Device



Appendix B: Energy Isolation List (EIL)

All instances of LOTO require the EIL to be properly completed and posted. The EIL shall be posted and available in the same area as the JSAs and work permits.

The EIL is comprised of 11 sections which shall be completed prior work beginning on the equipment being locked out.

1. **Description:** This section requires the authorized employee to document the Location, Current Date, Scheduled Start Date, Equipment/System being locked out and the Purpose of the Lockout.
2. **Pre-conditions to Isolate Equipment:** This section requires the authorized employee to list all the steps required to isolate the equipment.
3. **Isolation Checklist:** This section requires authorized and affected personnel to initial each applicable item or mark it as Not Applicable (N/A). **Checkmarks, X's or any other marking are not acceptable.**
4. **Additional Hazards:** This section requires the JSA ID Number(s) and Work Permit Number(s) to be listed so all associated documentation can be cross referenced as needed. Each work permit associated with the EIL shall be listed.
5. **Simultaneous Operations/Affected Work Groups:** This section requires the signatures of any work groups that may be impacted by the LOTO. If additional signatures are needed outside of the areas provided, an additional signature page should accompany the EIL.
6. **Isolation Device List:** This section requires all the isolation devices to be listed. This includes but is not limited to: Locks, tags, blinds, valves and switches. This list of isolation devices will be used to verify equipment is properly isolated so work can begin.
7. **List of Personnel:** All personnel working to isolate the equipment, or work on the equipment being isolated must sign this section. Additional paper may be used in the event the spaces provided are not enough to document all personnel.
8. **Permit & Isolation Completed; Safe to Start Work:** This section requires the signatures of the UWA/PIC and Job Supervisor after review of the Isolation Device List. Work cannot begin on the equipment/system until this section is completed.
9. **Pre-Conditions to Start Up Equipment:** This section is to be filled out by the Job Supervisor and serves as a checklist for the reversal of the LOTO in order to restart the isolated equipment.
10. **Start Up Checklist:** This section requires initials from the Job Supervisor, Operations Representative; which should be the UWA/PIC, and an I & E representative. By initialing this section, each representative is acknowledging that all isolation devices have been removed, the equipment/system has been returned to normal and can be safely restarted.
11. **Work Completion:** This is to be completed by the UWA/PIC. The completion of this section either signs off that the LOTO is completed and the equipment returned to service; or that the equipment is out of service for an indefinite amount of time.
12. **Document Retention:** All completed EILs need to be kept on file for a minimum of two years from completion date.

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ENERGY ISOLATION LIST (EIL)

DANGER: DO NOT REMOVE THIS PERMIT WITHOUT AUTHORIZATION
P&ID OR PROCESS FLOW SKETCH SHOULD ACCOMPANY THIS PERMIT

DESCRIPTION

Location / Facility: _____

Date: _____ Schedule Start Date: _____

Equipment / System to be Worked On: _____

Description / Purpose of Work: _____

PRE - CONDITIONS TO ISOLATE EQUIPMENT

ISOLATION CHECKLIST (Initial Applicable Tasks)

	All personnel affected by this work notified? (see Simultaneous Operations)
	All Potential sources of energy identified?
	All isolation devices isolated? (EIL on back)
	Electrical equipment de-energized or disconnected?
	Block valves closed, blinds in place &/or lines disconnected?
	Motor start test completed?
	Energy Control / Isolation tag completed?
	Equipment & piping de-energized or disconnected?
	Equipment drained?
	Atmospheric vents, bleeders & drain valved opened?
	Chocks, brakes, jack, pins or other mechanical blocking devices in place?
	All isolation devices locked &/or tagged?
	Isolation verified?
	All personnel performing the work applied personal locks?
	Group Hazardous Energy Control Applies? (Special procedures required)
	Safe Work, Hot Work, or Confined Space Permits completed?

ADDITIONAL HAZARDS

_____ JSA / Permit Completed For Job

SIMULATANEOUS OPERATIONS / AFFECTED WORK GROUPS

Date	Time	Organization / Company	Groups Supervisor's Name	Initials

PERMIT & ISOLATION COMPLETED: SAFE TO START WORK

Date	Time	Organization / Company	Job Supervisor's Name	Initials

PRE-CONDITIONS TO START-UP EQUIPMENT

START-UP CHECK LIST

	Job Supervisor	Operator	I&E
Work-site cleaned & made safe?			
All panels closed &/or locked?			
All Locks & Tags removed?			
Isolation devices returned to Normal position?			
All affected personnel notified of start-up			

WORK COMPLETION

☐ Returned to Service ☐ Out of Service, Indefinite Time

Date	Time	Organization/Company	Job Supervisor's Name	Initials

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ISOLATION LIST

Number / Name	Energy Type	Energy Magnetude	Isolation Device	Normal Position	Isolated Position	Lock?	Tag?	Location / Identification	Installed		Removed	
									Date	Time	Date	Time
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
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						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					

ENERGY TYPE	ENERGY MAGNITUDE	ISOLATION DEVICE	POSITION
E = Electrical; C = Chemical; M = Mechanical H=Hydraulic; P=Pneumatic; PL=Pressurized Liq. PG = Pressure Gas; R = Radiation; T = Thermal; G = Gravity; K = Kinetic	Electrical = Volts; Chemical = ph, corrosive or flammable Mechanical = ft/lb torque or horsepower; Pressure = psig; Radiation = r/hr; Thermal = °F or °C; Gravity = weight (i.e. pounds); Kenetic = mass/speed (I.e. MPH)	BL= Blind; V= Valve; SP = Spool; SW = Switch; BR = Breaker; MA = Misaligned; MLD = Other Mechanical locking Devices.	O = Open; C = Closed OFF = Off; ON = On P = Pulled; I = Installed

List All Personnel (Each Induvidual Must Sign in Before Beginning Work & Sign Out When Completing Their Work)

Name / Company	Date In	Time In	Date Out	Time Out

Name / Company	Date In	Time In	Date Out	Time Out

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IN SERVICE WELDING AND HOT TAPPING PROCEDURE

PURPOSE

This standard establishes procedures for welding and hot tapping on in-service piping and equipment with the exception of pressure vessels.

In service welding can be performed safely if personnel take strict precautions (see prohibitions and restrictions), both in preparation and in execution, to prevent burning through the pipe wall or creating areas of high hardness which may later produce weld cracking, pipe wall cracking, or localized corrosion.

In service welding and hot tapping are not routine procedures and their use should be limited.

SCOPE

These procedures apply when welding or hot tapping on any process line or vessel, other than a pressure vessel, that has not been de-pressured, purged and blinded, or disconnected.

In-service welding procedures apply for all welding on live lines, regardless of the purpose of the weld (e.g., repairs, adding structural attachments, etc.).

These procedures are limited to welding on carbon steels, low alloy steels (up to and including 1 1/4 Chromium - 1/2 Molybdenum, where post heat treatment is not required), and certain austenitic stainless steels. Other materials may require special procedures and should be addressed individually.

DEFINITIONS

Hot tapping: the technique of attaching a branch connection to in-service piping by drilling through a previously attached welded connection and a valve. The hot tapping procedure includes selection of equipment, technical calculations, hydrostatic test, and drilling of the pipe or equipment, but does not include the welding of the attachment connection.

In service welding: includes welding on all piping or equipment that contains or has been contaminated with hydrocarbons (including hydrotesting with diesel), unless purged and blinded or disconnected.

Saddle: a connection that surrounds and reinforces the base of a branch connection and provides an attachment contact.

Weld-o-let or **Thread-o-let:** a connection that contains a saddle area and a tee that has a screw or socket connection.

IN SERVICE WELDING

PROCEDURES

In addition to the normal requirements for a Hot Work Permit as outlined in **SAFETY STANDARD 4.02- Hot Work Procedure,** the following is required for issuance of a Fire and Safe Work Permit for in-service welding. A separate Fire and Safe Work Permit is required for each hot tapping or in-service welding job.

A. Operations and Maintenance Departments shall make a written request to the appropriate engineering group for an in-service weld/hot tap assessment. This request shall include:

1. Piping line number, pipe specification, and size of line to be welded.

2. Isometric or piping plan drawing showing exact location, size, and position of saddles and proposed branch connection.

3. Reason for making the in-service weld and alternatives considered.

4. Pressure, temperature (design and normal operating) and fluid service for line and branch.

5. Date of proposal in-service weld.

B. Engineering shall determine the technical feasibility of performing a safe in-service weld. This includes mechanical inspections, (i.e., wall thickness test by instrument), visual inspection, review of process conditions, and the saddle/hot tap stress calculations.

Engineering shall prepare a detailed written procedure including

1. A welding procedure,

2. Pipe/connection design and calculations, and

3. Code compliance requirements.

C. Inspect the general area of the branch connection to ensure that adequate clearances exist for tapping machines (if hot tapping is to follow) and that safe egress from the area can be made in the event of an emergency. Mark the line to show the exact location of the connection.

D. Establish constant flow rates as required to pass the pre-heat test described below. Although continuous flow is needed to protect against burn-through, an excessive quench rate can cause under-bead cracking. For this reason,

the same flow rates used for the preheat test should be maintained during welding.

Suggested flow velocities during the preheat test are:

Liquid Service	Gas Service
1.3 ft./sec minimum	1.3 ft./sec minimum
4.0 ft./sec maximum	No limit on maximum, unless flow rate causes sweating or cools pipe to less than 50 degrees F.

If the flow rate causes failure of the preheat test, DO NOT PERFORM the in-service weld unless the flow rate is further reduced.

The following preheat test must confirm that the flow rate does not cause excessive quenching:

1. Sweet Service Preheat Test:

   Preheat total weld area with "Rose Bud" head to a temperature of 200 degrees F. An acceptable quench rate will be indicated by a temperature of 150 degrees F five seconds after preheating stops, as measured by a temperature indicating crayon (tempil). If 150 degrees F cannot be maintained for five seconds, the flow rate should be further reduced, and the temperature test run again. If 150 degrees F. cannot be maintained for five seconds, DO NOT PROCEED with in-servicing welding.

2. Sour Service Preheat Test:

   Same as for sweet service, except preheat to 300 degrees F. and test for 250 degrees F (See Prohibitions).

E. The weld attachment shall be inspected during and after welding. Examination by dye penetrator, radiography or magnetic particle is recommended, particularly on the first pass and final weld to check for under-bead cracking. If these tests are used after the first pass, the weld area must be thoroughly cleaned of any foreign materials or residues before resuming welding.

PROHIBITIONS

DO NOT PROCEED with in-service welding if any of the following conditions exist and cannot be corrected:

1. Pressurized lines with zero flow rate.

2. Compressed air lines or piping that has contained compressed air from a lubricated compressor. Air lines or piping may have an internal film of oil and oxygen available which could produce an explosive mixture when heated by welding.

3. Presence of caustic, amines, nitrates, or elemental sulfur. Welds made in the presence of these substances may be susceptible to stress cracking or corrosion.

4. Presence of hazardous or toxic materials. This includes substances (acetylene, ethylene, acids, propylene) that are prone to decomposition reactions with the heat of welding, or which would pose an immediate toxicity risk.

5. Lines requiring post weld stress relieving.

6. Piping that is clad or lined.

7. Vacuum systems containing flammable material, unless oxygen content is verified to be less than 5% upstream of the point of welding.

8. Thickness is less than:

   1/4", (.25"), or

   3/16" (.1875), if pressure is less than 1/2 Maximum Allowable Working Pressure.

9. Operating temperatures of process fluids is below 50 degrees F or above 700 degrees F.

10. External surface defects exist, such as pitting, lamination, bulges, etc.

11. Internal pitting or lamination are known or suspected.

12. Pressure vessels should not be welded while in service.

13. Line contains more than 21% oxygen (avoid possible combustion of iron, elastomers, grease residue, etc.)

RESTRICTIONS

1. Welding on lines in "sour environments" (as defined by section 1.3 of NACE MR-01-75) should be done only in emergency situations.

2. Cellulose electrodes (AWS-EXX10) are not recommended for in-service welding.

3. Open ended vapor flare/vent lines require continuous flow during in-service welding. A maximum oxygen concentration of less than 5% is recommended. All operating areas which are tied into the flare system to be welded should be notified of the welding.

4. No hot tapping or welding should be done on equipment or facilities operating at their maximum rated design pressure, without taking the "as corroded" or present condition of the facility into consideration.

5. In-service welding closer than 18 inches to a flange or threaded connection or within 3 inches of a welded seam should be avoided.

6. Liquid level in the tank must be at least 3 feet above the welding area.

7. Never pump into or out of a tank while hot work is in progress. All valves on liquid line at that tank must be closed, tagged, locked or otherwise rendered inoperative.

8. A full encirclement split tee should be used if the nominal ID of the branch is greater than or equal to 1/2 times the ID of the line or header. Branch connections equal in diameter to the parent pipe should be avoided.

9. In general, limit welding rod diameter to less than the pipe wall thickness.

10. Oxygen concentration in lines to be welded should be less than 5.0%.

HOT TAPPING

PROCEDURE

In addition to the above procedures for in service welding, use the following procedures for issuing a separate Hot Work Permit for hot tapping.

1. Inspect the weld attachment as described under In-Service Welding Procedure Step 5.

2. Engineering should provide a hot tap calculation sheet which includes branch line specs, tap machine specs, attachment and adaptor dimensions, cutter travel, pressure and temperature limitations and sketch of proposed installations.

3. Only experienced personnel shall install and operate hot tapping equipment.

4. Install the hot tap valve, adapter, and hot tap machine. It must be a full opening valve of adequate size and proper metallurgy. Run the boring bar in and out through the valve opening to be certain that the cutter does not jam or drag.

5. Field check the travel of the cutter to ensure that:

    - the tap can be completed within those dimensional limits,

    - the cut stops before the cutter touches the opposite side of the tapped pipe, and

    - the cutter can be retraced far enough to allow closure of the tapping valve.

6. Inspect the hot tap machine;

    - Check that the bleed-off valve will hold pressure and is not plugged

    - Check tightness of bolts, packing and packing nuts.

    - **Hydrostatically test** the new welded attachment, the hot tap valve, and the hot tapping machine simultaneously, prior to cutting or boring the coupon. While performing the hydro-test maintain at least the existing maximum operating pressure (MOP) designated for the parent flow line.

7. After the operation is finished, retrieve the coupon from the line and remove cuttings. Notify the operations supervisor immediately if the hot tapping coupon is lost and cannot be retrieved.

Additional information on procedures and requirements may be obtained from API Standard PSD 2201, October 1985.

PROHIBITIONS

DO NOT PROCEED with hot tapping if the following cannot be corrected:

1. Pressure of the line to be tapped exceeds the rating of the hot tap machine. Check name plate for rating of machine, temperature, pressure, service, etc.

2. Line contains more than 21% oxygen. Avoid possible combustion of iron, elastomers, grease residue, etc.

RESTRICTIONS

1. When hot tapping a small-diameter pipeline, use extra precautions to prevent drilling through the other side of the pipe.

2. For hydrotesting lines operating above 200 F, it is necessary to use a high boiling point liquid for the test fluid. Take precautions to avoid excessive pressure due to thermal effects. Low freezing point fluids (glycol or methanol) may be needed in cold weather conditions.

3. In general, if the branch pipe is 2" or smaller, the hole should be drilled. above 2" pipe, a hole cutter should be used and should allow for positive removal of the coupon.

4. Avoid hot tapping upstream of rotating equipment or automatic control valves, unless such equipment is protected from the cuttings by filters, strainers, or screens.

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BLINDING PROCEDURE

PURPOSE

This standard establishes procedures for installing and removal of blinds. Blinding is the preferred method of isolation.

SCOPE

Blinds shall be installed to isolate and prevent the release of combustible and toxic liquids, vapors or gases into the work area and to prevent re-pressurization of equipment isolated for maintenance. In addition, blinds must be installed at vessels, equipment or confined spaces scheduled for entry or "hot work" as outlined in **Safety Standard - Vessel and Confined Space Entry.**

DEFINITIONS

Blind (slip blind): A metal plate inserted between gasket pipe flanges to prevent the flow of gas or liquid in either direction. A blind must be of sufficient strength to withstand any pressure to which it can be subjected. All blinds must meet applicable design piping standards and codes. See the Blind Rating Chart for proper sizes (Table 1). A blind is recommended to have a "T" handle long enough to extend at least two (2) inches beyond pipe flanges. One side of the "T" handle should have a hole for the attachment of a tag and flag.

Spectacle Blind: A combination blind and spacer formed from the same piece of material. This item is frequently a permanent part of the line and is taken out and the other end inserted depending upon whether flow through that line is desired.

Blind Flange: A full-rated pipe fitting used to close the flanged end of an open pipe or valve. Do not confuse blinds with spacers, screens, or orifice plates.

BLIND SELECTION

Blinds for raised face flanges should be purchased from approved manufacturers and designed specifically for the size and rating of the flanges to assure the proper thickness, flatness and smoothness of the gasket surface. If blinds for raised face flanges must be fabricated on site, use Table 1 to determine the minimum thickness required using steel plate with yield strength of ASTM A-36 or better. The thicknesses shown are per formula in Section 304.5.3 of ANSI B31.3 using allowable stress of 17,800 PSI.

Slip blinds (blanks) for ring type joint (RTJ) flanges shall only be purchased from approved

manufacturers and designed specifically for the size and rating of the flanges. Self-fabricated RTJ blinds are not allowed.

PROCEDURE

1. Install **full-rated** blinds as close to the vessel or equipment as possible to ensure isolation. A blind provides the best method of guaranteeing that liquid or gas will be safely contained and not transferred through a process system. Install and/or remove blind only at the request of the supervisor or designated alternate.

2. A blind should be installed with three major considerations

   Rating: Is the blind properly rated?

   Location:

   - Will the blind effectively isolate the equipment in the location selected?
   - Is there access to the selected location?
   - Can the blind be safely removed at the time removal is required?

   Size: Does the blind size match the size of the line being blinded?

3. **A Blind List** must be prepared by the supervisor and kept in the control room, lease office or vehicle on site. This list should include size, pressure rating, location, date of installation and removal as well as the signature of the person(s) installing the blind. Blinds shall be tagged for identification and numbered to correspond with the Blind List. See **Appendix A, Blind List, Energy Isolation List.**

4. When work is completed, using the Blind List the supervisor must confirm that all blinds have been removed prior to start-up. The Blind List should be signed by the supervisor and the person(s) removing the blind. Failure to remove all temporary blinds could lead to over-pressure and other hazardous conditions.

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ENERGY ISOLATION LIST (EIL)

DANGER: DO NOT REMOVE THIS PERMIT WITHOUT AUTHORIZATION
P&ID OR PROCESS FLOW SKETCH MUSH ACCOMPANY THIS PERMIT

DESCRIPTION

Location / Facility: _____

Date: _____ Schedule Start Date: _____

Equipment / System to be Worked On: _____

Description / Purpose of Work: _____

PRE - CONDITIONS TO ISOLATE EQUIPMENT

ISOLATION CHECKLIST (Initial Applicable Tasks)

	All personnel affected by this work notified? (see Simultaneous Operations)
	All Potencial sources of energy identified?
	All isolation devices isolated? (EIL on back)
	Electrical equipment de-energized or disconnected?
	Block valves closed, blinds in place &/or lines disconnected?
	Motor start test completed?
	Engergy Control / Isolation tag completed?
	Equipment & piping de-energized or disconnected?
	Equipment drained?
	Atmospheric vents, bledders & drain valved opened?
	Chocks, brakes, jack, pins or other mechanical blocking devices in place?
	All isolation devices locked &/or tagged?
	Isolation verified?
	All personnel performing the work applied personal locks?
	Group Hazardous Energy Control Applies? (Special procedures required)
	Safe Work, Hot Work, or Confined Space Permits completed?

ADDITIONAL HAZARDS

_____ JSA / Permit Completed For Job

SIMULATANEOUS OPERATIONS / AFFECTED WORK GROUPS

Date	Time	Organization / Company	Groups Supervisor's Name	Initials

PERMIT & ISOLATION COMPLETED: SAFE TO START WORK

Date	Time	Organization / Company	Job Supervisor's Name	Initials

PRE-CONDITIONS TO START-UP EQUIPMENT

START-UP CHECK LIST

	Job Supervisor	Operator	I&E
Work-site cleaned & made safe?			
All panels closed &/or locked?			
All Locks & Tags removed?			
Isolation devices returned to Normal position?			
All affected personnel notified of start-up			

WORK COMPLETION

☐ Returned to Service ☐ Out of Service, Indefinite Time

Date	Time	Organization/Company	Job Supervisor's Name	Initials

DCOR, LLC

ISOLATION LIST

Number / Name	Energy Type	Energy Magnetude	Isolation Device	Normal Position	Isolated Position	Lock?	Tag?	Location / Identification	Installed		Removed	
									Date	Time	Date	Time
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
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						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					
						Y / N	Y / N					

ENERGY TYPE	ENERGY MAGNITUDE	ISOLATION DEVICE	POSITION
E = Electrical; C = Chemical; M = Mechanical	Electrical = Volts; Chemical = ph, corrosive or flammable	BL= Blind; V= Valve; SP = Spool;	O = Open; C = Closed
H=Hydraulic; P=Pneumatic; PL=Pressurized Liq.	Mechanical = ft/lb torque or horsepower; Pressure = psig;	SW = Switch; BR = Breaker;	OFF = Off; ON = On
PG = Pressure Gas; R = Radiation;	Radiation = r/hr; Thermal = °F or °C; Gravity = weight (i.e. pounds);	MA = Misaligned; MLD = Other	P = Pulled; I = Installed
T = Thermal; G = Gravity; K = Kinetic	Kenetic = mass/speed (I.e. MPH)	Mechanical locking Devices.	

List All Personnel (Each Induvidual Must Sign in Before Beginning Work & Sign Out When Completing Their Work)

Name / Company	Date In	Time In	Date Out	Time Out

Name / Company	Date In	Time In	Date Out	Time Out

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TAGGING AND FLAGGING PROCEDURE

PURPOSE

This standard establishes requirements to minimize incident of injury by ensuring that all personnel are aware of unsafe situations or, of valves or equipment in abnormal position or mode.

SCOPE

Danger tags indicate that a hazard exists. Using tagged equipment could result in bodily injury, mechanical damage, fire or disruption of operations.

Realizing that the purpose of such tagging is to communicate with other people working on the system and to serve as a check before re-commissioning the equipment, the following list is representative of situations where tagging is warranted:

1) Valves not in normal operating mode.

2) Valves which should not be used under normal operating conditions.

3) Switches and valves used to isolate control lines or equipment undergoing maintenance as outlined in **Safety Standard – 4.04 Lockout/Tagout**.

4) Defective or leaking valves.

5) Equipment, tools, etc., which are unsafe to use.

6) Safety or emergency equipment which will not function properly and is unsafe to use.

DEFINITIONS

Tag: A "DANGER, DO NOT OPERATE" weatherproof tag that is marked with the name of the equipment, the name of the person affixing the tag, date, time and reason for tagging the equipment.

Flag: A piece of bright orange or red ribbon attached in addition to a tag only when the tag is not readily visible, such as tags on overhead valves. Flags should never be used without a tag.

PROCEDURES

1. The operator must properly relieve the pressure on the equipment to be repaired, position valves and control switches or breaker switches for safe maintenance, and place danger tags on all related valves and control switches. These valves shall not be repositioned without prior approval of the operator signing the danger tag.

   Manual valves must be used whenever possible as isolation valves. **Valve handles must be chained and locked** in the desired position or removed. Automatic valves should not be used as isolation valves unless they are made inoperable.

2. The items listed in the above Scope shall be tagged in the following manner to ensure that proper attention is given to needed repairs. Prior to placing the danger tag on the equipment, shutdown devices, valves, control switches, or defective equipment:

   a. NOTE the equipment name, identification, and the condition or fault or other reason for tagging.
   b. Date, time, sign and attach the tag. If the tag is not readily visible, a flag should also be attached.
   c. Notify your immediate supervisor.

3. Tags and flags shall be removed immediately after conditions change so as not to be left on by mistake. They are not substituting for careful checking of each device prior to re-commissioning equipment or to an operational change.

RESPONSIBILITIES

1. The responsibility for using tags where necessary belongs to the person repairing equipment, isolating equipment, shutting valves or switches or discovering an unsafe piece of equipment. This would usually be the operator or mechanic.

2. The responsibility for acquiring the necessary repairs to tagged-out items rests with the notified supervisor.

3. Upon the completion of the job, all danger tags shall be removed after thoroughly checking to be sure that no person will be jeopardized, and that the equipment is completely ready. Areas should be checked to be sure they are free of any unnecessary materials. This should be done by the person that signed the danger tag; but due to shift changes, etc., it can be removed by the supervisor as outlined in **SAFETY STANDARD - Lockout/Tagout.**

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LOG, TAG AND MONITOR PROCEDURE

PURPOSE

This procedure provides guidance for monitoring bypassed production and pipeline safety devices. This procedure also provides policy regarding emergency support systems and other support systems.

SCOPE

The cited regulations impose several requirements that must be met before you can continue production or operation of a pipeline while a required safety device is bypassed. The production safety systems regulation of 30 CFR 250.803(c)(1) requires you to monitor bypassed functions if a safety device for a production safety system is bypassed.

AUTHORITY

30 CFR 250.803 (c)(1), 30 CFR 250.1004 (c), 30 CFR 250.142, API 14C, NTL No. 2012-N05

DEFINITIONS

Authorized/Responsible person*:* personnel trained and authorized by the company to perform tasks that require the bypassing of safety devices. This person is responsible for bypassing, recording/logging and communicating upon bypassing.

Bypassed safety device: a safety device installed as part of the production safety system and rendered inoperable by a person's action that prevents the safety device from performing its design function.

Computer-based technology systems (CBTS): a computer-controlled electronic safety system such as supervisory control and data acquisition (SCADA) and remote terminal units (RTU's)

Control station: a location at which an operator is capable of monitoring and controlling the production process equipment and production safety system.

Emergency support systems (ESS): are essential systems that provide a level of protection to the facility by initiating shut-in functions or reacting to minimize the consequences of released hydrocarbons.

Essential operating conditions: pressures, status of safety devices, liquid levels, and temperature.

Minimum number of safety devices: the minimum number of safety devices may be out of service at any one time, this means that only those devices that are required to be offline in order to accomplish startup, maintenance, or testing may be out of service at the same time.

Non-computer-based system (NCBS): a safety system that operates primarily with pneumatic supply or non-programmable electrical systems.

Remote site: a satellite or subordinate platform that is not connected to the parent facility.

PROCEDURE

You may bypass safety devices for production safety systems only if:

1. The safety devices are temporarily out of service for startup, maintenance or testing.
2. The minimum number of safety devices is out of service at any one time.
3. Personnel monitor the bypassed functions until the safety devices are placed back in service.; and
4. The temporarily out-of-services safety devices are flagged so they may be readily identified.
5. The safety devices out of service are logged in operator log book.

You may continue to operate a pipeline when required safety equipment has been rendered ineffective or removed from service only if:

1. An equivalent degree of safety is provided; and
2. The safety equipment is identified by a sign placed on the equipment stating that the equipment has been rendered ineffective or removed from service.

FLAGGING PROCEDURE

Purpose: To ensure good communications during bypassing of critical safety devices.

1. Bypassed safety devices shall be flagged with a red ribbon stating “BYPASSED”. These flags can be found on the “bypassed safeties” white board.
2. Bypass flags are intended for temporary bypassing of a safety device for maintenance, testing or start up.
    a) If a safety device needs to be bypassed for any reason other than for maintenance, testing or startup then management approval is required. Management may request a variance from the governing agency, if applicable.
3. During startup you may use alternative bypass flags as necessary. Master bypass shall be flagged with flags from the “bypassed safeties” white board.

4. Bypass flags are to be returned to the “bypassed safeties” white board upon return to normal operations

LOG PROCEDURE

Purpose: To ensure good communications during bypassing of critical safety devices.

1. At a minimum all bypassed safety devices shall be logged in operators daily log book. It is recommended to log bypassed safety devices on the “bypassed safeties” white board in addition to the operator daily log book.
2. It is the responsibility of each operator to read and acknowledge bypassed safety devices entered in the log book at the start of each shift.
3. Upon arrival to facility, all personnel will be informed of critical safety systems in bypass.
4. Upon return to normal service of bypassed safeties, operators daily log shall show the date and time of that action, and the “bypassed safeties’ white board shall be updated accordingly.

Monitoring Procedures for NCBS Bypassed Safety Devices

The acceptable procedures for monitoring bypassed safety devices in a NCBS are:

1. Positioning monitoring personnel at either the control panel for the bypassed safety device, at the bypassed safety device, or at the component that the bypassed safety device would be monitoring when in service; and
2. Ensuring that monitoring personnel are able to view all relevant essential operating conditions until all bypassed safety devices are placed back in service and be able to initiate shut-in action in the event of an abnormal condition.

Monitoring Procedures for CBTS Bypassed Safety Devices

The acceptable procedures for monitoring bypassed safety devices in a CBTS at either a remote site or a parent facility are:

1. Positioning monitoring personnel at a designated control station (until all bypassed safety devices are placed back in service) that is capable of:
    a. Displaying the status of the bypassed safety device and all relevant essential operating conditions that effect the bypassed safety device, well, pipeline, and process component;
    b. Controlling the production process equipment and the entire safety system;
    c. Displaying a visual indicator when safety devices are placed in the bypassed mode; and
    d. Upon command, overriding the bypassed safety device and initiating shut-in action in the event of an abnormal condition

2. Maintaining instantaneous communications at all times between remote monitoring personnel and the personnel performing maintenance, testing or startup.

EMERGENCY SUPPORT SYSTEMS (ESD)

The Emergency Support System (ESS) is required by 30 CFR 250.803 and other regulations that incorporate by reference API RP 14C, Recommended Practice for Analysis, Design, Installation and Testing of Basic Surface Safety Systems for Offshore Production Platforms. The ESS includes the following systems:

1. The emergency shutdown (ESD) system, which senses the presence of hydrocarbons and initiate alarms and platform shutdown by personnel observing abnormal conditions or undesirable events;
2. The fire loop system, which senses the heat of a fire and initiates platform shutdown, and other fire detection devices (flame, thermal and smoke) threat are used to enhance fire detection capability;
3. The combustible gas detection system, which senses the presence of hydrocarbons and initiate alarms and platform shutdown before gas concentrations reach the lower explosive limit;
4. The adequate ventilation system;
5. The containment system, which collects escaped liquid hydrocarbons and initiates platform shutdown;
6. Subsurface safety valves, including those that are self-actuated (SSCSV) or those that are activated by an ESD system and/or a fire loop (SSCSV);
7. The pneumatic supply system; and
8. The system for discharging gas to the atmosphere.

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PIPE AND VESSEL PURGING PROCEDURE

INTRODUCTION

Purging is the process of voiding a line or vessel of a combustible gas or air and replacing with an inert gas or other gases. Steam can also be used, where available, as an effective clearing/purging agent.

Purging operations are used either to clear in-service lines of hydrocarbons or for commissioning open lines to evacuate the oxygen prior to introducing hydrocarbons. The most appropriate method should be chosen from those described below, consistent with the precautions.

METHODS OF APPLICATION

1. **Pressurization Purging (Blowdown):** Introduce a purge gas to increase system pressure to 15 psig, followed by depressurization to the atmosphere. A minimum of four pressure-depressure cycles at 15 psig will be required to purge a vessel at atmospheric pressure. The pressurization purge method is considered superior to other purge methods. If a system filled with a combustible liquid needs to be emptied and then purged, a purge gas may be applied to the vapor space at a pressure consistent with equipment design limitations. This procedure thus empties the vessel and purges the vapor space in the same process. Examples: pressure vessels, manifolds and entire plant or platform process systems.

2. **Displacement Purging (Slug):** Introducing an inert purge gas until a buffer or separation zone is established, followed by the introduction of a chase gas of a different type. In-service hydrocarbon gas might be purged by an inert gas slug followed by compressed air. A line that has been opened to air can be purged with an inert gas slug that is followed by natural gas. The slug must be of sufficient volume to prevent the original and chase gas from mixing. Slow flow rates are used for the inert gas slug and the first portion of the chase gas. The flow rate can then be increased for the remaining chase gas if laminar flow is maintained to avoid mixing. Example: pipelines.

3. **Dilution Purging (Sweep-Through):** Introducing a purge gas at one opening and letting the system contents escape through another opening at the opposite end of the system. This is the least economical method. Consider siphon purging for weak walled vessels or pressurization purging for pressure vessels. Examples: weak-wall vessels, produced water tanks.

4. **Siphon Purging:** Filling the system with a liquid and introducing a purge gas into the vapor space to replace the liquid as it is drained from the system. The volume of purge gas required will be equal to the volume of

the system, and the rate of application can be made to correspond to the rate of draining, plus any effects from temperature changes. Examples: pressure vessels and tanks.

PRECAUTIONS

1. Purging of in-service enclosures should continue until the residual combustible gas/purge as mixture is 0% of LEL, when preparing for personnel entry, and less than 20% LEL for all other cases.

2. Purging of piping open to the atmosphere should continue until the residual air and purge gas has an oxygen level below 5% when using an inert purge gas and below 1% when using a hydrocarbon sweep-through purge.

3 Natural gas should be vented away from fired vessels, compressors, electric motors, etc. If possible, vent gas to the low-pressure vent system or flare to prevent a build-up near equipment or personnel. Purging to a flare requires the use of inert gas in order to prevent oxygen/hydrocarbon mixtures developing inside the flare header.

4. Inert gas is an asphyxiant. Assure breathing protection is supplied prior to personnel entry into an enclosure that has been purged with an inert gas. The atmosphere must be tested and between 21.0% and 23.5% oxygen. Otherwise, approved supplied air respirators must be used.

5. Combustible gas detectors are limited on their ability to read high levels of combustible gas above the Upper Explosive Level or in the absence of oxygen. Make certain that low or zero readings are not being caused by the absence of oxygen or high combustible gas levels.

6. Channeling may occur in large enclosures. The purge gas may not sweep the entire vessel. Sample the effluent at more than one vent point.

7. Residual liquids or coatings on vessel walls may continuously release vapors into the enclosure. A single testing of the atmosphere may indicate a full purge has been accomplished only to have later readings indicate high levels. Frequent sampling should be accomplished at several sampling points.

8. Pressure purging of air using hydrocarbon gas as the purge gas should be limited to 30 psig or 1/10 Maximum Vessel Design Pressure, whichever is less, and will require three or more pressure-depressure cycles.

9. When returning equipment to service after purging, pressure staging should be done in 100 lbs. increments until 200 lbs. is reached. Thereafter, staging can be done in 250 lbs. increments until working pressure is reached.

10. Open piping may be purged with hydrocarbon gas when:

    a. A safe vent point is available, and

    b. The system being purged has minimal dead zones, and

    c. Compressors downstream are thoroughly purged or were not contaminated with air

11. When using steam as a purging agent, monitor system pressure frequently in order to avoid creating vacuums when steam condenses.

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EXCAVATING AND TRENCHING PROCEDURE

PURPOSE

This standard establishes the conditions and procedures applicable to excavations and trenches. All excavations shall require a safety trenching plan.

SCOPE

This standard applies to all excavations four feet deep or greater. This standard may also apply to excavations less than four feet deep where conditions warrant as determined by the supervisor.

REFERENCE

TITLE 8 CCR, subsection 1541, *General Requirements*
TITLE 8 CCR, subsection 1541.1, *Requirements for Protective Systems*
29 CFR 1926.651, Subpart P, Excavations

DEFINITIONS

1. **Benching.** A method of protecting employees from cave-ins by excavating the side of an excavation to form one or a series of horizontal levels of steps, usually with vertical or near-vertical surfaces between levels.

2. **Competent Person.** One who is capable of identifying existing and predictable hazards, soil types in the surroundings, or working conditions that are unsanitary, hazardous, or dangerous to personnel, and who has authorization to take prompt corrective measures to eliminate them.

3. **Excavation.** Any man-made cut, cavity, trench or depression in an earth surface formed by earth removal.

4. **Shoring.** A structure such as a metal hydraulic, mechanical or timber shoring system that support the sides of an excavation and which is designed to prevent cave-ins.

5. **Sloping.** A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure and application of surface loads.

6. **Soil classification system** denotes classification used by the National Bureau of Standards. Classification includes: **Stable Rock.** Natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

   Type A Soil. A cohesive soil with an unconfined compressive strength of 1.5 tons/ft^2 (tsf) or greater. Examples are: Clay, silty clay, sandy clay, clay loam, silty clay loam, sandy clay loam, caliche and hardpan. (If soil is fissured, subject to vibration, or previously disturbed, it is not considered Type A.)

   Type B Soil. A less cohesive soil with an unconfined compressive strength greater than 0.5 tsf, but less than 1.5 tsf. Examples are: Angular gravel or crushed rock, silt, silt loam, sandy loam, dry rock that is not stable, partly sloped material and previously disturbed Type A soil not considered Type C soil.

   Type C Soil. The least cohesive soil with an unconfined compressive strength of 0.5 tsf or less. Examples are: Gravel, sand, loamy sand, submerged soils or freely seeping soils, submerged rock that is not stable, layered system.

PROCEDURES

1. Before opening any excavations, determine the location of utility installations, such as sewer, telephone, fuel, power lines, water lines, pipelines or any other underground installations. **Call Dig Alert 811.**

2. Determine type of soil and whether shoring, sloping, or benching is necessary.

   Perform sloping in accordance with 29 CFR 1926. Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

TABLE 2. MAXIMUM ALLOWABLE SLOPES

SOIL OR ROCK TYPE	Maximum allowable slopes (H:V) for excavations less than 20 feet deep
Stable Rock	Vertical (90 from horizontal)
Type A Soil	3/4:1 (43)
Type B Soil	1:1 (45)
Type C Soil	1½:1 (34)
Mixed Soil Types	1½:1 (34)

3. Excavations four (4) feet in depth or greater are treated as a Confined Space Entry and appropriate atmospheric tests will be required to determine if a permit is necessary. Refer to (*Confined Space Entry Procedure*). Excavations five (5) in depth or greater require shoring or benching if personnel will enter. Excavated soil, other material, or equipment that could pose a hazard by falling or rolling into an excavation shall be stored and retained at least two feet from the edge of the excavation. If the stability of adjacent structures (building, walls or other structures) is endangered by excavations, support systems shall be provided.

4. A competent person shall make daily inspections of excavations prior to the start of the work shift. This person has authority and responsibility to modify shoring or work methods as necessary to provide greater safety. If evidence of possible cave- ins or slides (such as accumulating water or seepage) is apparent, all work in the excavation shall cease until necessary precautions have been taken to safeguard employees. The competent person is usually the Site Supervisor.

5. Guardrail or barricades shall be used as necessary to protect individuals and mobile operating equipment above the excavation.

6. Trench excavations shall have ramps, ladders, stairs, etc.; the means of egress must be within 25 feet of lateral travel for employees.

7. Employees shall not be in the excavation or trench when power equipment is being used to perform the excavation.

8. For exposure to public traffic, the employees shall be provided reflective vests, etc.

9. Employees should not work under loads of digging equipment where loads may fall.

10. Employees must be protected from water accumulation, including the use of shields, and must be inspected by a competent person before work begins.

11. There must be provisions in the excavation plan for crossings and walkways that protect against falls. Installation of barriers, fall protection or caution tape may be required.

12. The excavation plan must provide protection for employees regarding soil classifications, provide examples of soil types, information concerning tests used to determine soil type, and protection systems utilized. The determination of soil types & special considerations must be taken in specific measures for shoring, sloping, shield & excavation as needed. Timber shoring, aluminum hydraulic shoring must be determined according to the appendixes A & C of the standard. The devices should be used while in good repair & maintenance; if damaged, they must be inspected. The employees should be protected from hazards of falling, rolling, or sliding materials or equipment. They should not be subjected to excessive forces and be installed to protect employees from lateral loads. Employees must be restricted from being in the shield when installing or removing; the shield must be designed to resist calculated trench forces.

GENERAL REQUIREMENTS

1. All surface encumbrances that are located to create a hazard to employees shall be removed or supported, as necessary, to safeguard employees.

2. Underground installations must be located, and utility companies contacted prior to excavation, i.e. **One Call System dial 811 24 hours prior to digging**. The approximate location of subsurface installations, such as sewer, telephone, fuel, electric, water lines, or any other subsurface installations that reasonably may be expected to be encountered during excavation work, shall be determined by the excavator prior to opening an excavation.

3. Safe access and egress shall be maintained at all excavations. Access and egress shall not exceed 25ft of lateral travel. A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth to require no more than 25 feet of lateral travel for employees.

4. Protection from vehicle traffic and falling loads must be maintained.

5. Employees exposed to public vehicular traffic shall be provided with, and shall

wear, warning vests or other suitable garments marked with or made of reflectorized or high- visibility material.

6. Warning systems for mobile equipment must be maintained. When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.

7. Testing and controls shall be put in place to prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions.

8. Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.

9. Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, shall wear a harness with a lifeline securely attached to it. The lifeline shall be separate from any line used to handle materials, and shall always be individually attended while the employee wearing the lifeline is in the excavation

10. Whenever internal combustion engine-driven equipment is operated inside a shaft, a ventilation system shall be provided Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation.

11. Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees

12. Soil classifications must be determined by testing and protective systems designed according to soil classifications.

    - The most stable type of soil is Type A. It is dense and heavy and consists primarily of clay.

- Type B has a medium level of stability and is made of soils such as silt, sandy loam, and medium clay.
- The least stable soil is Type C, which consists of gravel, loamy sand, and soft clay.

13. Protection shall be provided by placing and keeping such materials or equipment at least 2 feet from the edge of excavations, or using retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

14. Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions.

15. Where employees or equipment are required or permitted to cross over excavations over 6-feet in depth and wider than 30 inches, walkways or bridges with standard guardrails shall be provided.

16. Employees who are involved in the excavation operation and exposed to excavation operation hazards shall be trained in the excavator notifications and excavation practices.

17. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated

PERFORATING SAFETY PROCEDURE

INTRODUCTION

Before any work is done, the Company representative and service company operator should review the service company's written precautions and identify and eliminate specific hazards which may be present. The following general safety procedures shall be followed to minimize hazards.

Implementing this safety work practice is the responsibility of the drilling or production supervisor initiating the perforating operation.

PRECAUTIONS

1. Signs or personnel should be posted at entrances to the location to provide visitors with notice that explosives are in use and warning them not to use radio or telephone transmitters within 500 feet of perforating operations.

2. Before starting work, a meeting with all rig crews and other personnel working on the location should be held to review safety procedures.

3. All personnel not involved in handling the explosives should be alerted to stay away from the work area and out of the perforators' line of fire.

4. Radio and telephone transmitters, wireless transmitters, welding machines and other electrical power sources not required for handling the explosives and other unnecessary operations should be turned off, silenced or bypassed to prevent premature detonation of explosives. Prior to loading the perforating gun(s), the drilling supervisor should notify the production supervisor of the facility and require that all radio transmitting equipment be turned OFF.

5. Hazards from static electricity which may be present from approaching electrical storms, blowing dust, or snow should be evaluated, and proper precautions taken.

6. All equipment should be electrically grounded as specified by service company procedures and checks should be made for stray currents. The source of any hazardous stray currents should be located and eliminated.

7. These procedures should remain in effect until the job is complete and explosives are unarmed and stored.

8. **In offshore perforating jobs, the operator / well supervisor should inform all boats and helicopters of the location of the perforating job and request radio silence for that location during the perforating operation.**

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NEW EMPLOYEE SAFETY, HEALTH & ENVIRONMENTAL ORIENTATION

PURPOSE

This procedure establishes requirements for conducting safety and environmental orientations for new, transferred or reassigned employees.

SCOPE

A new, transferred or reassigned employee should not commence work on critical tasks before receiving instructions concerning Company's Safety, Health and Environmental policies and procedures. For each employee, a checklist will be completed and signed by the Responsible Person. The employee will sign the checklist acknowledging completion of the orientation. A copy of the completed orientation checklist will be placed in the employee's safety training file.

DEFINITIONS

Responsible Person: the Manager or Supervisor of the new, transferred or reassigned employee, who has direct knowledge of the job tasks and Company's safety and environmental policies and procedures will be responsible for the orientation. The Manager or Supervisor may delegate those parts of the orientation that are not specific to the employee's new assignment to the HSE Department.

PROCEDURE

For each of the four sections, the Responsible Person will complete the section and have employee sign and date the appropriate lines. Upon completion and appropriate sign-off, the forms will be returned to the Training Administrator for filing in the employees safety/training file.

SECTION 1 -GENERAL

New or Reassigned Employee Safety, Health and Environmental Orientation

Name of Employee:		
Address: Street: City Zip	Contact #: Day Evening	
Job Title:	Location:	
Supervisor:	Hire Date:	
Driver's License #: State:	Date of Birth:	
Email:		

Previous Employment

Years in Industry:	
Any Work Related Injuries? Body Part?	

SECTION 2 - SAFETY

New or Reassigned Employee Safety, Health and Environmental Orientation

Prospective employee must initial the box(s) as the following Company policies are discussed, &/or made available to the employee.

SAFETY MANUAL	
	Safety Manual, Safety Policy, Responsibilities, General Safety Rules and Safety Standards.
	Required attendance and participation in safety meetings.
	Required reporting to Supervisor of every injury, property loss, unsafe condition and every unsafe practice.
	Lockout/Tagout Standard.
	Confined Space/Safe Work Permit/Hot Work Standard.
	Job Safety Analysis
	Fire Protection equipment and extinguishing agents.
	Electrical safety training, as needed.
	Hydrogen sulfide safety and respiratory protection training, if applicable.
	Facial hair policy.
	Employee responsibility for preventing accidents.
	Emergency Procedures (company manuals).
	Discuss the Compliance Alert Hotline number for Environmental / Safety problems.
	HAZCOM overview training received, as needed.
ACCIDENT REPORTING PROCEDURES	
	Accident Reporting and Investigation Procedures.
DRUG AND ALCOHOL PROGRAM	
	Review Drug and Alcohol Policy.
	Review DOT drug manual.
VEHICLES	
	Company Vehicle Policy.
	Vehicle safety inspection and mileage form.
PERSONAL PROTECTIVE EQUIPMENT (PPE)	
	Hard hat issued.
	Safety glasses issued.
	Impact resistant gloves issued.
	Uniform and steeled toed boot certificate issued
	Policy for, PPE, (hard hat, ANSI Z87.1 safety glasses, steel toed boots, Impact resistant gloves).
DCOR SAFETY ACKNOLWEDGEMENT	
	Employee agrees to fully cooperate with the safety efforts of the employer and use good judgment, concerning safe behavior.

SECTION 3 - ENVIRONMENTAL

New or Reassigned Employee Safety, Health and Environmental Orientation

Prospective employee must initial the box(s) as the following Company policies are discussed, &/or made available to the employee.

	Environmental Policy and Procedures Manual.
	Spill reporting procedures.
	Applicable SPCC Plans and Oil Spill Contingency Plans.
	Applicable Emergency Response Plans.
	Applicable waste management regulations, including manifesting.
	Spill & Release procedures, Environmental Compliance and Employee Personal Liability.
	Water Quality Regulatory issues (NPDES, Storm Water Runoff, etc.)
	Waste Management Regulations (Minimization, RCRA, Handling / Manifesting)
Other Environmental Orientation as required for job function, e.g., state and local regulations and endangered species.	

WORKER'S COMPENSATION REPORTING ACKNOWLEDGMENT

It is a condition of employment to report any and all work related injuries to your supervisor and safety coordinator immediately, regardless of how slight the injuries may seem.

I understand that I am to report any and all work related injuries to my Supervisor.

Employee Signature	Date
Print Name:	

ACKNOWLEDGMENT OF RECEIPT OF AND UNDERSTANDING OF SAFETY INFORMATION AND POLICY

I hereby certify that I have received access to the Company Safety Manual which includes safety policies specific to the company. I also agree to read and study the company safety manual and abide by the rules herein, complying with all applicable federal, state and local regulations.

Employee Signature	Date
Print Name:	Date

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PRODUCTION RIG INSPECTION

DAILY- WEEKLY

DATE:_____
RIG# :_____
Location:_____
Contractor Name: _____
Inspected by : _____

CHECK OFF EACH QUESTION BELOW

	Sat/Unsat.
GENERAL	
a. Distance from overhead powerlines	___ ___
b. Hazards signs displayed	___ ___
c. First aid kit	___ ___
e. Vehicle out of guy pattern	___ ___
f. Pipe racks, catwalks level	___ ___
g. Lockout/tagout being used	___ ___
h. Overall housekeeping	___ ___
SAFETY EQUIPMENT	
a. Fire extinguishers being checked regularly	___ ___
b. Personal protective equipment being worn	___ ___
c. H2S/monitors being used	___ ___
d. S.C.B.A. on location and being inspected regularly	___ ___
e. Safety harness being used where required	___ ___
f. Emergency derrick escape equipment being set up	___ ___
PERSONNEL	
a. Proper clothing being worn	___ ___
b. Facial hair being removed for proper S.C.B.A. fit.	___ ___
c. Personal protective equipment being worn. Hard hats, gloves.	___ ___
d. Personnel have knowledge of safety equipment and rules (First aid kit, SCBA,911)	___ ___
HAND TOOLS	
a. Pipe wrenches in good shape	___ ___
b. Look for broken handles	___ ___
cracks etc.	___ ___
c. Housekeeping of tools	___ ___
FOUNDATION	
a. Adequate supplemental footing provided	___ ___
VEHICLES	
a. Fire Extinguisher, Firstaid kit	___ ___

	Sat/Unsat.
CARRIER	
a. Handrails on elevated walkways.	___ ___
b. Wheels chocked	___ ___
c. Fuel tanks labeled	___ ___
d. Hydraulic leveling jacks secured by mechanical lock nuts	___ ___
e. Hydraulic systems not leaking.	___ ___
f. Guy lines tight.(internal)	___ ___
g. Outriggers out & locked	___ ___
MAST /DERRICK	
a. Escape rope out and staked	___ ___
b. Ladder	___ ___
c. Racking platform	___ ___
d. Anti fall device.	___ ___
e. Derrick locking pins	___ ___
f. Lighting system	___ ___
g. Wind guys out and flagged.	___ ___
DRAW WORKS CONDITION	
a. Guards	___ ___
b. Drill line (tbg. line)	___ ___
c. Sand line	___ ___
d. Brakes	___ ___
e. Kill switches	___ ___
f. Cat line	___ ___
g. Weight indicator	___ ___
h. Turnbuckles	___ ___
TOOLS & EQUIPMENT	
POWER TONGS	
a. Safety gate	___ ___
b. Back up	___ ___
c. Stiff arm, snub line	___ ___
d. Head guards	___ ___
e. Hoses and fittings	___ ___
f. Tong positioner	___ ___

	Sat/Unsat.
TOOLS/EQUIP.	
TRAVELING ASSEMBLY CONDITION	
a. Blocks	___ ___
b. Sheave guards locks	___ ___
c. Bales /links	___ ___
d. Elevators	___ ___
e. Rod hook	___ ___
f. Transfer elevator	___ ___
WELL CONTROL	
a. B.O.P. installed	___ ___
b. Training in use	___ ___
OPERATOR STATION PLATFORM/ FLOOR	
a. Work floor housekeeping	___ ___
b. Steps & hand rails	___ ___
c. All controls labeled	___ ___
GUYING	
CROWN TO GROUND GUYLINES	
a. Condition of guys	___ ___
b. Ground anchors	___ ___
c. Flagging guys	___ ___
TUBING BOARD GUYS	
a. Strung & crossed	___ ___
b. Three clamps minimum	___ ___
INTERNAL GUYS ADJUSTED FOR TENSION	___ ___

Comments:_____
_____
_____
_____
_____
_____

Date: _____

Time: _____

Inspector: _____

Platform and Rig No.: _____

DAILY RIG CHECKS A, B, C, H-H, & HENRY

- ☐ #1 Check Drawworks oil and grease all fittings
- ☐ #2 Check all Drawworks brake linkage
- ☐ #3 Check Crown-L-Matic each tour
- ☐ #4 Check drilling line and air tugger Line
- ☐ #5 Check hydraulic oil level in tank
- ☐ #6 Check accumulator fluid level and pressure
- ☐ #7 Check oil in air compressors and drain water from tank
- ☐ #8 Drain water from air tank in sub-base
- ☐ #9 Check tong snub lines and shackles, check back-up and tong dies, grease all fittings
- ☐ #10 Check air slip dies and grease all fittings on air slips
- ☐ #11 Check mud pump oil and fill rod oiler
- ☐ #12 Check block carriage for any loose pins, bolts, or parts
- ☐ #13 Check brake water cooling system and make sure it is full and operational
- ☐ #14 Check all anti-fall equipment for proper working condition
- ☐ #15 Check monkey board for loose pins or racking fingers
- ☐ #16 When on a slope well check and grease rollers on elmer pipe carriage or buggy on Hillhouse
- ☐ #17 Check all BOP equipment and lines for leaks
- ☐ #18 Make sure all electric cables are off deck in trays or tied up
- ☐ #19 Check all equipment that you are using and make sure it is in good condition
- ☐ #20 Grease crown, blocks, and block carriage on a weekly basis or when first using rig
- ☐ #21 Check derrick for loose items or pins

Breakdowns: _____

_____

_____

Repairs: _____

_____

_____

Comments per Item #: _____

_____

_____

_____

Date: _____ Time: _____

DCOR Review _____

RIG CREW DEPATURE CHECK SHEET

Rig Supervisor Name: **UWA/PIC Name:**

Platform: **Date and Time of Inspection:**

For each item identified below, circle the number
Pass or Fail based on your judgement. Any item
marked as a failure must be addressed/corrected prior to crew departure

Item	*Condition*	
1. Rig Position (Rig staged in manner that it will not interfere with normal operations)	Pass	Fail
2. Rig Floor Condition (Rig floor is organized, clean and safety equipment in place)	Pass	Fail
3. Cargo Organized (Cargo/Equipment is organized with clear walkways; tag lines and rigging stored appropriately)	Pass	Fail
4. Drill Deck Condition (Clean and organized, no trash, drains are clean, tools and equipment properly stored)	Pass	Fail
5. Change Room Condition (Clean and organized, no trash, bathroom clean, lockers cleared out)	Pass	Fail
6. Living Quarters and Galley Condition (Galley is clean, bathrooms clean, no trash, linens washed and stored)	Pass	Fail
7. General Housekeeping (Platform left in a similar state prior to the arrival of crews)	Pass	Fail
8. Condition of Crane(s) (Cab clean, properly parked, paperwork in order)	Pass	Fail
9. Cargo on Board Completed for Backloaded Cargo (All backloaded cargo documented on COB)	Pass	Fail
10. Rig Inspection Report(s) (Inspection reports are clear, legible, and properly completed)	Pass	Fail

Comments:

DCOR

OFFSHORE RIG

SAFETY AUDIT CHECK SHEET

Date: _____ # Days on Job_____ Rig No.: _____

Platform: _____ Contractor: _____

County: _____ State/Federal Waters: _____

(v) Acceptable (-) Not Applicable (X) Correction Needed

	I	SUBSTRUCTURE
	A.	All assembly pins in place with keepers.
	B.	Lower & upper substructure properly bolted together
	C.	Earthquake clamps installed and secured properly.
	D.	Rotary beams & braces in good condition.
	E.	Stairways, ladders, work platforms and walkways clear of obstructions and in good condition.
	F.	Sufficient lighting for safe operations.
	G.	Air volume tanks drained each tour.
	H.	Air volume tanks equipped with pressure relief valves.
	I.	Drilling line installed properly on anchor with safety clamp in place.
	J.	Proper grounding installed from substructure to platform
	K.	BOP Trolley and slings in good condition.
	L.	Anti-fall devices in good condition
	M.	Housekeeping is good

	II	BLOWOUT PREVENTION
	A.	BOP remote functioning properly and easily accessible
	B.	Accumulator functioning properly and easily accessible
	C.	Accumulator lines protected and secured
	D.	High pressure connections used throughout system WITH hobbles
	E.	Are BOP's snubbed off properly.
	F.	Gauges are all working and readable.
	G.	Choke manifold - stand & line secured
	H.	Sufficient lighting for safe operations.

	III	PIPE RACK AREA
	A.	Pipe Rack and Catwalk in good condition.
	B.	Adequate and clean walkways.
	C.	Handrails in place and in good condition
	D.	Stairs level & secured with bolts or pins.
	E.	Stair treads have good non-skid surface.
	F.	Stairways, ladders, work platforms and walkways clear of obstructions and in good condition.
	G.	ALL Layers of pipe chocked properly.
	H.	Sufficient lighting for safe operations.
	I.	Housekeeping is good

	IV	RIG FLOOR
	A.	ALL holes in the floor are covered.
	B.	V-Door provided with a gate or handrail.
	C.	Stairs level & secured with bolts or pins.
	D.	Stair treads have good non-skid surface.
	E.	Rotary & racking area clean and has adequate slip protection in place.
	F.	Stairways, ladders, work platforms and walkways clear of obstructions and in good condition.
	G.	Wind walls and handrails are in good condition.
	H.	Tool boards are orderly & tools are in good condition.
	I.	Kill switch and emergency kill are working properly
	J.	Crown block saver system checked daily.
	K.	Brake llinkage is in good condition and adjusted properly
	L.	Guards on all moving equipment in place.
	M.	Air Slips operating correctly.
	N.	Hydraulic catheads operate smooth & free of projecting parts.
	O.	Hoist lines are in good condition & spooled with a line guide.
	P.	Air hoists (brakes, line, hand control) in good condition.
	Q.	Snubbing & jerk lines in good condition.
	R.	Tong body & jaws are in good condition
	S.	Tong pull lines & hanging lines not worn or kinked and have free travel w/out rubbing.
	T.	Hydraulic hoses are in good condition and hobbled properly.
	U.	Tubing and Drill Pipe Elevators are in good condition
	V.	Tong stiff arm connected properly with a safety line.
	W.	Safety Keepers in place for tong & slip dies
	X.	Sufficient lighting for safe operations.
	Y.	Controls labeled clearly
	Z.	Housekeeping is good



OFFSHORE RIG

SAFETY AUDIT CHECK SHEET

(v) Acceptable (-) Not Applicable (X) Correction Needed

V	**DERRICK**	
A.	Derrick ladder is in good condition.	
B.	Derrick climber is installed & anchored properly.	
C.	Anti-fall device and climbing belt(s) are in good condition.	
D.	Derrick pins all secured with safety pins.	
E.	All sheaves in good condition & secure.	
F.	All guy wires installed properly and are in good condition.	
G.	Latch dogs visually inspected and are in good condition (If applicable)	
H.	Lighting system hobbled properly.	
I.	Derrick free of any loose objects.	
J.	Kelly hose hobbled at both ends.	
K.	Crown Bumper is secured and in good condition.	
L.	Crown Light operating properly	
M.	Guy wires flagged (if installed).	
VI	**DERRICK BOARD AREA**	
A.	Emergency exit line adequate length and anchored adequately.	
B.	Slow Descend Device securely in place.	
C.	Fingers snubbed and in condition good.	
D.	Standpipe secured.	
E.	Derrick board, wind walls & handrails in good condition.	
F.	Safety belt & lines in good condition.	
G.	Board pins properly installed with safety pins installed.	
H.	Diving Board properly secured.	
I.	Sufficient lighting for safe operations.	
J.	Housekeeping is good.	
VII	**ELECTRICAL & GENERATOR**	
A.	Receptacles and plugs in good condition.	
B.	All cables in good condition, supported and protected properly.	
C.	All electrical panel doors in place.	
D.	Electrical controls labeled properly.	
E.	Cable trays assembled and secured properly & grounded to platform properly.	
F.	Electrical tools, cables & extension cords grounded, tagged, and protected by GFCI.	
G.	Equipment deenergized and properly locked and tagged as required.	
H.	Lockout/Tagout station provided with adequate supplies.	
I.	High voltage signs in place.	
J.	SCR house, generator and electrical equipment grounded properly to platform.	
K.	Housekeeping is good.	

VIII	**MUD TANK AREA**	
A.	Stairways, ladders, work platforms and walkways clear of obstructions and in good condition.	
B.	Handrails in place and in good condition.	
C.	Stairs level & secured with bolts or pins.	
D.	Stair treads have good non-skid surface.	
E.	Guards on all moving equipment in place.	
F.	Goggles, respirators, gloves, and apron readily accessible.	
G.	Eye wash station & safety shower installed, functional and obstruction free.	
H.	Mud Tanks properly grounded to platform.	
I.	Sufficient lighting for safe operations.	
J.	Pallets of mud stacked safely.	
K.	Housekeeping is good.	
IX	**MUD PUMP AREA**	
A.	Pressure relief valves set to proper working pressure of pump.	
B.	Pressure relief valve covered.	
C.	Pressure relief line secured.	
D.	Vibrator hoses secured and hobbled.	
E.	Working area around pumps in satisfactory condition.	
F.	Guards on all moving equipment in place.	
G.	All studs & nuts in place.	
H.	Sufficient lighting for safe operations.	
I.	Mud Pumps properly grounded to Platform	
J.	Housekeeping is good.	
X	**DOG HOUSE**	
A.	Doors open outward and freely.	
B.	Sufficient lighting.	
C.	Drinking water available.	
D.	Individual lockers provided for each crewman.	
E.	Safety poster & OSHA log posted.	
F.	Emergency phone numbers posted.	
G.	Purge air system working properly if doghouse is located in a classified area.	
H.	Housekeeping is good.	
XI	**HAND TOOLS**	
A.	Tools in good condition.	
B.	Tools picked up and clean.	
C.	Striking tools such as hammers & chisels not broken or have mushroomed heads.	
D.	Tool handles securely fastened and free of damage.	
E.	Guards on all moving equipment in place.	

DCOR

OFFSHORE RIG

SAFETY AUDIT CHECK SHEET

(v) Acceptable (-) Not Applicable (X) Correction Needed

	XII MISC & RENTAL EQUIPMENT
A.	Stairways, ladders, work platforms and walkways clear of obstructions and in good condition.
B.	Handrails in place and in good condition.
C.	Stairs level, clean and secured with pins.
D.	Stair treads have good non-skid surface.
E.	Guards on all moving equipment in place.
F.	Ladders and stairways are in good condition and have non-skid surfaces.
G.	Lighting is adequate for safe operations.
H.	All equipment is properly labeled.
I.	All equipment is adequately secured to the platform
J.	All equipment is properly grounded to the drill deck
K.	All equipment has emergency shutdowns.
L.	Housekeeping is good

MISC. & RENTAL EQUIPMENT ON SITE

	XIII SAFETY EQUIPMENT
A.	Safety glasses, gloves, googles & face shields provided.
B.	Hearing protection provided and used.
C.	PPE used and in good condition.
D.	Fire extinguishers charged, tagged and at proper stations.
E.	SCBAs provided and in good working condition if applicable.
F.	Cascade Units installed and in good working condition if applicable.
G.	All signs in place and readable (high voltage, no smoking, PPE required, fuel tanks, authorized personnel)
H.	All vessels are labeled as to contents, including Haz. Comm. Label.
I.	Gas detection installed and tested/calibrated appropriately.

	XIV RIG SITE SAFETY MANAGEMENT
A.	First aid kit adequate (eye wash, blood borne pathogen kit included).
B.	Emergency contact phone numbers posted
C.	SDS folder complete, up-to-date, and readily available to all employees.
D.	SPCC Plan current and up to date for current location.
E.	Equipment deenergized and properly locked and tagged as required
F.	Wire rope ton mile performance records.
G.	Waste labeled and stored properly.
H.	Training records accessible (BOP cards, rigger certs, CO certs, etc)

COMMENTS: _____

INSPECTED BY: _____ TITLE: _____

DISCUSSED WITH:

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ELECTRICAL SAFETY POLICY

PURPOSE

This program implements 29 CFR 1910.331 through 1910.335, the OSHA standard on electrical safety-related work practices that was adopted on August 6, 1990. It sets forth the safety-related work practices that have been adopted by this company in order to prevent electric shock or other injuries resulting from either direct or indirect electrical contact when work is performed near or on equipment or circuits which are or may be energized.

The purpose of the company electrical safety program is:

- To promote an electrically safe workplace, free from electrical hazards, for all employees and contractors.

- To implement all facility policies, and to achieve compliance with all Federal, State and Local regulations.

The electrically safe workplace will be achieved by:

- Mandating and implementing the electrical Subparts of 29 CFR 1910 *General Industry* and 29 CFR 1926 *Construction* as directed by the Occupational Safety and Health Act *(OSHA).*

- Applying the *National Electric Code (NFPA 70), Electrical Safety Requirements for Employee Workplaces (NFPA 70E), National Electric Safety Code (ANSI C2), Design and Installation of Electrical Systems for Offshore Production Platforms (API RP 14F)* and any additional requirements by applicable Federal, State and Local agencies to the design, construction, and maintenance of facilities.

SCOPE AND APPLICATION

This program covers electrical safety-related work practices for both *qualified* persons and *unqualified* persons (see the definitions below) who are working on, near, or with the following installations:

(a) ***Premises wiring*** means installations of electrical conductors and equipment within or on buildings or other structures, and on other premises such as yards, temporary setups, parking and other lots and industrial substations;

(b) ***Wiring for connection*** *to supply* means installations of conductors that connect to the supply of electricity;

(c) ***Other wiring*** means installations of other outside conductors on the

premises;

(d) ***Optical fiber cable*** means installations of optical fiber cable where such installations are made along with electrical conductors.

This program does *not* apply to work performed by qualified persons on or directly associated with the following installations:

Communications installations means installations of communication equipment to the extent that the work is covered under the OSHA standard in 29 C.F.R. 1910.268 (telecommunications).

Installations in vehicles means installations in ships, watercraft, railway rolling stock, aircraft, or automotive vehicles other than mobile homes and recreational vehicles.

Railway installations means installations of railways for generation, transformation, transmission, or distribution of power used exclusively for operation of rolling stock or installations of railways used exclusively for signaling and communication purposes.

REFERENCES

American National Standards Institute (ANSI)
National Electric Safety Code (NESC), ANSI C2-87

Barclays Official California, Code of Regulations
Electrical Safety Orders, Title 8 (Subchapter 5)

Department of Labor - Occupational Safety and Health Administration (OSHA)
Electrical Safety-Related Safe Work Practices, 29 CFR 1910.331-1910.335, .399
Electric Power Generation, Transmission and Distribution, 29 CFR 1910.269
Electrical Protective Equipment, 29 CFR 1910.137

Government Institutes, Inc., Rockville, Maryland
OSHA's Electrical Safety and Lockout/Tagout Standards 1996, Mark McGuire Moran

National Fire Protection Association (NFPA)
National Electric Code (NEC), NFPA 70-1971
Electric Safety for Employee Workplaces, NFPA 70E

National Technology Transfer, Inc., Englewood, Colorado
Electrical Safety Requirements and Procedures, Fourth Edition 1998

DEFINITIONS

Qualified person means a person permitted to work on or near exposed energized parts who has been trained in and familiar with:

1. The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment;

2. The skills and techniques necessary to determine the nominal voltage of exposed live parts;

3. The knowledge, skills and techniques to work safely on energized circuits;

4. The knowledge of approach distances to exposed parts;

5. The proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, test equipment, insulated tools; and

6. The clearance distances for work performed near overhead lines that are specified in the OSHA standard that appears in 29 CFR 1910.333(c) and the corresponding voltages to which he will be exposed.

Unqualified person means a person with little or no training in avoiding the electrical hazards of working on or near exposed energized parts.

On or near means close enough to exposed energized parts (by either personal contact or contact by tools or materials) for an employee to be exposed to *any* hazard the live parts present.

ELECTRICAL WORK IN GENERAL

1. Appropriate safety-related work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts when work is performed near or on equipment or circuits that are or may be energized. Those specific work practices shall be consistent with the nature and extent of the associated electrical hazards.

2. Combustible material may not be stored in any electrical enclosure.

3. Employees authorized to work on electrical circuits should be trained in CPR and First Aid.

4. Blown fuses shall be replaced only with the proper type and rating.

5. Never use defective electrical equipment or extension cords. Report all defective electrical equipment to your supervisor.

6. Facilities shall conduct annual inspections to ensure each employee is complying with safety related work practices.

WORK ON OR NEAR EXPOSED DE-ENERGIZED PARTS

1. Live parts to which an employee may be exposed shall be deenergized before any employee works on or near them, *unless* deenergizing will introduce *additional or increased hazards* or is *infeasible due to equipment design or operational limitations*. (refer to section VI for specific examples)

2. Whenever any employee is exposed to contact with parts of fixed electric equipment or circuits that have been deenergized, the circuits energizing the parts shall be locked and tagged out in accordance with the requirements of the company **Lockout/Tagout/Blockout Procedure** (Refer to Section 4.04 of the company Safety Manual) *as supplemented by* Federal, State and Local regulations, and the requirements of this Program.

3. Safe procedures for deenergizing circuits and equipment shall be determined before circuits or equipment are deenergized.

4. The circuits and equipment to be worked on shall be disconnected from all electric energy sources. Control circuit devices, such as push buttons, selector switches, and interlocks, may not be used as the sole means for deenergizing circuits or equipment. Interlocks for electric equipment may not be used as a substitute for lockout and tagging procedures.

5. Stored electric energy that might endanger personnel shall be released. Capacitors shall be discharged and high capacitance elements shall be short-circuited and grounded, *if* the stored electric energy might endanger personnel.

6. If the capacitors or associated equipment are handled, they shall be treated as *energized* and according to Section VI of this policy.

7. Stored non-electrical energy in devices that could re-energize electric circuit parts shall be blocked or relieved to the extent that the circuit parts can not be accidentally energized by the device.

8. A lock *and* a tag shall be placed on each disconnecting means used to deenergize circuits and equipment on which work is to be performed.

9. Each lock shall be attached so as to prevent persons from operating the disconnecting means unless they resort to undue force or the use of tools.

10. Each tag shall contain a statement prohibiting unauthorized operation of the disconnecting means and removal of the tag. The tag should state: the persons name who performed the lockout / tagout; date of lockout / tagout;

and reason for deenergizing.

11. No work shall be performed on or near deenergized live parts, circuits, or equipment until their deenergized condition has been verified.
12. Verification of the deenergized condition shall be made as follows:

    (a) A qualified person shall operate the equipment operating controls or otherwise verify that the equipment cannot be restarted.

    (b) A qualified person shall use test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and shall verify that the circuit elements and equipment parts are deenergized.

    (c) The test shall also determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been deenergized and presumed to be safe.

13. Before any circuit or equipment is re-energized—even temporarily—the following requirements shall be met in the order listed:

    (a) A qualified person shall conduct tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed, so that the circuits and equipment can be safely energized.

    (b) Employees exposed to the hazards associated with re-energizing the circuit or equipment shall be warned to stay clear of circuits and equipment.

    (c) Each lock and tag shall be removed by the employee who applied it or under his or her direct supervision.

    (d) If that employee is absent from the workplace, then the lock and tag may be removed by a qualified Lead Operator or Foreman designated to perform such task *provided that*:

    - It is certain that the employee who applied the lock or tag is not available at the workplace, *and*

    - That employee is made aware that the lock or tag has been removed *before* he or she resumes work.

    Under these conditions the Lead Operator or Foreman after checking the equipment for complete repairs and assuming full responsibility, can remove the tag and lock and place the equipment in service. This person

is responsible for notifying personnel that their lock(s) and tag(s) have been removed in these cases.

(e) There shall be a visual determination that all employees are clear of the circuits and equipment.

14. Conductors and parts of electric equipment that have been deenergized but have *not* been locked out or tagged in accordance with the foregoing rules shall be treated as *energized* parts, and the requirements listed in the next section of this Program (Section VI) apply to work on or near them.

WORK ON OR NEAR EXPOSED ENERGIZED PARTS

Company and OSHA policy dictates live parts to which an employee may be exposed shall be deenergized before the employee works on or near them. It is, of course, always safer to work on deenergized equipment than energized.

Exception: In instances where the qualified person can demonstrate that deenergizing introduces additional or increased hazards or is infeasible due to equipment design or operational limitations.

Examples of additional or increased hazards include:

- Interruption of life support equipment;
- Deactivation of emergency alarm systems;
- Shutdown of hazardous location ventilation equipment, or
- Removal of illumination for an area.

Examples of infeasible work include:

- Testing of electrical circuits that can only be performed with the circuit energized, and;
- Work on circuits that form an integral part of a continuous industrial process in a chemical plant that would otherwise need to be completely shut down in order to permit work on one circuit or piece of equipment.

Additionally, live parts that operate at less than 50 volts to ground need not be deenergized if there will be no increased exposure to electrical burns or to explosion due to electric arcs.

Only qualified persons who are electricians may work on electric circuits parts or equipment that have not been deenergized under this policy. It is the responsibility of the qualified electrician to ensure the above criteria is met and company and regulatory procedures are followed prior to performing work on energized electric circuit parts.

Facility engineers shall ensure that arc flash hazard labels include information such as nominal system voltage, arc flash boundary, and guidance on the required level of PPE. Documentation that supports the information on the arc flash labels shall be available. Arc flash labeling shall be adhered to both AC and DC equipment.

PROCEDURE:

1. In those cases where the exposed live parts are *not* deenergized—either because of *increased or additional hazards* or because of *infeasibility due to equipment design or operational limitations* (as described above), other safety-related work practices must be used to protect employees who may be exposed to the electrical hazards involved.

2. Those work practices must protect employees against contact with energized circuit parts. This includes direct contact with any part of their body or indirect contact through some other conductive object. Such work practices must also protect employees near enough to be exposed to any hazard the energized circuit parts present.

3. The work practices that are used shall be suitable for the conditions under which the work is to be performed and for the voltage level of the exposed electric conductors or circuit parts in accordance with the requirements detailed below.

4. Only qualified persons who are electricians may work on electric circuit parts or equipment that has not been deenergized under the procedures listed in the preceding section of this Program.

5. Such persons shall be capable of working safely on energized circuits and shall be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.

6. Whenever work is to be performed near overhead lines, the lines shall be deenergized and grounded, or other protective measures shall be provided before work is started.

7. When overhead lines are to be deenergized, arrangements to deenergize and ground them shall be made with the person or organization that operates or controls the electrical circuits involved.

8. When protective measures are provided, such as guarding, isolating, or insulating, those precautions shall prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.

9. No person except a qualified person who is an electrician as defined in this Program shall be permitted to install insulating devices on overhead power transmission or distribution lines.

10. Whenever an unqualified person is working in an elevated position near overhead lines, the location shall be such that the person *and* the longest conductive object, i.e.(vehicles, cranes, heavy equipment, and metal hand tools), he or she may contact, cannot come closer to any unguarded, energized overhead line than the following distances:

    (a) For voltages to ground 50kV or below - 10 ft. (305 cm);
    (b) For voltages to ground over 50kV - 10 ft. (305 cm) plus 4 in. (10 cm) for every 10kV over 50kV.

11. Whenever an unqualified person is working on the ground in the vicinity of overhead lines, the person may not bring any conductive object, i.e.(vehicles, cranes, heavy equipment, and metal hand tools), closer to unguarded, energized overhead lines than the distances given in paragraph 10, above.

12. For voltages normally encountered with overhead power lines, objects which do not have an insulating rating for the voltage involved are considered to be conductive.

13. Whenever a qualified person is working in the vicinity of overhead lines, whether in an elevated position or on the ground, the person may not approach or take any conductive object without an approved insulating handle closer to exposed energized parts than that shown in Table S-5 of 29 CFR 1910.333(c)(3) [see paragraph 14, below], *unless:*

    (a) The person is insulated from the energized part. Gloves, with sleeves if necessary, rated for the voltage involved, are considered to be insulation of the person from the energized part on which work is performed,

    (b) The energized part is insulated *both* from all other conductive objects at a different potential *and* from the person, or

    (c) The person is insulated from all conductive objects at a potential different from that of the energized part.

14. The minimum approach distances specified in Table S-5 (referred to in paragraph 13) are as follows:

Voltage Range (Phase to Phase)	Minimum Approach Distance
300V and less	Avoid contact
Over 300V, not over 750V.	1 ft. 0 in. (30.5 cm)
Over 750V, not over 2kV	1 ft. 6 in. (46 cm)
Over 2kV, not over 15kV	2 ft. 0 in. (61 cm)
Over 15kV, not over 37kV	3 ft. 0 in. (91 cm)
Over 37kV, not over 87.5kV	3 ft. 6 in. (107 cm)
Over 87.5kV, not over 121kV	4 ft. 0 in. (122 cm)
Over 121kV, not over 140kV	4 ft. 6 in. (137 cm)

15. 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 ft. (305 cm) is maintained. If the voltage is higher than 50kV, the clearance shall be increased 4 in. (10 cm) for every 10kV over that voltage. However, under any of the following conditions, the clearance may be reduced:

    (a) *If* the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. (122 cm). If the voltage is higher than 50kV, the clearance shall be increased 4 in. (10cm) for every 10kV over that voltage.

    (a) *If* insulating barriers are installed to prevent contact with the lines, and if the barriers are rated for the voltage of the line being guarded and are not a part of or an attachment to the vehicle or its raised structure, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.

    (b) *If* the equipment is an aerial lift insulated for the voltage involved, and if the work is performed by a qualified person, the clearance (between the uninsulated portion of the aerial lift and the power line) may be reduced to the distance given in said Table S-5 (see paragraph 14 above).

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

    (a) The employee is using protective equipment rated for the voltage; or

    (b) The equipment is located so that no uninsulated part of its structure (that portion of the structure that provides a conductive path to

employees on the ground) can come closer to the line than permitted in paragraph 15 of this Program.

17. 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 shall not stand at the grounding location whenever there is a possibility of overhead line contact.

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

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

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

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

22. Whenever an employee works in a *confined or enclosed space* (such as a manhole or vault) that contains exposed energized parts, he must be provided with, and he shall use, protective shields, protective barriers, or insulating materials as necessary to avoid inadvertent contact with those parts.

23. Doors, hinged panels, and the like that are present in any *confined or enclosed space* shall be secured to prevent their swinging into an employee and causing the employee to contact exposed energized parts.

24. 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 such materials from contacting exposed energized conductors or circuit parts.

25. Whenever an employee must handle long-dimensional conductive objects (such as ducts and pipes) in areas with exposed live parts, appropriate work practices which will minimize the hazard (such as the use of insulation, guarding and material handling techniques) shall be instituted.

26. Portable ladders shall have nonconductive side rails if they are used where the employee or the ladder could contact exposed energized parts. All offshore and plant applications would require non-conductive, fiberglass style, ladders.

27. Conductive articles of jewelry and clothing (such as watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) may *not* be worn if they might contact exposed energized

parts. However, such articles may be worn if they are rendered nonconductive by covering, wrapping, or other insulating means.

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

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

30. Only a qualified person following the requirements of the procedures set forth in this section of the Program may defeat an electrical safety interlock and then only temporarily while he or she is working on the equipment.

31. The interlock system shall be returned to its operable condition when such work is completed.

32. When energizing equipment, personnel shall be kept clear of the area and accounted for.

GENERAL MAINTENANCE REQUIREMENTS

1. Employees who perform maintenance on electrical equipment and installations shall be trained in, and familiar with, the specific maintenance procedures and tests required.

2. A single line diagram, where provided for the electrical system, shall be maintained in a legible condition and shall be kept current.

3. Electrical equipment shall be maintained in accordance with manufacturer's instructions or industry consensus standards to reduce the risk associated with failure. The equipment owner shall be responsible for maintenance of the electrical equipment and documentation.

4. Overcurrent protective devices shall be maintained in accordance with manufacturer's instructions or industry consensus standards. Maintenance, tests, and inspections shall be documented.

5. All working space and clearances required by electrical codes and standards shall be maintained.

6. Equipment, raceway, cable tray, and enclosure bonding and grounding shall be maintained to ensure electrical continuity.

7. Enclosures shall be maintained to guard against accidental contact with energized conductors, circuit parts, and other electrical hazards. Covers and doors shall be in place with all associated fasteners.

8. Locks, interlocks, and other safety equipment shall be maintained in proper working condition to accomplish the control purpose.

9. Access to working space and escape passages shall be kept clear and unobstructed.

10. Identification of components, where required, shall be securely attached and maintained in legible condition.

11. Warning signs, where required, shall be visible, securely attached, and maintained in legible condition.

12. Circuit or voltage identification shall be securely affixed and maintained in updated and legible condition.

ELECTRIC POWER AND LIGHTING CIRCUITS

1. Load-rated switches, circuit breakers, or other devices specifically designed as disconnecting means shall be used for the routine opening, reversing, or closing of circuits under load conditions.

2. Cable connectors not of the load-break type, fuses, terminal lugs, and cable splice connections may not be used for such purposes, except in an emergency.

3. After a circuit is deenergized by a circuit protective device, the circuit may not be manually re-energized until it has been determined that the equipment and circuit can be safety energized. However, when it can be determined from the design of the circuit and the overcurrent devices involved that the automatic operating of a device was caused by an overload rather than a fault condition, no examination of the circuit or connected equipment is needed before the circuit is re-energized.

4. Repetitive manual reclosing of circuit breakers or re-energizing circuits through replaced fuses is prohibited.

5. Overcurrent protection of circuits and conductors may not be modified, even on a temporary basis, beyond that allowed by the OSHA standard regulating the installation safety requirements for overcurrent protection (29 CFR 1910.304(e)).

TEST INSTRUMENTS AND EQUIPMENT

Proper test equipment selection is a serious concern. Most test equipment is either rated at 600 volts or 1000 volts. Use of equipment on a voltage greater than it's rating can cause the equipment to explode. The vaporized copper from this type of failure can create a conductive vapor cloud in the proximity of the voltage being tested and thereby cause a secondary explosion of the service being tested.

1. Only qualified persons may perform testing work on electric circuits or equipment.

2. Test instruments and equipment and all associated test leads, cables, power cords, probes, and connectors shall be visually inspected for external defects and damage before the equipment is used. If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged item shall be removed from service, and no employee may use it until necessary repairs and tests to render the equipment safe have been made.

3. Test instruments and equipment and their accessories shall be rated for the circuits and equipment to which they will be connected and shall be designed for the environment in which they will be used.

CLASSIFIED AREAS FOR FLAMMABLE OR IGNITABLE MATERIALS

1. In those situations where flammable materials are present only occasionally, electric equipment capable of igniting them shall not be used, *unless* measures are taken to prevent hazardous conditions from developing.

2. Such materials include, but are not limited to: flammable gases, vapors, or liquids; combustible dust; and ignitable fibers or flyings.

3. In those situations where flammable vapors, liquids or gases, or combustible dusts or fibers are (or may be) present on a *regular* basis, the electrical installation requirements contained in the OSHA standard regulating hazardous (classified) locations must be observed (29 CFR 1910.307).

4. Additional requirements for offshore platforms will apply (refer to: *Design and Installation of Electrical Systems for Offshore Production Platforms (API RP 14F)* and/or *Classification of Areas for Electrical Installations at Drilling Rigs and Production Facilities on Land and on Marine Fixed and Mobile Platforms (API RP 500B)).*

Refer to the each facility classification drawing for information on specific area electrical designation in accordance with the above.

PERSONAL PROTECTION SAFEGUARDS

1. Employees working in areas where there are potential electrical hazards shall be provided with, and shall use, electrical protective equipment that is appropriate for the specific parts of the body to be protected and for the work to be performed. Such equipment includes rubber protective equipment such as insulating gloves, blankets, hoods, line hose, sleeves, and matting for use around electric apparatus. See the OSHA standard on electrical protective devices (29 CFR 1910.137).

2. Protective equipment shall be maintained in a safe, reliable condition and shall be periodically inspected or tested, as required by 1910.137.

3. If the insulating capability of protective equipment may be subject to damage during use, the insulating material shall be protected. (For example, an outer covering of leather when it is used for the protection of rubber insulating material.)

4. Employees shall always wear nonconductive, plastic type, hard hats meeting ANSI Z89.1 (class B) standards due to the danger of head injury from electric shock or burns due to contact with exposed energized parts.

5. Employees shall wear protective equipment for the eyes or face wherever there is danger of injury to the eyes or face from electric arcs or flashes or from flying objects resulting from electrical explosion. **Lexan type "arc" face shields and approved safety glasses must meet or exceed ANSI Z87.1 standards.**

6. When working near exposed energized conductors or circuit parts, each employee shall use insulated tools or handling equipment if the tools or handling equipment might make contact with such conductors or parts. If the insulating capability of insulated tools or handling equipment is subject to damage, the insulating material shall be protected.

7. Fuse-handling equipment, insulated for the circuit voltage, shall be used to remove or install fuses when the fuse terminals are energized.

8. Ropes and hand lines used near exposed energized parts shall be nonconductive.

9. Protective shields, protective barriers, or insulating materials shall be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working near exposed energized parts which might be accidentally contacted or where dangerous electric heating or arcing might occur.

10. When normally enclosed live parts are exposed for maintenance or repair, they shall be guarded to protect unqualified persons from contact with the live parts.

11. Alerting techniques shall be used to warn and protect employees from hazards that could cause injury due to electric shock, burns, or failure of electric equipment parts as follows:

a. ***Safety Signs and Tags.*** Safety signs, safety symbols, or accident-prevention tags shall be used where necessary to warn employees about electrical hazards which may endanger them, as required by the OSHA standard on accident-prevention signs and tags (29 CFR 1910.145), (refer to section XIV "Signs and Labels").

b. ***Barricades.*** Barricades shall be used in conjunction with safety signs where it is necessary to prevent or limit employee access to work areas exposing employees to uninsulated energized conductors or circuit parts. Conductive barricades may not be used where they might cause an electrical-contact hazard.

c. ***Attendants.*** If signs and barricades do not provide sufficient warning and protection from electrical hazards, an attendant shall be stationed to warn and protect employees.

The basic personal protective equipment (PPE) provided to all company electricians is as follows:

1. Non-Conductive Hard Hat meeting ANSI Z 89.1 (class B) standards
2. Safety glasses meeting ANSI Z87.1 standards
3. Lexan Face Shield, UV rated, ANSI Z87.1 standards
4. 5kV Insulated gloves, ASTM D120 standards
5. Low Voltage (600 volt) Tick Tracer
6. Low Voltage (600 volt) Test Meter

Minimum personal protective equipment (PPE) provided at each facility includes:

1. Lexan Face Shield, UV rated, ANSI Z87.1 standards
2. 32 kV Insulated Gloves, ASTM D120 standards
3. 32 kV Insulated Blast Coat, ASTM F1506 standards
4. 32 kV Rubber Mat/Blanket with Clips, ASTM D1048 and ASTM F479 standards
5. High Voltage (above 600 volts) Tick Tracer
6. Three Leg Ground Cluster with 2/0 Copper Conductors for Maximum Fault Duty of 27ka for 15 Cycles ASTM F855 standards
7. 4'6" Shotgun w/Cap and Protective Bag
8. Double Insulated Hand Tools meeting ASTM F1505 standards (required offshore)

Procedure for Use of Insulated Gloves

Insulating gloves of the class indicated by the nominal voltage which may be encountered while performing the task at hand shall be used and worn in accordance with the provisions of NFPA 70E, II, 1995 and the “Electrical PPE Guideline Chart” posted in the electrical PPE locker. The chart indicates the minimum class of gloves that should be used for the sample tasks listed. Of course, many unlisted tasks will be encountered. In

these events, the chart will serve as a guideline; and, in all events, NFPA 70E, II, 1995 and the DCOR Operating Company safety manual section: 4.14 serve as company policy for electrical safety-related work practices.

The insulating glove rubbers shall be inspected before each use by the user and tested or replaced after six months of use. A record of glove testing and replacement shall be kept in the electrical PPE locker.

Procedures For Use of 0-20KV Voltage Detector

The voltage detector shall be used prior to the installation of safety grounds for isolation of de-energized equipment. As the use of this equipment requires its contact with energized parts, the potential for arc flash is always present. The voltage detector is to be used on voltages from 1KV to 20KV. The arc flash protection boundary at these voltages is typically several feet. So, this voltage detector should always be used with approved flash protection for the person's entire body. This is reflected in the "Electrical PPE Guideline Chart". Whenever voltage testing or detection is to be performed at these voltages, the chart calls for flash protection to consist of hood, coat and gloves. This means that the person's entire body needs to be protected from arc flash.
All required personal protective equipment shall be stored and maintained in accordance with manufacturers recommendations.

Table 130.7(C)(15)(A)(a) Arc Flash Hazard Identification for Alternating Current (ac) and Direct Current (dc)

Task	Equipment Condition*	Arc Flash PPE Required
Reading a panel meter while operating a meter switch	Any	No
Normal operation of a circuit breaker (CB), switch, contactor or starter	All of the following: The equipment is properly installed The equipment is properly maintained All equipment doors are closed and secured All equipment covers are in place and secured There is no evidence of impending failure	No
	One or more of the following: The equipment is not properly installed The equipment is not properly maintained Equipment doors are open or not secured Equipment covers are off or not secured There is evidence of impending failure	Yes
For ac systems: Work on energized electrical conductors and circuit parts, including voltage testing	Any	Yes
For dc systems: Work on energized electrical conductors and circuit parts of series-connected battery cells, including voltage testing	Any	Yes
Voltage testing on individual battery cells or individual multi-cell units	All of the following: The equipment is properly installed The equipment is properly maintained Covers for all other equipment are in place and secured There is no evidence of impending failure	No
	One or more of the following: The equipment is not properly installed The equipment is not properly maintained Equipment doors are open or not secured Equipment covers are off or not secured There is evidence of impending failure	Yes
Removal or installation of CBs or switches	Any	Yes
Removal or installation of covers for equipment such as wireways, junction boxes, and cable trays that does not expose bare energized electrical conductors and circuit parts	All of the following: The equipment is properly installed The equipment is properly maintained There is no evidence of impending failure	No
	Any of the following: The equipment is not properly installed The equipment is not properly maintained There is evidence of impending failure	Yes
Removal of bolted covers (to expose bare energized electrical conductors and circuit parts). For dc systems, this includes bolted covers, such as battery terminal covers.	Any	Yes

Table 130.7(C)(15)(A)(a) Arc Flash Hazard Identification for Alternating Current (ac) and Direct Current (dc)

Task	Equipment Condition*	Arc Flash PPE Required
Removal of battery intercell connector covers	All of the following: The equipment is properly installed The equipment is properly maintained Covers for all other equipment are in place and secure There is no evidence of impending failure	No
	One or more of the following: The equipment is not properly installed The equipment is not properly maintained Equipment doors are open or not secured Equipment covers are off or not secured There is evidence of impeding failure	Yes
Opening hinged door(s) or cover(s) (to expose bare energized electrical conductors and circuit parts)	Any	Yes
Perform infrared thermography and other noncontact inspections outside the restricted approach boundary. This activity does not include opening of doors or covers.	Any	No
Application of temporary protective grounding equipment after voltage test	Any	Yes
Work on control circuits with exposed electrical conductors and circuit parts, 120 volts or below without any other exposed energized equipment over 120 volts including opening of hinged covers to gain access	Any	No
Work on control circuits with exposed energized electrical conductors and circuit parts, greater than 120 V	Any	Yes
Insertion or removal of individual starter buckets from motor control center (MCC)	Any	Yes
Insertion or removal (racking) of CBs or starters from cubicles, doors open or closed	Any	Yes
Insertion or removal of plug-in devices into or from busways	Any	Yes
Insulated cable examination with no manipulation of cable	Any	No
Insulated cable examination with manipulation of cable	Any	Yes
Work on exposed energized electrical conductors and circuit parts of equipment directly supplied by a panelboard or motor control center (MCC)	Any	Yes
Insertion and removal of revenue meters (kW-hour at primary voltage and current)	Any	Yes
For dc systems, insertion or removal of individual cells or multi-cell units of a battery system in an enclosure	Any	Yes
For dc systems, insertion or removal of individual cells or multi-cell units of a battery system in an open rack	Any	No

Table 130.7(C)(15)(A)(a) Arc Flash Hazard Identification for Alternating Current (ac) and Direct Current (dc)

Task	Equipment Condition*	Arc Flash PPE Required
For dc systems, maintenance on a single cell of a battery system or multi-cell units in an open rack	Any	No
For dc systems, work on exposed energized electrical conductors and circuit parts or utilization equipment directly supplied by a dc source	Any	Yes
Arc-resistance switchgear Type 1 or 2 (for cleaning times of <0.5 sec with a prospective fault current not to exceed the arc-resistant rating of the equipment) and metal enclosed interrupter switchgear, fused or unfused of arc resistant type construction tested in accordance with IEEE C37.20.7: • Insertion or removal (racking) of CBs from cubicles	All of the following: The equipment is properly installed The equipment is properly maintained All equipment doors are closed and secured All equipment covers are in place and secured There is no evidence of impending failure	No
• Insertion or removal (racking) of ground and test device • Insertion or removal (racking) of voltage transformers on or off the bus	One or more of the following: The equipment is not properly installed The equipment is not properly maintained Equipment doors are open or not secured Equipment covers are off or not secured There is evidence of impending failure	Yes
Opening voltage transformer or control power transformer compartments	Any	Yes
Outdoor disconnect switch operation (hookstick operated at 1 kV through 15 kV	Any	Yes
Outdoor disconnect switch operation (gang-operated, from grade) at 1 kV through 15 kV	Any	Yes

Table 130.7(C)(15)(A)(b) Arc-Flash Hazard PPE Categories for Alternating Current (ac) Systems

Equipment	Arc Flash PPE Category	Arc Flash Boundary
Panelboards or other equipment rated 240V and below Parameters: Maximum of 25 kA short-circuit current available; maximum of 0.03 sec (2 cycles) fault clearing time; working distance 455 mm (18 in.)	1	485 mm (19 in.)
Panelboards or other equipment rated >240V and up to 600V Parameters: Maximum of 25 kA short-circuit current available; maximum 0.03 sec (2 cycles) fault clearing time; working distance 455 mm (18 in.)	2	900 mm (3ft.)
600-V class motor control centers (MCCs) Parameters: Maximum of 65 kA short-circuit current available; maximum of 0.03 sec (2 cycles) fault clearing time; working distance 455 (18 in.)	2	1.5m (5 ft)
600-V class motor control centers (MCCs) Parameters: Maximum of 42 kA short-circuit current available; maximum of 0.33 sec (20 cycles) fault clearing time; working distance 455 mm (18 in.)	4	4.3 m (14 ft)
600-V class switchgear (with power circuit breakers or fused switches) and 600 V class switchboards Parameters: Maximum of 35 kA short-circuit current available; maximum of up to 0.5 sec (30 cycles) fault clearing time; working distance 455 mm (18 in.)	4	6 m (20 ft)
Other 600-V class (277 V through 600 V, nominal) equipment Parameters: Maximum of 65 kA short circuit current available; maximum of 0.03 sec (2 cycles) fault clearing time; working distance 455 mm (18 in.)	2	1.5 m (5 ft)
NEMA E2 (fused contactor) motor starters, 2.3 kV through 7.2 kV Parameters: Maximum of 35 kA short-circuit current available; maximum of up to 0.24 sec (15 cycles) fault clearing time; working distance 910 mm (36 in.)	4	12m (40 ft)
Metal-clad switchgear, 1 kV through 15 kV Parameters: Maximum of 35 kA sort-circuit current available; maximum of up to 0.24 sec (15 cycles) fault clearing time; working distance 910 mm (36 in.)	4	12m (40 ft)
Arc-resistant switchgear Type 1 or 2 [for clearing times of <0.5 sec (30 cycles) with a perspective fault current not to exceed the arc-resistant rating of the equipment], and metal-enclosed interrupter switchgear, fused or unfused of arc-resistant-type construction, tested in accordance with IEEE C37.20.7, 1 kV through 15 kV	N/A (doors closed)	N/A (doors closed)
Parameters: Maximum of 35 kA short-circuit current available; maximum of up to 0.24 sec (15 cycles) fault clearing time; working distance 910 mm (36 in.)	4 (doors open)	12 m (40 ft)
Other equipment 1 kV through 15 kV Parameters: Maximum of 35 kA short-circuit current available; maximum of up to 0.24 sec (15 cycles) fault clearing time; working distance 910 mm (36 in.)	4	12m (40 ft)

Note: for equipment rated 600 volts and below, and protected by upstream current-limiting fuses or current-limiting circuit breakers sized at 200 amperes or less, the arc flash PPE category can be reduced by one number but not below arc flash PPE category 1.

Table 130.7 (C)(15)(B) Arc-Flash Hazard PPE Categories for Direct Current (dc) Systems

Equipment	Arc Flash PPE Category	Arc Flash Boundary
Storage batteries, dc switchboards, and other dc supply sources 100V > Voltage < 250V Parameters: Voltage: 250V Maximum arc duration and working distance: 2 sec @ 455 mm (18 in.)		
Short-circuit current < 4kA	1	900 mm (3 ft)
4 kA ≤ short-circuit current < 7 kA	2	1.2 m (4 ft)
7 kA ≤ short-circuit current 15 kA	3	1.8 m (6 ft)
Storage batteries, dc switchboards, and other dc supply sources 250V ≤ Voltage ≤ 600 V Parameters: Voltage: 600V Maximum arc duration and working distance: 2 sec @ 455 mm (18 in.)		
Short-circuit current 1.5 kA	1	900 mm (3 ft)
1.5 kA ≤ short-circuit current < 3kA	2	1.2m (4 ft)
3 kA ≤ short-circuit current 7 kA	3	1.8 m (6 ft)
7 kA ≤ short-circuit current < 10 kA	4	2.5 m (8 ft)

Note: Apparel that can be expected to be exposed to electrolyte must meet both of the following conditions:
(1) Be evaluated for electrolyte protection in accordance with ASTM F1296, *Standard Guide for Evaluating Chemical Protective Clothing*
(2) Be arc-rated in accordance with ASTM F1891, *Standard Specification for Arc Rated and Flame Resistant Rainwear,* or equivalent

HIGH VOLTAGE APPLICATIONS (ABOVE 600 VOLTS)

This program does not replace any of the requirements under 29 CFR 1910.269, the OSHA standard on *Electric Power Generation, Transmission, and Distribution*. It merely sets forth the basic company policy with regard to High Voltage Electrical work.

High Voltage work shall only be performed by qualified electricians who have completed the applicable training for such.

Modifications/Installations

- Modifications of High Voltage Systems will always be performed with the equipment/system de-energized and secured.

Cleaning Insulators/Bushings

- Company policy requires de-energizing when cleaning insulators, bushings, and similar equipment.

Trouble Shooting

- All High Voltage work should be performed with equipment or systems in a deenergized state.
- If deenergizing is not feasible, other protective measures must be utilized.
    - Refer to codes on use of live-line tools.
    - Isolate/insulate area of activity.

Auxiliary Systems

1. In some cases, auxiliary equipment such as lighting fixtures, alarm systems, public address systems, communication and computer cable, etc., are commonly placed on support structures for high voltage non-insulated electrical transmission and distribution systems to reduce the hazard of contact with non- insulated high voltage while servicing these auxiliaries it is strongly recommended that,
    - Consideration be given to relocating the auxiliary equipment in question or,
    - Alternate safe methods of servicing such equipment be implemented such as, deenergizing the high voltage part, and/or wearing of appropriate personal protective safety equipment for working in close proximity to high voltage energized parts.

Line Clearing/Tree Trimming

1. When tree-trimming operations is in near and/or close proximity to energized, or potentially energized, non-insulated parts is necessary, ' the following guidelines shall be followed:

    - **Non-qualified workers** shall follow the ten (10) foot rule for safety in distance clearances. For voltages to ground over 50kV - 10 ft. (305 cm) plus 4 in. (10 cm) for every 10kV over 50kV.

    - **Qualified workers** may perform tree-trimming operations following the established safety rules for working in close proximity to energized parts.

SAFE GROUNDING TECHNIQUES

1. Before doing any work on deenergized lines or equipment, the lines or equipment shall be tested for voltage and properly grounded.

2. Before installing grounds, the grounding equipment shall be visually inspected to confirm equipment integrity.

3. Safety ground sets shall be capable of conducting the maximum ground fault current that could flow at the point of grounding for the time necessary to clear the fault. This equipment shall have an ampacity equal to or greater than 2/O AWG copper cable.

4. Protective grounding material shall be placed at the work location. Grounds shall be installed on each side of the work as close to the work as possible. **If installation of grounding equipment is not feasible, the work should not be performed** (see following page Figure 1).

5. While working on a section of line or buss that can be energized from both sides or back-fed, grounds should be attached on both sides of where work is being performed (see following page Figure 1).

6. When grounding lines or equipment, the grounding device shall first be attached to a good ground connection and then to the circuit or equipment. In removing the grounds, first remove the connection to the circuit or equipment and then remove the ground connection. Under no circumstances are grounding cables to be daisy-chained in lieu of using the proper length of cable. · An approved live-line tool shall be used in making or removing the grounding connection to the circuit or equipment.

7. Approved eye protection, head protection, foot protection, clothing, and rubber insulating gloves with protectors shall be worn when testing for voltages, and placing and removing grounding devices.

8. Static capacitors must be grounded (discharged) before work is performed on them, even if there is no possibility of their becoming energized. A five-minute waiting period is required between deenergizing the capacitor and applying the ground connection.

SIGNS AND LABELS

Signs:

Signs are necessary for safe work practices:

1. Post entrances to rooms and other guarded locations containing exposed live parts with conspicuous signs forbidding unqualified persons to enter;

2. Where employees may encounter energized parts, i.e. electrical rooms, electrical enclosures, etc., signs must be posted in a conspicuous place warning, "Danger Authorized Personnel Only" and/or "Live Parts".

3. Post signs warning of high voltage where other than qualified employees might come in contact with live parts;

4. Put up appropriate caution signs and metal-enclosed switchgear, unit substations, transformers, pull boxes, connection boxes, and similar equipment;

5. Post warning signs on or adjacent to disconnecting means when the disconnecting means do not deenergize the interconnections between control;

6. Provide an interlock or warning sign to prevent opening isolating means which are not designed to interrupt the load current of the circuit;

7. Post signs which warn of the presence of energized parts on enclosures provided on mobile machines for enclosing the terminals of the power cable, as well as on enclosures used to enclosed energized switching and control parts.

Labeling:

Clear identification is a principal means of maintaining a safe worksite. Make sure labelings are maintained in accordance with NEC Article 110-3(a) and 110-3(b).

Equipment shall not be used or installed until approved as evidenced by a manufacturer's tag stating "approved", "identified", "labeled", or "listed" and then only as the manufacturer intended. Listed and labeling of equipment is accomplished by a manufacturer's research, Development and U.L. Lab's testing Not by an electricians discretion.

Requirements:

- Do not use electrical equipment unless it is labeled with the manufacturer's name, trademark, or other descriptive labeling. Provide other labeling giving the voltage, current, wattage, or other ratings as necessary;

- Label:

    1) Each disconnecting means, as well as each service, feeder, branch circuit, to indicate purpose unless located and arranged so its purpose is evident. Labeling must be durable enough to withstand the environment involved;
    2) Circuit breakers used as switches in 120-volt fluorescent lighting circuits with "SWD;"
    3) Appliances with their rating in volts and amperes, or volts and watts;
    4) Equipment approved for use in hazardous locations to show the class, group, and operating temperature or temperature range which it is approved;

- Conductors used as grounded conductors or equipment grounding conductors must be identifiable and distinguished from all other conductors.

- Maintain labeling on listed or labeled portable tools and appliances to show they are protected by an approved system of double insulation;

- Permanently label covers on pull and junction boxes for systems over 600 volts, nominal, with "High Voltage".

- Give insulated conductors an appropriate color or other suitable identification as being grounded conductors, ungrounded conductors, or equipment grounding conductors;

- Durably label a conductor of a flexible cord or cable (if type SJ, SJO, SJT, SJTO, S,SO,ST, or STO) on the surface with the type designation, size and number of conductors;

- The controller disconnecting means for motor branch circuits over 600 volts, nominal, may be out of sight if labeled with a warning label that gives the location and identification of the disconnecting means;

- Indicate the operating voltage of exposed live parts of transformer installations with warning signs or visible labeling on the equipment or structure;

- Attach "Danger" labels to induction and dielectric heating equipment. Labels must be clearly visible even when doors are open or panels are removed from compartments containing voltages over 250 volts AC or DC;

- Distinctively label:

    1) Underground portable electric equipment;
    2) Receptacles on circuits supplied by an isolating transformer with an ungrounded secondary;

3) Label ungrounded portable electric equipment as being ungrounded;

- Durably label Class 2 or Class 3 power units with their class of supply and electric rating;

- Identify fire protective signaling circuits at terminal and junction locations in a manner that will prevent unintentional interference during testing and servicing; and

- Label power-limited fire protective signaling circuits where plainly visible at terminals.

ELECTRICAL TRAINING

1. Appropriate training will be provided for those employees who face a risk of electric shock that is not reduced to a safe level by the OSHA electrical-installation requirements specified in 29 CFR 1910.303 through 1910.308. Additional training will be provided for qualified electricians who perform work on High Voltage equipment.

2. Electricians and welders always face such a risk and must be provided with appropriate training. That is also true for blue-collar supervisors, electrical and electronic engineers, electrical and electronic equipment assemblers, electrical and electronic technicians, industrial machine operators, material-handling equipment operators, mechanics and repairers, painters, riggers and roustabouts, and stationary engineers *unless* their work or the work of those they supervise does not bring them or the employees they supervise close enough to exposed parts of electric circuits operating at 50 volts or more to ground for a hazard to exist.

3. Each employee required to be trained shall be trained in, and shall become familiar with, the safety-related work practices required by this Program and/or by the OSHA standards in 29 CFR 1910.331 through 1910.335, that pertain to their respective job assignments.

4. Employees who are covered by paragraph 1 of this section (training), but who are not qualified persons, shall also be trained in and familiar with any electrically related safety practices not specifically addressed by the 1910.331 through 1910.335 OSHA standards but which are necessary for their safety.

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

    (a) The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment,

(b) The skills and techniques necessary to determine the nominal voltage of exposed parts, and

(c) The clearance distances specified in Table S-5 of 29 CFR 1910.333(c) [see paragraph 14 of Part VI of this Program and the corresponding voltages to which the qualified person will be exposed.

6. The training shall be either classroom, on the job, or both. Training shall take place every three years

7. The degree of training shall be determined by the risk likely to be encountered by the employee.

Any employee of this company who is required to be trained under any of the foregoing rules—but who has not been trained or who believes that his training is inadequate—*must immediately notify his or her supervisor*! No employee shall do any work for which training is required until he has received the appropriate training and fully understands all applicable electrical safety rules and procedures.

APPENDIX A

FLASH PROTECTION BOUNDARY SAMPLE CALCULATION

FOR POTENTIAL ARC SOURCES FED BY THE 120V/208V TRANSFORMER WE CAN USE THE FOLLOWING FORMULA:

$$DC=[53(MVA)1.25t]^{½}$$

WHERE $DC =$ PERMISSIBLE DISTANCE IN FEET OF A PERSON FROM AN ARC SOURCE

WHERE $(MVA) =$ THE MVA RATING OF THE TRANSFORMER

IN THIS CASE $(MVA) = 0.1125$ =112.5KVA/1000

WHERE $t =$ THE TIME OF ARC EXPOSURE IN SECONDS

IN THIS CASE $t = 0.050$ = 1 CYCLE CLEAR TIME + 2 CYCLES MARGIN = 3 CYCLES

THEREFORE:

$$DC = [53(0.1125)1.25(0.050)]^{½} = 0.6105 \text{ FT.}$$

FOR POTENTIAL ARC SOURCES FED BY THE 480V TRANSFORMER WE CAN USE THE FOLLOWING FORMULA:

$$DC= [53(MVA)t]^{½}$$

IN THIS CASE $(MVA) = 2.000$ = 2000KVA/1000

IN THIS CASE $t= 0.066$ = 2 CYCLES CLEAR TIME + 2 CYCLES MARGIN = 4 CYCLES

THEREFORE:

$$DC= [53(2.000)(0.066)]^{½} = 2.658 \text{ FT.}$$

FOR POTENTIAL ARC SOCRCES FED BY THE 2300V TRANSFORMER WE CAN USE THE FOLLOWING FORMULA:

$$DC= [53(MVA)t]^{½}$$

IN THIS CASE $(MVA) = 3.750$ = 3750KVA/1000

IN THIS CASE $t = 0.100$ = 2 CYCLES CLEAR TIME + 2 CYCLES RELAY TIME + 2 CYCLES MARGIN = 6 CYCLES

THEREFORE:

$$DC= [53(3.750)(0.100)]^{½} = 4.458 \text{ FT.}$$

USE OF BLOCK VALVES BENEATH PRESSURE RELIEVING DEVICES

Use of Block Valves underneath pressure relieving devices provides a measure of convenience in process systems. Improper use of these valves creates elements of serious risk. The purpose of this procedure is to establish lines of control and authority over pressure vessels that have block valves between pressure-relieving devices and vessels. This procedure is in compliance with California Code of Regulations, Title 8, Section 6857.

1. Block valves shall be locked open or car-sealed open during normal operations. Any other valves such as Butterfly valves or Gate valves must also be locked/car-sealed open if they are located below the block valves. Care must be taken to isolate both the inlet side and the discharge side of a Pressure Safety Valve (PSV).
2. Only qualified personnel shall be allowed to close these block valves. DCOR Management shall designate qualified personnel authorized to operate block valves. Currently these qualified individuals are the Foreman and Lead Operator(s).
3. The DCOR Lead Operator onsite has control over the pressure safety valves/pressure vessels and the keys to all locks where locks are applied.
4. Except during an emergency situation, block valves shall not be closed while the vessel(s) is in service other than according to the strict requirements of this policy. If a block valve itself is in need of repair or replacement, the valve shall remain locked/sealed open until a replacement and/or parts are available for installation.
5. A task specific written overpressure-relief protection plan for closing the block valve(s) shall be reviewed and approved by management before closing a block valve on operating equipment and/or removing a pressure relief device from operating equipment. Included in this written operating plan shall be:
    a. The means by which overpressure-relief protection will be provided during the time that the pressure relief device is out of service;
    b. The procedures to be followed to minimize the time that the stop valve will be closed;
    c. The operating conditions, limitations, and other safety measures which are required to be observed to protect employees and equipment; and, In the event that the plan requires a standby person to manually operate a vent to the atmosphere, a replacement safety relief valve shall be available for installation prior to closing the stop valves.
    d. Identify personal protective equipment needed to protect employees from hazards of the job.

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JOB SAFETY ANALYSIS PROCEDURE

PURPOSE

This program is designed to provide information on establishing an effective job safety analysis procedure to identify job sequence, hazards associated with job sequence and control of hazards.

SCOPE

The JSA identifies the sequence of steps required to complete a specific job, the potential or real hazards or incidents associated with each step and the recommended controls. The JSA is also used as a training tool to communicate known job hazards to new employees. The JSA is an evergreen document, which should be retained and updated whenever the same or a similar job is repeated or the process changes.

Authority: 30 CFR 250.1911 (SEMS II), API RP 75 (SEMP)

DEFINITIONS

Job Supervisor/Submitted by: Refers to the person/s initiating the JSA.

Accepted by: Refers to the person/s that will be completing the list of job tasks on the JSA. Note: you can use a separate sign in sheet for the Accepted by signatures. Refer to Appendix B

UWA/PIC/Reviewed by: Refers to the person/s overseeing all safety/operations at the platform/facility where work is being performed. (Normally a Lead operator and/or Safety Coordinator)

Emergency Contact: Who will be notified if an emergency situation arises? Examples of emergency contacts are Mercy air, facility rescue personal, EMS, DCOR, LLC emergency number, etc.

Sequence of job steps: Breaks down the job into basic steps, e.g., what is done first, what is done next, and so on?

Hazards: For each step, what accidents/incidents could happen to the employee completing the job task? Refer to Appendix A

Controls: For each hazard, what safeguards should be provided for the employee to avoid an accident?

RESPONSIBILITIES

Job Supervisor/Submitted by: This person is responsible for completing the JSA, Listing job steps, potential hazards and controls for the hazards. This person is normally the supervisor responsible for completing the work. Example: #2 Operators, crew supervisor.

Accepted by: This person is responsible for completing the work. This person/s will review the JSA and comply with the job steps and controls within the JSA. Example: #3 Operators

UWA/PIC/Reviewed by: This person is responsible for reviewing the overall completeness, compliance with regulations, policies and procedures. Example: Foreman, Lead operator, Safety Coordinator

Management: Management is responsible for supporting the JSA Policy/Procedure.

What jobs require a JSA? New, Non-Routine or Job Change:

Since these jobs are new or different, there's a greater likelihood for an incident because of the unknown variables. Examples are but not limited to:

1. All work by contractors
2. Confined Space Entry
3. Welding, Cutting, Brazing, Hot Taps
4. Excavating, Trenching and Digging
5. Hazardous Material Handling and Disposal
6. Electrical
7. Critical Crane Lifts
8. Pigging operations
9. Working at heights
10. Working over water
11. Working on scaffolding
12. Working in a Spider basket or man basket
13. Changing pumps (fire water)
14. Energy isolation (pneumatic, hydraulic, electrical, mechanical, kinetic)
15. Forklift operations
16. All mechanical lifting devices (scissor lifts, man lifts)
17. Dumping/transferring chemical using the crane
18. All Well workover / Drilling and Completions work

Note: The companies' ultimate goal is to have a JSA for every job task. This policy is used to train new, transferred and reassigned employees.

RECORD KEEPING

All completed JSA's shall be kept on the facility for 30 days. After the 30 days the JSA's need to be filed for auditing purposes for 2 years. Operations must scan all completed JSA into the company S:Drive

JOB SAFETY ANALYSIS (JSA)

INSTRUCTIONAL DIRECTIVE

I. Select the job to be analyzed/ what jobs need a JSA.

An effective JSA program selects and prioritizes the jobs to be analyzed. Rank each job by the greatest numbers of potential hazards. The most hazardous jobs are analyzed first. The following factors need to be considered when ranking the jobs at your facility.

- **Accident Frequency**: the number of times an accident or injury is repeated during the performance of a task will determine priority for analysis.
- **Accident Severity:** any incident that results in a lost time or required medical treatment will also determine priority for analysis.
- **New Jobs, Non-Routine Jobs, or Job Changes:** since these jobs are new or different, there is a greater likelihood for a high incident rate because of the unknown variables.
- **Repetitive Exposure:** repeated exposure to a hazard over a period of time may qualify the job for a JSA.

Remember that experienced workers can aid in the identification of the potential hazards associated with a job. They have knowledge of the job and procedures that you may not have, and involving the employee's will enable them to protect themselves and their coworkers. *The DCOR Job Safety Analysis Program shall be used for the creation of all company JSAs.*

II. Separate the job into basic steps

Once a job has been selected, a JSA is initiated. Each step of the job under consideration is listed in the first column of a JSA worksheet. The steps are listed in the order of occurrence accompanied by a brief description. The breakdown should not be so detailed that a large number of steps result, or so general that basic steps are omitted. If there are over fifteen steps, the job should be broken down into more than one JSA.

An experienced worker should assist in dividing the task into steps. At least one other person should observe the task being performed under normal conditions and work hours. These workers should be briefed on the purpose and mechanics of a JSA. Once the task is broken down into steps, the list should be reviewed and agreed upon by all participating parties.

III. Identify the hazards within each step

Each step is analyzed for any real and potential hazards. The hazard is then listed in the second column of the worksheet corresponding to its job step. All logical possibilities should be considered when identifying hazards. The underlying question to ask in evaluating each step is, “Could this step cause an accident, injury or an environmental hazard?”

Consider these conditions when evaluating each job step:

1. Struck against – Can the worker forcefully strike against anything (sharp edges, protruding objects, machinery, etc.)?
2. Struck by – Can something move and strike the worker abruptly and /or forcefully?
3. Contact with – Can the worker come into contact with electrically charged equipment or chemical containers?
4. Contacted by – Can an agent such as hot solutions, fire, electrical arcs, steam, etc. come into contact with the worker?
5. Caught on – Can the worker be caught on any object which could pull them into moving machinery?
6. Caught between – Can any part of the body be caught between something moving and something stationary or between two moving objects?
7. Fall from same level – Can the worker slip or trip on anything, resulting in a fall?
8. Fall from different level – Can the worker fall from one level to another because of a slip or trip?
9. Overexertion – Can the worker be injured while lifting, pulling, pushing, bending, or any other motion resulting in a sprain?
10. Exposure – Can the worker be exposed to excessive noise extreme temperatures, poor air circulation, toxic gases, and/or chemicals or fumes?

IV. Control Each Hazard

This step identifies the control measures for each hazard and lists them in the next column. The control measure recommends a job procedure to eliminate or reduce potential accidents or hazards. Consider these five points for each hazard identified:

1. Change the way the job is performed – What needs to be considered is how to change the equipment and work area or provide additional tools or equipment to make the job safer. Perhaps engineering provisions or work-saving tools can be utilized to make the job or work area safe. The goal should be determined and the various ways analyzed to achieve the goal in the safest way possible.

2. Change the physical conditions – Physical conditions may include tools, materials, and equipment that may not be right for the job. Controls such as administrative or engineering can correct the problem. For example, purchasing a product in smaller packages if it requires heavy lifting force or redesigning the workspace to improve safety.

3. Change the job procedures – An example of changing job procedures, to avoid burns form a hot engine, service equipment prior to starting a shift instead of conducting the service at the end of a shift. Some changes in procedures may create other hazards. As a result, caution should be exercised when changing procedures.

4. Reduce the frequency – frequency refers to the length of time exposed to a hazard. Changes in administrative controls can reduce the frequency of exposure in hazardous situations. For example, a worker may be required to work for only two hours in the noisy environment instead of four hours.

5. Use of personal protective equipment – Personal protective equipment should be used as a temporary and a last resort to protect employees from hazards.

V. Revise the Job Safety Analysis

The JSA is only effective if it is reviewed periodically or after an accident occurs. Revising the JSA can find safety hazards that were missed during earlier analysis. The JSA should be reviewed immediately after an accident to determine if any new job procedures or protective measures are needed.

The Job Safety Analysis process takes time to develop and implement. For some tasks, the JSA process may take more than one day. A JSA should be planned ahead of time and be done during a normal work period.

There are many advantages to using the JSA. One of the most important advantages is training new employees on recommended safe job procedures and how to apply

these procedures to their work. Safety training is provided before the new employee performs the tasks.

A JSA is an accident prevention approach to creating a safe work environment. The JSA can be implemented for every job or task in the workplace. Improved job methods can reduce costs resulting from employee absenteeism and workers compensation due to on-the-job injuries, and can often lead to increased productivity.

Appendix A – Job Safety Analysis – Hazards Checklist

JOB PLANNING FOR SAFETY

HAZARDS CHECKLIST

Fires & Explosions

Fuel Source:
__ Gas
__ Liquid
__ Solid
__ Leaks, Spills, Releases
__ Heavy Vapors
__ Light Vapors

Ignition Sources:
__ Flame
__ Electrical
__ Sparks
__ Friction/Static

Monitoring Atmospheres

__ Calibrated
__ Personal Monitors
__ Stationary Mounted
__ Oxygen
__ Hydrogen Sulfide
__ Flammable Vapors
__ Other _____
__ Wind Socks

Tools & Equipment

__ Proper Size & Type
__ Good Condition
__ Guards in Place

Outside Parties

__ Affected – Yes __ No __
__ Contacted & Understand
__ Responsibilities Delegate

Dangerous Atmospheres, Conditions, & Chemicals

__ Hydrogen Sulfide
__ Carbon Monoxide
__ Carbon Dioxide
__ Hydrocarbons
__ Oxygen Deficient
__ Oxygen Enriched
__ Other Toxins _____
__ Route of Entry _____
__ SDS Available
__ Environmental Data Sheet

__ High Voltage > 600 volts
__ Low Voltage < 600 volts

__ Steam
__ Hot Water, Oil, Gas, Fluid
__ High Pressure Systems
i.e. oil, water, gas, chemicals

__ Blinds
__ Relief's & Rupture Disc
__ Acid (low pH)
__ Caustic (high pH)
__ High Temperature >150 dF
__ Low Temperature <32 dF

__ Confined Spaces
__ Electrical Clearance
__ Climbing Space
__ Pole Condition & Size
__ Overhead Obstructions
__ Underground Obstruction
i.e. electrical, piping systems
__ Lifting Devices
__ Sufficient Size
__ Angle & Position
__ Outriggers
__ Wheel Chocks

Personal Protective Equip.

__ Hard Hats
__ Safety Glasses
__ Face Shields
__ Chemical Goggles
__ Hearing Protection
__ Safety Toe Footwear
__ Chemical Resistant Boots
__ Eyewash Station
__ Safety Shower
__ Loose Clothing
__ Jewelry, Rings, Watches
__ Protective Clothing
Hand Protection Below:
__ Impact Resistant Gloves
__ Leather Impact Resistant Gloves
__ Chemical Resistant Impact Gloves
__ Thermal Gloves
__ Voltage Rated
__ Safety Harness & Lanyards
__ Insulating Blankets
__ Line Covers
__ Signs & Barricades
__ Fire Extinguishers, Hoses
__ Fire Watch
Respirators Below:
__ SCBA
__ Airline Work Unit
__ Cartridge Mask
__ Disposable Mask
__ Escape Capsule
__ Mechanical Ventilation
__ Grounding
__ Bonding Leads
__ Purge Gas
__ Dry Ice
__ Slings, Ropes, Chains
__ Sufficient Size, Strength
__ Type & Condition
__ Tag Lines

Permits & Plans

__ Material Safety Data Sheet
__ Environmental Data Sheet
__ Hot Work Permit
__ Confined Space Entry
__ Excavation Permit
__ Other Permits – Describe
_____
_____

__ Purge Plan
__ Lifting Plan
Lock Out, Tag Out, Relieve
__ Blinding Log
__ Emergency Plan
__ Other Plans – Describe
_____
_____

Man-Power

__ Quantity
__ Knowledge & Skills
__ Training Requirements
__ Communication
__ Language

Describe Other Considerations Below

_____
_____
_____
_____
_____
_____
_____
_____

Work Environment

__ Housekeeping
__ Walk, Work, Surfaces
__ Lighting
__ Line of Fire
__ Pinch Points & Obstructions
__ Eyes on Path & Work
__ Climbing

Tools and Equipment

__ Use and Selection
__ Condition
__ Heavy Equipment

Ergonomics & Posture

__ Break From Repetition
__ Lifting or Lowering
__ Twisting or Turning
__ Over-Reaching
__ Hyper-extending
__ Wrist & Hand Position
__ Push, Pull Excessive Force
__ Lower Back & Hip Position

Vehicles

__ Aim High in Steering
__ Get the Big Picture
__ Keep Your Eyes Moving
__ Leave Yourself An Out
__ Make Sure They See You
__ Rules of the Road
__ Parking and Exiting
__ Lease Operations
__ Condition of Vehicle

Appendix B – Job Safety Analysis Acknowledgment Sheet

Date:	Task Description:
Location:	
Project:	
Contractor:	

We, the undersigned, acknowledge that we have read and reviewed the attached Job Safety Analysis and agree that we will comply with the steps and safety controls listed. We agree that safety is primary, and that we will work toward that end. We further agree to stop any At-Risk Behaviors and correct any unsafe conditions identified. We will actively participate in the identification of any needed additions or modifications to the plan in order to maintain the highest level of safety.

This Job Safety Analysis is to be reviewed by all personnel and signed daily.
It is to be kept at each work site for the duration of this project and returned to the Safety Coordinator
Upon completion of the task.

Date	Print Name	Signature	Date	Print Name	Signature

Appendix C Job Safety Analysis

Job Safety Analysis Form			
Task:		Job Supervisor:	Accepted By:
Company:	DCOR	UWA/P.I.C:	Accepted By:
Mercy Air:	1-(800)-222-3456	Accepted By:	Accepted By:
Effective Date:		Accepted By:	Accepted By:
Location:		Accepted By:	Accepted By:
Stop work authority must be utilized at all times. See DCOR SEMS policy and API RP 75 (SEMP)		Accepted By:	Accepted By:
		Accepted By:	Accepted By:

SAFETY EQUIPMENT REQUIRED TO DO THIS JOB		
Hard Hat: √ Impact Gloves: √ Safety Glasses: √ Steel Toed Boots: √		
Sequence of Steps	**Potential Hazards**	**Controlled By**

APPENDIX D JSA GUIDANCE TOOL

Job Safety Analysis Form

Task:		Job Supervisor:	Accepted By:
Company:	DCOR	UWA/P.I.C:	Accepted By:
Mercy Air:	1-(800)-222-3456	Accepted By:	Accepted By:
Effective Date:		Accepted By:	Accepted By:
Location:		Accepted By:	Accepted By:
Stop work authority must be utilized at all times. See DCOR SEMS policy and API RP 75 (SEMP)		Accepted By:	Accepted By:
		Accepted By:	Accepted By:

SAFETY EQUIPMENT REQUIRED TO DO THIS JOB

Hard Hat: √ Impact Gloves: √ Safety Glasses: √ Steel Toed Boots: √

Sequence of Steps	Potential Hazards	Controlled By
Break down the job into basic steps, e.g., what is done first, what is done next, and so on. You can do this by: 1. Observing the Job 2. Discussing it with the operator 3. Drawing on your knowledge of job 4. A combination of the three Record the steps in their normal order of occurrence. Describe what is done, not the details of how it is done. Usually three or four words are sufficient to describe each basic job step. For example, the first basic job step in using a pressurized water fire extinguisher would be: 1. Remove the extinguisher from the wall bracket.	For each step, ask yourself what accidents could happen to the employee doing the job. You can get the answers by: 1. Observing the job. 2. Discussing it with the operator 3. Recalling past accidents. 4. A combination of the three. Ask yourself; can he/she be struck by or contacted by anything; could they strike against or come in contact with anything' could the employee be caught in, on, or between anything; can they fall; be over exerted; or be exposed to anything injurious such as gas, radiation welding rays, etc..? For example, acid burns, fumes, H2S.	For each potential accident or hazard, ask yourself what safeguards should be provided for the employee and how should the employee do the job step to avoid the potential accident, or what should they do or not do to avoid the accident. You can get your answers by: 1. Observing the job for leads 2. Discussing precautions with experienced job operators 3. Drawing on you experience 4. A combination of the three. Be sure to describe specifically the provided safeguards and precautions an employee must use. Don't leave out important details. Number each separate recommended precaution with the same number you gave the potential accident (see center column) that the precaution seeks to avoid. Use simple do or don't statements to explain recommended precautions as if you were talking to the employee. For example: "Lift with your legs, not your back". Avoid generalities such as, "Be Careful", "Be Alert", "Take caution", etc...

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HIGH PRESSURE WASHING & LANCING PROCEDURE

PURPOSE

This policy establishes procedures for the operation of high-pressure water jets/ lancing tools that are normally used in maintenance and cleaning applications.

Water jetting/ lancing can be performed safely if personnel take strict precautions, both in preparation and in execution, to prevent high pressure water injuries.

SCOPE

This policy applies to all water jetting/ lancing applications when pressures are in excess of 500 psi.

REFERENCE

Recommended Practices, Third Edition
For the use of manually operated high pressure water-jetting equipment

DEFINITIONS

Automatic Pressure Regulating Valve: Valve used to automatically control the working pressure in the high-pressure water jet system by controlling the bypassing water flow.

Burst Pressure: The internal pressure within a component of a high-pressure water jet system at which it will fail.

Bursting or Rupture Disc: This is normally a metal disc, held in a specially designed holder, that will fail when the pressure applied to it exceeds a set level. Discs can be made of different materials and are of different sizes. A proper-sized disc shall be used for a given operating pressure.

Bypass Valve: Valve that can be adjusted by the operator, either manually or automatically, to control the flow, and thus the pressure of the jet stream issuing from the nozzle.

Flexible Lance: A flexible tube or hose section carrying water to the nozzle or nozzle manifold; normally located between the trigger or control valve and the nozzle.

Foot-controlled Valves: Control valve designed so that the operator can activate it using a foot. This allows the operator to use both hands to hold and move the lance and/or nozzle assembly.

High Pressure Hose: A flexible hose that can be used to carry water and/or other fluids from one part of the high-pressure water jet system to another. The hose should have a burst rating of a minimum of 2.5 times the intended working pressure it is certified for use at by the manufacturer.

Hose Assembly: The hose with a suitable end coupling attached, at each end of the hose, in accordance with the manufacturer's specifications

Hose Shroud: A length of flexible material, usually formed into a tube around a hose end coupling or across the connection to the jetting gun. The shroud provides some instantaneous protection should a hose burst.

Lancing: An application whereby a rigid or flexible lance and nozzle combination is inserted into, and retracted from, the interior of a pipe or tubular product.

Lance Length: The length\ of a rigid lance or a lance and series of extensions shall not be greater than the operator can control at all times.

Moleing: An application whereby a hose fitted with a nozzle is inserted into, and retracted from, the interior of a tube, it is a system commonly used with a self-propelling nozzle for cleaning the internal surfaces of pipes or drains. Moles can be self-propelled by their backward-directed jets or can be manufactured to be fitted with various shapes, sizes, and combinations of forward-directed and backward-directed jets. A mole should include, directly behind the nozzle assembly, a section of rigid pipe or tubing sufficiently long that it will prevent the mole from turning around within the pipe.

Nozzle Holder: the threaded fitting that holds a nozzle insert and attaches it to the jetting manifold or shot gun lance extension.

Nozzle Insert: A replaceable nozzle, usually fitted with one orifice and designed to fit into a nozzle holder.

Operator: A person who has been trained and has demonstrated the knowledge, skill and/or experience to assemble, operate, and maintain a water jet system.

Orifice: The opening at the end of a nozzle through which the water or fluid jet exits from the system.

Pressure Gauge: The high-pressure water jet system should be equipped with a gauge indicating the pressure being developed. Gauges shall have a scale range of at least fifty percent above the maximum working pressure of the system and should be fitted with a pressure snubber for more accurate pressure reading.

Pressure Relief Valve: Valve that is normally held in the closed position by a mechanical device, such as a spring. It is designed to open when the pressure in the system exceeds a set value.

Reversing: When a nozzle makes a U-turn inside the item being cleaned. A positive method shall be used to prevent this from happening.

Rigid Lance: rigid tube carrying water to the nozzle or nozzle manifold

Self-Rotating Nozzle Assembly: A device, including a bearing or swivel assembly that fits onto a hose or lance section. The device contains at least two jets offset so that the reaction force from the jets causes the nozzle assembly to rotate without any additional external force being applied.

Shot gunning: A hand-held application whereby an assembly of a lance and a nozzle can be manually manipulated in virtually all planes of operation

Starter Rod: A length of rigid tubing or pipe mounted behind the nozzle assembly for use with a flexible lance.

Whip Lock: A short length of wire or cable looped over each end of two hoses that are connected by a coupling. A whip lock or whip check is designed to stop the ends of the hose from whipping around if the coupling breaks or fails.

Working Area: The area, within the barriers set up to provide warning and restricted access, in which water jetting will take place.

Working Pressure: The maximum pressure, recommended by the manufacturer, at which a component is to be used. The working pressure shall not exceed manufacturer recommendation.

RESPONSIBILITIES

Operator – Is responsible for their individual safety. Shall be trained and demonstrate their ability to safely operate water jetting equipment. Shall have an understanding of this policy, training requirements, inspections, PPE required and operational procedures

Supervisor - Is responsible for overseeing all operation and safety and insuring operators are qualified.

ACCIDENTS

Personal Injury – A person injured by being hit with a water jet will not necessarily see the full extent of the injury, particularly the internal damage and depth of penetration. Even though the surface wound may be small and may not even bleed, it is quite possible that large quantities of water may have punctured the skin, flesh, and internal organs through a very small hole. The spread of micro-organisms through a wound of this type is a very real concern; the injury should, therefore be carefully monitored for several days.

Operator Identification – In the event of an injury, immediately take the injured person to a hospital and inform the doctor of the cause of the injury. To ensure that the doctor knows and understands the cause of the injury, all water jet operators should carry a waterproof card that is easily accessible and that outlines the possible nature of the injury. The wording on the card is as follows:

This person has been involved with high pressure water jets at pressures up to 10,000psi with a velocity of up to 500 miles per hour

Please take this into account when making your diagnosis.

Unusual infections have been reported with microaerophilic organisms that tolerate low temperatures. These organisms may be Gram-negative pathogens such as are found in sewage. Bacterial swabs and blood cultures may therefore be helpful.

Medical Recommendations – If an accident should occur and high-pressure water penetrates the skin, seek medical attention immediately.

Immediate First Aid – If it is not possible to have the injury treated immediately by a doctor, restrict first aid to dressing the wound and observing the patient until a medical examination has been arranged.

Reporting – If any person is injured or equipment is damaged in a water jet-related accident, a report must be made to the site supervisor.

INSPECTIONS

Equipment – All components of the water jetting equipment shall be inspected before each use and anytime equipment is transferred from one location to another. If equipment fails an inspection it shall be immediately taken out of service, red flagged and reported to the responsible supervisor. All inspections shall be documented; see Appendix A. Inspection items shall include but are not limited to:

- **Hose** lines shall be inspected for cuts, abrasions, cracks, smashes, kinks', chemical exposure etc. All hoses will be discarded after five jobs; a tag will be used to track usage.
- **Fittings** shall be cleaned before installing in the system. All fittings are to be leak free and pressure rated for the application.
- **Nozzles** shall be checked for any blockage, damage or imperfection before the nozzle is attached to the system.
- **Drive units** where an engine is used to drive the pump shall be checked per manufactures recommendation. Such checks shall include fuel level, oil level, hydraulic level and cooling water level per manufactures recommendation.
- **Pumps** shall be examined both when shut down and when operating. Such checks should include leaks, loose fittings, both visual and listening checks for any unusual noises coming from the unit, visual checks should be made of the plungers and seals while the unit is not operating and all additional checks per manufactures recommendation shall be completed.
- **Foot pedal** shall be inspected for loose, corroded, or damaged fittings and hardware.

PERSONAL PROTECTIVE EQUIPMENT

All employees working on or around water jetting applications shall wear protective equipment in order to prevent injury. The required PPE are as followed but are not limited to:

- Head Protection
- Eye protection – goggles, face shield, safety glasses
- Hearing Protection
- Body Protection – Liquid or chemical suits, ie: rain gear
- Hand Protection – Soil/Impact Resistant gloves, rubber gloves, and metal mesh reinforced gloves.
- Foot Protection – steel toe work boots and metatarsal guards
- Respiratory Protection – see company policy 6.14

Equipment Limitations – Protective equipment may not prevent injuries to operators and other workers caused by the direct impact of high-pressure water

jets or from debris that may be thrown out by the impact of the jet. Always use caution and don't rely solely on the PPE.

OPERATIONAL & TRAINING REQUIREMENTS

Qualified Operators – Only personnel who have undergone a proper training program and who have demonstrated the knowledge and skill and have been authorized by the company to operate high pressure water jet equipment. They may also supervise the training of new operators.

Training – Training shall include but is not limited to the following:

- **Cutting Action** – the cutting action of a high-pressure water jet and the potential hazard it poses to the human body should be demonstrated through the use audio visual aids or actual use of equipment (by cutting through a piece of lumber, concrete block, etc.).
- **Personal Protective Equipment** –The minimum personal protective equipment shall be explained. Instructions shall be given as to when and how specific clothing and other types of protective devices shall be worn according to the type of work performed.
- **System Operation** – The operation of high-pressure water jet systems should be explained by pointing out potential problems and proper corrective actions.
- **Operating Pressures** – The need to operate equipment at or below the manufacturer's recommended working pressure shall be stressed.
- **Control Devices** – The operation of all control devices shall be explained. The importance of not tampering with any control devices, as well as the importance of keeping them in proper working order.
- **Equipment Maintenance –** The importance of the proper and timely care and maintenance of high-pressure water jet equipment
- **Valve Maintenance**
- **Hose** – The proper method of identifying and connecting hoses, including laying out without kinks, protecting hoses, identifying worn or unsafe hose, and proper tools to use on couplings and fittings.
- **Stance** – The proper stance for sound footing.
- **Depressurizing the System**
- **Hazard Communication**

SAFE WORK PRACTICES

Start-up – The pump operator shall not start the unit until told to do so, by word or signal, by the nozzle operator. Before bringing the unit up to pressure, on a second signal the pump operator shall ensure that the jetting nozzle is either directed at, or positioned within, the work piece; that the nozzle operator has a secure stance and control of the nozzle; and that each team member is in the proper position to perform their task.

Operational Check – Both before and after bringing the system up to pressure the pump operator shall visually examine the hose and connections to the jetting gun or nozzle assembly to detect any leaks in the system.

Tightening and Adjusting Components – Apart from the normal adjusting of valves and other components required in a standard jetting procedure, no attempt shall be made to tighten or otherwise adjust any nut, hose connection, or other fitting or component of a high-pressure water jet system while the system is under pressure. The pumps shall be stopped and any pressure in the line discharged before any repair or other adjustment is made.

Equipment Malfunction – If any dump valve or pressure relief valve does not work properly when tested at the beginning of an operation, or if the valve fails during operation, then the system shall be shut down. The component shall then be repaired/ replaced by properly trained personnel and retested before the system is restarted.

Reaction Force – The pump operator shall slowly raise the pressure of the system to allow the nozzle operator to adjust to the changing reaction force from the nozzle. Once the operating pressure has been reached, then the pressure shall not be further adjusted without the operator being aware that an adjustment is to occur. When the pressure is reduced at shutdown, the pressure should also be lowered slowly to prevent the sudden lack of force from causing the operator to lose his/her balance.

Operating Pressure and Orifice Selection – The nozzle and pump operators shall be told the working pressure for the job to be undertaken. Pump and nozzle orifice sizes shall be selected to match these conditions.

Use of Balanced Nozzle Orifices – Particularly when cleaning internal surfaces, nozzle orifices may be used that have jets issuing at some angle to the body of the nozzle. These are often designed so that the reaction forces from opposing jets are equal, reducing the out-of-balance force on the operator. However, if one nozzle orifice should be damaged or blocked, then the flow from such opposing jets may no longer balance. This may throw a sudden and unexpected sideways force on the nozzle that may cause the operator to lose control. These nozzle orifices should be checked before operation, and they should only be brought up

to pressure when they are located within the work piece. NOTE: Where balanced nozzle orifices are used in shot gunning type of operation, the pressure to the gun should be raised slowly to ensure that the jets from the nozzle are providing equal thrust. The operator should also brace the gun to protect against sudden sideways loading from an instantaneous blockage or failure of a nozzle.

Stop Work – Water jet operations shall stop if;

- any unauthorized person enters the working area,
- a hazardous or potentially hazardous condition is detected,
- an alarm is sounded within the facility, or
- any part of this policy has been violated.

Shutdown – Care should be taken to release the pressure in the system, especially when a dry shutoff gun is in use. The nozzle operator shall ensure that no pressure remains in the line or gun after shutdown.

Improper Use – The hose or any other component of a high-pressure water jet system shall not be used as a means of support for the operator or to carry the operator's weight, particularly when going up or down into a confined space.

Access – During the time that water jet is in progress no unauthorized persons shall be allowed into the area closed off by the barriers. Warning notices restricting entry into the area shall be clearly posted outside the barriers.

Procedures for Entering the Working Area – Access procedures should be agreed upon before work begins and should include steps to ensure that no person enters the working area while water jet is in progress and until the operators are aware that entry is required. Those who wish to enter the area, or to have operations stopped, should first gain the attention of a team member other than the nozzle operator. The nozzle operator shall not be distracted while operating the gun until the jet has been shut down.

Additional Protection – Where it is necessary to shield personnel or to protect equipment from water and solid materials removed from, rebounding from, or passing through the work piece, additional protective barriers or shields should be set up within the working areas. Protective barriers should be arranged so as not to interfere with the access of the operator to the working surface.

Protective Equipment – All personnel working or entering the blocked off area while cleaning or cutting is in progress shall wear the required protective equipment.

Pressurizing the System – Pressure shall be increased slowly while the system is being inspected for leaks and /or faulty components. All leaks or faulty

components shall be repaired or replaced immediately. The system shall be depressurized for repairs.

Shotgunning

Controls - The jetting gun shall be fitted with either a dump system or dry shutoff control valve. The person operating the gun, lance, or nozzle assembly shall have direct control of the dump system

Attendance - The system shall never be left unattended when pressurized.

Multiple Operation – When more than one shotgunning operation is being performed within the same area, a physical barrier shall be installed or adequate spacing between operators shall be maintained to prevent the possibility of injury from the high-pressure water.

Holding the target – Objects to be cleaned shall never be held manually.

Minimum Length – Users shall follow manufacturer's recommendations.

Maximum Length – The length of the lance, from the triggering device to the nozzle, shall not exceed a length beyond which the operator can always maintain control of the lance.

Moleing or Flex Lancing

Control - The feed assembly to the flexible lance or hose shall be fitted with either a dump system or a dry shutoff control valve. The operator inserting the nozzle shall maintain control of the dump system.

Reversing – A positive method shall be used to prevent the nozzle from reversing direction inside the item being cleaned.

Retro jet use – During manual operations, the entrance to a line or pipe shall not be cleaned with a nozzle containing backward facing jets without adequate shielding. If this is not available, then some other method of cleaning the entrance shall be used.

Clearance – The clearance between the outside diameter of the hose, lance and nozzle assembly and the inside wall of the item being cleaned shall be sufficient to allow adequate washout of water and debris.

Pressurization – During manual operations, the nozzle shall be inserted into the tube before pressurizing. The nozzle should be far enough into the tube so that

any backward facing jets do not pose a hazard to the operator. Conversely, the system shall be depressurized before removing the nozzle from the tube.

End Identification – Hoses shall be conspicuously marked no closer than 4 ft. from the nozzle to warn the operator when the nozzle is getting close to the tube entry.

Nozzle Support – Where the length of the nozzle and rigid coupling is less than the inside diameter of the pipe, a length of rigid pipe of not less than the diameter of the pipe being cleaned should be fitted directly behind the nozzle, or a suitable safety shield should be provided to protect the operator. This prevents the nozzle from turning around 180 degrees and doubling back toward the operator.

Lance Retention Device – A retention device shall be installed on the pipe entrance. This will prevent the mole form being pulled out of the pipe under pressure

CARE AND MAINTENANCE

Maintenance, Servicing, and Repair – Three levels of maintenance should be carried out on the components of high-pressure water jet systems:

- First is the daily maintenance that shall be carried out by the equipment operators. This includes a regular check of components being used are correct for the job. That all connections and parts are in good condition, that all connections are properly made and secure, and no damage has occurred to the components of the system.

- Second is the regular checking of the external and internal parts of valves, fittings and gun components of the system. Although part of the inspection may be carried out by the operator, most of this is checked by routine scheduling by a qualified person, normally the owner of the equipment.

- Third is the servicing of the pump and major components of the system. This maintenance shall be performed as recommended by the manufacturer and shall only be performed by a trained and competent person, normally the owner of the equipment.

APPENDIX A -

Operational check list for high pressure water cleaning

Date: _____

Location: _____

Equipment being cleaned: _____

1. Has a job plan and JSA been completed for this task assignment?

2. Is the area, including the other end of the unit being cleaned, adequately barricaded, with proper warning signs posted?

3. Are there any hazards to personnel or environment from possible damage to equipment being cleaned?

4. Are all fittings of the correct pressure rating and in good operating condition?

5. Are all hoses of the correct pressure rating and in good operating condition?

6. Are all nozzles free from plugging and in good operating condition?

7. Have precautions been taken to prevent line-mole reversal?

8. Is the filter on the pump suction clean and in good operating conditions

9. Is there an adequate water supply?

10. Do all personnel have the proper training for this job?

11. Are all personnel qualified and authorized to perform this work?

12. Has the complete hookup been flushed and air removed from the system before installing the nozzle?

13. Has hookup, including pipes, hoses, and connections been pressure tested with water at the maximum operating pressure?

14. Is the dump system operating properly (will it dump when released)?

15. Are all control systems operational?

16. Is the location of first aid equipment and an emergency medical center known?

17. Has job been examined for environmental considerations, with action as appropriate?

Additional Comments: _____

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LONE WORK PROCEDURE

PURPOSE

This policy sets out general guidance on the requirements for safety where lone working may occur and represents good practice. It defines minimum standards to be achieved across operations and represents guidance on compliance with applicable standards.

SCOPE

This policy applies to all employees working alone or where assistance is not readily available to the worker in the event of an emergency.

REFERENCE

OSHA 29 CFR 1915.84 Working Alone
AB OH & S Code, Part 28 – Working Alone
BC OH & S Regulations, Part 4, Sec. 4.21- 4.23 Working Alone or in Isolation

DEFINITIONS

Lone Worker: An employee who performs activity that is carried out in isolation from other workers without close or direct supervision.

Lone Worker Safety Monitoring Product: A device worn by lone workers which is connected to a live monitoring service. The device shall be capable of monitoring fall detection and non-movement.

HAZARDS AND RISKS

There is no additional hazard that arises from lone working, but the risk of serious injury or illness arises from the fact that the worker is on his or her own and he or she cannot call for assistance and as a consequence the outcome from any incident could be more severe. This might include a work-related incident or a medical condition.

OPERATIONAL CONTROLS

1. To reduce the risk of working alone, activities whilst working alone will be of low risk, such as monitoring duties and essential duties to operate the

facility. Operations which would require a JSA under 30 CFR part 250 subpart S or that would normally be handled by two persons shall not be performed by a lone worker without management's prior approval.

2. Lone workers shall use a lone worker safety monitoring product capable of real time monitoring and emergency protocol initiation. The lone worker safety monitoring product shall be always worn while an employee is performing lone work. Additional measures, such as periodic and regular check in calls, may be implemented as deemed necessary by management.

3. Emergency response protocols shall be in place to minimize response time in the event of a lone work emergency. See appendix A.

TRAINING AND COMPETENCE

1. Lone workers shall be suitably instructed with respect to the task and what he / she can and cannot undertake.

2. Lone workers shall be trained in the effective operation of a lone worker safety monitoring product. Training shall be documented.

3. Annual drills shall be performed by lone workers using the lone worker safety monitoring product. Drills shall be documented, and records kept for three years. See appendix B.

APPENDIX A

For SOS Alerts, No Motion, Fall Detection, Missed Check-ins:

Step 1: Call the G7 Device and validate the need for assistance, note the gas readings and the user's GPS location & time and add it to your notes. if there is no response, attempt to contact the device users phone number and validate the need for assistance, if still no answer, please proceed to step 2.

Step 2: Contact company emergency contacts in order of priority. Once someone is reached from the emergency contact list please provide the emergency contact the following information;

Full name of the employee

Type of Alarm

GPS Co-ordinates

Gas Readings (advise if normal or not)

The Company emergency contact will then assume the responsibility for further action.

Please repeat step 1 & 2 until someone is reached.

For Gas Alerts (Over limit and High Gas)

Step 1: Contact the device user through G7, advise the user that the Gas readings are high; note the gas reading that is in alert and the user's GPS location & time and add it to your notes. Stay on the line with the user and keep the alert open until the Gas readings return back to normal.

If you unable to gain contact with the device user, please proceed to step 2.

Step 2: Contact company emergency contacts in order of priority. Continue to watch the gas reading(s).

Step 2A: If gas reading returns to normal levels:

If gas reading(s) that was in alert comes down to normal levels, inform the emergency contacts to advise the user **was exposed to a high level of gas but now the levels have returned to normal. Proceed with checking on the user if contact is not made with the individual.** Once

someone is reached from the emergency contact list please provide the emergency contact the following information;

Full name of the employee

Type of Alert, time of the alert, Gas reading at time of alert, current gas reading

GPS Co-ordinates and approximate address at time of alert, current location if different.

Step 2B: <u>If gas reading still above normal levels:</u>

Contact emergency contacts until someone is reached; provide the following information:

Full name of the employee

Type of alert, time of the alert, Gas reading at time of alert, current gas reading, how long user has been exposed to high gas levels

GPS Co-ordinates and approximate address at the time of the alert, current location if different.

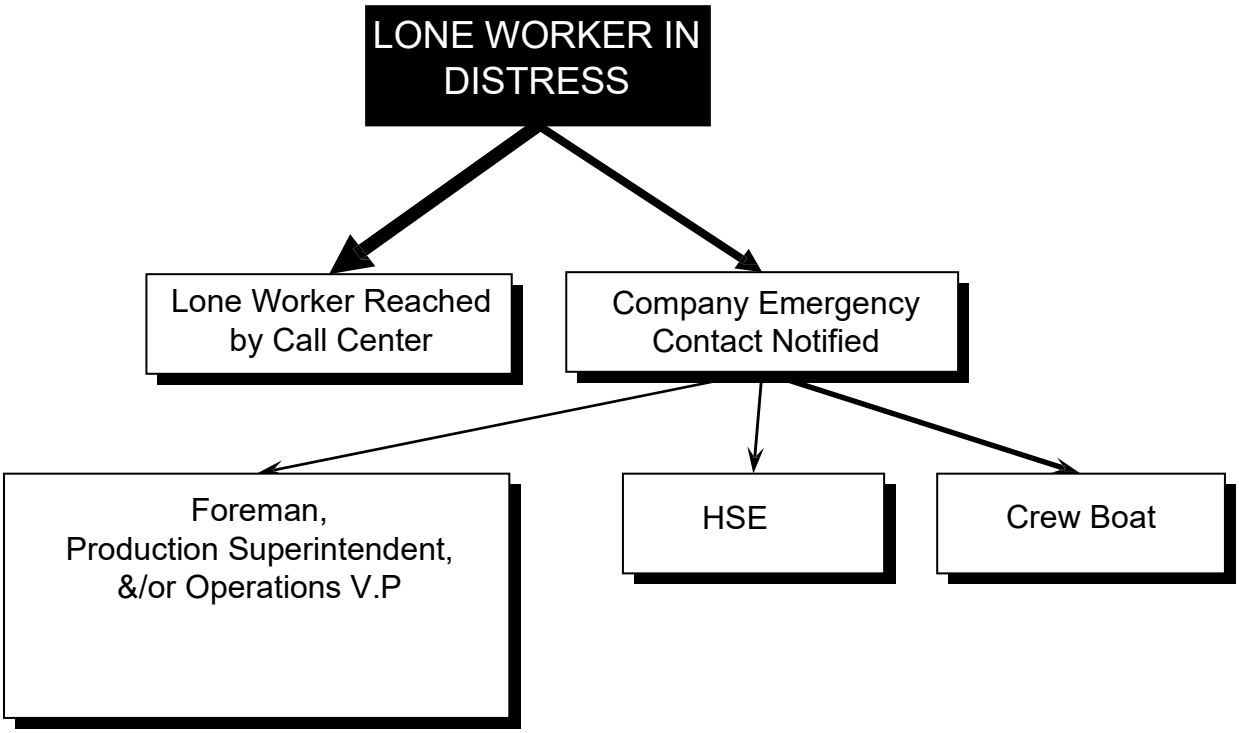
The Company emergency contact will then assume responsibility of further action.

If no response from Emergency Contacts, please repeat steps 1 & 2.

Step 3: Once dispatch has been made, contact emergency contact to advise dispatch on user/alert and resolve as 'Incident with dispatch'

PLATFORM HENRY

Lone Worker Flow Chart

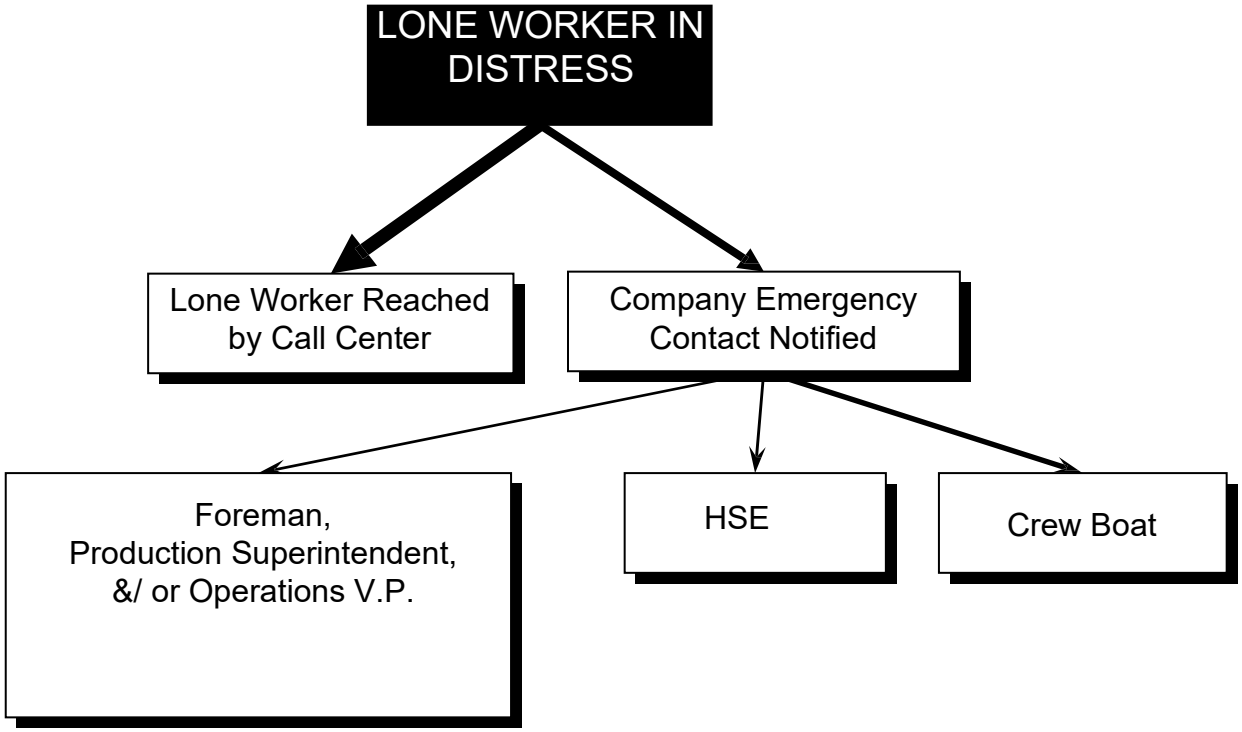


COMPANY EMERGENCY CONTACTS PRIORITY

1. PLATFORM HILLHOUSE
2. PLATFORM A

PLATFORM ESTHER

Lone Worker Flow Chart

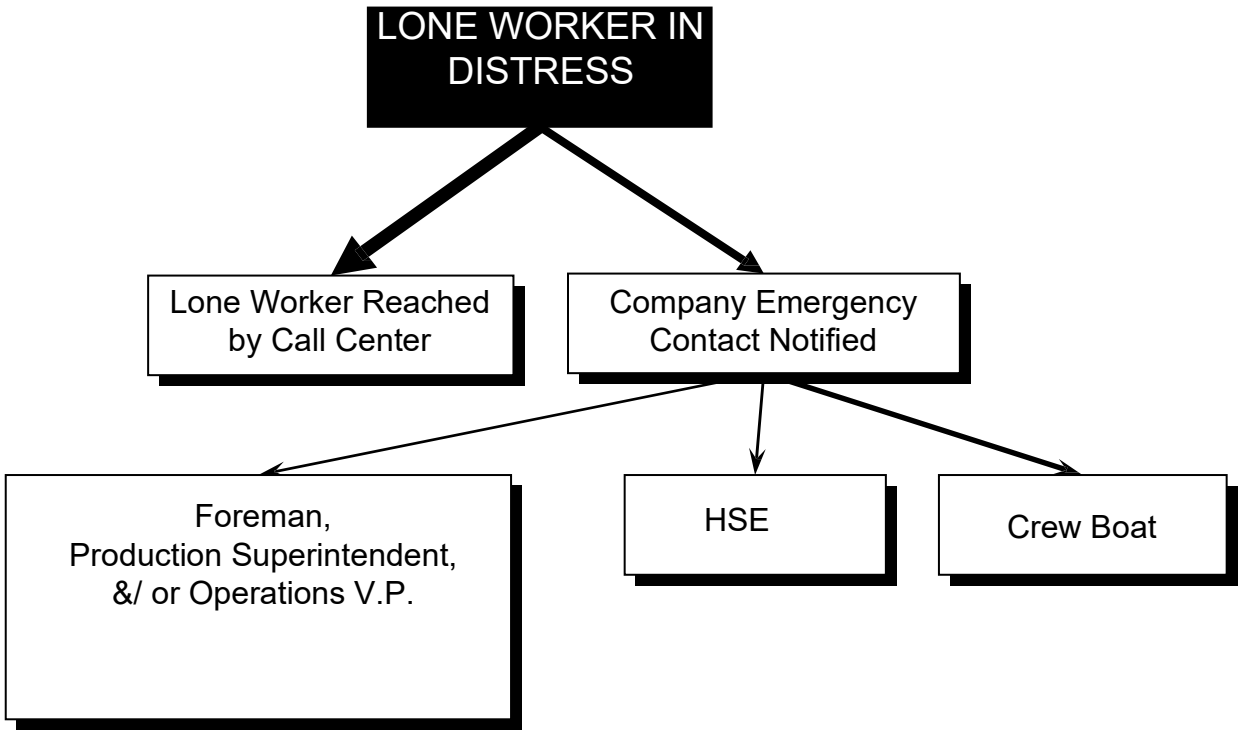


COMPANY EMERGENCY CONTACTS PRIORITY

1. PLATFORM EVA
2. PLATFORM EDITH

PLATFORM C

Lone Worker Flow Chart

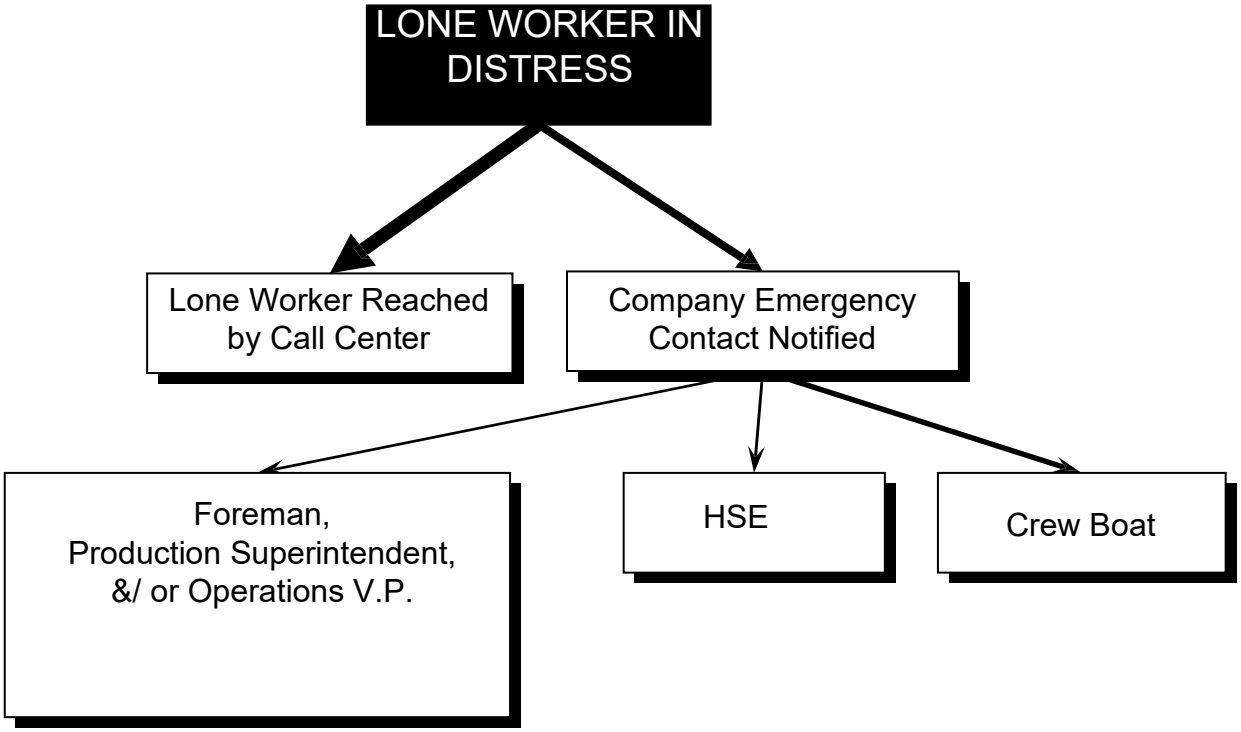


COMPANY EMERGENCY CONTACTS PRIORITY

1. PLATFORM A
2. PLATFORM B

PLATFORM B

Lone Worker Flow Chart

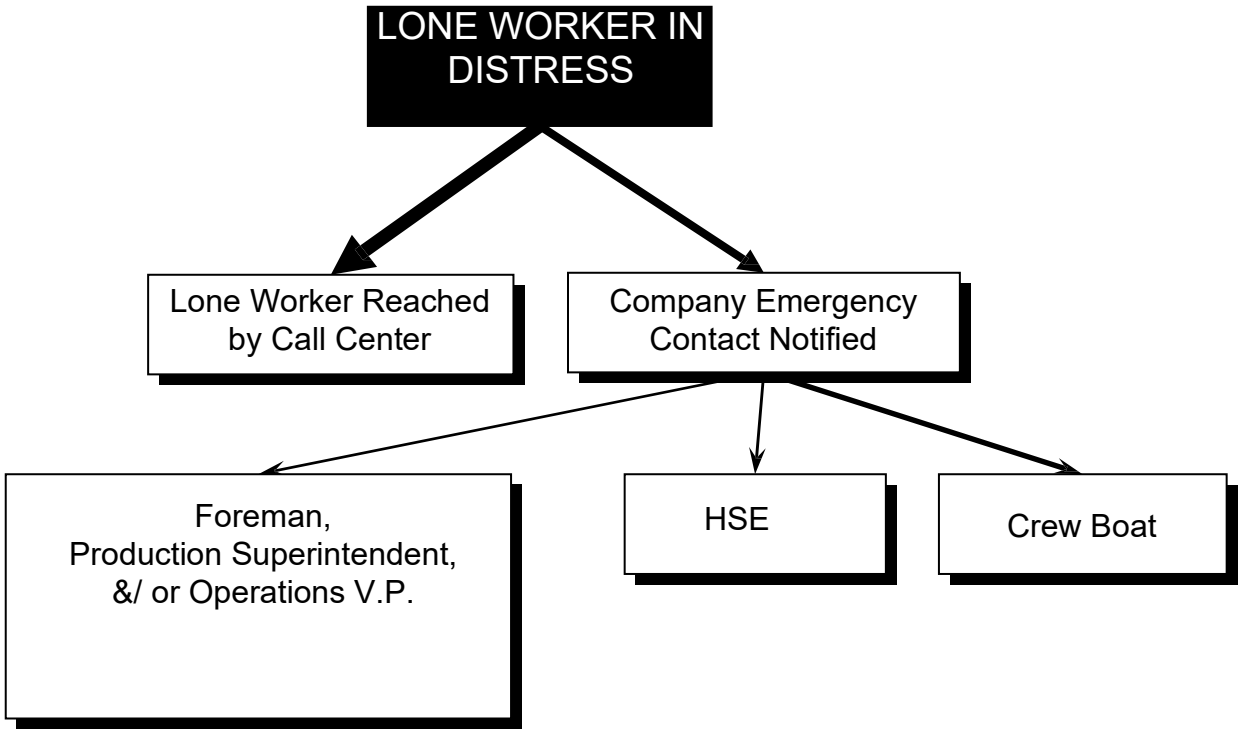


COMPANY EMERGENCY CONTACTS PRIORITY

1. PLATFORM A
2. PLATFORM C

PLATFORM A

Lone Worker Flow Chart

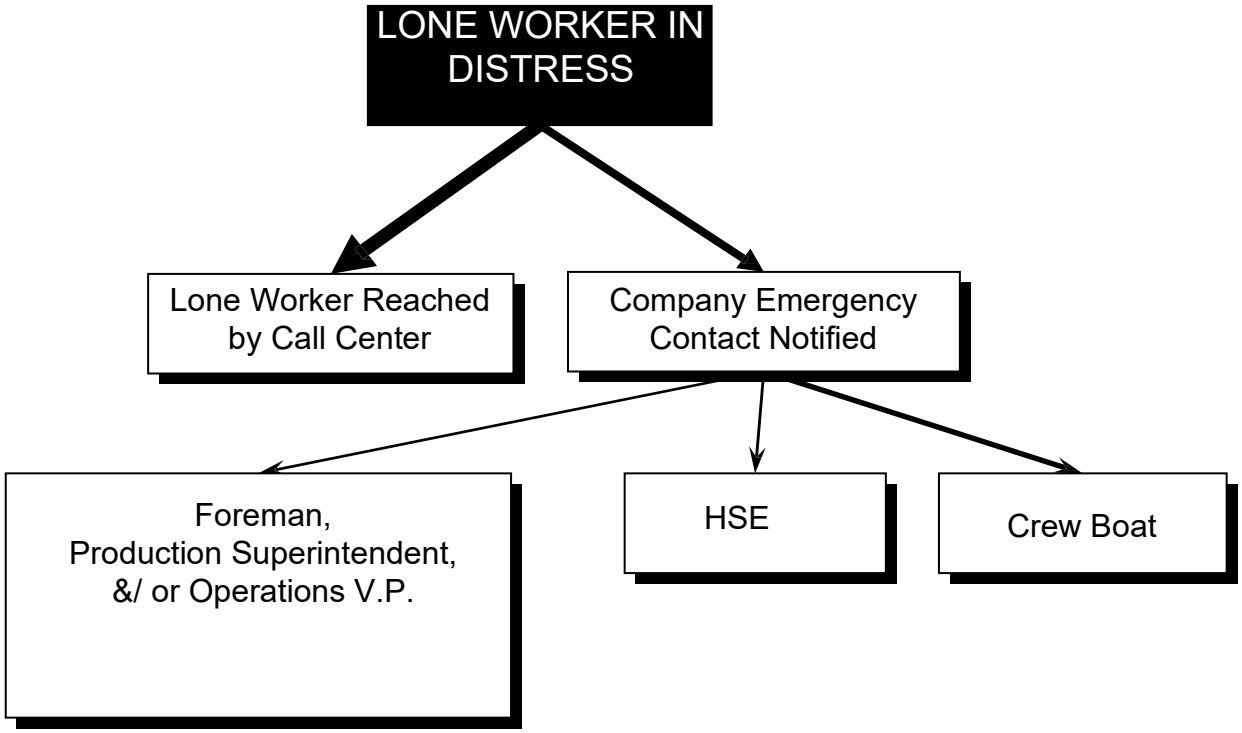


COMPANY EMERGENCY CONTACTS PRIORITY

1. PLATFORM B
2. SCSS DOS FIELD CREW BOAT

PLATFORM EDITH

Lone Worker Flow Chart

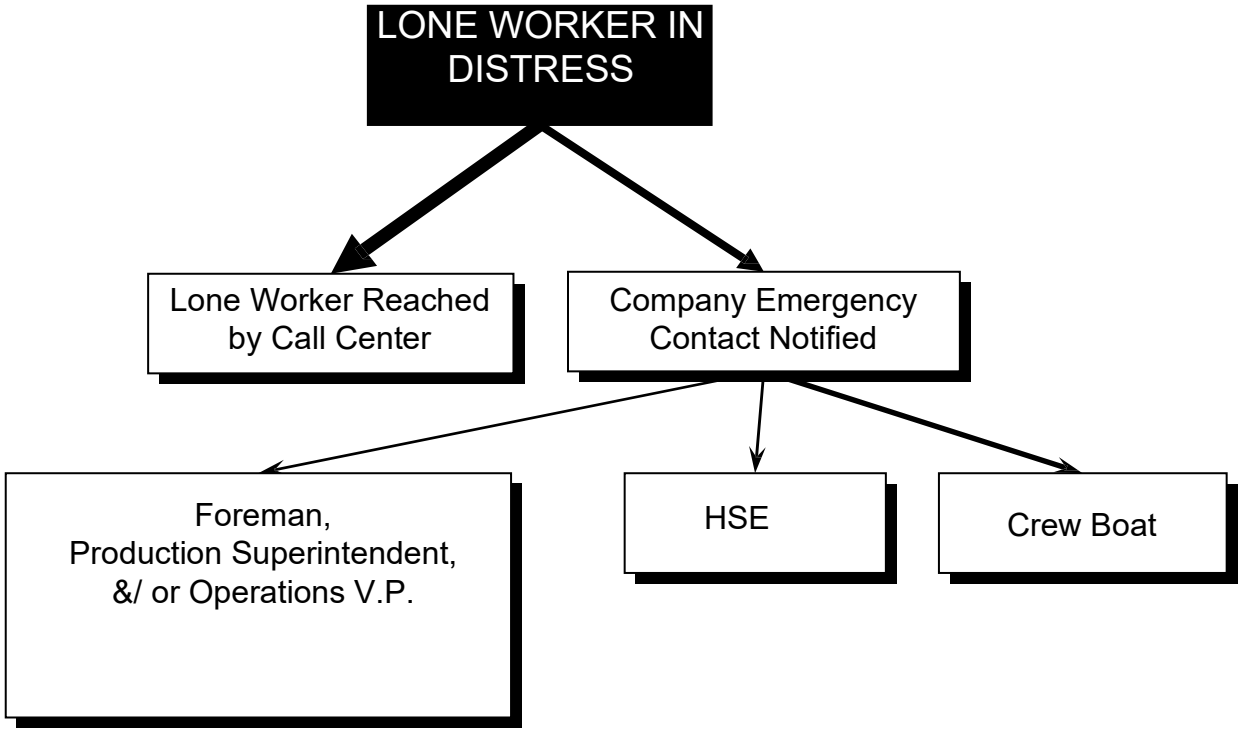


COMPANY EMERGENCY CONTACTS PRIORITY

1. PLATFORM EVA
2. PLATFORM ESTHER

PLATFORM HILLHOUSE

Lone Worker Flow Chart

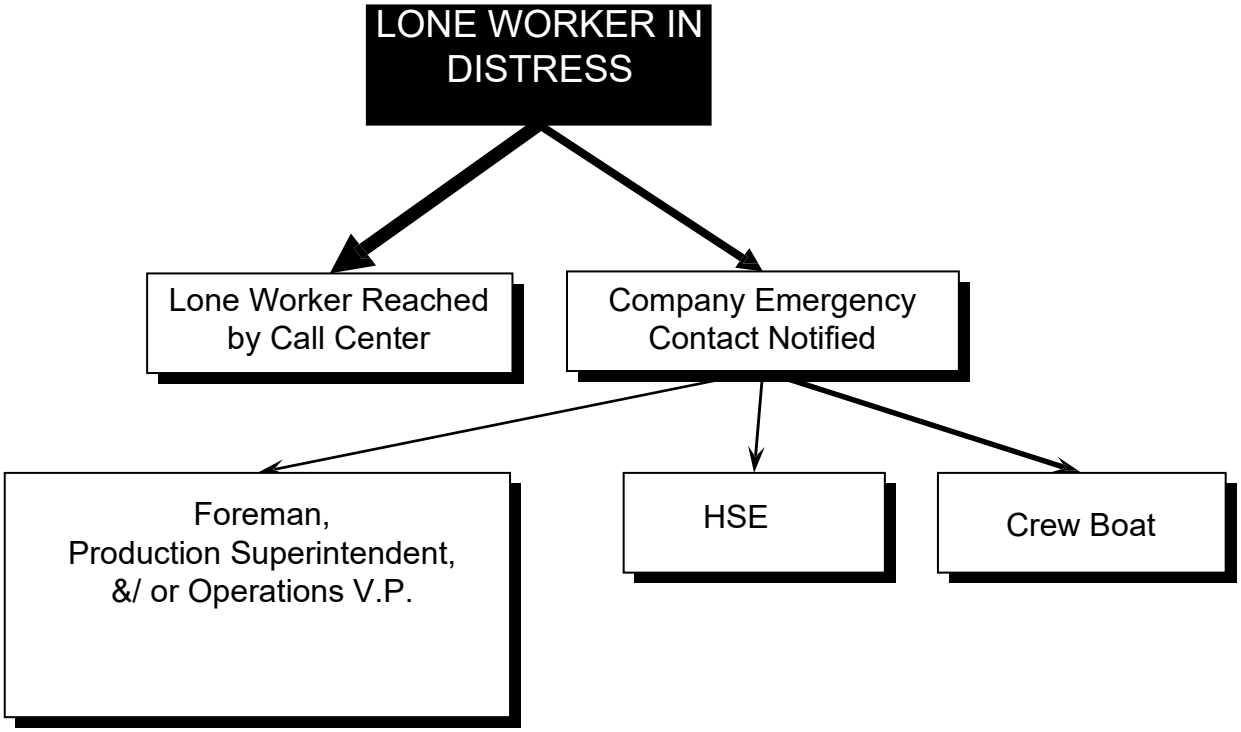


COMPANY EMERGENCY CONTACTS PRIORITY

1. PLATFORM HENRY
2. PLATFORM A

PLATFORM GINA

Lone Worker Flow Chart

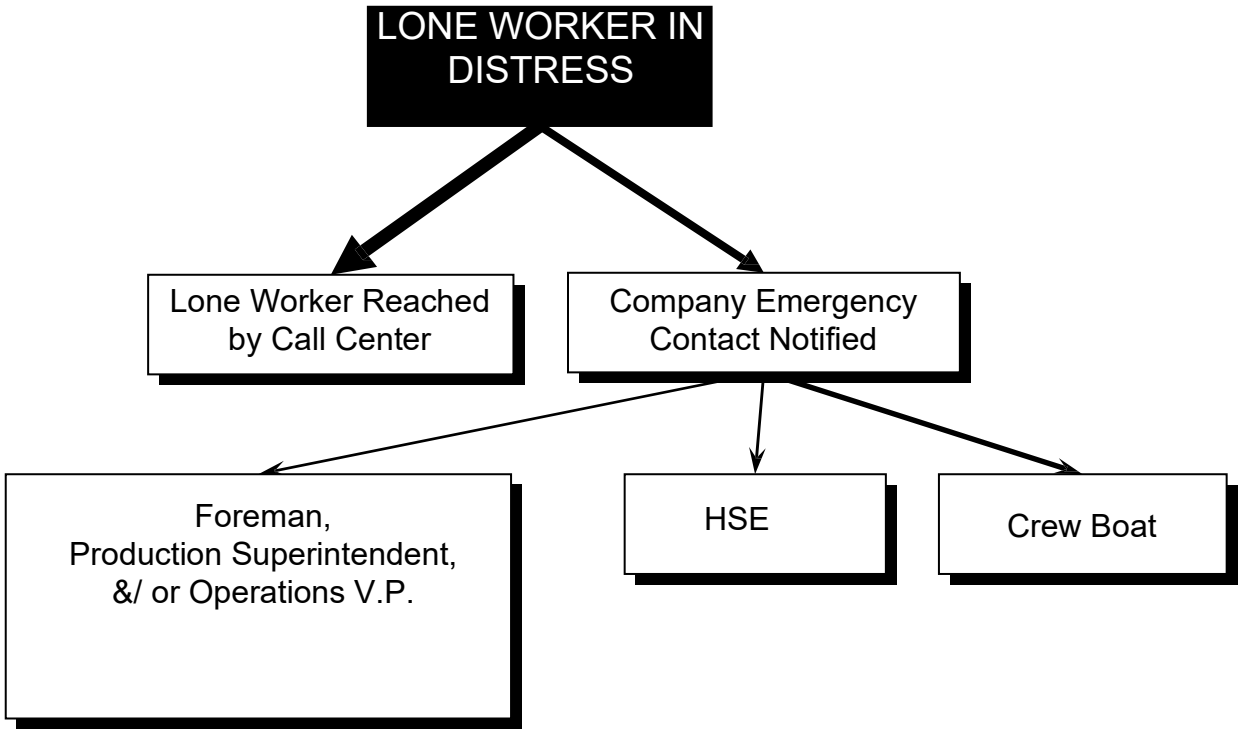


COMPANY EMERGENCY CONTACTS PRIORITY

1. PLATFORM GILDA
2. MOSF

PLATFORM EVA

Lone Worker Flow Chart



COMPANY EMERGENCY CONTACTS PRIORITY

1. PLATFORM ESTHER
2. SCSS HB3F CREW BOAT

APPENDIX B

ANNUAL LONE WORKER EMERGENCY RESPONSE DRILL

State that this is a test.

PLATFORM: _____

DATE: _____ TIME

START (Time lone worker safety monitoring product activated): _____

RESPONSE FROM LONE WORKER SAFETY MONITORING CENTER

1. _____ _____

DCOR PERSONNEL CONTACTED BY MONITORING CENTER:

1. _____ _____
2. _____ _____

DID DCOR PERSONNEL CONTACTED BY MONITORING CENTER RESPOND PROPERLY?

_____

DESCRIBE ANY PROBLEMS ENCOUNTERED (wrong phone numbers, being kept on hold, etc.):

_____

_____

FORM COMPLETED BY:_____

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APPENDIX A – FORKLIFT PRE-USE INSPECTION FORM
APPENDIX B – FORKLIFT OPERATOR PERFORMANCE EVALUATION
APPENDIX C – "Required Only" - FORKLIFT OPERATING RULES

INTRODUCTION

It is the policy of the Company that all employees who operate or anticipate operating a forklift during their employment must complete forklift safety training and comply with this program. Only trained and certified operators, including supervisors, are allowed to operate Industrial Lift Trucks.

REFERENCE

The following requirements are incorporated into the forklift safety program.

Title 8 CCR 3650-3668 *Industrial Trucks*
29 CFR1910.178, *Powered Industrial Trucks*,
29 CFR 1926.602, *Material Handling Equipment*, and
NFPA 505, *Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Maintenance, and Operation*.

SCOPE

This program covers all persons who are employed by the Company and related facilities that are designated responsibility to operate a forklift.

RESPONSIBILITIES

- The Company will provide forklift training
- Departmental supervisors are responsible for ensuring employees attend training and that forklifts are repaired when malfunctioning

GENERAL REQUIREMENTS

All powered industrial trucks acquired and used after February 15, 1972 are required to meet the design and construction requirements for powered industrial trucks established in the American National Standards Institute (ANSI) Standard for Powered Industrial Trucks, Part II, ANSI B56.1-1969, except for vehicles intended primarily for earth moving or over-the-road hauling. Approved trucks are required to bear a label or some other identifying mark indicating approval by the testing laboratory.

Nameplates and markings must be in place and must be maintained in a legible condition.

Modifications and additions which affect capacity and safe operation without the manufacturer's prior written approval are prohibited. Capacity, operation, and maintenance instruction plates, tags, or decals should be modified accordingly.
All Company forklifts are used in unclassified locations according to 29 CFR 1910.178 Table N-1. If the location is classified as hazardous, 29 CFR 1910.178 (c) should be consulted in order to determine the appropriate type of forklift.

High lift rider trucks must be equipped with an overhead guard manufactured in accordance with 29 CFR 1910.178 (a)(2), unless operating conditions do not permit the use of the guard. The overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, etc., but not to withstand the impact of a falling capacity load.

TRAINING

Forklift operators are required to attend and pass forklift safety training at least every three years, operate and maintain their vehicles in a safe manner according to their training, and report all vehicle problems to their supervisor. Training will include: lecture, discussion, and/or interactive computer learning, videos, and written materials. Forklift operator training includes instructor demonstrations and trainee exercises. Operator evaluations (critiques) are documented on the evaluation form shown in appendix B. All operator training and evaluation shall be conducted by persons who have the knowledge, training and experience to train powered industrial truck operators and evaluate their competence.

TRAINING PROGRAM CONTENT

Powered industrial truck operators shall receive initial training in the following topics:

1. Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate;
2. Differences between the truck and the automobile;
3. Truck controls and instrumentation: where they are located, what they do, and how they work;
4. Engine or motor operation;
5. Steering and maneuvering;
6. Visibility (including restrictions due to loading);
7. Fork and attachment adaptation, operation, and use limitations;
8. Vehicle capacity;
9. Vehicle stability;
10. Any vehicle inspection and maintenance that the operator will be required to perform;
11. Refueling and/or charging and recharging of batteries;
12. Operating limitations;
13. Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.
14. Surface conditions where the vehicle will be operated;
15. Composition of loads to be carried and load stability;
16. Load manipulation, stacking, and unstacking;
17. Pedestrian traffic in areas where the vehicle will be operated;
18. Narrow aisles and other restricted places where the vehicle will be operated;
19. Hazardous (classified) locations where the vehicle will be operated;
20. Ramps and other sloped surfaces that could affect the vehicle's stability;
21. Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust;
22. Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.
23. The requirements of applicable OSHA regulations.

REFRESHER TRAINING

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

1. The operator has been observed to operate the vehicle in an unsafe manner;
2. The operator has been involved in an accident or near-miss incident;
3. The operator has received an evaluation that reveals that the operator is not operating the truck safely;
4. The operator is assigned to drive a different type of truck; or
5. A condition in the workplace changes in a manner that could affect safe operation of the truck.
6. An evaluation of each powered industrial truck operator's performance shall be conducted **at least once every three years**.

Employer certification must include operator name, training date, evaluation date, and trainer/evaluator name.

INSPECTIONS

PRE-USE INSPECTION (Daily)

A daily pre-use inspection identifies potential hazards that may be encountered from a damaged forklift and should be performed at least daily. If at any time a forklift is found to be in need of repair, defective, or in any way unsafe, remove it from service until it has been restored to safe operating condition.

The pre-use inspection process is as follows:

1. Inspect the mast for broken or cracked weld points and any other obvious damage.
2. Ensure roller tracks are greased and that chains are free to travel.
3. Forks should be equally spaced and free from cracks along the blade and at the heels.
4. Check hydraulic fluid levels.
5. Check each hydraulic line and fitting for excessive wear or crimping.
6. Check lift and tilt cylinders for damage or leaking fluid.
7. Inspect mounting hardware on the cylinders.
8. Check tires for excessive wear, splitting or missing tire material.
9. Check pneumatic tires for proper pressure indicated on the tire.

POWER SOURCE INSPECTION

Battery Power

Batteries contain acid so protective gloves, goggles, and long sleeves must be worn when working with batteries.

Batteries should be inspected for:

1. cracks or holes,
2. securely sealed cells,
3. frayed cables,
4. broken insulation,
5. tight connections, and
6. clogged vent caps.

Propane Power

1. The propane tank should be inspected for cracks, broken weld points, and other damage.
2. All valves, nozzles, and hoses should be secure and do not leak.
3. If damage is found, the equipment should not be operated until the damage has been corrected.

FUEL HANDLING AND STORAGE

Store and handle liquid fuels such as gasoline and diesel in accordance with NFPA Flammable and Combustible Liquids Code (NFPA No. 30-1969).

Store and handle liquefied petroleum gas in accordance with NFPA Storage and Handling of Liquefied Petroleum Gases (NFPA No. 58-1969).

Turn off engine before filling fuel tanks.

BATTERY HANDLING AND STORAGE

DESIGNATED AREAS

1. Locate battery charging installations in designated areas that provide flushing and neutralizing of spilled electrolyte, fire protection, protection of charging apparatus, damage by trucks, and adequate ventilation for dispersal of battery gassing fumes.
2. Battery handling equipment and a carboy tilter or siphon for handling electrolyte should be provided.
3. Smoking is prohibited in the designated area.

CHARGING BATTERIES

1. When charging batteries, pour acid into water; not water into acid.
2. Properly position forklift and apply brake before attempting to change or charge batteries.
3. Ensure vent caps are functioning and the battery (or compartment) cover(s) are open to dissipate heat.
4. Prevent open flames, sparks, or electric arcs in battery charging areas.
5. Keep tools and other metallic objects away from the top of uncovered batteries.

MAINTENANCE

- Do not use open flames to check for electrolyte level in storage batteries or liquid fuel level in tanks.
- Conduct repairs to fuel and ignition systems of forklifts which involve fire hazards in designated locations.
- Disconnect batteries prior to repairing electrical systems.
- Use only replacement parts equivalent with those in the original design.
- Do not alter the relative positions of various parts from what they were received from the manufacturer. Do not add any parts not supplied by the manufacturer nor delete any parts supplied by the manufacturer (no additional counterweighting of forklifts unless approved by the manufacturer).
- Keep forklift mufflers in proper working condition and free of debris.
- Keep the forklift in clean condition, free of lint, excess oil, and grease.

GENERAL FORKLIFT SAFETY

The most common forklift accidents are caused: when a person is struck by the forklift, stock is shoved into or falls upon another person or falls upon the forklift operator, the operator is injured when getting on or off the forklift, when the forklift collides with another forklift or other vehicle, when the forklift falls off the dock or tips over, where the operator is struck by passing objects, or the forklift tips over because the rated capacity is exceeded or the load is handled improperly.

When mounting or dismounting a forklift, always:

- face the vehicle
- never jump off
- use a three-point stance (always have both hands and one foot or vice-versa in contact with the unit)
- wear proper shoes (oil resistant and non-slippery)
- wear proper clothing (do not wear loose clothing or dangling jewelry)
- restrain long hair.

After mounting the vehicle, always fasten the seat belt, apply the brake, and shift to neutral. Also, check around the forklift for clearance and pedestrians before moving.

FORKLIFT OPERATING GUIDELINES

A. Only trained and authorized personnel are permitted to operate a forklift.
B. Do not stand or pass under the elevated portion of any forklift.
C. Passengers are prohibited from riding on forklifts.
D. Do not place arms or legs between the uprights of the mast or outside the running lines of the truck.

E. A forklift is considered unattended when the operator is 25 feet or more away from the vehicle and it remains in his view, or whenever the operator leaves the vehicle and it is not in his view. When a forklift is left unattended:

    1. fully lower load engaging means,
    2. neutralize controls,
    3. shut off power; and
    4. set brakes.

F. When the forklift operator is dismounted, within 25 feet and in view of the forklift, then fully lower the engaging means, neutralize the controls, and set the brakes to prevent movement.
G. Maintain a safe distance from the edge of ramps or platforms while on any elevated dock or platform.
H. Forklifts are not to be used to open or close freight doors.
I. Where general lighting is less than two lumens per square foot, provide auxiliary directional lighting on the truck.
J. Fixed jacks may be necessary to support a semi trailer and prevent upending during the loading or unloading when the trailer is not coupled to a tractor.
K. Set brakes and block wheels to prevent movement of trucks and trailers while loading or unloading.
L. Check the flooring of trucks and trailers for breaks and weakness before loading or unloading.
M. Check for sufficient headroom under overhead hazards such as lights, pipes, or sprinkler systems.
N. Use only approved forklifts in hazardous locations.
O. The brakes of highway trucks shall be set and wheel chocks placed under the rear wheels to prevent the trucks from rolling while they are boarded with powered industrial trucks.

HANDLING AND MOVING LOADS

TO PICK UP A LOAD

1. Only pick up stable and safely arranged loads within the rated capacity of the forklift.
2. Adjust long or high (including multiple tiered) loads which may affect capacity.
3. Square up on the center of the load and approach it straight with forks in traveling position.
4. Stop when the tips of the forks are about a foot away from the load.
5. Level the forks and slowly drive forward until the load is resting against the backrest.
6. Lift the load high enough to clear whatever is under it.
7. Carefully tilt the mast back to stabilize the load.

DRIVING WITH A LOAD

1. Starts and stops should be gradual.
2. Observe all traffic regulations and keep forklift under control at all times.
3. Reduce speed and sound horn at cross aisles and other locations where vision is obstructed.
4. Pedestrians have the right-of-way. Always be aware of their presence.
5. Do not drive forklift up to anyone standing in front of a bench or other fixed object.
6. Keep a clear view of the path of travel. Always look in the direction of travel.
7. Always travel with a load tilted slightly back for added stability. Do not lift or lower the load when the forklift is in motion.
8. Travel with the load at a height of four to six inches at the tips and two inches at the heels to clear most uneven surfaces and avoid debris.
9. Horse play is not permitted.
10. Slow down for wet, slippery or uneven floors.
11. Avoid running over loose objects on the roadway surface.
12. Properly secure dockboards and bridgeplates before driving over them. Drive over slowly and never exceed their rated capacity.
13. Drive in reverse rather than looking around the load if you are unable to see over it.
14. Travel down inclines in reverse and up inclines going forward. Ascend and descend grades slowly. If the grade is in excess of 10 percent, drive with load upgrade.

SAFE STEERING

1. Never make a turn at normal traveling speed, always slow down to maintain balance.
2. Stay wide when turning into an aisle to help clear the sides and square up with the destination.
3. Allow enough room for forks to clear the sides before turning, when backing out of an aisle.
4. When negotiating turns, turn the steering wheel in a smooth sweeping motion. At very low speeds, turn the steering wheel at a moderate, even rate.

TO PUT A LOAD DOWN

1. Square up and stop about a foot away.
2. Level the forks and then drive the rest of the way in.
3. Lower the load.
4. Tilt the forks slightly forward to avoid hooking the load.
5. Look over both shoulders and back straight out until the forks clear the pallet.

APPENDIX A – FORKLIFT PRE-USE INSPECTION FORM

FORKLIFT PRE-USE INSPECTION

(COMPLETE PRIOR TO START OF EACH SHIFT)

DATE	TRUCK NO.	LOCATION	SHIFT
TYPE: INTERNAL COMBUSTION ELECTRIC		HOUR METER:	
OPERATOR'S SIGNATURE		SUPERVISOR'S SIGNATURE	

CHECK OFF INSPECTED AND CLEARED ITEMS "✓"
CHECK ANY DEFECTIVE WITH AN "X" AND GIVE DETAILS BELOW.

		ACCELERATOR		HOUR METER
		ALARMS		HYDRAULIC CONTROLS
		BATTERY CONNECTOR		LIGHTS – HEAD AND TAIL
		BATTERY – INDICATOR		LIGHTS-WARNING
		BELTS		MAST
		BRAKES-PARKING		OIL LEAKS
		BRAKES-SERVICE		OIL PRESSURE
		CABLES		OVERHEAD GUARD
		ENGINE OIL LEVEL		RADIATOR LEVEL
		FORKS		SAFETY EQUIPMENT
		FUEL LEVEL		STEERING
		GAUGES		TIRES
		HORN		UNUSUAL NOISES
		HOSES		OTHER

DETAILS:

ORIGINAL

APPENDIX B – FORKLIFT OPERATOR PERFORMANCE EVALUATION

Employee Name	Employee ID Number	Date			Time:
		N/A	Yes	No	Comments
1. Followed proper instructions for maintenance-conducted inspections					
2. Shows familiarity with truck controls					
3. Approached load properly					
4. Checked for overhead clearances and hazards					
5. Load balanced and secured properly					
6. Forks placed under load completely					
7. Lifted load properly					
8. Maneuvered properly					
9. Sounded horn at intersections					
10. Kept a clear view of direction of travel					
11. Turned corners correctly – was aware of rear swing					
12. Yielded to pedestrians					
13. Drove under control; Forklift and load stable1					
14. Traveled with load at proper height					
15. Lowered load smoothly/slowly					
16. Stops smoothly/completely					
17. Demo: place loads within marked area					
18. Demo: drive backward when required					
19. Demo: check load weights					
20. Demo: place forks on ground when parked, controls neutralized, brake on set, power Off					
Total Rating					
Evaluator		Signature			Date

APPENDIX C – CALOSHA "Required Only' - FORKLIFT OPERATING RULES

OPERATING RULES FOR INDUSTRIAL TRUCKS

General Industry Safety Order- §3664 — Operating Rules

(a)Every employer using industrial trucks or industrial tow tractors shall post and enforce a set of operating rules including the appropriate rules listed in Section 3650(t).

General Industry Safety Order- §3650 — Industrial Trucks — General (excerpt)

(t) Industrial trucks and tow tractors shall be operated in a safe manner in accordance with the following operating rules:

(1) Only drivers authorized by the employer and trained in the safe operations of industrial trucks or industrial tow tractors pursuant to Section 3668 shall be permitted to operate such vehicles.

(2) Stunt driving and horseplay are prohibited.

(3) No riders shall be permitted on vehicles unless provided with adequate riding facilities.

(4) Employees shall not ride on the forks of lift trucks.

(5) Employees shall not place any part of their bodies outside the running lines of an industrial truck or between mast uprights or other parts of the truck where shear or crushing hazards exist.

(6) Employees shall not be allowed to stand, pass, or work under the elevated portion of any industrial truck, loaded or empty, unless it is effectively blocked to prevent it from falling.

(7) Drivers shall check the vehicle at the beginning of each shift, and if it is found to be unsafe, the matter shall be reported immediately to a foreman or mechanic, and the vehicle shall not be put in service again until it has been made safe. Attention shall be given to the proper functioning of tires, horn, lights, battery, controller, brakes, steering mechanism, cooling system, and the lift system for fork lifts (forks, chains, cable, and limit switches).

(8) No truck shall be operated with a leak in the fuel system.

(9) Vehicles shall not exceed the authorized or safe speed, always maintaining a safe distance from other vehicles, keeping the truck under positive control at all times and all established traffic regulations shall be observed. For trucks traveling in the same direction, a safe distance may be considered to be approximately 3 truck lengths or preferably a time lapse -3 seconds -passing the same point.

(10) Trucks traveling in the same direction shall not be passed at intersections, blind spots, or dangerous locations.

(11) The driver shall slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing.

(12) Operators shall look in the direction of travel and shall not move a vehicle until certain that all persons are in the clear.

(13) Trucks shall not be driven up to anyone standing in front of a bench or other fixed object of such size that the person could be caught between the truck and object.

(14) Grades shall be ascended or descended slowly.

(A) When ascending or descending grades in excess of 10 percent, loaded trucks shall be driven with the load upgrade.

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

(C) Motorized hand and hand/rider trucks shall be operated on all grades with the load-engaging means downgrade.

(15) The forks shall always be carried as low as possible, consistent with safe operations.

(16) When leaving a vehicle unattended (the operator is over 25 feet (7.6 meters) from or out of sight of the industrial truck), the brakes are set, the mast is brought to the vertical position, and forks are left in the down position, either:

(A) The power shall be shut off and, when left on an incline, the wheels shall be blocked; or

(B) The power may remain on provided the wheels are blocked, front and rear.

(17) When the operator of an industrial truck is dismounted and within 25 feet (7.6 meters) of the truck which

remains in the operator's view, the load engaging means shall be fully lowered, controls placed in neutral, and the brakes set to prevent movement.

EXCEPTION: Forks on fork-equipped industrial trucks may be in the raised position for loading and unloading by the operator if the forks are raised no more than 42 inches above the same level on which the industrial truck is located, the power is shut off, controls placed in neutral and the brakes set. If on an incline, the wheels shall be securely blocked. Whenever the forks are raised, the operator will remain in the seat of the industrial truck except when the operator is actively loading or unloading materials.

(18) Vehicles shall not be run onto any elevator unless the driver is specifically authorized to do so. Before entering an elevator, the driver shall determine that the capacity of the elevator will not be exceeded. Once on an elevator, the industrial truck's power shall be shut off and the brakes set.

(19) Motorized hand trucks shall enter elevators or other confined areas with the load end forward.

(20) Vehicles shall not be operated on floors, sidewalk doors, or platforms that will not safely support the loaded vehicle.

(21) Prior to driving onto trucks, trailers and railroad cars, their flooring shall be checked for breaks and other structural weaknesses.

(22) Vehicles shall not be driven in and out of highway trucks and trailers at loading docks until such trucks or trailers are securely blocked or restrained and the brakes set.

(23) To prevent railroad cars from moving during loading or unloading operations, the car brakes shall be set, wheel chocks or other recognized positive stops used, and blue stop signs, blue flags or blue lights displayed in accordance with Section 3333 of these Orders and Title 49, Code of Federal Regulations, Section 218.27 which is hereby incorporated by reference.

(24) The width of one tire on the powered industrial truck shall be the minimum distance maintained from the edge by the truck while it is on any elevated dock, platform, freight car or truck.

(25) Railroad tracks shall be crossed diagonally, wherever possible. Parking closer than 8 1/2 feet from the centerline of railroad tracks is prohibited.

(26) Trucks shall not be loaded in excess of their rated capacity.

(27) A loaded vehicle shall not be moved until the load is safe and secure.

(28) Extreme care shall be taken when tilting loads. Tilting forward with the load engaging means elevated shall be prohibited except when picking up a load. Elevated loads shall not be tilted forward except when the load is being deposited onto a storage rack or equivalent. When stacking or tiering, backward tilt shall be limited to that necessary to stabilize the load.

(29) The load engaging device shall be placed in such a manner that the load will be securely held or supported.

(30) Special precautions shall be taken in the securing and handling of loads by trucks equipped with attachments, and during the operation of these trucks after the loads have been removed.

(31) When powered industrial trucks are used to open and close doors, the following provisions shall be complied with:

(A) A device specifically designed for opening or closing doors shall be attached to the truck.

(B) The force applied by the device to the door shall be applied parallel to the direction of travel of the door.

(C) The entire door opening operation shall be in full view of the operator.

(D) The truck operator and other employees shall be clear of the area where the door might fall while being opened.

(32) If loads are lifted by two or more trucks working in unison, the total weight of the load shall not exceed the combined rated lifting capacity of all trucks involved.

(33) When provided by the industrial truck manufacturer, an operator restraint system such as a seat belt shall be used.

USE OF A FLARE GUN TO IGNITE A FACILITY GAS FLARE

PURPOSE

This policy establishes procedures and safety requirements for all DCOR facilities that have a flare gun for the purpose of igniting a gas flare. When an Operator cannot light a gas flare with the gas flare's built-in ignition system, only an Authorized Employee (reference below) is allowed to fire a flare gun to ignite the gas flare. In these cases, using a flare gun to light a gas flare will be the only alternative method allowed to be used at a DCOR facility. Authorized Employees are those that are trained in handling, loading and firing of a flare gun. An Authorized Employee is one who knows and understands the facility's operations and the flare system. An Authorized Employee understands and follows the procedures outlined in this Safety Standard. The only facilities that will have a flare gun on board will be those that have flare systems.

SCOPE

These procedures are generic to provide direction to all Operations groups that have a flare gun for igniting gas flares. It will be at the discretion of the PIC at the facility to determine if it is safe enough to use the flare gun when needed. If conditions are not safe to use a flare gun and the pilot flame or gas flare cannot be ignited using the facility's built-in ignition system, the facility would need to shut down to minimize venting of gas. The flare gun will only be used when conditions permit its safe operation.

REFERENCES

30 CFR 250.490 states that we:
Must have an alternative method available for igniting the flare.

RESPONSIBILITIES

Foremen are responsible for ensuring the following:
• Verifying the use of DCOR's documented procedures when Operators are required to use a flare gun for igniting a gas flare or for training.
• Assuring the availability of flare guns and flares at facilities that require them.
Lead Operators are responsible for ensuring the following:
• Ensuring that a person preparing to fire a flare gun has had training in the use of a flare gun and is following DCOR's documented procedures before loading and firing it.
• Ensuring a JSA and Hot Work Permit are completed and necessary safety devices are bypassed, tagged, logged, and monitored.
• Inspecting and maintaining the flare gun and flares.
• Ensuring scheduled inspections are being completed and the flares being used to light the gas flare are not expired. Expired flares are to be used for training purposes only.
• Ensuring the proper disposal of any misfired flares (duds).

DEFINITIONS

Authorized Employee – An employee who is trained in the safe operation and firing of a flare gun, understands facility operations, and follows DCOR's documented procedures for firing a flare gun.

OPERATING PROCEDURES

1. Read and follow the operating instruction manual for the specific flare gun at your facility.

2. If the gas flare needs to be ignited at night with the flare gun, notify the Lead Operator or PIC on board with your plans.

3. If there are “well operations with open hole” or “wireline” operations in progress, the Foreman would need to be notified and a decision would need to be made to either shut down the well operations temporarily or request a variance from BSEE to fire the flare gun with those operations in progress.

4. Operators are to fill out a JSA and Hot Work Permit before commencing with flare gun operations. Fire Watch personnel and firefighting equipment may need to be located on different deck levels due to the possibility of flares bouncing back or being windblown onto the facility.

5. Operators need to ensure the proper fire eyes are bypassed.

6. Prior to firing the flare gun, notify the USCG and adjacent platforms.

   Call: USCG Sector LA/Long Beach @ 1-310-521-3801 (General), 3815 (Search and Rescue), or 3805 (Situation Unit). Let them know if this is for training or for igniting a gas flare. They will notify the local USCG station and broadcast a notice to Mariners on VHF radio channel 16.

7. In addition to the normal PPE, the Operator firing the flare gun may require wearing additional eye and face protection as well as hearing protection. A metal bucket filled with water needs to be placed in the vicinity for fired shells to be placed in.

8. The Operator firing the flare gun should take into consideration wind speed and direction, which will aid in his aim and trajectory. He should survey the area on deck and surrounding ocean to ensure there are no boats within range. When ready to fire, he must make sure everyone on deck is behind him.

9. The Operator or a Fire Watch should monitor the area he is firing from for LEL (combustible gas) and make sure it is safe to fire the flare gun.

10. This procedure will take at least two or more flares to light the gas flare. The first shot (practice) will be for the Operator to check his accuracy with the current wind and weather conditions. The Operator should aim the first shot at one side or the other of the flare, without aiming directly at or over the flare. Once the Operator takes the first shot, he can correct his aim and make the second shot with the intent to ignite the flare accurately. In most situations, the Operator should be aiming well above the flare tip and not directly at it.

11. Once everything is ready, the Operator will commence with shooting flares until the gas flare has been ignited. Once the gas flare is lit, the Operator will ensure that all fired flare cartridges are in the bucket of water and the flare gun is put away unloaded.

Note:
Duds, misfires, and outdated flares are never to be disposed of in any of the trash, waste or recycle streams. Outdated flares shall be kept on the facility for training purposes only. If you have a dud or misfired flare, contact HSE for proper disposal.

The following basic safety rules should be followed at all times while handling the flare gun:

1. Always treat the flare gun as if it were loaded.
2. Keep the flare gun pointed in the safest possible direction.
3. Keep your finger off the trigger until you are ready to shoot.
4. Know your target, its surroundings, and beyond.
5. Know how to properly operate the flare gun.
6. Store the flare gun safely and securely to prevent unauthorized use.

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DCOR PERSONNEL ON BOARD PROGRAM (POB)

DCOR has implemented an internal program for the purpose of limiting access to facilities to companies with current MSAs on file and meet specified requirement. Contract companies that do not meet these requirements show up in the program as so and will not be permitted to gain access to DCOR facilities.
Contracted employees must be knowledgeable and experienced in the work practices necessary to perform their job in a safe and environmentally sound manner. Documentation of each contracted employee's expertise to perform his/her job and a copy of the contractor's safety policies, procedures and training records must be made available to the company and BSEE upon request.

CONTRACTOR SAFETY AUDITS POLICY

The contractor safety audit is part of the approved vendor process. The approved vendor process includes approval by the legal department and safety department. Once a vendor has been approved by the legal department (MSA and appropriate insurance) the safety department will determine if the company needs a safety audit. The safety department will use the following guideline to determine if a safety audit is required:

Contractor safety audits are required for any vendor who provides field services except for deliveries and escorted personnel providing quotes, estimates, assessments, etc.

Once a determination has been made that a contractor safety audit is required the safety department will conduct the following:

The safety department will provide a copy of the "Contractor Audit Questionnaire" checklist (CAQ) to the vendor- see CAQ. The vendor should return the completed questionnaire as quickly as possible. When the contractor CAQ is received it will be reviewed immediately by the safety department and a Pass/Fail determination will be made.. If the contractor has passed, they may begin work at any time, however, it is strongly recommended that the field audit be completed prior to any work performed. If a contractor has failed, the safety department will communicate this to the VP of Health Safety and Environmental (HSE) and will include the reasoning.

Note: The VP of HSE may choose to allow a vendor to work even if the contractor has failed the CAQ. The VP of HSE will document reasoning for such a decision and any mitigation it seems relevant of the DCOR Contractor Safety Rating Form.

Upon completion of the CAQ and if a determination of "Pass" has been made the safety department can schedule a "Contractor Field Audit" (CFA) - see CFA. The CFA must be completed within two weeks of the CAQ. If a determination of "Pass" is made after the CFA is complete the original determination of the CDA stands. If a determination of "Fail" has been made, then the original determination of the CAQ will be changed to reflect the CFA determination. If a contractor has failed, the safety department will communicate this to operations and will include the reasoning.

When a CFA determination of “Pass” has been made, that date becomes the anniversary date for the contractor. Each contract company should be sent a CAQ at least once every three years. This is part of the ongoing audit process for each vendor who requires a safety audit.

All information regarding approved contractors is in the MSA module of the DCOR POB Program.

CONTRACTOR AUDIT QUESTIONAIRE (CDA) – REVIEW

This review assumes a signed Master Service Agreement (MSA) and Certificate of Insurance naming DCOR as additional insured is on file and has been approved.

If a Contractor State License is required verify that the license is valid and appropriate for oil and gas work. Contractors who require State licenses must be either Class A (General Engineering) or Class C (Specialty). Class B licenses are not valid in an industrial setting.

You can verify the proper contractor license classification via:
https://www.cslb.ca.gov/About_Us/Library/Licensing_Classifications/Default.aspx

You can verify state contractor licenses via:
https://www.cslb.ca.gov/OnlineServices/CheckLicenseII/checklicense.aspx

Contractors that have been cited by OSHA for significant violations in the past three years should be placed in a “Fail” status.

Verify OSHA citation history via:
http://www.osha.gov/pls/imis/establishment.html

A statement from the contractor’s worker’s compensation carrier indicating an Experience Modification Rating (EMR) for the last three years should be available for review. An EMR exceeding 1.2 in any of the past three years should be placed into a “Fail” status.
If the average Total Recordable Incident Rate (TRIR) or Lost Time Incident Rate (LTIR) for a contractor is in excess of 4.0, V.P. of HSE review will be required.

CONTRACTOR DESK AUDIT (CDA)

Company Name: _____ Primary Standard Industrial Code (SIC): _____

Address: _____ Telephone: _____

City: _____ State: _____ Zip: _____

TYPE OF WORK PERFORMED

☐ Drilling ☐ Well Servicing ☐ Welding ☐ General Construction

☐ Roustabout ☐ Electrical ☐ Mechanical ☐ Other: _____

State Contractor License Number: Classification:

Do not answer yes to any of the following unless you maintain appropriate records for possible audit.

	DESCRIPTION	YES	NO	N/A
1.	Do you have a Safety Manual and Policy Statements endorsed by top management: (Injury and Illness Prevention Program, including other required written procedures)?	☐	☐	☐
2.	Do you have a Drug and Alcohol program that includes: (pre-placement, random, for cause and post accident testing)?	☐	☐	☐
3.	Can you provide OSHA 300 logs for the previous three years?	☐	☐	☐
4.	Can you provide documentation of all regulatory required training for your employees?	☐	☐	☐
5.	Can you provide documentation of frequent (preferably daily) tailgate safety meetings with your employees?	☐	☐	☐
6.	Does your firm have a safety auditing program?	☐	☐	☐

YEAR	20____	20____	20____	3 Year Average (1)
Average Number of Employees				
Fatalities(2)				
Lost Time Incident Rate (LTIR) (3)				
Total Recordable Incidence Rate (TRIR) (4)				
Experience Modification Rate (EMR)				

(1) 3 Year Average = [(Year 1 + Year 2 + Year 3) / 3]
(2) Attach a detailed explanation of any fatality listed
(3) LTIR = [(Total Number of Lost Time cases X 200,000) / Total hours worked by all employees during the year]
(4) TRIR = [(Total Recordable cases X 200,000) / Total hours worked by all employees during the year]

I hereby certify that the information provided is true and correct. I also understand that a field audit will be scheduled at a future date to review and verify the information stated above.

Name: _____

Title: _____

E-Mail: _____

_____ _____
Signature Date

DCOR MANAGEMENT REVIEW

Name: _____

Title: _____

Date _____

STATUS	
PASS	☐
FAIL	☐

Fail Status Comments: _____

FAX COMPLETED FORMS TO DCOR HSE: 805-535-2075

CONTRACTOR AUDIT QUESTIONAIRE (CAQ)

Company Name: _____ Primary Standard Industrial Code (SIC): _____

Address: _____ Telephone: _____

City: _____ State: _____ Zip: _____

_____ _____

Information requested on this questionnaire will provide general knowledge concerning your basic Safety program.

A) TYPE OF WORK PERFORMED

☐ Drilling ☐ Well Servicing ☐ Welding ☐ General Construction

☐ Roustabout ☐ Electrical ☐ Mechanical ☐ Other: _____

State Contractor License Number: _____ Classification: _____

B) GENERAL INFORMATION

Please provide a copy of the following information with regard to your company:

- Safety Manual and Policy Statements endorsed by top management
- Drug and Alcohol program
- A list of written job procedures, applicable to environmental and safety compliance
- OSHA 300 logs for the previous three years
- A statement from your worker's compensation carrier indicating your Experience Modification Rating (EMR) for the last three years

Provide your actual injury and illness data, as developed from your safety statistics for the most recent three years. When applicable, data from your OSHA log should be used.

YEAR	20____	20____	20____	3 Year Average(1)
Man-hours Worked				
Average Number of Employees				
Fatalities(2)				
Number of Cases involving Lost Workdays				
Recordable Cases without Lost Workdays				
Total Recordable Cases				
Lost Time Incident Rate (LTIR) (3)				
Total Recordable Incidence Rate (TRIR)(4)				
Experience Modification Rate (EMR)				

(5) 3 Year Average = [(Year 1 + Year 2 + Year 3) / 3]
(6) Attach a detailed explanation of any fatality listed
(7) LTIR = [(Total Number of Lost Time cases X 200,000) / Total hours worked by all employees during the year]
(8) TRIR = [(Total Recordable cases X 200,000) / Total hours worked by all employees during the year]

C) TRAINING SUMMARY

Provide the following information regarding the existence of general training programs within your organization. Do not answer yes to any of the following unless you maintain appropriate records for possible audit.

DESCRIPTION	YES	NO	N/A	FREQUENCY
Asbestos Awareness	☐	☐	☐	
Benzene Awareness	☐	☐	☐	
Bloodborne Pathogens	☐	☐	☐	
Confined Space Entry	☐	☐	☐	
Confined Space Rescue	☐	☐	☐	
CPR/ First Aid	☐	☐	☐	
Crane Operator Certification/License	☐	☐	☐	
[1]DOT Pipeline Operator Qualification	☐	☐	☐	
Electrical Safety (high voltage)	☐	☐	☐	
Electrical Safety (low voltage)	☐	☐	☐	
Emergency Response	☐	☐	☐	
Excavation – Competent Person	☐	☐	☐	
Fall Protection	☐	☐	☐	
Fire Equipment/Fire Watch	☐	☐	☐	
Fire Training	☐	☐	☐	
Forklift Operator Certification	☐	☐	☐	
Hazardous Communication	☐	☐	☐	
HAZWOPER – Type:_____	☐	☐	☐	
Hearing Conservation	☐	☐	☐	
Heavy Equipment	☐	☐	☐	
Hot Work Procedure	☐	☐	☐	
Hydrogen Sulfide & SCBA	☐	☐	☐	
Injury and Illness Prevention Program	☐	☐	☐	
Lead Awareness	☐	☐	☐	
Lock-Out/Tag-Out	☐	☐	☐	
Personal Protective Equipment	☐	☐	☐	
Production Safety Systems	☐	☐	☐	
Respiratory Protection	☐	☐	☐	

Rigger Training	☐	☐	☐	
Scaffolding Competent Person	☐	☐	☐	
Supervisor Drug/Alcohol abuse	☐	☐	☐	
Well Control School	☐	☐	☐	
Other: _____	☐	☐	☐	

If you answered "Yes" to DOT Operator Qualification training above. What method will your company utilize to ensure compliance?

_____

E) DRUG AND ALCOHOL COMPLIANCE

1) Does your company have a written Drug & Alcohol Policy? YES ☐ NO ☐

2) Does your policy also cover DOT/RSPA requirements for oil and gas pipelines? YES ☐ NO ☐

3) Does your policy cover DOT Federal Highway requirements? (applicable to >26,000lb GVW and/or Hazardous Materials carriers) YES ☐ NO ☐

4) Does your Drug/Alcohol Policy include:

Pre-employment Testing YES ☐ NO ☐

Reasonable Suspicion YES ☐ NO ☐

Post Accident YES ☐ NO ☐

Random Testing YES ☐ NO ☐

5) What percentage of your work force are Randomly tested each year? % _____ /Year

6) Are DOT background checks required by your Drug and Alcohol Policy? YES ☐ NO ☐

F) HIRING PRACTICES

1) Does your company provide employee training upon hire? YES ☐ NO ☐

2) Does your company require employees to pass a pre-placement physical prior to starting work? YES ☐ NO ☐

3) Does your company require pre-employment drug testing for new hires? YES ☐ NO ☐

4) Do you explain and give a copy of your safety program to each new or transferred employee? YES ☐ NO ☐

5) Do you perform driver's license checks by enrollment in the DMV pull program prior to hiring employees? YES ☐ NO ☐

G) SUBCONTRACTORS

1) Does your company utilize subcontractors? YES ☐ NO ☐

2) If "Yes", please provide the name and services provided by subcontractors:

Name of Subcontractor(s) Used	Service Provided

3) Does your company review the environmental, health and safety performance of subcontractors? YES ☐ NO ☐

How is this review performed: _____

4) Does your company utilize a temporary service or leasing agency? YES ☐ NO ☐

H) SAFETY PLAN PERFORMANCE

1) Who has the primary responsibility for implementation, and administration of your Safety Plan?

Name _____

Title _____

2) Is this a full time or part time position within your organization? Full Time ☐ Part Time ☐

3) What percentage of the Safety Plan Administrator's time is spent on safety? % _____

4) Does your company have a written disciplinary policy? YES ☐ NO ☐

5) Are employees who violate safety policies disciplined? YES ☐ NO ☐

6) Does your company have a safety incentive program? YES ☐ NO ☐

If so, describe the incentive program: _____

7) Has your company been cited by any regulatory agencies within the last three years? YES ☐ NO ☐

If so, describe: _____

8) How often are documented safety meetings held? Monthly ☐ Weekly ☐ Daily ☐

9) Does your company have a safety audit program? YES ☐ NO ☐

10) Does your company have an accident reporting and investigation procedure? YES ☐ NO ☐

If "Yes", does the procedure include a provision for sharing the results of the investigation with your client(s), EHS and/or management personnel? YES ☐ NO ☐

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PRE-START-UP REVIEW

PURPOSE

The intent of this section is to comply with the requirements of, 29 CFR 1910.119 (PSM), 8 CCR 5189 (PSM) (California only), and API RP 75 (SEMP), were the commissioning of new or modified facilities covered under the regulations include a Pre-Start-Up Review.

SCOPE

Pre-Start-Up Reviews are required anytime a modification to a covered facility is significant enough to require a change in the process information. Examples are changes in the process technology, equipment, or highly hazardous chemicals.

The Company intends to comply with this aspect of the regulation by using a Pre-Start-Up Review Checklist (Form #5021).

RESPONSIBILITIES

A Pre-Start-Up Review must be completed by at least one person knowledgeable in the process and at least one person with knowledge in engineering. The facility engineer or designee must review applicable Checklists and, upon acceptable conditions, sign the bottom of the form approving the process for start up.

Pre-Start-Up Review **Project:**

Date:

Circle Hitch: **A or B**

Prior to the initial start-up of a new facility, or after a modification of an existing facility as defined under "Management of Change" in API RP 75, certain items should be completed to prepare the facility for safe operations.

(The following is a list of general areas that should be reviewed)

		Comments
1	Necessary hazards analysis recommendations have been included in the facilities.	
2	Construction has been completed according to design specification. Equipment commissioned in accordance with the manufacturer's recommendations.	
3	Piping is routed and valved according to the P&IDs	
4	Nondestructive testing requirements have been completed.	
5	All protective shipping brackets and packing have been removed from controllers, instruments and other equipment.	
6	Pre-service recommended by vendors has been performed.	
7	All safety and control devices are set and operate properly (API 14C Appendix D outlines the proper testing of safety devices).	
8	Actual device function tests are performed, and control and safety system logic match the design requirements.	
9	Utility, fire-fighting and personnel safety equipment are functional.	
10	Maintenance procedures are in place.	
11	Written start-up, operating and shutdown procedures are in place, and personnel are trained.	
12	Emergency response and evacuation procedures are in place, and personnel are trained.	
13	**The Lead operator or operator in charge is to notify the Facility Foreman prior to starting or commissioning any equipment related to an MOC. The Facility Forman will then notify the Facility Engineer if required. The Lead Operator or operator in charge is to list the names below of who was contacted PRIOR to commissioning.**	

Attendees print name:

1		10	
2		11	
3		12	
4		13	
5		14	
6		15	
7		16	
8		17	
9		18	

Engineer Review/Comments:

Revised 3/9/20

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MANAGEMENT OF CHANGE (MOC)

PURPOSE

This standard establishes the procedures necessary to identify and control hazards associated with change in facility and personnel, and to maintain the accuracy of safety and environmental information.

REFERENCE

TITLE 8 CCR, subsection 5189,
Process Safety Management of Acutely Hazardous Materials
29 CFR 1910.119,
Process Safety Management of Acutely Hazardous Materials
API Recommended Practice 75,
Recommended Practice for Development of a Safety and Environmental Management System for Offshore Operations and Assets

APPLICABILITY

The Management of Change (MOC) program applies to all company facilities.

This MOC program does not apply to "Replacement in Kind" changes, as defined in this document.

DEFINITIONS

Equipment: The machinery, buildings, work-over packages, etc. which are not always apparent as affecting process safety information.

Facility: The buildings, structures, vessels, process piping, and equipment, that are physically connected or located in such a way that they could reasonably be expected to contribute to a catastrophic release of highly hazardous or flammable substances.

Management of Change (MOC): A formal procedure which addresses process related modifications of a facility. Management of change ensures that changes are recognized, documented, formally reviewed and approved prior to their implementation in order to avoid potential environmental, safety, and/or operational problems.

MOC Coordinator: Person(s) authorized to approve Start-up and close an MOC. The MOC Coordinator is also responsible for implementing and maintaining the MOC process.

MOC Covered Change: Any temporary or permanent action which results in one or more of the following:

- Replacement of equipment with other than "Like-in-kind"
- Modifications of existing equipment, piping which result in changes to Process Safety Information.
- Change requires engineering review.
- Single line drawings, SAFE CHARTS, P&IDs will need to be updated.
- Safety devices removed or installed.
- Safety instructions, procedures or emergency response plans will require updating.
- Operation of equipment outside of established design limits (e.g. pressures, temperatures, levels, etc.)
- Addition of new equipment, including piping, machinery, control systems, chemical etc.
- Personnel changes which may adversely affect the safety of remaining personnel or place the environment at undue risk.

MOC Approval: Predefined group of personnel from management who review and approve the MOC request before it can continue in the process.

MOC Request: The document used to initiate the management of change system.

MOC Request Originator: Any employee who initiates the MOC process.

MOC Action Items: The predefined group of personnel designated on the MOC that are required to evaluate the environmental, safety and operational effects of a proposed change. The group includes a compilation of management, environmental, safety, engineering, electrical, operations and other support personnel who will be required to conduct the specific discipline review.

Not-In Kind Change: A replacement, repair, or modification that does not match ALL existing conditions.

Operating Procedure: A procedure that contains instructions on how to perform actions to maintain or operate a process.

Pre-startup Review: An inspection and/or safety meeting to verify that all modifications are complete and correct, that all process safety information has been updated, and that personnel affected by the change have been notified and/or trained (as appropriate) on the change. The pre-startup review must be completed and documented prior to startup.

Process: The vessels, equipment, and interconnecting piping that are involved in the use, storage, and handling of flammable or highly hazardous materials.

Process Safety Information: Any documentation pertaining to facility design, operation, or training requirements. This includes but is not limited to Process Flow Diagrams (PFD's), Process and Instrumentation Diagrams (P&ID's), process

design calculations, electrical one line diagrams, electrical area classification drawings, Safety Data Sheets (SDS), operating procedures, emergency response procedures, training matrices, etc.

Replacement In-Kind Change: A replacement, repair, or modification that matches ALL existing conditions including design specifications, location, size, materials of construction, etc. (This does not mandate making replacements with the same manufacturer as the original piece of equipment or part.)

Site Supervisor: The person authorized to approve the MOC work request process, usually the Foreman, Maintenance Planner, Facility Engineer.

Temporary Change: Any change that will not remain in effect indefinitely. Temporary changes should not be planned for more than six (6) months.

Permanent Change: A change is considered long term and durable. Any change which is not categorized as a Temporary Change

Emergency Change: The emergency change path allows the change to be implemented and commissioned immediately in order to address an immediate safety, operational, health, environmental or product quality situation.

CHANGE IN FACILITY

Change in facilities arises whenever the environmental/safety information or mechanical design is altered. Change in facilities may also occur due to changes in produced fluids, product specifications, waste products, design inventories, instrumentation and control systems, or material of construction.

Typical instances in which change in facilities would likely occur, and which the MOC procedure would apply, include the following:

- Construction of new production or process facilities.
- New facility projects that involve production or process tie-ins to existing facilities, equipment reconfiguration, or modification of existing facilities/equipment.
- Modification of existing facilities that result in changes to facility or equipment design, structural support, layout, or configuration.
- Projects to increase facility throughput or accommodate different produced fluids.
- Significant changes in operating conditions include a change in pressure, temperature, flow rate, or other process condition different from the original process or design.

- Equipment changes include the addition of new equipment or modifications of existing equipment. This can include changes in alarms, instrumentation, and control systems.

- Modifications of the process or equipment that cause changes in the facility's pressure relief requirements. This can include increased process throughput or operation at higher temperatures.

- Operations outside the scope of current written operating procedures, including procedures for start-up, normal shut down, and emergency shutdown.

- Changes made in the process or mechanical design or in the operating procedures that require a hazard analysis.

- Changes in valves, if style, material, pressure rating, size, packing, seals, or pressure safety valve settings change.

- Changes in pumps or compressors, if material (including internals), flange size, rating, capacity, head, or type of seals change.

- Changes in drivers, if horsepower (HP) rating, motor electrical rating, classification, or lubrication systems change.

- Changes in vessels or tanks, if nozzles, service or configuration, Maximum Allowable Working Pressure (MAWP), relief capacity, or if welding on shell, heads, or walls. Before any repairs are performed, all proposed methods of execution, all materials, and all welding procedures that are to be used must be approved by the authorized pressure vessel inspector and, if necessary, by a pressure vessel engineer experienced in pressure vessel design, fabrication, or inspection.

- Changes in instrumentation, if changing device range, multiplier, measuring unit, or resetting critical alarm set points.

- Changes in operational procedures including operational software, computer or Programmable Logic Controller (PLC), control scheme, control parameters (outside of normal high or low limits), or bypass of equipment safety devices.

- Maintenance, if conducting in-service welding, hot tap, stopple work or changes to standard welding procedures.

- Mechanical changes that would not necessarily appear on P&IDs, including drilling and construction equipment and temporary/emergency connections.

CHANGE IN PERSONNEL

Changes in personnel may necessitate the use of MOC. For example, a newly hired operator would require the use of an MOC to remind supervisors of the required training

to be completed, i.e. operating procedures, production safety systems, boom deployment drills, etc. Routine vacancies, replacements, rotations, and shift changes should not require the use of MOC.

Organizational changes, particularly those brought about by acquisition or sale of a facility may necessitate a thorough review of the facility's environmental safety program. Upon acquisition or transfer of management control, a screening level review of the facility should be conducted via MOC procedures.

TEMPORARY CHANGE

A Temporary Change is one that will not remain in effect indefinitely. Changes that last more than six (6) months should be handled through the normal MOC procedure.

If a temporary MOC is generated, the anticipated date when the change will be returned to original conditions must be stated in the MOC. The initial review of a temporary change may be handled by the Site Supervisor. After ensuring all environmental, safety and operational safeguards are in place and soliciting verbal approval from MOC Manager, the Site Supervisor may authorize the start-up to take place on a temporary basis. The change must then be reviewed by appropriate personnel, using the normal MOC procedure at the earliest practical opportunity.

EMERGENCY CHANGE

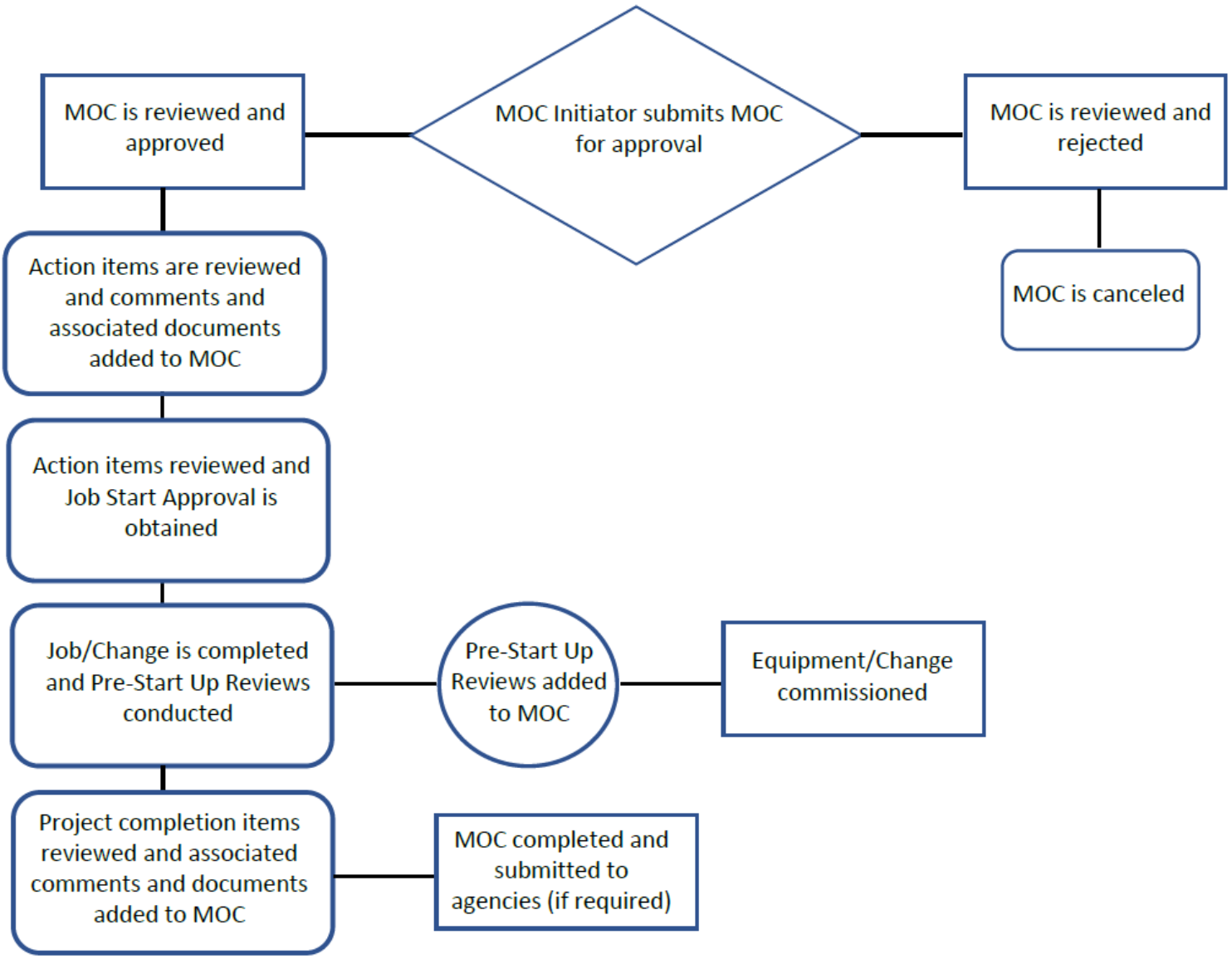
An Emergency Change is one that could remain in effect indefinitely. Changes should be handled through the normal MOC procedure at earliest practical opportunity.

If an emergency MOC is generated, the anticipated date when the change will be returned to original conditions must be stated in the MOC. The initial review of an emergency change may be handled by the Site Supervisor. After ensuring all environmental, safety and operational safeguards are in place and soliciting verbal approval from MOC Manager, the Site Supervisor may authorize the start-up to take place on an emergency basis. The change must then be reviewed by appropriate personnel, using the normal MOC procedure at the earliest practical opportunity.

DISTRIBUTION OF MOC

MOC in progress shall be posted at the facility until all required work is complete.
Closed out MOCs are to remain on file at the facility for 5 years.

MANAGEMENT OF CHANGE FLOW CHART



EMPLOYEE PARTICIPATION PROGRAM

PURPOSE

The intent of this plan is to ensure involvement by employees and their representatives in the development of the elements of the Process Safety Management (PSM), and API RP 75 (SEMP) regulations. In addition, comply with the requirements of 29 CFR 1910.119 and 8 CCR 5189.

SCOPE

The employee participation plan applies to all Company employees and approved contractors who provide services at covered process facilities.

EMPLOYER / EMPLOYEE CONSULTATION

Company management shall include employees and their representatives in the conduct and development of the Process Safety Management (PSM) and SEMP program. Management shall make it policy to include affected employees in the development of such items as Process Hazard Analysis', Incident Investigations and Compliance Audits.

Employee contribution to other elements of the Process Safety Management (PSM) and SEMP program is performed through regularly scheduled safety meetings, training programs, or anonymously via internal company protocol.

ACCESS TO INFORMATION

Information sharing is a key part of any successful safety program. Company management shall ensure that effected personnel have access to information on all elements of the company safety programs without regard to trade secrets. Documentation of the elements critical to the operations of the facility, such as, Operating Procedures, Management of Change Program, and Process Information are available for review on site. Documentation of Employee Training, Vessel Inspections, Process Hazard Analysis's (PHA)'s, Compliance Audits and other elements are typically held at the main office. Employees can access remote records relating to Process Safety by contacting the Safety Coordinator.

PSM / SEMP COMPLIANCE AUDITS

PURPOSE

The intent of this section is to provide a systematic approach for auditing compliance with Process Safety Management (PSM) and Safety Environmental Management Program (SEMP), regulatory requirements consistent with 29 CFR 1910.119, 8 CCR 5189 (California only) and API RP 75.

SCOPE

The attached compliance checklist will be used as a minimum guideline for auditing compliance of covered facilities with PSM and SEMP. The compliance checklist will not replace the need to refer to the applicable regulations and/or recommended practices during the inspection. If in doubt, the applicable regulations will always supersede the guidance checklist provided.

FREQUENCY OF COMPLIANCE AUDITS

Compliance audits for PSM/SEMP facilities are required at least every 3 years. Additional SEMP audit requirements can be referenced in company SEMS Plan.

RESPONSIBILITIES

The Safety Manager shall:

- Organize and implement the audit procedures.
- Ensure the audit team consists of one or more persons knowledgeable in the process.
- Include other specialties as deemed necessary.
- Assure recommendations and weaknesses found during a PSM / SEMP facility audit are assigned to appropriate personnel and remedied in a timely manner.

CONTROL OVER ENTRANCE

PURPOSE

This procedure is intended to establish a means to monitor facility population, and control visitor access to process areas covered by process safety regulations.

An accurate accounting of personnel identifies the pool of people targeted for critical communications such as warnings of hazardous operations in progress or emergency instructions. In the unlikely event of an emergency at the facility, the list of personnel will be used to account for their safe evacuation.

Access to process areas shall be controlled to just those visitors who have received the appropriate level of safety and job skills training. Facility safety is enhanced by restricting process area access to qualified visitors who must first establish communications with a facility employee before commencing any work activity.

SCOPE

This procedure outlines the process of verifying credentials and training of employees and contractors prior to accessing DCOR facilities

APPLICABILITY

This procedure applies to all company and contract personnel. DCOR POB Program only applies to DCOR owned or operated offshore facilities.

DEFINITIONS

Authorized Person: Individual with authority to override an employee or contractor who does not meet credentials . DCOR management maintains policy override ability for situations where early notification of an individual's visit would be detrimental to the effectiveness of the visit (drug and alcohol testing, contraband searches, etc.).

Crew Boat: Motor vessel that provides transport to DCOR offshore facility.

Daily POB Boat List: Manifest of personnel generated using the DCOR POB program.

Facility Personnel on Board (POB): Sign in/out log of all personnel on board a DCOR Facility.

Job Supervisor: Individual in charge of a group(s) of employees and contractors.

Override Authorization: Process for allowing one time access for individual that does not meet required credentials for the selected DCOR facility.

Site Supervisor: Person in charge of DCOR facility

RESPONSIBILITES

Authorized Person Must:

- Contact Job Supervisor/Site Supervisor to decide if individual requesting override authorization is critical to the work and/or job scheduled. If absence of individual will not cause delays override may not be approved
- Ensure override request is properly documented with: Name of individual, company, project, date and time of request, and if request was approved or denied

Crew Boat Must:

- If applicable, compare personnel requesting transport with daily POB boat list. If individual requesting transport is not on POB list, override authorization must be obtained by authorized person.
- Contact authorized person for override authorization as needed

DCOR Representative Must:

- Compare personnel requesting transport with Daily POB Boat List. If individual requesting transport is not on POB list, override authorization must be obtained by authorized person.
- Contact authorized person for override authorization as needed.

Job Supervisor Must:

- Verify that personnel they have scheduled to come to facility the following day are listed on the daily POB Boat List.
- Contact authorized person if potential override authorization will be required.

Site Supervisor Must:

- Ensure all personnel on board have been accounted for on the facility personnel on board and update as needed.
- Verify that personnel they have scheduled to come to facility the following day are listed on the daily POB boat List.
- Contact authorized person if potential override authorization will be required.

ACCESSING OFFSHORE FACILITIES

Vessel Personnel on Board

All individuals requesting transportation to offshore facilities are required to be on the company's Personnel on Board (POB) daily boat list.

If an individual is not on the POB daily boat list access will not be granted unless all following requirements are met:

- Permission to board approved by authorized person, or individual's DCOR Supervisor
- The boats maximum POB has not been met
- Individual is meets DCOR requirements, confirmed by POB program

ARRIVING TO FACILITIES

Facility Personnel on Board

All designated covered facilities shall utilize the Company Sign in / Sign out log for all personnel arriving to DCOR facilities. These forms shall be changed out daily and stored in a central file on site for a minimum of two years.

COMPLIANCE

To manage site specific qualification requirements DCOR requires all contractors and visiting an offshore facility to be added to the DCOR POB program and have updated swing rope certification. If contractor does not currently meet the pre-determined criteria, access to the facility shall not be granted. DCOR Management and Superintendents maintain policy override ability. (See Appendix A).

APPENDIX A

List of Approved Authorized Person(s)

(Contact in the order listed)

1. Production Foreman
2. Production Superintendent
3. V.P. of HSE
4. V.P. of Operations

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OPENING PROCESS EQUIPMENT

PURPOSE

To assure equipment opened for inspection, maintenance, or modification is free of stored energy, toxic, corrosive, flammable, or other hazardous materials; and that it will remain safe until returned to service. This standard is focused on equipment not designed to be entered by personnel such as heat exchanger, pipelines, scrubbers, etc. This standard does not apply to opening of sample ports.

DEFINITIONS

Inspection: The examination of equipment internally or externally without entry.

Confined Space: As defined in 29 CFR 1910.146(b)).

Controlled Manner: A means of maintaining dissipation rate and/or destination of liquid and vapors without creating a hazard.

Adequate Isolation: Closing and properly locking and/or tagging out block valves on all potentially hazardous piping connected to the system or equipment to be opened; this is a minimum condition which must be satisfied.

First Break Rule: The first break (usually a flange or union in a system or piece of equipment) will be made as if the system or equipment is not isolated properly. Appropriate protective equipment must be worn. The break shall be made slowly and away from individuals. Necessary tools must be available to close the break immediately if needed. A clear, unobstructed path of escape must be available.

RESPONSIBILITIES

A. The production foreman has the overall responsibility of conforming to this procedure. These procedures shall be reviewed with those performing the work prior to starting the job.

B. The employees performing the work are responsible for following this procedure.

PROCEDURE

A. A safe work permit and JSA shall be issued when preparing to open any process equipment where the possibility of toxic or flammable commodities exists in quantities or concentrations above safe work limits.

B. Before the first break, process equipment shall be emptied of any noxious, toxic, flammable, or other hazardous liquid/vapors in a controlled manner. Equipment shall be relieved of pressure and drained to a safe area such as a flare system or recovered oil system.

NOTE: In accordance with the hot work policy, no hot work will be allowed in the immediate area during draining or relief of potentially flammable liquids or vapors.

C. Before the first break, all prime mover energy sources associated with the equipment to be opened shall be appropriately locked out or otherwise secured.

D. Whenever possible, process equipment shall be isolated (blinded or air gapped) at the first flange nearest the equipment to be opened. All valves will be locked and tagged, and all blinds shall be listed on a blind list (EIL). The blind list shall be maintained with the safe work permit at the work site. Any pressurized connecting points to equipment being opened will be blind flagged before being left unattended. Air gapping is not adequate in this instance.

E. Following the first break, opened equipment shall be checked to ensure it is free of potentially hazardous materials and/or conditions. Appropriate flammability and toxic gas monitoring will be conducted on the equipment before it is pronounced safe for work. If hazards subside, equipment must be closed until adequate safeguards are taken.

OTHER CONSIDERATIONS

A. Opened equipment shall be adequately purged, steamed or washed to ensure removal of toxic or flammable commodities to safe levels. Equipment purged with air shall be vented to a safe area where potential ignition sources are not present.

B. Gauge glass columns shall be appropriately isolated and/or drained before equipment is declared safe for work. Appropriate measures shall be taken to protect gauge glass from mechanical damage/breakage during work.

C. When opening process equipment that has been in hydrogen sulfide service, precautions shall be taken to keep the interior surfaces of the

equipment wet when possible to reduce the potential chance of iron sulfide fires.

D. Appropriate precautions shall be taken with process equipment contaminated with Naturally Occurring Radioactive Material (NORM). These include keeping the interior of the equipment wet to reduce dust emissions and requiring respirators for persons entering/operating this equipment.

E. Work of an unusual nature must be preceded by a written procedure, work permit, JSA and a safety meeting of all persons involved. This includes simultaneous operations in more than one area of the facility.

ASBESTOS

OCCURRENCE OF ASBESTOS

Common Asbestos Containing Materials (ACM) include:

- brake pads
- structural materials such as transite panels, floor tiles, and roofing felts
- pipe and vessel insulation
- sprayed-on insulation on ceilings or walls
- sprayed-on insulation on beams
- insulation around or in duct work
- boiler insulation
- fire walls and doors
- sprayed-on decorative surfaces
- gaskets in piping or other systems

Although no new ACM is currently being installed in any Company facility, there are older facilities where asbestos may still remain. Therefore, the potential for the exposure to asbestos will occur from asbestos installed years ago.

ASSOCIATED HAZARDS

Breathing asbestos dust is extremely hazardous. Health effects include respiratory disease and various types of cancer. Exposure to asbestos has been shown to cause lung cancer, asbestosis, mesothelioma, and cancer of the stomach and colon.

Asbestos insulation which is not damaged or friable (hand pressure can crumble, pulverize or reduce to powder when dry) will generally not produce asbestos fibers at a dangerous level, especially on non-enclosed structures.

PROCEDURE

- To minimize the health risk, it is important not to drill, cut, remove, hammer on or in any way disturb suspected ACM.
- If it is necessary to disturb any suspected ACM, or if you notice any deterioration in the condition of the suspected ACM, **notify your supervisor and the HSE Department**. Only trained personnel with proper equipment should disturb or remove ACM.
- Suspected asbestos will only be handled / removed by an approved qualified 3rd party contractor.

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BLOODBORNE PATHOGEN POLICY

PURPOSE

A. One of the major goals of the Occupational Safety and Health Administration (OSHA) is to regulate facilities where work is carried out to promote safe work practices in an effort to minimize the incidence of illness and injury experienced by employees. Relative to this goal, OSHA has enacted the Bloodborne Pathogens Standard, codified as 29 CFR 1910.1030. The purpose of the Bloodborne Pathogens Standard is to "reduce occupational exposure to Hepatitis B Virus (HBV), Human Immunodeficiency Virus (HIV), the virus that causes AIDS, and other bloodborne pathogens" that employees may encounter in their workplace.

B. The Exposure Control Plan has been implemented to meet the letter and intent of the OSHA Bloodborne Pathogens Standard, 29 CFR 1910.1030. The objective of this plan is twofold:

1. To protect our employees from the health hazards associated with bloodborne pathogens.

2. To provide appropriate treatment and counseling should an employee be exposed to bloodborne pathogens.

GENERAL PROGRAM MANAGEMENT

A. There are general principles that should be followed when an employee has occupational exposure to blood or other potentially infectious materials.

1. It is prudent to minimize all exposure to bloodborne pathogens.

2. Risk of exposure to bloodborne pathogens shall never be underestimated.

3. Engineering and work practice controls shall be structured to eliminate or minimize employee exposure to bloodborne pathogens.

EXPOSURE DETERMINATION

Tasks and procedures in which occupational exposure to blood or other potentially infectious materials can occur are as follows:

1. Care of lacerations and similar wounds
2. Administering CPR
3. Caring for burned skin

METHODS OF COMPLIANCE

A. **Universal Precautions**

1. Universal Precautions will be used to prevent contact with blood and other potentially infectious material. Unless it is known otherwise, all human blood, or bodily fluids will be treated as if they are infected with HBV, HIV or other bloodborne pathogens.

B. **Engineering Controls** - The Safety Coordinator or his designee will work with department managers and supervisors to review tasks and procedures performed at the work sites in situations where engineering controls can be implemented and/or updated.

The following engineering controls are used throughout the facilities.

1. Hand washing facilities, which are readily accessible to all employees who have the potential for exposure.

2. Antiseptic hand cleansers and towels or antiseptic towelettes when hand washing facilities are not available.

C. **Work Practice Controls** - All appropriate work practice controls shall be in place as follows:

1. Hands are to be washed immediately, or as soon as feasible, after removal of gloves or other personal protective equipment.

2. Following any contact of body areas with blood or any other potentially infectious materials, wash hands and any other exposed skin with soap and water as soon as possible. Flush exposed eyes, nose and/or mouth if any of these areas are affected.

3. In all procedures involving blood or other potentially infectious material, employees should minimize splashing, spraying or other actions generating droplets of these materials.

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

1. Personal Protective Equipment is provided to Company employees for protection against occupational exposure to blood and other potentially infectious material. It shall be used when rendering aid. The PPE available at Company facilities includes, but is not limited to, the following:

Type Available	Locations/Department
Disposable gloves	First aid stations
Safety glasses with solid side shields or goggles	First aid stations
Disposable pocket masks with one way valves	First aid stations

E. **Response Procedures - Incidents involving exposure to blood or other potentially infectious material are to be dealt with as follows:**

1. The employee is to report the incident to his supervisor as soon as possible. The supervisor will then report the incident to HSE.

2. Employees who render first aid assistance in any situation involving the presence of blood or other potentially infectious material, regardless if a specific exposure incident occurs, must be offered a series of HBV immunizations as soon as possible, but no later than 24 hours following initial exposure. The employee's direct supervisor is to inform the employee of this when the exposure is reported.

3. The Safety Coordinator or designee will contact the locally approved Medical Facility to arrange for the exposed employee to receive the HBV immunization series.

4. Exposed employees that decline the HBV vaccination series should read and sign the OSHA Declination Form (Appendix A).

INFORMATION AND TRAINING

Information will be provided to all employees during bi-annual CPR / Medic First Aid / Bloodborne pathogens training program. The written policy may be obtained from any Safety Coordinator, or within the Company Safety Manual.

POST-EXPOSURE EVALUATION AND FOLLOW-UP

A. **Accident Investigation**. If an employee is involved in an incident where exposure to blood or other potentially infectious materials occurs:

1. The exposed employee's supervisor will investigate the circumstances surrounding the exposure incident.

2. Make sure that medical consultation and treatment (if required) is provided as quickly as possible.

Appendix A

Record of Hepatitis "B" Vaccine Declination

I understand that due to my occupational exposure to blood or other potentially infectious materials, I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to me. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee's Name (Print)Date

Employee's Signature Date

DRUGS /ALCOHOL AND ILLEGAL WEAPONS

The Company drug, alcohol and contraband policies are expressed in various forms in the Employee Handbook, Safety Manual and Company's Anti-Drug Program.

Company Policies are intended to provide a work-place free of drugs, alcohol and contraband. They strictly prohibit the use, sale, distribution or possession of contraband, alcohol or unauthorized mind-altering substances or being under the influence of alcohol or unauthorized mind-altering substances while on Company premises, in Company vehicles or while on Company business.

Violations of these Policies may result in immediate discharge, and/or be reported to law enforcement authorities.

The Company will require a drug screen for new employees whom are to be assigned to Safety Sensitive Positions, employees transferred or promoted to Safety Sensitive Positions and employees returning to Safety Sensitive Positions after an absence of 90 days or more. The Company reserves the right to require employees to submit to alcohol or drug testing on a random basis as determined by government regulations and management and on a periodic unannounced basis for reasonable cause as determined by management. If an employee tests positive, or refuses the testing, the employee will be discharged.

Contraband includes the unauthorized possession of Company or employee property, deadly weapons, explosives, illegal drugs, unauthorized prescription drugs (authorization will be determined by HR Director), drug paraphernalia (includes any substance that can be used to alter the results of a drug/alcohol test), and alcoholic beverages. Deadly weapons include firearms or anything designed, made or adapted for the purpose of inflicting bodily harm. Ordinary pocketknives with a blade length of five inches or less are generally excluded from this definition. Explosives include all types except those required for specific, company requested operations. Entry onto Company property or work location, including parking areas and vehicles, is deemed consent to an inspection of person, vehicle, Company furnished living quarters and personal effects at any time. If an employee refuses this inspection, the employee will be discharged immediately.

Other than in statistical form, an individual's drug test results will be treated as confidential. The test results will not be released without the written consent of the individual. The exception is that individual's information must be released upon request by certain regulatory agencies.

All contractors working on Company premises or while on Company business are subject to the provisions of these Policies.

The Workers' Compensation Act of 1988 requires all companies with over 15 employees to have a Drug-Free Work-Place Policy. The "Company Anti-Drug Policy" satisfies requirements of certain Agencies within the U. S. Department of Transportation.

All Company employees are covered by these Policies. Safety Sensitive Positions are subject to the Random Testing Program.

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EMERGENCY PROCEDURES

INTRODUCTION

Emergency procedures should be available for various emergency situations that could occur. Accurate procedures allow for a rapid, organized and safe response. Examples of the type of situations that should have emergency procedures are: fire, explosion, injury accidents, oil spills, toxic or combustible gas release and vehicle accidents. Supervisors are responsible for ensuring that emergency procedures are available for all emergency situations that may arise in their operations.

Written emergency procedures are only effective if implemented and carried out properly. Drills are the best way to test the effectiveness of these procedures and should be performed on a regular basis, properly documented, and critiqued.

FIRE OR EXPLOSION

Review local procedures, such as the area Emergency Response Plan(s) or Emergency Evacuation Plan(s). In addition, review the general procedures that are available in the Fire Protection section of this manual.

In the event of an emergency The Company's priorities are as follows:

1. Protect yourself and other immediate personnel.
2. Protect the Public.
3. Protect the Environment and Property.

INJURIES

In the event of injuries, the following procedure should be used.

1. Provide first aid for the injured.

2. Dispatch EMS if necessary

3. Notify your supervisor.

3. If responders come in contact with body fluids immediately notify your supervisor so appropriate review can be conducted.

4. Log all operating conditions and changes.

5. Return operation to safe condition (if this can be done safely or shut down the process).

6. Secure the facility and control access to the area.

7. Do not discuss the incident with anyone other than your supervisor or Company HSE personnel. **DO NOT RELINQUISH CONTROL OF THE SCENE TO ANYONE OUTSIDE OF THE COMPANY.**

8. Handle contractor or public injury accidents in the same manner, except that the contractor's supervisor or main office should be notified as soon as possible. In the event of a public injury, the public law enforcement agency having jurisdiction should be notified.

VEHICLE ACCIDENTS

If you are involved in an accident while on company business or in a company vehicle, **IT MUST BE REPORTED** and handled according to the following guidelines:

1. If you are involved in an accident, STOP.

2. If the vehicles pose additional danger for injury or damage, set out emergency reflectors or flares in order to protect yourself and others.

3. Get help for injured persons. Render first aid care to the extent you are trained or qualified to administer same.

4. Notify police and your supervisor as soon as possible by whatever means available.

5. Obtain necessary information at the accident scene. At least obtain:

    a. Name(s) of those involved

    b. Drivers license numbers

    c. Name(s) of law enforcement agency responding to the accident. (names and badge numbers would be desirable.)

    d. Names and phone numbers of witnesses.

6. Return to the office and complete the Vehicle Accident Report with your supervisor.

OIL SPILLS

Specific spill plans have been developed for all areas, to comply with environmental regulations. **BECOME FAMILIAR WITH THESE PLANS.** Annual training is required.

If a spill control plan is not in place, the following procedure should be used.

1. Observe and judge as to:

    a. Whether or not human life, property or the environment is in danger.
    b. Whether or not the spill can be readily stopped or brought under control.

2. Take prompt action to alleviate any danger, and stop or control the spill.

3. After taking the above actions, activate emergency response and give an assessment of the situation. Communicate the need for any additional assistance or equipment as necessary. THE SUPERVISOR WILL BE RESPONSIBLE FOR NOTIFYING MANAGEMENT AND ESRC DEPARTMENT. HSE will be responsible for notification to applicable regulatory agencies.

TOXIC OR COMBUSTIBLE GAS RELEASE

Emergency procedures are required by regulation for certain toxic gases, one of the most common being hydrogen sulfide (H2S). In addition, regardless of the absence or presence of regulations, specific procedures may be developed for toxic or combustible gas releases at the discretion of management. **BECOME FAMILIAR WITH THOSE PLANS THAT ARE IN EFFECT IN YOUR WORK AREA FOR TOXIC OR COMBUSTIBLE GAS RELEASES.**

In general, the following procedure should be used for toxic or combustible gas releases:

1. Analyze the situation

    a. Is there a threat to life due to toxic gas or is there an explosion/fire hazard due to an escape of combustible gas? Or both?

    b. Can the escaping gas be stopped without undue risk?

2. Take prompt action to alleviate the danger to yourself and others, then property.

    a. Stop the release (without undue risk to yourself) and evacuate persons that could be affected. The order of these actions should be based on your judgment of what minimized risk to life.

b. In the case of a gas release, all ignition sources including vehicles should be shut down.

c. Account for all personnel.

d. Isolate the leak area to prevent entry.

e. Notify the local law enforcement agency if the public could be affected, such as near by residence or public highway.

f. Notify your supervisor and give an assessment of the situation. Communicate any need for extra assistance.

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FACIAL HAIR POLICY

PURPOSE

The purpose of this policy is to protect Company and contract employees from harmful atmospheric conditions while wearing respiratory protection. Any personnel assigned a task at a site that has known Hydrogen Sulfide (H_2S) or other hazardous atmospheric conditions present must be clean shaven in order to ensure a proper fit of respiratory equipment. As a general rule, if respiratory equipment must be on site, this policy is enforceable.

DEFINITIONS:

Facial Hair: means beards, goatees (of any size), long or extremely bushy mustaches, stubble of greater than one day's growth, or long or extremely bushy sideburns. Refer to DCOR Facial Hair Obstruction (Appendix A).

Clean Shaven: means the area of the face where respiratory equipment creates a seal and the area below the bottom lip must be free of all facial hair and stubble. Refer to DCOR Facial Hair Obstruction (Appendix A)

Respiratory Equipment: means equipment provided to protect personnel from respiratory hazards. This equipment includes air-purifying/filtering cartridge type respirators, supplied air breathing apparatus (SABA), self-contained breathing apparatus (SCBA) and any other respiratory equipment used in the work place.

Personnel: means all Company employees, contractors and visitors.

APPLICABILITY

This policy applies to any personnel that may have the potential to be exposed to harmful concentrations of Hydrogen Sulfide (H_2S) or other harmful atmospheric conditions, and any personnel who at any time may be required to wear respiratory equipment.

NOTE: The supervisor or designated person in charge has complete authority to ask a person to leave a facility if a hazard exists.

COMPLIANCE:

A. This policy shall be practiced throughout all areas where H_2S or other hazardous atmospheres may be present, with a copy included in the Safety Manual and discussed in training and/or safety meetings.

B. Personnel that have potential exposure to harmful concentrations of H_2S or other harmful atmospheric conditions must shave each day and just prior to starting their shift.

C. Personnel, including boat crew members, boarding crew or work boats departing to H_2S facilities must be clean shaven prior to boarding boat to offshore destination. All personnel working at H2S facilities are required to shave prior to each work shift. Personnel that are not in compliance with this policy will be asked to shave prior to departure to platform destination.

D. Failure to comply with this policy shall be considered insubordination and may result in disciplinary action.

APPENDIX A - FACIAL HAIR OBSTRUCTION

The illustrations below demonstrate acceptable and unacceptable DCOR facial hair policy.

ACCEPTABLE



CLEAN SHAVEN



NARROW MUSTACHE

UNACCEPTABLE



FULL BEARD



GOATEE



EXTREME SIDEBURNS



FU MANCHU



HANDLE BAR



GOATEE OF ANY SIZE

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FIRE PROTECTION

RESPONSIBLE PROCEDURES

In case of fire the following procedure should be used:

1. **Summon help by whatever means available.** Do not fight a fire before alerting someone else.

2. Analyze the situation, considering:

   a. Threat to life?
   b. Damage to public property?
   c. Evacuate or is extinguishing the fire possible?
   d. Notification and assistance from outside authorities appropriate?
   e. Hazardous or toxic chemicals present?

3. Isolate all fuel sources and/or threatened facilities.

4. Fighting a fire in the initial stages is considered incipient fire fighting. **DO NOT FIGHT FIRES BEYOND THE INCIPIENT STAGE UNLESS YOU ARE TRAINED AND EQUIPPED TO DO SO AS A PART OF A FIRE BRIGADE OR EMERGENCY RESPONSE TEAM.** Such fire fighting should be limited to trained personnel using fire extinguisher and water streams at long range.

5. Locate the fire fighting equipment and approach the fire **FROM THE UPWIND SIDE.** In the case of a gas fire, extinguish the fire by shutting off the fuel source.

6. **NEVER OPERATE AN EXTINGUISHER IN SUCH A MANNER THAT ANY PART OF THE BODY IS LOCATED DIRECTLY IN FRONT OF THE FILL CAP.**

7. After the fire is extinguished, stand by to ensure that there are no flashbacks.

8. Assess the damage and fill out necessary reports. Do not discuss the fire with anyone other than your supervisor or the HSE Department. Someone will be specifically assigned to relay the facts of the incident to the news media.

FIRE PREVENTION GUIDELINES

1. Class A fire materials should not be stored in or used as construction material in process areas.

2. Keep all buildings in which solvents or chemicals are being handled and stored well ventilated at all times.

3. Report and repair all hydrocarbon liquid or gas leaks immediately. If immediate repairs are not possible, post an adequate warning sign, isolate the area and take extra precautions against fire.

4. In the event of a hydrocarbon liquid or gas leak, extinguish all fires and remove other sources of ignition immediately. Shut down all hot work, engines and other potential sources of ignition, such as pilot lights. Report the leak promptly to the person in charge. Shut off fuel supply or process if possible.

5. Use soap suds or approved leak detecting equipment when checking for gas leaks on connections. Never use an open flame.

6. Use gasoline as a motor fuel only. Using gasoline as a cleaning agent on Company property is strictly forbidden. Use a company approved cleaner/degreaser to clean tools, machinery and other similar equipment. Wear impact resistant gloves made of hydrocarbon-resistant rubber to protect hands.

7. Transport gasoline only in approved, clearly marked containers. Never place gasoline containers inside car or truck passenger compartments.

8. Follow proper procedures when lighting direct-fired heater. Lighting procedure shall be available at each direct-fired heater.

9. Flame arresters shall be properly maintained and inspection port covers kept in place.

10. When transferring hydrocarbon (especially "flashing" liquids) from a line or vessel to another container, the source container and the receiving container should be electrically bonded to prevent ignition due to static electricity. Plastic buckets should never be used for hydrocarbon liquids.

FIRE EXTINGUISHER INSPECTION AND MAINTENANCE

1. Fire extinguishers are an important segment of any fire protection program. Fire extinguishers should be:

    a. Accessible
    b. Properly maintained
    c. Inspected monthly by trained personnel and documented
    d. Inspected annually by qualified personnel and documented

2. The person in charge is responsible for ensuring that all extinguishers are properly maintained and inspected. Each employee should know how to identify and report extinguishers needing recharging and/or maintenance.

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For use in all company vehicles

EMERGENCY FIRST AID KIT 2.....3
For use at all production facilities, shore base and offices with up to 25 employees

FIRST AID PROVISIONS

The following First Aid Kit Inventories are approved and recommended for use by the Company Medical Provider. These inventories should be used to comply with OSHA's "Medical Services and First Aid" Standard (29CFR1910.151). The contents below represent the ANSI Z308.1 inventory requirement.

Emergency First Aid Kit #1 (For use in all company vehicles)	
Quantity	Description
18	Antiseptic cleansing wipes / swabs
10	Aspirin tablets
4	Triple Antibiotic ointment packets
6	1st aid burn cream, 0.9gm
25	1x3 Band-Aids
1	Triangular bandage
1	2" X 4 yards conforming gauze roll bandage
5	1.5”x 3” Knuckle bandage
2	Sterile Eye pad
1	0.5” x 10 yards 1st aid tape roll
6	3” x 3” gauze dressing pads
1	4” x 5” Instant cold compress
1	Eye wash, 4oz
1	Scissors (blunt)
1	4” Tweezers
1prs.	Exam gloves
1	Disposable CPR pocket masks with one way valves
1	First-aid booklet

Emergency First Aid Kit #2 (For use at all production facilities, shore base and office with up to 25 employees)	
Quantity	Description
12	Antiseptic cleansing wipes / swabs
10	Alcohol cleansing pads
6	Insect sting relief pads
6	Aspirin tablets
10	Triple Antibiotic ointment packets
6	1st aid burn cream, 0.9gm
50	1x3 Band-Aids
2	2” x 4” elbow and knee bandage
1	Triangular bandage
2	2" X 4 yards conforming gauze roll bandage
4	1.5”x 3” Knuckle bandage
4	1.75” x 3” large fingertip bandage
2	Sterile Eye pad
1	0.5” x 5 yards 1st aid tape roll
6	3” x 3” gauze dressing pads
2	4" x 4" gauze dressing pads
1	5” x 9” trauma pad
1	4” x 5” Instant cold compress
1	3” x 5 yards latex free elastic bandage
1	Eye wash, 4oz
1	Scissors (blunt)
1	4” Tweezers
2prs.	Exam gloves
1	Disposable CPR pocket masks with one-way valves
2	Biohazard bags with proper closure fasteners
1	First-aid booklet
1	Splint
1	Inventory card

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PURPOSE

This written Hazard Communication Plan covers the requirements of OSHA's Hazard Communication Standard. Our Company is committed to administering legally and morally correct actions to protect its employees, contractors, the surrounding communities and the environment from exposure to chemical and/or hazardous substances.

SCOPE

To ensure that information about the dangers of hazardous chemicals used at our locations is known by all affected employees, the following hazard information program has been established. Under this program, you will be informed of the contents of OSHA's hazard communication standard, the hazardous properties of chemicals with which you work, safe handling procedures, and measures to take to protect yourself from these chemicals.

APPLICABILITY

This program applies to all work operations in our company where you may be exposed to hazardous chemicals under normal working conditions or during an emergency situation. All work units of this company will participate in the hazard communication program. Copies of the program are available in the main office for review by any interested employee.

Our Safety Department has overall responsibility for the program. The department will review and update the program, as necessary. Copies of the written program may be obtained from the department at the main office.

REFERENCE

29 CFR 1910.1200, *Hazard Communication*
CCR Title 8, Section 5194, *Control of Hazardous Substances*

DEFINITIONS

***Hazardous Chemical*:** means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.

Health Hazard: means a chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard.

***Globally Harmonized System (GHS)*:** is an internationally agreed-upon system for labeling, created by the United Nations. It is designed to replace the various classification and labeling standards used in different countries by using consistent criteria for classification and labeling on a global level.

***Label*:** means an appropriate group of written, printed or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging.

Physical *Hazard*: means a chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas.

***Safety Data Sheet (SDS)*:** Formally known as Material Safety Data Sheet (MSDS); means written or printed material concerning a hazardous chemical that is prepared in accordance with the regulation.

RESPONSIBILITIES

Management is responsible to ensure adequate resources are dedicated to ensure compliance with the standard.

Employees must review this written hazard communication plan and:

- Follow all safety instructions provided by this plan and by your supervisor
- Complete hazard communication training and pass the test
- Obtain an SDS for any new chemical to be tested or purchased
- Forward new SDSs to the Safety Representative to facilitate updating SDS binders and online database.
- Label containers that are used for the transfer of chemicals (secondary or portable containers)
- Read Safe Use Guide information and chemical labels prior to working with a chemical
- Always wear personnel protective equipment specific to each chemical

EMPLOYEE RIGHTS

Under the law, the hazard communication program also establishes rights for employees:

1. You have the right to personally receive information regarding hazardous substances to which you may be exposed.
2. You have the right for your physician to receive information regarding hazardous substances to which you may be exposed.

3. You may exercise your rights under the provisions of the Occupational Safety and Health Act (OSHA) without concern for any discharge or discrimination.
4. This written hazard communication program is available for you to read at any time mutually acceptable between employer and employee.
5. You have the right to refuse to work with a toxic substance if you have not been provided with SDS information within the prescribed time limits.
6. You may petition OSHA to have any chemical or substance added, removed or modified on the OSHA toxic substance list.
7. You may request a copy of an SDS for a material to which you may be exposed.

Cal OSHA SPECIFIC REQUIREMENTS

1. The company has developed, implemented, and shall maintain at the workplace this written hazard communication program.

2. Supervisors must maintain a current chemical inventory list. A list of the hazardous substances known to be present using an identity that is referenced on the appropriate safety data sheet (SDS) (the list may be compiled for the workplace as a whole or for individual work areas).

3. Supervisors must obtain SDSs for each chemical used via manufacturers and/or importers and shall obtain or develop a safety data sheet for each hazardous substance they produce or import. Supervisors shall have a safety data sheet for each hazardous substance which they use.

4. Supervisors must review SDSs for carcinogenic or extremely hazardous chemicals as necessary to inform employees how they will be protected from carcinogens at the workplace.

5. When you are required to perform hazardous non-routine tasks (e.g., cleaning tanks, entering confined spaces, etc.), special training will be provided in order to inform you regarding the hazardous chemicals to which you might be exposed and the proper precautions to take to reduce or avoid exposure. Employees will be informed of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with substances contained in unlabeled pipes in their work areas.

6. The manufacturer, importer, or distributor shall ensure that each container of hazardous substances leaving the workplace is labeled, tagged or marked with the following information:

   (A) Product identifier;
   (B) Signal Word;
   (C) Hazard statement(s);
   (D) Pictogram(s);

(E) Precautionary statement(s); and,
(F) Name, address, and telephone number of the manufacturer, importer, or other responsible party, Manufacturer, importer, or other responsible party.

7. Supervisors shall make the written hazard communication program available, upon request, to employees, their designated representatives, the Chief, and NIOSH.

8. Supervisors must periodically audit to check for proper labels. The site supervisor shall ensure that labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. Employers having employees who speak other languages may add the information in their language to the material presented, as long as the information is presented in English as well.

9. Supervisors shall ensure that the labeling system clearly conveys the chemical name and hazard warning appropriately. Supervisors may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required by section 5194(f)(4) to be on a label. The written materials shall be readily accessible to the employees in their work area throughout each work shift. In construction, the employer may use such written materials in lieu of affixing labels to individual containers as long as the alternative method identifies and accompanies the containers to which it is applicable and conveys the information required to be on a label.

10. Supervisors must replace old SDSs with updated sheets when they are received. The manufacturer, importer or employer preparing the safety data sheet shall ensure that the information recorded accurately reflects the scientific evidence used in making the hazard determination. If the manufacturer, importer, or employer becomes aware of any significant information regarding the hazards of a substance, or ways to protect against the hazards, this new information shall be added to the safety data sheet within three months. If the substance is not currently being produced or imported, the manufacturer or importer shall add the information to the safety data sheet before the substance is introduced into the workplace again.

11. Employees will receive information and training with regard to this program. The training/information will include general chemical hazards, how to read labels, and the existing OSHA (Cal/OSHA) HazCom requirements of the standard. Information and training may relate to general classes of hazardous substances to the extent appropriate and related to reasonably foreseeable exposures of the job.

12. Employees will be trained at the time of their initial assignment and whenever a new chemical is introduced. The company shall provide employees with effective information and training on hazardous substances in their work area at the time of their initial assignment, and whenever a new hazard is introduced into their work area.

13. All training shall be documented, including a brief description of the training and trainer's name, and retained. Documentation of safety and health training required by subsection (a)(7) shall be maintained for each employee, which shall include employee name or other identifier, training dates, type(s) of training, and training providers. This documentation shall be maintained for at least one (1) year.

GENERAL REQUIREMENTS

1. Employees shall be provided with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new physical or health hazard the employees have not previously been trained about is introduced into their work area. Information and training shall be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and safety data sheets.

2. A written hazard communication program (this program) shall be developed, implemented, and maintained at each workplace that describes how labels and other forms of warning, safety data sheets, and employee information will be met.

3. A list of the hazardous chemicals known to be present at each location must be maintained, using an identity that is referenced on the appropriate SDS.

4. When you are required to perform hazardous non-routine tasks (e.g., cleaning tanks, entering confined spaces, etc.), special training will be provided in order to inform you regarding the hazardous chemicals to which you might be exposed and the proper precautions to take to reduce or avoid exposure.

5. Site specific programs shall have specific methods for providing information concerning hazardous chemicals at job sites, methods of providing SDS sheets, methods of precautionary measures to be taken and methods of providing information on labeling systems. Where employees must travel between work places during a work shift (multi job sites), the written program may be kept at a primary job site. If there is no primary, then the program should be sent with employees.

6. Container labels shall contain the following information: Identity of hazardous chemicals, appropriate hazard warnings and name and address of the chemical manufacturer, importer or other responsible party.

7. Chemical manufacturers are responsible for developing SDSs. The Company shall have a SDS for each hazardous chemical used.

8. SDSs shall be maintained and readily accessible in each work area. SDSs can be maintained at the primary work site. However, they must be available in case of an emergency. SDS must be made available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director.

LIST OF HAZARDOUS CHEMICALS

Our Safety Department will make a list of all hazardous chemicals used at each location, and will update the list as necessary. Our list of chemicals identifies all of the hazardous chemicals used in our work areas. It identifies the corresponding SDS for each chemical by using the *same* name as that used on the corresponding SDS. For example, if the label says "DYCOTE 8" on the container, any time you want to know more about it, go to the SDS listed under the name "DYCOTE 8". The labels of all containers shipped to us from outside will also contain the name and address of the chemical manufacturer who can be contacted if additional information is desired.

PROPOSITION 65 LISTED CHEMICALS

The Safe Drinking Water and Toxic Enforcement Act of 1986 requires that the Governor revise and republish at least once per year the list of chemicals known to the State to cause cancer or reproductive toxicity. The following chemicals are known to be on the proposition 65 list and may be present at any job site.

Location	Chemical	Prop65
Field	Diesel #2 (diesel exhaust is prop 65 listed)	Cancer
Field	Gasoline Unleaded (vapors are prop 65 listed)	Cancer
Field	Paints	Cancer
Field	Solvents	Cancer
Field	Thinners	Cancer
Field	Select Process Chemicals	Cancer

HAZARDOUS CHEMICALS COMMONLY FOUND ON SITE

ACETONE
ACETYLENE GAS
ADHESIVES
AGGREGATE
ALUMINUM ETCHING AGENT
AMMONIA
ANTI-FREEZE
ARSENIC COMPOUNDS
ASBESTOS
ASPHALT (PETROLEUM)
BENZENE (and derivatives)
BLEACHING AGENTS
CARBON BLACK
CARBON MONOXIDE (IN CYLINDERS)
CAULKING, SEALANT AGENTS
CAUSTIC SODA (SODIUM HYDROXIDE)
CEMENT
CHROMATE SALTS
CHROMIUM
CLEANERS
COAL TAR PITCH
COATINGS (BRUSH OR SPRAY)
COBALT
CONCRETE CURING COMPOUNDS
CREOSOL
KEROSENE
LEAD
LIME
LIMESTONE
LUBRICATING OILS
LYE (SODIUM HYDROXIDE
SODIUM HYDROXIDE)
MAGNESIUM
MASONRY MATERIALS
METAL CONDUIT
METALS
METHANOL (METHYL ALCOHOL)
METHYL ETHYL KETONE
(2-BUTANONE)
MORTAR
MOTOR OIL ADDITIVES
MURIATIC ACID
NAPTHA (COAL TAR)
NITROGLYCERIN DIOXIDE (IN
CYLINDERS)
OXYGEN (IN CYLINDERS)
PAINT REMOVER
PAINT STRIPPER
PAINTS
CUTTING OIL
DE-EMULSIFIER FOR OIL
DIESEL GAS, DIESEL OIL
DRYWALL
ENAMEL
ETHYL ALCOHOL
EXPLOSIVES
ETCHING AGENTS
FIBERGLASS
FOAM INSULATION
FORM OILS
FREON 20, R20 (AND OTHERS)
GALVANIZED JUNCTION BOXES
OUTLETS, SWITCHES
GASOLINE (PETROL, ETHYL)
GLUES
GRAPHITES
GREASES
GROUTS
GYPSUM (CALCIUM SULFATE)
HELIUM (IN CYLINDERS)
HYDRAULIC BRAKE FLUID
HYDAULIC ACID
INKS
INSULATION
IRON
PHOTOGRAVURE INK (COPY
MACHINES)
PIPE
PIPE THREADING OIL
PLASTICS
POLISHES
PROPANOL
PUTTY
PVC-PIPE CEMENT
ROOFING FELTS
SEALERS
SOLDER, FLUX
SOLVENTS
SOLDER, SOFT (LEAD, TIN)
SULFURIC ACID
THINNER, PAINT/LACQUER
TIN
TRANSITE
TURPENTINE, GUM SPIRIT
VARNISHES
WAXES
WOOD ALCOHOL (METHANOL)
WOOD DUST

SAFETY DATA SHEETS

SDS's provide specific information on the hazardous chemicals in use. Our Safety Department will maintain an online database with an SDS on every hazardous chemical on our premises.

The Safety Department will also make sure that each work site maintains an SDS binder for the hazardous chemicals in that area at a place where it is readily available to employees while they are at work. If you do not know where they are located, ask your supervisor.

The supervisor of the facility will notify the Safety Department if a new chemical is ordered or arrives at the facility. The Safety Department will contact the chemical manufacturer or vendor if additional information is necessary or if an SDS has not been supplied with an initial shipment.

These Safety Data Sheets contain the following information about the chemicals in your workplace and will be IN compliance with the GHS requirements.

Section 1. Identification
Section 2. Hazard(s) identification
Section 3. Composition/information on ingredients
Section 4. First-Aid measures
Section 5. Fire-fighting measures
Section 6. Accidental release measures
Section 7. Handling and storage
Section 8. Exposure controls/personal protection
Section 9. Physical and chemical properties
Section 10. Stability and reactivity
Section 11. Toxicological information
Section 12. Ecological information
Section 13. Disposal considerations
Section 14. Transport information
Section 15. Regulatory information
Section 16. Other information, including date of preparation or last revision

LABELS AND OTHER FORMS OF WARNING

Our Safety Department will also ensure that all hazardous chemicals on work sites are properly labeled and updated, as necessary. The labels list at least the chemical identity, appropriate hazard warnings, and the name and address of the manufacturer, importer or other responsible party.

Container labels must contain the following information: Identity of hazardous chemicals, appropriate hazard warnings and name and address of the chemical manufacturer, importer or other responsible party. Company and/or employees shall not remove or deface labels on incoming containers of hazardous chemicals.

Containers of products that include any hazardous chemical that is shipped *from* our location will be checked by the Safety Representative or a person assigned to that responsibility, in order to make sure all containers are properly labeled.

If there are a number of stationary containers within a work area that have similar contents and hazards, each of them need not be labeled. However, signs will be posted to convey the needed hazard information.

On our stationary process equipment, we may sometimes substitute regular process sheets, batch tickets, blend tickets, and similar written materials for container labels—but they will contain the same information as labels. If used, those written materials will be readily available to you during your work shift.

If you transfer chemicals from a labeled container to a portable container that is intended only for your immediate use, no labels are required on the portable container.

Pipes or piping systems do not have to be labeled but their contents will be described in the training sessions. If you ever have any questions about pipes or their contents, ask your supervisor.

PICTOGRAMS AND HAZARDS

Workplace chemical containers are labeled by the chemical manufacturer when received. Under OSHA's HAZCOM GHS standard, labels need to include the following:

- ✓ **Pictogram**: a symbol plus other graphic elements, such as a border, background pattern, or color that is intended to convey specific information about the hazards of a chemical. Each pictogram consists of a different symbol on a white background within a red square frame set on a point (i.e. a red diamond). There are nine pictograms under the GHS.
- ✓ **Signal Words**: a single word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used are "danger" and "warning." "Danger" is used for the more severe hazards, while "warning" is used for less severe hazards.
- ✓ **Hazard Statement:** a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.
- ✓ **Precautionary Statement**: a phrase that describes recommended measures to be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling of a hazardous chemical.

Pictograms and Hazards

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

NON-ROUTINE TASKS

When you are required to perform hazardous non-routine tasks (e.g., cleaning tanks, entering confined spaces, etc.), special training will be provided in order to inform you regarding the hazardous chemicals to which you might be exposed and the proper precautions to take to reduce or avoid exposure.

TRAINING

Everyone who works with or is potentially exposed to hazardous chemicals will receive initial training from the Safety Department on the hazard communication standard and the safe use of those hazardous chemicals to which you may be exposed.

A program that uses audiovisual materials, classroom-type training, and/or on-the-job training has been prepared for this purpose. The training program may vary among workers but every worker will be trained in the OSHA hazard communication standard and all chemicals to which he or she may be exposed while at work.

Whenever a new hazard is introduced, additional training will be provided as appropriate. Regular safety meetings may also be used to review the information presented in the initial training. Site supervisors will be extensively trained regarding hazards and appropriate protective measures so they will be available to answer questions from employees and provide daily monitoring of safe work practices. If you are ever unsure

about what you should do or uncertain about the consequences of any action you plan to take, *DON'T ACT. Ask your supervisor beforehand*!

The training plan will emphasize these items:

- Summary of the standard and this written program.
- Chemical and physical properties of hazardous materials (e.g., flash point, reactivity) and methods that can be used to detect the presence or release of chemicals (including chemicals in unlabeled pipes).
- Physical hazards of chemicals (e.g., potential for fire, explosion, etc.).
- Health hazards, including signs and symptoms of exposure, associated with exposure to chemicals and any medical condition known to be aggravated by exposure to the chemical.
- Procedures to protect against hazards (e.g., personal protective equipment required, proper use, and maintenance; work practices or methods to assure proper use and handling of chemicals; and procedures for emergency response).
- Work procedures to follow to assure protection when cleaning hazardous chemical spills and leaks.
- Where SDS's are located, how to read and interpret the information on both labels and SDS's, and how employees may obtain additional hazard information.

The Safety Department will regularly review our employee training program and advise management on training or retraining needs. As part of the assessment of the training program, he or she may want to obtain input from employees regarding the training they have received, and their suggestions for improving it. If you have any suggestions, give them to your supervisor. He or she will see to it that they are provided to the appropriate party.

Retraining is required when the hazard changes or when a new hazard is introduced into the workplace. It is also company policy to provide training whenever it is needed to whoever needs it. If you do not think you are fully or properly trained, or if you ever feel you need additional training in any aspect of your job or your work environment, report that to your supervisor *immediately!*

SUBCONTRACTORS AND MULTI-EMPLOYER SITES

Upon notification by the responsible supervisor, our Safety Department or a person specifically designated for the purpose will provide outside contractors with notice of any chemical hazards that may be encountered in the normal course of their work on the

premises, the labeling system in use, the protective measures to be taken, the safe handling procedures to be used, and the location and availability of SDS's. Each contractor bringing chemicals on-site must provide us with the appropriate hazard information on those substances, including the labels used and the precautionary measures to be taken in working with those chemicals.

ADDITIONAL INFORMATION

All employees, or their designated representatives, can obtain further information on this written program, the hazard communication standard, applicable SDS's, chemical information lists and any other safety or health matter that may interest or concern them at our main office.

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HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE

PURPOSE

The purpose of the Hazardous Waste Operations and Emergency Response Program is to provide guidelines for training and response to incidents involving the uncontrolled release of hazardous materials at Company facilities.

SCOPE

These Hazardous Waste Operations and Emergency Response Guidelines apply to any Company employee who respond to an uncontrolled release of hazardous materials as defined by 29 CFR 1910.120 & CCR Title 8 5192.

EMPLOYEE TRAINING

Employee training will be conducted according to applicable emergency response regulations. As a general rule, most company field employees will be trained in accordance with the 24-hour site worker criteria described in 29 CFR 1910.120 & CCR Title 8 5192.

ANNUAL REFRESHER TRAINING

An 8-hour annual refresher class is required for any personnel who have completed the onsite worker, or management training. Topics will include an overview of the initial training and a critique of incidents that occurred over the last year.

TRAINERS

Trainers who teach any of the required classes must be qualified to instruct in hazardous waste operations and emergency response. In addition, they must satisfactorily complete a course for teaching the specific subjects they are expected to teach, or they must have the training and/or academic credentials and instructional experience necessary to demonstrate competent instructional skills in the subject matter.

REQUIRED PERSONAL PROTECTIVE EQUIPMENT

The minimum personal protective equipment required by the Company on a typical oil spill shall consist of the following:

1. Hard Hat meeting ANSI Z89.1 standard
2. Safety Toed Boots meeting ANSI Z41 standards - chemical resistant
3. Safety Glasses meeting ANSI Z87.1 standard
4. Impact Resistant Gloves - chemical resistant
5. Coveralls -chemical resistant

Minimum required personal protective equipment listed assumes toxins, corrosives, flammable substances and other health hazards are within acceptable safe limits. Additionally, site assessments must reveal that respiratory equipment for personnel will not be required. In the event that any of these hazards exists, the site safety coordinator shall determine the appropriate personal protective equipment to be used based on the levels outlined in the regulation.

EMERGENCY RESPONSE PLAN

Written emergency response plans shall be developed to address anticipated uncontrolled releases. The emergency response plan must address the criteria outlined below:

1. Pre-emergency planning
2. Personnel roles, lines of authority, and communication.
3. Emergency recognition and prevention.
4. Safe distances and places of reference.
5. Site security and control.
6. Evacuation routes and procedures.
7. Decontamination procedures.
8. Emergency medical treatment and first aid.
9. Emergency alerting and response procedures.
10. Critique of response and follow up.
11. Personal protective and emergency equipment.

SITE SAFETY PLAN

INCIDENT INFORMATION

Location: _____

Date: _____ Time: _____

Site Supervisor: _____

Brief Description of Incident: _____

_____

Product Spilled: _____

Contained: ☐ Yes ☐ No

PERSONAL PROTECTIVE EQUIPMENT

- ☐ Hard Hat
- ☐ Safety Glasses
- ☐ S.T. Rubber Boots
- ☐ Tyvek
- ☐ Rain Slicker
- ☐ Face Shield
- ☐ Respirator
- ☐ Work Vest
- ☐ Barrier Cream
- ☐ Goggles
- ☐ Face Shield
- ☐ Impact Resistant Chemical Gloves
- ☐ Duct Tape
- ☐ Sun Screen

PHYSICAL HAZARDS

- ☐ Terrain
- ☐ Slip/Trip/Fall
- ☐ Small boat operations
- ☐ Heavy Equip. operations
- ☐ Transfer operations
- ☐ Biological
- ☐ Chemical
- ☐ Crane operations
- ☐ Electrical
- ☐ Noise
- ☐ Heat exhaustion
- ☐ Overhead
- ☐ Confined space
- ☐ Atmospheric

MONITORING INFORMATION

INITIAL TEST:

O_2 _____

LFL _____

H_2S _____

Benzene _____

Other: _____

Type of monitor: _____

Calibration Date: _____

Frequency of testing: _____

COMMUNICATION INFORMATION

Command Post Phone #: _____

Working Radio Freq. # _____

Emergency Radio Freq. # _____

Other: _____

EMERGENCY EVACUATION/SERVICES

Evacuation/Alarm Signal: _____

Evacuation Assembly Location: _____

Name of Service Phone #

_____

_____

WEATHER AND SEA

Wind Direction: (From): _____

Speed: _____ Sun % _____

Temperature: _____ Humidity: _____

Fog: _____ Rain: _____

Sea Condition (ft.): _____

Ground (wet/dry): _____

Other: _____

SITE DESCRIPTION

☐ Attach site map indicating location of perimeter, control zones, command post, decon corridor and decon procedures.

TRAINING REQUIRED

- ☐ Emergency Response (Subpart (q) compliant)
- ☐ 24 hour Hazwoper (below PEL)
- ☐ 40 hour Hazwoper (above PEL)

Other _____

SAFETY MEETING TOPICS

_____

_____

_____

_____

_____

Print Name: _____ ☐ Attach SDS

Signature: _____

☐ Attach Safety Meeting Report and send to Incident Command

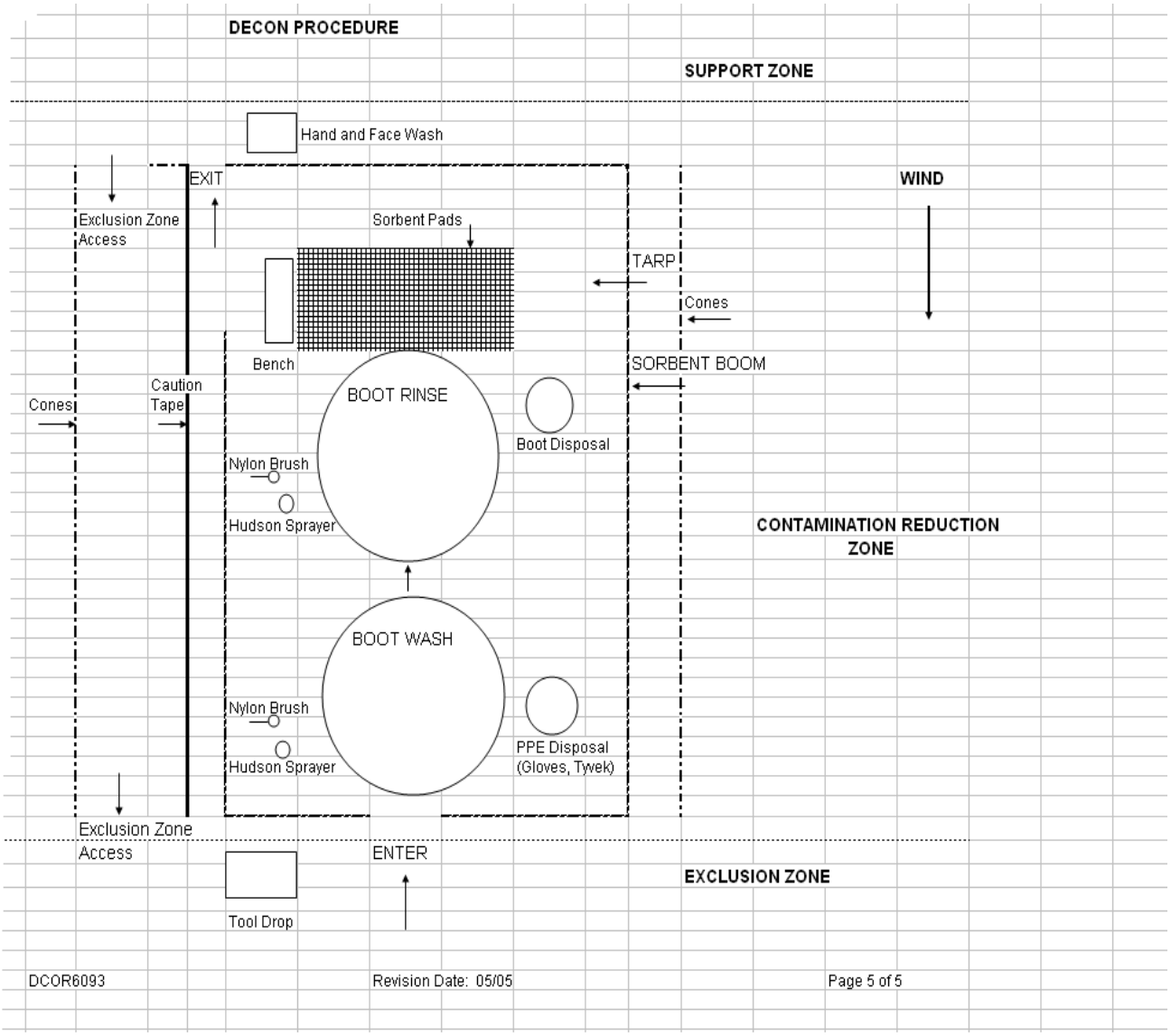


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PURPOSE

The company shall institute a hearing conservation program to include training and medical surveillance when employees are exposed to sound levels greater than 85 dba on an 8-hour time-weighted average basis. The training shall be repeated annually for each employee. Training shall be updated consistent to changes in PPE and work processes. The company shall make available to affected employees copies of the noise exposure procedures and shall also post a copy in the workplace.

SCOPE

When employees are subject to sound levels exceeding permissible exposure limits, feasible administrative and or engineering controls shall be utilized. If such controls fail to reduce sound levels below acceptability, then personal protective equipment is required to reduce sound levels to within the acceptable range.

REFERENCES

29 CFR 1910.95, Occupational Noise Exposure
29 CFR 1926.52, Occupational Noise Exposure
CCR Title 8, Section 5095, Occupational Noise
CCR Title 8, Section 5096, Exposure Limits for Noise
CCR Title 8, Section 5097, Hearing Conservation Program

DEFINITIONS

- dBA (decibel on “A” weighted scale) - Standard unit of sound pressure measurement.

- TWA (Time Weighted Average) - Exposure averaged out over a certain period, usually 8 hours.

- Standard Threshold Shifts (STS) - A hearing threshold exceeding 25 dBA at any of the test frequencies of 500, 1000, 3000, 4000, or 6000 H_z in either ear.

GENERAL REQUIREMENTS – Applies to both Cal OSHA and Fed OSHA

1. A training program shall be provided for all employees who are exposed to action level noise. The training shall be repeated annually for each employee. Training shall be updated consistent to changes in PPE and work processes. The company shall make available to affected employees copies of the noise exposure procedures and shall also post a copy in the workplace.

2. A continuing effective hearing conservation program shall be administered when employees are exposed to sound levels greater than 85 dbA on an 8-hour time-weighted average basis.

3. When information indicates that employee exposure may equal/exceed the 8 hr time-weighted avg. of 85 decibels, a monitoring program shall be implemented to identify employees to be included in the hearing conservation program

4. An audiometric testing program will be established and maintained by making audiometric testing available to all employees whose exposures equal or exceed an 8-hr. time-weighted avg. 85 decibels.

5. Testing to establish a baseline audiogram shall be preceded by a period without exposure to workplace noise. Hearing protection may be used to meet the requirement. Employees shall also be notified to avoid high levels of noise.

6. At least annually after obtaining the baseline audiogram, the employer shall obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels. Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the employee shall be informed of this fact as dictated by the regulation(s).

7. If a threshold shift has occurred, use of hearing protection shall be re-evaluated and/or refitted and if necessary a medical evaluation may be required.

8. Hearing protectors are available to all Company employees at no cost to the employee. Contractors will provide the necessary hearing protection for their employees. Hearing protection shall be replaced as necessary. Supervisors shall ensure that hearing protectors are worn. Employees shall be properly trained in the use, care and fitting of protectors.

9. The company shall evaluate hearing protection for the specific noise environments in which the protector will be used.

10. Accurate records of all employee exposure and audiometric measurements shall be maintained as required by the regulation(s).

NOISE LEVEL SURVEYS

- Noise level surveys shall be conducted by qualified personnel at all work locations where employees may be exposed to noise in excess of the required action level of 85 dBA.

- Surveys shall be conducted as needed or when warranted by significant process, work procedure, or engineering control changes which affect the workers' noise exposure.

- Any area with noise levels greater than 85 dBA shall be designated a noise hazard area and posted with signs requiring Hearing Protection.

- No person shall enter without wearing suitable personnel hearing protection, capable of reducing exposure to a level below 85 dBA.

HEARING CONSERVATION PARTICIPANTS

- Any employee with a TWA equal to or greater than 85 dBA shall be notified and enrolled in the Hearing Conservation Program.

- All employees included in the Hearing Conservation Program are required to have their hearing tested on an annual basis after obtaining their baseline audiogram.

- Audiometric testing will be conducted only by Company-approved personnel, clinics, physicians or mobile vans.

- Employees shall avoid high levels of non-occupational noise exposure during the period immediately preceding the audiometric examination.

HEARING PROTECTION

- Hearing protection shall be provided at no charge to all Company employees. Company employees shall be given a choice of several types of hearing protection. Contractors will provide the necessary hearing protection for their employees.

- Supervisors shall ensure hearing protection is worn by all personnel when working:

    1. In posted areas (entrance to a periphery of areas greater than or equal to 85 dBA).
    2. Around other noise exposure areas as required.

- Hearing protection must attenuate exposure to a TWA less than 85 dBA.

TRAINING

- All employees who are included in the Hearing Conservation Program shall be trained on an annual basis. Subjects covered include:

    1. Effects of noise on hearing,
    2. Purpose of hearing protectors, advantages, disadvantages, and attenuation of various types,
    3. Instructions on selection, fitting, use and care; and
    4. Purpose of audiometric testing and an explanation of testing procedures.

MEDICAL EVALUATIONS

- A Licensed Health Care Provider (audiologist, otolaryngologist or physician) will conduct and review all audiometric tests and results.

- If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the employee shall be informed of this fact as dictated by the regulation(s).

STANDARD THRESHOLD SHIFT (STS)

- Supervisors shall ensure that employees experiencing a STS wear approved hearing protection when exposed to noise greater than or equal to 85 dBA.

- Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. This comparison may be done by a technician.

- If the annual audiogram shows that an employee has suffered a standard threshold shift, the employer may obtain a retest within 30 days and consider the results of the retest as the annual audiogram.

- Upon receiving notification that a STS has been experienced, the employee's Supervisor will:

    1. Communicate that hearing protectors are to be worn at all times when the noise exposure is greater than or equal to 85 dBA,
    2. Ensure employee is trained or retrained in the use and care of hearing protectors, and

    3. Will supply hearing protectors offering greater attenuation

if necessary to those already wearing hearing protection.

RECORDING WORK RELATED INJURIES

- Basic recording criterion: Employers must record work-related "Standard Threshold Shift", or STS (an average change of 10 dB at 2000, 3000, and 4000 Hz in either ear, compared to baseline; age-adjustments allowed) provided that the employee's average hearing level at the same frequencies in the same ear is 25 dB HL or greater (an average hearing level of 25 dB or more, regardless of employee's age, i.e., no age adjustment allowed).

- Baseline/reference audiogram: To determine whether a STS has occurred, the employer must compare the current hearing test results to the employee's baseline audiogram. The baseline audiogram is the employee's original audiogram or revised audiogram as defined under OSHA's noise standard 29 CFR 1910.95.

- Reconfirmation of STS: If the annual audiogram shows a STS, a hearing retest may be performed within 30 days. If the retest does not confirm the STS, then the case need not be recorded. However, if the retest confirms the STS, then the STS if work-related, must be recorded within 7 calendar days of retest. If a retest is not performed, then the case (again, if work-related) must be recorded within 37 days of test.

- Results of subsequent testing: If later testing performed as part of the hearing conservation program indicates that the STS is not persistent, then the employer may erase or line-out the recorded entry.

- Determination of work-relatedness: Work-relatedness must be determined according to specifications of section 1904.5 of the general recordkeeping rule. If an event/exposure in the workplace caused or contributed to the shift in hearing or "significantly aggravated" a previously existing hearing loss, then the STS is recordable.

- Forms: Use OSHA record keeping Form 300.

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PURPOSE

This standard establishes necessary precautions to be taken when employees may be exposed to Hydrogen Sulfide (H2S) gas. Compliance with this program is mandatory and is applicable to all company employees who work in an environment where Hydrogen Sulfide may be present.

SCOPE

Extreme hazards can be encountered when exposure to Hydrogen Sulfide is possible. All employees that work in areas that have, or could have Hydrogen Sulfide exposure must be educated in its hazards, trained to detect Hydrogen Sulfide and utilize appropriate personal protective equipment to minimize their exposure.

REFERENCE

- 29 CFR 1910.1000, Subpart Z, *Toxic and Hazardous Substances*
- API RP-55, *Oil and Gas Producing and Processing Plant Operations Involving Hydrogen Sulfide*
- Title 8 CCR, Chapter 4, Subchapter 14, *Article 12 Hazardous Substances*

DEFINITIONS

Hydrogen Sulfide (H2S): Colorless gas or liquid, with the odor of rotten eggs (sulfur smell) at low concentrations.

Permissible Exposure Limit (PEL): means the dermal or inhalation exposure limit. It is based on a time-weighted average concentration for an eight-hour work day, or forty-hour work week. **For Hydrogen Sulfide the PEL is 10 PPM.**

Self-Contained Breathing Apparatus (SCBA): Each time "SCBA" is used within this plan it refers to the 30-minute positive pressure self-contained breathing apparatus units.

Short Term Exposure Limit (STEL): means the dermal or inhalation exposure limit. It is based on a time-weighted average concentration for fifteen minutes. **For Hydrogen Sulfide the STEL is 15 PPM.**

Immediately Dangerous to Life and Health (IDLH): **The IDLH for Hydrogen Sulfide is 100 PPM.**

INTRODUCTION

Exposure to Hydrogen Sulfide occurs in many industries, however most exposures center around the oil and natural gas industries. Hydrogen sulfide is an extremely toxic, flammable gas that may be encountered in the production of oil and gas with high-sulfide content. Hydrogen sulfide may also be encountered in processes associated with produced and potable water.

Hydrogen sulfide is heavier than air, and can collect in low places. As an employee of the company, potential exposure to various forms and amounts of Hydrogen Sulfide may occur during certain job activities. Any exposure should be avoided. However, If an exposure cannot be avoided through ventilation, etc., proper personnel protective equipment must be used.

GENERAL REQUIREMENTS – Applies to both Cal OSHA and Fed OSHA

1. Locations where you may encounter Hydrogen Sulfide:
   - □ Drilling Operations,
   - □ Recycled Drilling Mud,
   - □ Water from sour crude wells,
   - □ During Blowouts
   - □ Tank Gauging
   - □ Field Maintenance
   - □ Tank batteries and wells
   - □ Others.

2. Hydrogen Sulfide Characteristics:
   - □ Highly toxic, invisible and colorless
   - □ Smells like rotten eggs (low concentrations)
   - □ At higher concentrations will paralyze your sense of smell
   - □ Heavier than air, so collects in low-lying areas
   - □ Can spontaneously combust between 43,000 and 460,000 ppm
   - □ Flammable
   - □ When burned it produces SO2, a toxic byproduct, also a deadly gas
   - □ Soluble in water, oils and most organics
   - □ Creates an acidic solution and can severely irritate your skin
   - □ Reacts violently to strong oxidizers, metal oxides, peroxides, strong alkalis, active metals, and some plastics and rubbers
   - □ Corrosive, forms spontaneously ignitable by-product “iron sulfide”

3. Health effects due to the exposure of hydrogen sulfide include:

   Below 100 ppm you will experience:
   - □ Rotten egg smell
   - □ Burning eyes
   - □ Respiratory tract irritation

   Prolonged exposure up to 100 ppm will cause:
   - □ Loss of smell
   - □ Headache
   - □ Dizziness
   - □ Coughing

   From 100-300 ppm, in addition to previous, side effects will include:
   - □ Drowsiness
   - □ Severe eye and throat irritation
   - □ Effects nerve centers of the brain which control breathing
   - □ Possible pulmonary edema (respiratory difficulty due to fluid in lungs)

   Exposure of up to 600 ppm will cause:
   - □ Loss of reasoning and balance
   - □ Eventual unconsciousness
   - □ Possible death

4. Methods of Detecting Hydrogen Sulfide:
   - □ By smell (odor) only momentarily because higher concentrations deaden your sense of smell.
   - □ By chemically treated paper or detector tubes that change color when exposed to hydrogen sulfide
   - □ By electronic monitoring devices (fixed or portable monitors)

   Alarms will go off when concentrations exceed 10 PPM.

5. Only approved positive-pressure self-contained breathing apparatus or airline respirators with escape SCBA may be used in hydrogen sulfide environments.

FORMS OF HYDROGEN SULFIDE EXPOSURE

Hydrogen Sulfide exposures are almost exclusively through inhalation. However, other exposures such as eye and skin exposures should not be overlooked. Inhalation of Hydrogen Sulfide at high concentrations will certainly cause injury or death.

HEALTH EFFECTS OF HYDROGEN SULFIDE OVEREXPOSURE

Hydrogen Sulfide is extremely toxic. If steps are not taken to control exposure, inhalation of Hydrogen Sulfide will result in serious injury or death. It may cause death instantaneously in high airborne concentrations. Low levels are extremely irritating to the lungs, nose, throat and eyes.

Low concentration exposures (under 10 PPM)

In low concentrations, Hydrogen Sulfide may be detectable by its odor; however, the smell cannot be relied upon to forewarn of dangerous concentrations because it rapidly paralyzes the sense of smell. A prolonged exposure to the lower concentrations will result in the loss of the sense of smell.

Symptoms from repeated exposure to low concentrations usually resolve after being removed from the exposure for a period of time.

Higher concentration exposures (10 PPM and above)

Concentrations that are prolonged or of high levels may lead to death. It should be well understood that the sense of smell will be rendered ineffective by Hydrogen Sulfide, which can result in an individual failing to recognize the presence of dangerously high concentrations. Exposure to Hydrogen Sulfide causes death by poisoning the respiratory system.

Physiological Effects of Hydrogen Sulfide

H_2S CONCENTRATION %	PPM	EFFECTS OF EXPOSURE
0.001	10	Safe for 8 hours without respirator. Obvious and unpleasant odor. Threshold Limit Value (TLV).
0.0015	15	Safe for 15 minutes without respirator. Current OSHA Short Term Exposure Limit (STEL).
0.01	100	Kills sense of smell in 3 to 15 minutes: may sting eyes and throat. Immediately dangerous to life health (IDLH). This concentration represents a maximum level from which one could escape without any irreversible health effects.
0.05	500	Dizziness: breathing stops in a few minutes: need prompt artificial respiration.
0.07	700	Unconscious quickly: death will result if not rescued promptly.
0.10	1000	Unconscious at once: followed by death within minutes.

Note: Irreparable brain damage begins in about the fifth minute of no breathing.

REPORTING OF PROBLEMS

Immediately notify your supervisor if you develop potential signs or symptoms associated with Hydrogen Sulfide exposure. You should also notify your supervisor if you have difficulty breathing while wearing a respirator or suspect problems with other personal protective equipment.

EXPOSURE ASSESSMENT

Site supervisors must determine if employees are exposed to concentrations of Hydrogen Sulfide. The exposure determination shall be based on the following:

Personal exposure monitoring

If the initial exposure determination reveals employee exposure to be below the STEL, continuous monitoring may be warranted. In addition, continuous ventilation may be needed if personnel need access to the area. Appropriate personnel protective equipment will be worn by all employees with the potential to be exposed to Hydrogen Sulfide in excess of permissible exposure limits.

PREVENTING EXPOSURE

Proper control of exposure to Hydrogen Sulfide is the responsibility of both the employer and the employee. All of the control methods discussed below are essential to minimize additional sources of Hydrogen Sulfide absorption from inhalation. Strict compliance with these provisions can virtually eliminate exposures to Hydrogen Sulfide gas.

- Review the site-specific safety programs as well as the site emergency action plan.
- Ventilation systems may provide for venting of the Hydrogen Sulfide vapor prior to entrance into the area.
- Confined Space Entry Procedures will greatly reduce the hazards to employees and must be followed whenever entry into a confined space is required. For further details, review the Company Confined Space Entry program.
- Respiratory Protection shall be used in combination with continuous monitoring when warranted by the conditions of the area.

RESPIRATORY PROTECTION

Exposure to hazardous materials requires special precautions against absorption of toxic compounds. While engineering controls (e.g., ventilation systems) are the primary means of controlling materials such as Hydrogen Sulfide vapors, it may be necessary to rely on respiratory protection.

- Only use a NIOSH certified positive-pressure air supplying respirator in a Hydrogen Sulfide environment.
- Never use a cartridge type respirator in a Hydrogen Sulfide environment, nor atmosphere containing less than 19.5% oxygen or an atmosphere immediately dangerous to life and health (IDLH).
- If a Self-Contained Breathing Apparatus (SCBA) is to be worn, all provisions applicable to the use of respirators apply as well as the provisions of the Company Respiratory protection program.
- Gas detection equipment shall be used whenever an entry into an area which may contain Hydrogen Sulfide gas is necessary.
- Equipment shall be operated per the manufacturer's instructions.
- Continuous monitoring shall be used when Hydrogen Sulfide has been detected.

EMPLOYEE INFORMATION & TRAINING

Annual training, per API RP 55, must be conducted per the Company safety training plan. Information and training will be given to all employees who may be exposed to Hydrogen Sulfide.

The training program will inform employees of the following:

- The characteristics, possible sources, and hazards of Hydrogen Sulfide
- Proper use of the Hydrogen Sulfide detection methods
- Recognition of, and proper response to, Hydrogen Sulfide warnings
- Symptoms of Hydrogen Sulfide exposure
- Proper rescue techniques and first-aid procedures to be used in a Hydrogen Sulfide exposure
- Proper use and maintenance of personal protective equipment. Demonstrated proficiency in using PPE is required
- Wind direction awareness
- Use of safety equipment
- Use and operation of all Hydrogen Sulfide monitoring systems
- Corrective action

Information and training will be given to all Company employees and Contractors who may be exposed to Hydrogen Sulfide. The training program will inform employees of the following:

- Emergency response procedures and shutdown procedures
- Locations of safety equipment
- Confined space and enclosed facility entry procedures
- Routes of egress
- Worker awareness and understanding of workplace practices and maintenance procedures to protect personnel from exposure to Hydrogen Sulfide
- Potential sources of Hydrogen Sulfide

NATURALLY OCCURRING RADIOACTIVE MATERIAL (NORM)

OCCURRENCE OF RADIATION

Low level radioactive scale can by produced in the course of some oil and gas operations. The production of oil and gas moves NORM to the surface where it may accumulate at low levels in processing and transport equipment. Some of the possible locations are wellheads, piping, vessels, tubing, filters and pipe cleaning and storage yards.

When the presence of NORM scale is suspected, contact the Health, Safety and Environmental (HSE) Department for measurement checks.

PRECAUTIONS

1. Proper protective equipment including respiratory or breathing air should be worn when entering contaminated vessels.

2. Direct skin contact with radioactive scale and solids should be avoided to the extent reasonably possible.

3. Eating, drinking, smoking and chewing should not be allowed in the work area.

4. Personnel should thoroughly wash their hands and face following any skin contact that occurs, prior to eating, drinking or smoking, and at the end of the work.

5. Surface contamination should be handled in the wet state.

6. Contaminated equipment, pipe, etc., should be disposed of in accordance with approved waste and surplus equipment disposal procedures.

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OFFSHORE SAFETY

INTRODUCTION

The offshore environment offers some unique hazards. This section provides an overview of travel to and from offshore platforms. Specific details can be provided through platform briefings.

HELICOPTER SAFETY

INTRODUCTION

This section does not attempt to address all precautions needed in helicopter situations. Consult your local rules regarding specific helicopter safety guidelines.

PRECAUTIONS

When boarding or disembarking:

1. Keep clear of the helipad until the helicopter has landed.

2. No person should disembark or board a helicopter if the skids or wheels are not on the ground.

3. Approach or depart the helicopter only on signal or command of the helicopter pilot.

4. Approach or depart the helicopter from the front quadrants, either side, to avoid the tail rotor. Under NO circumstances should you walk under the tail rotor or tail boom.

5. Bend over when approaching or departing the helicopter. Beware of the large main rotor.

6. Do not walk uphill when leaving or downhill when approaching a helicopter. If you must approach from uphill or leave in an uphill direction, the helicopter should be shut down and the rotor blades stopped.

7. Keep a firm grip on all hand carried articles when walking to and from the helicopter.

8. Provide the pilot with a passenger manifest before boarding the helicopter. Declare any magnetic or hazardous materials.

9. Follow the pilot's instructions, as they are in complete charge of the helicopter and its passengers. The pilot should then provide you with a complete briefing, including usage of life vests.

10. Use only the step provided; offshore, take care not to damage floats when getting in and out of the aircraft.

11. Do not distract the pilot with unnecessary conversation or actions.

12. Never throw anything out of the helicopter, damage to the rotor systems can result.

13. Hearing protection should be worn during helicopter flights.

DURING HELICOPTER OPERATIONS:

1. Never approach a helicopter while wearing a hat, or other loose items.

2. Flammable Liquids may only be transported by helicopter on cargo-only flights. (no passengers)

3. During refueling operations, passengers should not be in the aircraft.

4. Helicopters should not land on a platform that is operating under radio silence.

5. When selecting a landing zone site, choose one that is as flat as possible and has adequate clearance in all directions. Trees and brush should be cleared if necessary to provide adequate clearance, if the permit allows brush cutting. If not, find another adequate landing zone.

6. All cargo should be securely tied down before takeoff.

7. Never carry blasting caps and blasting agents (dynamite) in the helicopter at the same time. When carrying any explosive substance, be sure it is in a proper container and marked according to Department of Transportation regulation (CFR 49 part 175.320 "Cargo Only Aircraft-Only Means of Transportation").

8. No passengers should be allowed to ride in any helicopter while it is performing long line operations or while an external line or hook is attached.

9. Helicopters generate extremely high static electricity charges, the long line should be allowed to touch the ground and dissipate the charge before being handled. If assistance is needed to unhook a load, always let it touch the ground first. If the load should be guided before it touches the ground, use a

tag line which should be a length that will not be drawn up into the rotor blades.

10. During long - line operations the person designated to hook or unhook the loads should be the only person under the hovering helicopter.

11. The person working under the helicopter should have radio communications with the pilot and inform him of the type, size, and destination of the load.

12. No person should ride the hook, sling, or net for any reason other than a life threating emergency situation. Suitable emergency litters must be available for long-line evacuation of an injured person.

CREW BOAT SAFETY

Prior to boarding the crew boat for transportation to any DCOR facility, a current Swing Rope Training Certification must be obtained. If you or any of your company or contract personnel require swing rope training, please contact the Safety Department or the Rincon Onshore Separation Facility for training certification information.

REPORTING IN AT CREW BOAT DEPARTURE AREA

1. Report to the crew boat departure location. You may be asked to provide proof of swing rope certification. Only personnel listed on the DCOR POB list will be allowed to board.

2. Swing Rope certification will be required upon boarding the crew boat. Passengers that do not have valid certification will not be transported to their offshore destination.

3. Complete the Passenger Manifest, including name, company, and destination.

4. All travelers should have their own personal protective equipment. (hard hat, steel toed boots, eye protection, coast guard approved personal floatation device (PFD), and hearing protection).

5. First-time travelers must review posted “Boat Safety Rules” and view the boat safety orientation video.

CREW BOAT GENERAL SAFETY RULES

1. Company and contract personnel should come prepared with their own PFD. The PFD must be US Coast Guard approved Type III, and shall be worn and properly secured when boarding, disembarking, and anytime outside of the boat cabin.

Company policy requires contractors to provide their own Personal Floatation Device (PFD).

2. Smoking is allowed only in designated areas outside of the boat cabin. SMOKING WITHIN 200 FEET OF ANY PLATFORM IS STRICTLY PROHIBITED. Smoking may be entirely prohibited at the discretion of the boat Captain (while transporting flammables, etc.).

3. The Captain of the vessel has the ultimate authority to refuse passage to any person or cargo considered to be unsafe for transport.

4. Contract or any non-company personnel must be authorized to board the boat to a specified platform destination prior to departure. Authorization will be granted by the company Foreman or Platform Lead Operator. All travelers must complete the passenger manifest. The manifest must include the person's name, company, time, date, and destination.

5. Passengers may never ride on front section (Bow Area) of the vessel.

6. During Crane Operations (loading and unloading of cargo), crew boat passengers MUST stay inside the cabin.

7. Long pants or coveralls must be worn. No open toed shoes or bare feet are allowed on the vessel.

8. No illegal or intoxicating drugs, intoxicating beverages, firearms, weapons, or persons under the influence of drugs, stimulants, or alcohol are allowed on any vessel or company property.

9. All persons, personal property, and cargo are subject to search at any time.

BOARDING THE CREW BOAT

1. All personnel must have a current DCOR or Ship Services Swing Rope Training Certification or be prepared to complete such training prior to attempting any swing rope activities.

2. Always board or disembark the vessel in an orderly fashion. Personnel disembarking vessel have precedence over passengers boarding.

3. Prior to embarking or disembarking the vessel, or anytime outside of the vessel cabin, a Personal Floatation Device (PFD) will be properly worn.

4. When boarding a vessel using a vertical ladder, personnel must always do so facing the structure/ladder. Never scale a ladder while facing away from the ladder.

5. While boarding the vessel from a pier or platform, hand all carried items (tools, briefcases, backpacks, etc.) to the deck hand prior to boarding.

6. Backpacks may not be worn while embarking or disembarking the vessel. There are no exceptions.

7. All hand carried items will weigh no more than 25 lbs. Items weighing more than said amount must be transferred via cargo basket to and from the vessel. This requires items to be taken to the Ship Services facility for the 3E's (971 S. Seaside Ave. Terminal Island, CA 90731) or DCOR Shorebase for all other cargo (5775 West Pacific Coast Highway. Ventura, CA 93001).

SWING ROPE CERTIFICATION AND REQUIREMENTS

Swing Rope Training can be conducted using the approved methods below:

1. Use of approved swing rope apparatus at the facilities listed below:
    a. Rincon Onshore Separation Facility
    b. So-Cal Ship Services, Terminal Island
    c. Advantage Physical Therapy

2. Using approved Test Rope onboard a DCOR Operated Platform. Ability to swing will be ensured by observing an actual transfer from both boat to platform and platform to boat. The hang test to be conducted by using the approved test rope that is hung from secure location. This method is to be used for Recertification of DCOR personnel Only.

There are specific requirements you must be able to meet to ensure a safe transfer by swing rope. If you are unable to meet any of the following requirements, you will not be eligible for DCOR Swing Rope Certification. The requirements are as follows:

1. You must be in a state of good health. You must not have any existing injuries or conditions that may cause you difficulty in completing a swing rope transfer. If you are on "Restricted" or "Light" duty (compromising your physical ability) you may not be able to complete swing rope operations.

2. You must be able to hold your body weight. In order to determine this, you will be asked to do the following:

    a. Hold yourself on the rope for a minimum of 10 Seconds.
    b. Then you will be asked to swing back and forth twice.

This requirement is essential to your safety. During a swing rope transfer, you may be required to swing up or swing down to the vessel or platform. Stepping across is unacceptable. During the Swing Rope practice session, you will be required to

demonstrate this ability. If you are unable to do any of the steps indicated above, you will not be issued a swing rope certification.

TRANSFER OPERATIONS vs. WEATHER & SEA STATE CONDITIONS

The boat Captain and the Lead Operator shall communicate regularly. If either party at any time determines that the transfer of personnel or cargo cannot be done safely, the operation will be called off until the weather and sea conditions allow for a safe operation.

There are three major decision points that should precede personnel or cargo transfers.

Decision 1: Is it safe for the crew boat to leave the pier, harbor, or mooring point and approach the platform for transfer of personnel and/or cargo?

Decision 2: If Decision 1 is yes, and after the crew boat is in the platform vicinity, is it safe for a personnel and/or cargo transfer to proceed?

Agreement between the boat Captain and Lead Operator is required and must be mutual to proceed with the first and second major decisions. If platform crane operations are shut down due to weather, then personnel/cargo transfer shut down should be considered as well.

WEATHER AND SEA STATE EVALUATION FOR DECISIONS 1 & 2

- Evaluate and/or measure wind speed and direction at the platform.
- Estimate and/or measure swell height, frequency, and direction.
- Time of day, temperature and precipitation should be considered as well.
- Is the boat Captain confident that he/she can maneuver the boat to safely execute the personnel transfer based on the conditions?

The following NOAA buoy links may be referenced for weather and sea state information, but be aware that these buoys may not be totally relevant to your offshore platform depending on position of buoy in relation to the platform.

Dos Cuadras & Gilda/Gina……. .Buoy Station 46053
Esther, Eva, Edith……..Buoy Station 46222

Decision 3: If the Captain and the Lead Operator agree to attempt a personnel transfer, then any person can stop their own transfer at any time. Transfer supervision has the authority to stop the transfer process as well, if conditions change making the transfers unsafe.

TRANSFER GUIDELINES AND CONSIDERATIONS

Transfer Supervision:

1. Two crew boat attendants shall be stationed on the boat deck to assist with all personnel transfers. During inclement weather an attendant will be stationed at the boat landing. The additional person on the boat landing will be decided by either the boat captain or lead operator.

2. During calm weather, the first individual to swing across to the platform will stay on the platform landing to assist with the safe transfer of all other individuals. This individual should be very familiar with swing rope operations

3. The Lead Operator may assign a “swell watch” at the sub deck to monitor and communicate approaching wave and swell conditions (this is in addition to the landing attendant).

4. The Lead Operator may assign additional personnel to observe and assist with the transfer process if conditions warrant it.

Personnel Fitness / Experience Guidelines:

1. Do all personnel aboard appear to be comfortable with the current conditions, or are there personnel that appear to be intimidated by the weather and sea conditions?

2. Are there personnel with obvious conditions or injuries that would disable them from completing a safe transfer?

Procedures for Swing Rope Operations:

1. Only the authorized and designated landing will be used for personnel transfer (no stairs).

2. Deck cargo shall be kept to a minimum or offloaded prior to personnel transfers.

3. Deck cargo staying on board shall be kept in a position so that it does not block the line of sight to the transfer area or block the transfer area on the boat.

4. Personnel at the transfer area should be kept clear of the line of sight to allow full view of the transfer area.

5. Whenever possible, personal items will be sent to or from the crew boat in a cargo basket. The Captain will have the authority to determine if handing items across can be done safely.

6. If at any point any individual feels that the operation is unsafe, it is their responsibility to stop the operation until it can either be made safe or conditions improve.

REPORTING IN AT AN OFFSHORE PLATFORM/RIG

1. Report immediately to the Person In Charge (PIC) of the platform. Sign in on the visitor's log.

2. If you have not been through a facility orientation within the last 12-months, you must take part in the platform orientation. The minimum topics addressed should include:

    - Assigning you to your section and duties in the event of an emergency (Station Bill).

    - Assigning your living quarters and locker assignments (if applicable), and familiarizing you with the structure, emergency alarms, H_2S, etc.

3. Become thoroughly familiar with all emergency procedures, equipment, exit routes, and emergency reporting locations.

4. Do not throw anything overboard. Carefully follow all rules designed to prevent pollution.

5. Immediately report any escaping oil and gas or other hazards to the Person In Charge.

SURVIVAL RAFT

Survival rafts are provided on all DCOR platforms. Operations personnel are trained in their maintenance and use, and regular drills are performed to maintain response proficiency. Some of the precautions when using a survival raft include:

1. Always wear a Type I life jacket inside and outside the survival raft.

2. Do not release or cut the tether line before all personnel have boarded and the raft is ready for departure.

3. Do not allow the raft to be towed, unless equipped with an approved towing connection.

4. Once inside the survival raft, personnel should stay seated.

HURRICANE AND EARTHQUAKE ACTION PLAN

For specific response action at your facility, refer to your Emergency Response Plan or Emergency Evacuation Plan.

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RESPIRATORY PROTECTION PROGRAM

PURPOSE

This respiratory protective equipment program initiates standard operating procedures to ensure the protection of all employees from respiratory hazards through proper selection and use of respirators. Respiratory protective equipment is to be used only where engineering control of respiratory hazards is not feasible, while engineering controls are being installed, or in emergencies. This program is in accordance with the requirements of OSHA 29 CFR 1910.134.

ADMINISTRATIVE DUTIES

The designated Respiratory Protection Program Administrator is the Safety Manager, located at the corporate office. This person is solely responsible for all facets of the program and has full authority to make necessary decisions to ensure success of this program. The Program Administrator will develop written detailed instructions covering each of the basic elements in this program, and is the sole person authorized to amend these instructions.

He/She is also qualified by appropriate training and experience that is commensurate with the complexity of the program to administer or oversee our Respiratory Protection Program and conduct the required evaluations of program effectiveness.

Employees may review a copy of our Respiratory Protection Program in the Safety Manual. The Program Administrator reviews this program periodically to ensure its effectiveness. The Program Administrator may also amend the written program.

RESPIRATOR SELECTION

Respirators are selected on the basis of respiratory hazards to which the worker is exposed and workplace and user factors that affect respirator performance and reliability. All selections are made by the Foreman, Safety Coordinator, or designee.

The Program Administrator will develop detailed written standard operating procedures governing the selection of respirators using the NIOSH Respirator Decision Logic and/or OSHA standards. Outside consultation, manufacturer's assistance, and other recognized authorities will be consulted if there is any doubt regarding proper selection.

Selection Procedure Checklist

When selecting any respirator in general:

- Select and provide respirators based on respiratory hazard(s) to which a worker is exposed and workplace and user factors that affect respirator performance and reliability.

- Select a National Institute for Occupational Safety and Health (NIOSH) certified respirator.

- Identify and evaluate the respiratory hazard(s) in the workplace, including a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. Consider the atmosphere to be immediately dangerous to life or health (IDLH) if you cannot identify or reasonably estimate employee exposure.

- Select respirators that provide protection to the employee and correctly fits the user.

When selecting respirators for IDLH atmospheres

- Provide these respirators:

  - A full-face piece pressure demand Self-contained, positive pressure, breathing apparatus (SCBA) certified by NIOSH for a minimum service life of thirty minutes, or
  - A combination full-face piece pressure demand supplied-air respirator Self-contained breathing apparatus (SAR) with auxiliary self-contained air supply.

- Provide a NIOSH-certified 5 to 15 minute escape bottle to be used in conjunction with the above respiratory protective equipment in IDLH conditions, or when using a atmosphere-supplying respirator.

- Consider all oxygen-deficient atmospheres to be IDLH. Exception: If the program administrator, or designee, can demonstrate that, under all foreseeable conditions, the oxygen concentration can be maintained within the ranges specified in Table II of 29 CFR 1910.134 (i.e., for the altitudes set out in the table), then atmosphere-purifying respirators may be used.

When selecting respirators for atmospheres that is not IDLH

- Provide a respirator that is adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations.

- Select respirators appropriate for the chemical state and physical form of the contaminant.

- <u>For protection against gases and vapors, provide:</u>

  - An atmosphere-supplying respirator, or
  - An air-purifying respirator, provided that: (1) The respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or (2) If there is no ESLI appropriate for conditions in our workplace, implement a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life.

- For protection against particulates, provide:

- An atmosphere-supplying respirator; or
- An air-purifying respirator equipped with a filter certified by NIOSH as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH; or
- For contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

Respirator Types and Uses

The following types of respirators are in use in this facility:

Types:	Situation used:
30 Minute SCBA	Emergency escape and Confined Space Entry
15 Minute SCBA	Confined Space Entry (Escape Only)
Supplied Air Respirator (SAR), or airline	Confined Space Entry
Air Purifying Respirator (APR)	Blasting/Painting/and some Chemical Loading

Only NIOSH-certified respirators are selected and used. Where practicable, the respirators will be assigned to individual workers for their exclusive use.

MEDICAL EVALUATIONS

A medical evaluation to determine whether an employee is able to use respiratory protective equipment is an important element of an effective Respiratory Protection Program and is necessary to prevent injuries, illnesses, and even, in rare cases, death from the physiological burden imposed by respiratory protection equipment use.

Persons will not be assigned to tasks requiring the use of respirators nor fit tested unless it has been determined that they are physically able to perform the work and use the respirator.

An approved physician, licensed health care professional (PLHCP) and/or designee will perform medical evaluations using a medical questionnaire found in Sections 1 and 2, Part A of Appendix C of 29 CFR 1910.134.

All medical questionnaires and examinations are confidential and handled during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire is administered so that the employee understands its content. All employees are provided an opportunity to discuss the questionnaire and examination results with their physician or other licensed health care professional (PLHCP).

Before any initial examination or questionnaire is given, we supply the PLHCP with the following information so that he/she can make the best recommendation concerning an employee's ability to use a respirator:

- Type and weight of the respiratory protection equipment to be used by the employee;
- Duration and frequency of respirator use (including use for rescue and escape);
- Expected physical work effort;
- Additional protective clothing and equipment to be worn;
- Temperature and humidity extremes that may be encountered.

Once the PLHCP determines whether the employee has the ability to use or not use respiratory Protective equipment, he/she sends a written recommendation containing only the following information:

- Limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;
- The need, if any, for follow-up medical evaluations; and
- A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

Follow-up medical examination

A follow-up medical examination will be provided if a positive response is given to any question among questions 1 through 8 in Section 2, Part A of Appendix C of 29 CFR 1910.134 or if an employee's initial medical examination demonstrates the need for a follow-up medical examination. Our follow-up medical examination includes tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

If the respirator is a negative pressure respirator and the PLHCP finds a medical condition that may place the employee's health at increased risk if the respirator is used, our company shall provide a powered air-purifying respirator (PAPR), if the PLHCP's medical evaluation finds that the employee can use such a respirator. In the above case the company may choose to transfer an employee to a position that does not require a respirator. If a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then the company is no longer required to provide a PAPR.

Additional medical examinations

Our company provides additional medical evaluations if:

- An employee reports medical signs or symptoms that are related to ability to use a respirator;
- A PLHCP, supervisor, or the respirator program administrator informs the employer that an employee needs to be re-evaluated;
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee re-evaluation; or
- A change occurs in workplace conditions (e.g., physical work effort, protective

clothing, and temperature) that may result in a substantial increase in the physiological burden placed on an employee. Contact the approved physician/licensed health care professional (PLHCP) for a copy of your confidential medical evaluation or questionnaire.

FIT TESTING PROCEDURES

Respiratory protective equipment must fit properly to provide protection to users. If a tight seal is not maintained between the face piece and the employee's face, contaminated air can be drawn into the face piece and be breathed by the employee. Fit testing seeks to protect the employee against breathing contaminated ambient air and is one of the core provisions of our respirator program.

In general, fit testing may be either qualitative or quantitative. Qualitative fit testing (QLFT) involves the introduction of a gas, vapor, or aerosol test agent into an area around the head of the respirator user. If that user can detect the presence of the test agent through subjective means, such as odor, taste, or irritation, the respirator fit is inadequate.

In a quantitative respirator fit test (QNFT), the adequacy of respirator fit is assessed by measuring the amount of leakage into the respirator. Appropriate instrumentation is required to quantify respirator fit in QNFT.

The Program Administer makes sure those employees are fit tested at the following times with the same make, model, style, and size of respirator that will be used:

- Before any of our employees are required to use any respirator with a negative or positive pressure tight-fitting face piece;
- Whenever a different respirator face piece (size, style, model, or make) is used;
- At least annually;
- Whenever the employee reports, or our company, PLHCP, supervisor, or Program Administrator makes visual observations of changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight; and
- When the employee, subsequently after passing a QLFT or QNFT, notifies the company, Program Administrator, supervisor, or PLHCP that the fit of the respirator is unacceptable. That employee will be re-tested with a different respirator face piece.

Employees must pass one of the following fit test types that follow the protocols and procedures contained in 29 CFR 1910.134 Appendix A:

- QLFT (May be used to test tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators if tested in the negative pressure mode); or
- QNFT (May be used to fit test a tight-fitting half face piece respirator that must achieve a fit factor of 100 or greater OR a tight-fitting full face piece respirator that must achieve a fit factor of 500 or greater OR tight-fitting atmosphere-supplying respirators and tight-

fitting powered air-purifying respirators if tested in the negative pressure mode).

PROPER USE PROCEDURES

Once the respirator has been properly selected and fitted, its protection efficiency must be maintained by proper use in accordance with 29 CFR 1910.134(g). Our company ensures with written procedures that respirators are used properly in the workplace.

Our company has used the following checklist to ensure that proper use procedures include coverage of OSHA requirements:

Face Piece Seal Protection

- Do not permit respirators with tight-fitting face pieces to be worn by employees who have:
  - Facial hair that comes between the sealing surface of the face piece and the face or that interferes with valve function; or
  - Any condition that interferes with the face-to-face piece seal or valve function.
- If an employee wears corrective glasses or goggles or other personal protective equipment, ensure that such equipment is worn in a manner that does not interfere with the seal of the face piece to the face of the user.
- For all tight-fitting respirators, ensure that employees perform a user seal check each time they put on the respirator using the procedures in 29 CFR 1910.134 Appendix B-1 (User Seal Check Procedures) or procedures recommended by the respirator manufacturer that you can demonstrate are as effective as those in Appendix B-1.

Continuing Respirator Effectiveness

- Appropriate surveillance must be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, reevaluate the continued effectiveness of the respirator.
- Ensure that employees leave the respirator use area:
  - To wash their faces and respirator face pieces as necessary to prevent eye or skin irritation associated with respirator use; or
  - If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece; or
  - To replace the respirator or the filter, cartridge, or canister elements.
- If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece, replace or repair the respirator before allowing the employee to return to the work area.

Procedures for IDLH Atmospheres

Ensure that:

- One employee or, when needed, more than one employee is located outside the IDLH atmosphere;
- Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;
- The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue;
- The employer or designee is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue;
- The employer or designee authorized to do so by the company, once notified, provides necessary assistance appropriate to the situation;
- Employee(s) located outside the IDLH atmospheres are equipped with:
  - Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either:
  - Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or
  - Equivalent means for rescue where retrieval equipment is not required under the bullet item above this one.

MAINTENANCE AND CARE PROCEDURES

In order to ensure continuing protection from respiratory protective devices, it is necessary to establish and implement proper maintenance and care procedures and schedules. A lax attitude toward maintenance and care will negate successful selection and fit because the devices will not deliver the assumed protection unless they are kept in good working order.

Cleaning & disinfecting

Our company provides each respirator user with a respirator that is clean, sanitary, and in good working order. We ensure that respirators are cleaned and disinfected using the procedures below:

In Appendix B-2 of 29 CFR 1910.134 (refer to appendix B).

- Recommended by the respirator manufacturer. These procedures are of equivalent effectiveness as Appendix B-2 of 29 CFR 1910.134.

The respirators are cleaned and disinfected at the following intervals:

Respirator type:	Are cleaned and disinfected at the following interval:
Issued for the exclusive use of an employee	As often as necessary to be maintained in a sanitary condition
Issued to more than one employee	Before being worn by different individuals
Maintained for emergency use	After each use and/or monthly
Used in fit testing and training	After each use

Storage

Storage of respirators must be done properly to ensure that the equipment is protected and not subject to environmental conditions that may cause deterioration. We ensure that respirators are stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they are packed or stored in a clean dry place to prevent deformation of the face piece and exhalation valve. In addition, emergency respirators are kept accessible to the work area; stored in compartments that are clearly marked as containing emergency respirators; and stored in accordance with any applicable manufacturer instructions.

Inspection

In order to assure the continued reliability of respirator equipment, it must be inspected on a regular basis. The frequency of inspection is related to the frequency of use. Here are our frequencies for inspection:

Respirator type:	Inspected at the following frequencies:
All types used in routine situations	Before each use and during cleaning
Maintained for use in emergency situations	At least monthly and in accordance with the manufacturer's recommendations, and checked for proper function before and after each use

Any one of our respirator inspections includes a check:

- For respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face piece, head straps, valves, connecting tube, and cartridges, canisters or filters; and
- Of elastomeric parts for pliability and signs of deterioration.
- For self-contained breathing apparatus, in addition to the above, monthly, we maintain air and breathing air cylinders in a fully charged state and recharge when the pressure falls to 90% of the manufacturer's recommended pressure level and determine that the regulator and warning devices function properly.

Also, for respirators maintained for emergency use, we certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator. This information shall be maintained until replaced following a subsequent certification.

See the attached respirator inspection records.

Repairs

Respirators that fail an inspection or are otherwise found to be defective are removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and only with the respirator manufacturer's NIOSH-approved parts designed for the respirator;
- Repairs must be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and
- Reducing and admission valves, regulators, and alarms must be adjusted or repaired only by the manufacturer or a technician who is certified by the manufacturer.

Discarding of respirators

Respirators that fail an inspection or are otherwise not fit for use and cannot be repaired must be discarded in a manner to ensure they are not used again.

AIR QUALITY PROCEDURES

When atmosphere-supplying respirators are being used to protect employees it is essential to ensure that the air being breathed is of sufficiently high quality. Our company's procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators include coverage of the following OSHA requirements:

Compressed Air, Compressed Oxygen, Liquid Air, and Liquid Oxygen Used for Respirators

- Compressed and liquid oxygen must meet the United States Pharmacopoeia requirements for medical or breathing oxygen.

- Compressed breathing air must meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:

  - Oxygen content (v/v) of 19.5-23.5%;
  - Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less;
  - Carbon monoxide (CO) content of 10 ppm or less;

- Carbon dioxide content of 1,000 ppm or less; and
- Lack of noticeable odor.

- Documentation for the quality of compressed breathing air must be kept with each bottle and/or available at the location of intended use.

- Ensure that compressed oxygen is not used in atmosphere-supplying respirators that have previously used compressed air.

- Ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.

Cylinders Used to Supply Breathing Air to Respirators

- Cylinders must be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR 173 and 178), or acceptable manufacturer standards.

- Cylinders of purchased breathing air must have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air.

- The moisture content in the cylinder must not exceed a dew point of -50 deg. F (-45.6 deg. C) at 1 atmosphere pressure.

Compressors

- Ensure that compressors used to supply breathing air to respirators are constructed and situated so as to:

  - Prevent entry of contaminated air into the air-supply system;
  - Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg. C) below the ambient temperature;
  - Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters must be maintained and replaced or refurbished periodically following the manufacturer's instructions; and
  - Have a tag containing the most recent change date and the signature of the person certified to perform the change. The tag must be maintained at the compressor.

- For compressors that are not oil-lubricated, ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.

- For oil-lubricated compressors, use a high-temperature and carbon monoxide alarm, to monitor levels.

Breathing Air Couplings

- Ensure that breathing air couplings are incompatible with outlets for non-respirable worksite air or other gas systems. No asphyxiating substance must be introduced into breathing air lines.

Breathing Gas Containers

- Use breathing gas containers marked in accordance with the NIOSH respirator certification standard, 42 CFR part 84, or other acceptable standard.

Filters, Cartridges, and Canisters

- Ensure that all filters, cartridges and canisters used in the workplace are labeled properly with the NIOSH approval label and that the label is not removed and remains legible.

TRAINING

The most thorough respiratory protection program will not be effective if employees do not wear and maintain respiratory protective equipment properly. Simply put, employee training is an important part of the respiratory protection program and is essential for correct respirator use.

Our training program covers both the:

1. Respiratory hazards to which our employees are potentially exposed during routine and emergency situations, and

2. Proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance.

Both training parts are provided prior to requiring an employee to use a respirator in our workplace. However, if an employee has received training within 12 months addressing the seven basic elements of respiratory protection (see "Seven basic elements" below) and the Company and the employee can demonstrate that he/she has knowledge of those elements, then that employee is not required to repeat such training initially.

We require all employees that will be wearing respiratory protective equipment to be retrained annually and when the following situations occur:

- Any change in the workplace that requires a different type of respiratory protective equipment to be worn;

- Inadequacies in the employee's knowledge or use of the respiratory protective equipment indicate the employee has not retained the proper understanding or skill; or

- Any other situation arises in which retraining appears necessary to ensure safe respirator use.

Seven basic elements

Our employees are trained sufficiently to be able to demonstrate knowledge of at least these seven elements:

1. Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.
2. What the limitations and capabilities of the respirator are.
3. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
4. How to inspect, put on, remove, use, and check the seals of the respirator.
5. What the procedures are for maintenance and storage of the respirator.
6. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
7. The general requirements of 29 CFR 1910.134.

The basic advisory information on respirators, as presented below is provided by our Program Administrator and /or designee in any written or oral format, to employees who wear respirators when such use is not required by the regulations or by our company:

Voluntary use of respirators

If in the event an employee feels like it is necessary to wear a respirator in an environment where hazardous substances are below OSHA limits they must contact their Safety Coordinator and be entered into the respiratory protection program. Exception: Employees whose only use of respirators involves the voluntary use of filtering (non-sealing) facepieces (dust masks).

PROGRAM EVALUATION

It is inherent in respirator use, problems with protection, irritation, breathing resistance, comfort, and other respirator-related factors occasionally arise in most respirator protection programs. Although it is not possible to eliminate all problems associated with respirator use, we try to eliminate as many problems as possible to improve respiratory protection and encourage employee acceptance and safe use of respirators. By having our program administrator thoroughly evaluate and, as necessary, revise our Respiratory Protection Program, we can eliminate problems effectively.

Program evaluation, performed by your Program Administrator, involves the following:

- Conducting evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.
- Regularly consulting employees required to use respirators to assess their views on program effectiveness and to identify any problems. Any problems that are identified during this assessment must be corrected. Factors to assess include, but are not limited to:

- Respirator fit (including the ability to use the respirator)
- Appropriate respirator selection for the hazards to which the employee is exposed
- Proper respirator use under the workplace conditions the employee encounters
- Proper respirator maintenance

APPENDIX A USER SEAL CHECK PROCEDURES

RE-PRINT OF: APPENDIX B-1 TO 1910.134:
USER SEAL CHECK PROCEDURES (Mandatory)

The individual who uses a tight-fitting respirator must perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed in this appendix, or the respirator manufacturer's recommended user seal check method shall be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

I. Face Piece Positive and/or Negative Pressure Checks:

A Positive pressure check: Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

B. Negative pressure check. Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the face piece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

II. Manufacturer's Recommended User Seal Check Procedures:
The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures provided that the employer demonstrates that the manufacturer's procedures are equally effective.

APPENDIX B RESPIRATORY CLEANING PROCEDURES

RE-PRINT OF: APPENDIX B-2 TO 1910.134:
RESPIRATOR CLEANING PROCEDURES (Mandatory)

These procedures are provided for employer use when cleaning respirators. They are general in nature, and the employer as an alternative may use the cleaning recommendations provided by the manufacturer of the respirators used by their employees, provided such procedures are as effective as those listed here in Appendix B-2. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth in Appendix B-2, i.e., must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user.

I. Procedures for Cleaning Respirators:

A. Remove filters, cartridges, or canisters. Disassemble face pieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.

B. Wash components in warm (43° C [110° F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.

C. Rinse components thoroughly in clean, warm (43° C [110° F] maximum), preferably running water. Drain.

D. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:

1. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43° C (110° F); or,
2. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43° C (110° F); or,
3. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

E. Rinse components thoroughly in clean, warm (43° C [110° F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on face pieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.

F. Components should be hand-dried with a clean lint-free cloth or air-dried.

G. Reassemble face piece, replacing filters, cartridges, and canisters where necessary.

H. Test the respirator to ensure that all components work properly.

APPENDIX C RESPIRATORY EQUIPMENT INSPECTION SHEET(s)

RESPIRATORY EQUIPMENT EMERGENCY AIR-PURIFYING
INSPECTION SHEET
(Sample)

DEVICE: _____ TYPE CANISTER: _____
DATE INSPECTED: INSPECTED BY: _____ _____
LOCATION: _____ USER GROUP: _____
PERSON RESPONSIBLE FOR MONTHLY INSPECTION: _____

CHECK LIST

RUBBER FACEPIECE: _____ CANISTER
RUBBERHEAD HARNESS: _____ Seals: _____
RUBBER HOSE: _____ Expiration Date: _____
EXHALATION VALVE: _____ EXTRA CANISTER
FACEPIECE LENS: _____ Type: _____
HARNESS: _____ Seals: _____
EXTERNALCHECK VALVE: _____ Expiration Date: _____
STORAGE BOX: _____ CLEANLINESS: _____
INSTRUCTION SHEET: _____ FOGPROOF: _____

(REQUIRED MONTHLY)

COMMENTS:

_____
_____
_____
_____
_____
_____

APPENDIX C RESPIRATORY EQUIPMENT INSPECTION SHEET(s)

SELF CONTAINED BREATHING APARATUS (SCBA)
INSPECTION SHEET (Sample)

DEVICE: _____ TYPE CANISTER: _____

DATE INSPECTED: _____ INSPECTED BY: _____

LOCATION: _____ USER GROUP: _____

PERSON RESPONSIBLE FOR MONTHLY INSPECTION: _____

CHECK LIST

RUBBER FACEPIECE: _____ FOGPROOF: _____
RUBBERHEAD HARNESS: _____ AIR CYLINDER PRESSURE: _____
RUBBER HOSE: _____ CYLINDER VALVE: _____
"O" RING (Reg. Connector): _____ BYPASS VALVE: _____
INHALATION VALVE: _____ MAINLINE VALVE: _____
EXHALATION VALVE: _____ PAK ALARM: _____
FACEPIECE LENS: _____ REGULATOR DIAPHRAGM: _____
HARNESS: _____ REGULATOR FUNCTION: _____
BACKPACK: _____ DEMAND: _____
CLEANLINESS: _____ PRESSURE DEMAND: _____
INSTRUCTION SHEET: _____ STORAGE BOX: _____
WRENCH: _____

(REQUIRED MONTHLY)

COMMENTS:

_____
_____
_____
_____
_____
_____
_____
_____
_____

APPENDIX D REFERENCES

American National Standards Institute
Respiratory Protection, ANSI Z88.2

Barclays Official California, Code of Regulations (CCR)
Respiratory Protective Equipment, Cal/OSHA Title 8 CCR §1531

Department of Labor
Respiratory Protection, and Appendices, OSHA 29 CFR 1910.134
Approval of Respiratory Protective Devices, 42 CFR 84

Government Institutes, Inc., Rockville, Maryland
OSHA's Respiratory Protection Standard 1996, Mark McGuire Moran

National Institute Occupational Health (NIOSH)
Guide to Industrial Respiratory Protection-1987,
Guide to the Selection and Use of Particulate Respirators Certified Under 42 CFR 84 (4/23/96).

DCOR

APPENDIX E - RESPIRATOR FIT TEST RECORD

A. Employee: _____ Date: _____

Employee No: _____

Employee Job Title/Description: _____

B. Respirator: ___ Self-Contained ___ Supplied Air ___ Chemical Cartridge w/pre-filter ___ Dust/Fume/Mist Filter

___ Powered Air ___ Chemical Cartridge ___ Dust/Mist Filter ___ HEPA Filter

Respirator Selected: _____

Manufacturer: _____

NIOSH Approval Number: _____

Model Number: _____

C. Conditions which could affect Respirator Fit:

_____ Beard _____ Dentures _____ Glasses

_____ Facial Scar _____ Moustache _____ None

Comments: _____

D. Fit Check:

Negative Pressure: _____ Pass _____ Fail _____ Not Done

Positive Pressure: _____ Pass _____ Fail _____ Not Done

Isoamyl Acetate: _____ Pass _____ Fail _____ Not Done

Sweetner Test: _____ Pass _____ Fail _____ Not Done

Irritant Smoke: _____ Pass _____ Fail _____ Not Done

Comment: _____

E. Maintenance: Cleaning: ___ Daily ___ Weekly Other _____ ___ Individual ___ None

Disposal: ___ Daily ___ Weekly Other _____ ___ Plant

F. Employee Acknowledgement of test results:

Employee Signature: _____ Date: _____

Test Conducted By: _____ Date: _____

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VEHICLE POLICY

The Company is committed to conducting its operations in a manner that protects the health and safety of its employees and preserves corporate assets. The Company vehicle policy is set forth below with these goals as foremost objectives.

SAFE VEHICLE OPERATION POLICY STATEMENT

All vehicles owned or used on behalf of the Company must be operated in a safe and economical manner.

To accomplish this, the following Safe Driver Practices will be followed:

1. All drivers will have a valid driver's license for the vehicle operated.

2. All drivers will adhere to applicable Motor Vehicle Laws of the State, County, and City.

3. All passengers will wear seat belts in Company vehicles, including rental cars. The driver is responsible for ensuring that all passengers are wearing seat belts prior to putting the vehicle in motion.

4. The use, possession, transportation or sale of illegal drugs, alcoholic beverages, firearms, deadly weapons or unauthorized explosives while in Company vehicles is prohibited.

5. Smoking (including e-cigarettes or vaporizers) or use of tobacco products of any kind in Company vehicles is prohibited.

6. Vehicles will be operated only when the vehicles are in safe condition (see maintenance requirements).

7. All accidents in Company vehicles shall be reported to your Supervisor immediately or as soon as it is safe to do so.

8. All vehicle or property damage (not associated with an accident) must be reported to your Supervisor immediately. The appropriate company reports will be filled out within 24 hours.

9. The use of cell phones (including hands free devices) or any electronic devices while driving is strictly prohibited.

10. Only Company employees pre-approved by the Company are authorized to operate a Company owned or leased motor vehicle.

11. Unauthorized personnel are not permitted to ride in Company vehicles. This includes hitch-hikers, spouses, family, and friends. Spouses / Family riding in the vehicles shall be pre-authorized in writing by the Company.

12. For the security of the Company vehicle assigned, the vehicle engine must be shut off, ignition keys removed, and vehicle doors locked whenever the vehicle is left unattended.

13. Company vehicles may be monitored for certain information including but not limited to geographical location, excessive speeding, excessive accelerations, harsh braking, and seat belt violations. Driving behavior is part of overall performance evaluation and could lead to disciplinary action up to and including termination of employment.

14. Drivers will be financially responsible for all traffic and parking violations that occur while the vehicle is assigned and will also be financially responsible for any injuries or property damage that occurs during non-permissive use.

DRIVER QUALIFICATIONS

1. Each driver must furnish a copy of a valid driver license for the State in which he or she resides for our Company files.

2. Motor Vehicle Records, (MVR) information for each driver will be investigated to confirm insurability and compliance with the Company's point system (MVR Insurability Standards).

3. An MVR report will be required for applicants for positions requiring assignment of a company vehicle prior to employment by the Company confirming insurability and eligibility to drive a company vehicle in accordance with the Company's standards. See MVR Insurability Standards in this policy.

4. Annual driver safety training shall be completed to qualify to operate a vehicle for company use.

DRIVER/PASSENGER LIMITATION

1. Company vehicles will be used for company business only. When specifically allowed, Company vehicles may also be used for commuting between the employee’s home and work area.

2. No spouse, child, or non-employee is authorized to drive a Company vehicle except in the case of an emergency or if pre-authorized by the Company.

3. No employee is authorized to use a Company vehicle for vacation trips or extended trips out of the employee's local area.

VEHICLE MAINTENANCE

Employees assigned Company vehicles are responsible for:

1. Normal preventative maintenance of vehicle including:

   a. Oil and oil filter change per manufacturer's recommendation.

   b. Chassis lubrication per manufacturer's recommendation.

   c. Tire rotation per manufacturer's recommendation.

   d Fluid level check per manufacturer's recommendation.

   e. Drive train fluid per manufacturer's recommendation.

   f. All other maintenance shall be completed per manufacturer's recommendation.

2. Vehicle maintenance and performance records will be submitted to the Fleet Manager. An extra copy will be forwarded to Accounting for their use in monthly calculations.

3. Care, security, and maintenance of all vehicle assigned equipment including, but not limited to the toolbox, tools, fire extinguisher, first aid kit, protective eye wear, hearing protection, approved "Hard Hat," radios, mobile phones, flashlights, etc.

REPLACEMENT POLICY

Company vehicles will be replaced at the discretion of the appropriate Manager.

ACCIDENT REPORTING

1. Proof of insurance and an Accident Report Form should always be kept in the vehicle glove box.

2. Accidents should be reported immediately, or as soon as it is safe to do so to your Supervisor and HSE Department and a written accident report provided to your Supervisor within 24 hours of the incident. Copies of the

report will be provided to the Safety Coordinator and the Insurance Carrier for their files.

COMPANY USE OF PERSONAL VEHICLES

1. Any use of personal vehicles to conduct Company business must be approved by your supervisor when traveling outside a 20-mile radius of the Oxnard Corporate office. The following locations are considered to be within the 20-mile radius and do not require supervisor approval:
   a. Port Hueneme
   b. DCOR Paint Shop
   c. Mandalay Onshore Separation Facility
   d. Rincon Onshore Separation Facility
   e. Carpinteria Pier

2. All employees are encouraged to drive a Company pool car when available. If a Company pool car is not available and you are required to travel outside the 20-mile radius of the Oxnard Corporate office, you may use your personal vehicle with authorization from your Supervisor.

3. Mileage reimbursement will be at current IRS rate.

4. Personal vehicles used to conduct company business shall have proper insurance, with minimums of $100,000 property damage/$300,000 bodily injury. Proof of such coverage minimums shall be provided to the Human Resources Director or his or her designee prior to the use of a personal vehicle to conduct Company business. If you are unable or unwilling to provide such proof, you are expected to use a Company pool vehicle.

5. Accidents that occur in personal vehicles while conducting Company business shall be reported immediately, or as soon as it is safe to do so to your Supervisor and HSE Department and a written accident report provided to your Supervisor within 24 hours of the incident.

MVR INSURABILITY STANDARDS

To meet insurability standards, MVR information must be obtained for all potential drivers prior to allowing them to drive on Company business and updated on at least an annual basis during employment. MVR review should include any states that the potential driver has lived in over the past 5 years.
Employees with any record as shown below are considered unacceptable as Company drivers:

- 3 Records – Any combination of 3 moving violations and/or accidents in the past 3 years
- 2 Records – Two accidents in the past 3 years
- 1 Record – 1 or more major violation(s) in the past 5 years, including but not limited to the following:
  - Driving while intoxicated or under the influence (DWI or DUI)
  - Negligent homicide or assault through use of a motor vehicle
  - Hit and Run or leaving the scene of an accident
  - Careless or reckless driving or speed contest violations
  - Operating during a period of suspension or revocation

Moving Violations include but are not limited to the following:

- Running a red light or stop sign
- Failure to yield
- Speeding
- Failure to maintain lane control
- Passing a school bus
- Speeding in a school zone
- Failure to restrain a child

All Company drivers must have a valid US driver license appropriate for the vehicle they are driving, and at least 3 years of driving experience. An occupational driver's license is not acceptable. It is important to note that certain driving violations may only appear in criminal records in some jurisdictions.

Sample Motor Vehicle Record (MVR) Evaluation Grid

Moving Violations (Past 3 years)	Accidents (Past 3 years)		
	0	1	2+
0	Clear	Acceptable	Unacceptable
1	Acceptable	Borderline	Unacceptable
2	Borderline	Unacceptable	Unacceptable
3+	Unacceptable	Unacceptable	Unacceptable
* Any Major Violations (Past 5 Years)	Unacceptable	Unacceptable	Unacceptable

* Major Violations includes but is not limited to the following; 1) driving while intoxicated or under the influence (DWI or DUI), 2) negligent homicide or assault through use of a motor vehicle, 3) hit and run or leaving the scene of an accident, 4) careless or reckless driving or speed contest violations, or 5) operating during a period of suspension or revocation.

All company drivers must have a valid US driver's license appropriate for the vehicle they are driving, and at least 3 years of driving experience. An occupational driver's license is not acceptable. Driving records should be checked prior to employment and on at least an annual basis following. Motor vehicle record review should include any States that the potential driver has lived in over the past 5 years. It is important to note that certain driving violations may only appear in criminal records in some jurisdictions. We recommend discussing policy implementation with your Human Resources department and attorney.

COMPANY VEHICLE POLICY

I have read and understand the requirements set forth in the Company Vehicle Policy.

Print Name: _____

Signature: _____

Date: _____

Note: After signing this page, please return the original to the HR Director.

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CRANE SAFETY, PERSONNEL TRANSFER, & WIRE ROPE POLICY

INTRODUCTION

The Company places a significant value on the protection of personnel, environment and public. It is our stated goal to provide a place of employment free from recognized hazards while protecting the public and our delicate environmental resources. Crane and rigging operations, if performed inappropriately, can pose a significant risk to these values. This policy has been developed to assist company personnel in minimizing, to the extent possible, risks associated with crane and rigging operations.

Purpose

To ensure that all cranes, hoists and rigging devices are properly inspected, maintained and operated in accordance with manufacturers' recommendations, API guidelines, federal, state, and local regulations.

Applicability

Although this standard is primarily aimed toward offshore pedestal mounted cranes addendums are included which illustrate company policy as it relates to onshore and mobile crane and rigging operations. Compliance with this program is mandatory.

Reference

29 CFR 1910.184, *Slings*
29 CFR 1910.179, *Overhead and Gantry Cranes*
29 CFR 1926.1501*, Cranes and Derricks*
30 CFR 250.108, *Cranes and Material Handling*
TITLE 8 CCR, subsection 4999, *Handling Loads*
TITLE 8 CCR, subsection 5004, *Crane or Derrick Suspended Personnel Platforms*
TITLE 8 CCR, subsection 5006.1, *Crane Operator Qualification and Certification*
API RP 2C, *Offshore Cranes* (as referenced in 30 CFR 250.198)
API RP 2D*, Operation and Maintenance for Offshore Cranes* (as referenced in 30 CFR 250.198)

DEFINITIONS

Critical Lift

Critical lifts can be defined as those lifts that are out of the ordinary or may approach the limitations of the lifting equipment or skill level of the operator. Critical lifts include, but are not limited to the following characteristics: blind lifts, personnel lifts, engineered lift, heavy lift (75% of crane), require two cranes to make lift, are located such that the load or the crane boom could fall on electric lines, transformers, live pipelines, vessels or reactors containing flammable, explosive, or hazardous gas or liquids, or other recognized hazards and the use of poles and derricks that have been erected for a specific lift.

If a lift is classified as critical, additional precautions may be taken, (e.g., inspections, load test, JSA, lift plan (refer to Appendix B) or additional safety precautions and notifications).

Dynamic Load (Platform to Boat)

A Dynamic Load is a load taken from or placed onto a vessel. Dynamic crane capacities, which are significantly less than static capacities, are used for these lifts.

Static Load (Deck to Deck)

A Static Load is a load taken from or placed onto a rigid surface.

Qualified Operator

A person so designated by the company who has appropriate experience and training. Such appropriate experience and training must comprise minimum amounts of classroom-type sessions and hands-on field training, with cranes specific to the type to be operated, (i.e. operation of non-mechanical cranes and/ or operation of mechanical cranes "those with free-fall capability"), (refer to section 6.0 of this policy for specific crane operator training requirements)

Qualified Crane operators shall be classified into three categories based on experience:

Class A Class A operators have no restrictions. They can make lifts within the dynamic & Static rated capacity of the crane. Class A operators must take additional precautions as specified under the definition of critical lifts.

Class B Class B operators may make whip line lifts from boats (dynamic lifts) but will be limited to the capacity of the whip line. They may also make static block lifts up to 20,000 pounds, **NO** critical lifts unless approved by upper management. May make dynamic lifts up to 20,000 pounds with blocks but must be supervised by "A" operator.

Class C Class C operators may perform lifts similar to a class B operator but only under the direct supervision of a class A operator. Class C operators shall not operate without supervision. **NO** critical lifts or dynamic lifts with blocks. Dynamic whip line lifts should only be performed with calm wind and sea conditions.

Operator Qualifications for upgrade – See section VI for training requirements

Qualified Inspector

A person designated by the company who by reason of appropriate experience and training, has successfully completed classroom-type training on crane maintenance and troubleshooting; on hoist troubleshooting and overhaul; and on the structural aspects of offshore cranes, which gives a knowledge of structurally critical components and critical inspection areas. Qualified Inspectors shall complete API RP 2D Pedestal Inspector training and must complete training every 4 years.

Qualified Rigger

A rigger is anyone who, signals a crane, and/ or attaches or detaches lifting equipment to loads or lifting devices. In order to be considered a *qualified rigger,* the person shall have successfully completed a rigger-training program in accordance with the training section of this policy and in accordance with API RP 2D Sixth Edition, Appendix A3.

Qualified Trainer

Pedestal Crane Trainer: A person designated by the company who by reason of appropriate experience and training, has successfully completed classroom-type training on crane operations, maintenance and inspections. Qualified Trainers shall complete API RP 2D Pedestal Train the Trainer training and must complete retraining every 5 years.

Rigger Trainer: A person designated by the company who by reason of appropriate experience and training, has successfully completed classroom-type training on rigging operations, maintenance and inspections. Qualified Trainers shall complete Offshore Crosby Rigger Train the Trainer training and must complete retraining every 5 years.

Miscellaneous Definitions:

Boom: A member hinged to the revolving upper-structure and used for supporting the hoist tackles.

Boom angle: The angle above or below horizontal of the longitudinal axis of the base boom section.

Boom angle indicator: An accessory which measures the angle of the boom above horizontal.

Boom Length: The straight-line distance from the centerline of boom foot-pin to the centerline of the boom-point load hoist sheave pin, measured along the longitudinal axis of the boom.

Boom stop: A device used to limit the angle of the boom at the highest recommended position.

Brake: A device used for retarding or stopping motion or holding.

Cab: An enclosure for the operator and the machine operation controls.

Clutch: A means for engagement or disengagement of power.

Counterweight: Weight used to supplement the weight of the machine in providing stability for lifting working loads and usually attached to the rear of the revolving upper-structure.

Critical component: Any component of the crane assembly devoid of redundancy and/or auxiliary restraining devices whose failure would result in an uncontrolled descent of the load or uncontrolled rotation of the upper-structure.

Designated: Selected or assigned by the employer or the employer's representative as being qualified to perform specific duties.

Enclosure: A structure that may provide environmental protection for the machine.

Gantry (also known as A-frame or mast): A structural frame, extending above the upper-structure to which the boom support ropes are reeved.

Hoisting: The process of lifting.

Hoist rope: Wire rope involved in the process of lifting.

In service: A crane is in-service when the operator is in control of the crane.

Load Line (also known as hoist line): In lifting crane service it refers to the main hoist rope. The secondary hoist rope is referred to as a whip line or auxiliary line.

Load ratings: Crane ratings in pounds (kilograms) established by the manufacturer.

Pawl (dog): A device for positively holding a member against motion in one or more directions.

Pedestal (also known as base): The supporting substructure upon which the revolving upper-structure is mounted.

Rated capacity: The rated load or Working Load Limit (WLL) at specified radii as established by the manufacturer which are the maximum loads at those radii for the conditions specified.

Reeving: A rope system where the rope travels around drum and sheaves.

Rope: Refers to wire rope unless otherwise specified.

Running rope: A rope which travels around sheaves or drums.

Sling: An assembly that connects the load to the material handling equipment.

Two-blocking: The condition when the lower load block, hook assembly or fast line ball contacts the upper load block or boom-point sheave assembly.

Upper Management: Refers to Company Superintendents, Vice Presidents and President.

Wire rope: A flexible, multi-wired member usually consisting of a core member around which a number of multi-wired strands are “laid” or helically wound.

Working load: The external load in pounds (kilograms), applied to the crane including the weight of load-attaching equipment such as load block, shackles, and slings. The maximum allowable working load for a given condition would be the Working Load Limit (WLL).

Working Load Limit (WLL): The maximum rated load within crane rated capacity for the given operating conditions.

OPERATION

General Requirements

1. Only the following personnel may operate company cranes:
   a. Qualified operators who have met and passed the minimum training requirements outlined by the policy and who possess documents (card) attesting to those qualifications.
   b. Trainees that are under the direct supervision of a Pedestal Crane Trainer.

   No one other than personnel specified above should enter a crane cab with the intent of operating the crane.

2. Every employee is authorized to stop any unsafe crane operation.

3. All documentation paperwork must have operator/inspectors printed name and signature.

4. All cranes will be equipped with a functional weight indicator on the main hoist and a boom angle indicator, both visible by the operator.

5. Crane load-radius charts for static and dynamic lifting will be located in plain sight of the operator and used for each lift. When lifting to or from a boat the dynamic weights of the load chart will be used.

6. Crane load limits will always be adhered to.

7. Personnel will avoid being under any part of crane boom or load.

8. Riggers/Operators will ensure all rigging arrangements being used have a rated capacity that is one and a half times greater than the weight of the load.

9. Riggers/Operators will check loads before rigging to ensure they are free to be lifted and clear of obstructions.

10. If the crane operator is unable to see the load being worked, the crane operator will be aided by a second qualified rigger acting as a signalman.

11. The crane operator will obtain all pertinent information contained on the shipping manifest before cargo transfer begins (weights, hazardous material, etc.).

12. All MPT tanks, full or empty, must be lifted with the blocks- no exceptions.

13. A stinger, of sufficient length, will be attached to the main hook to keep the main hoist load block or auxiliary hoist headache ball from coming in contact with personnel rigging loads on the deck of a vessel offshore.

14. Bypassing of the boom kick-out, anti-two blocking or other safety devices on any crane is strictly prohibited.

15. Helicopter Landings – Cranes shall not be operated while a helicopter is landing, taking off, or running on the heliport.

16. Weather conditions need to be considered, no lift shall be made if the wind speed is in excess of 30 knots or 35 mph.

17. Sea conditions need to be considered when making dynamic lifts, this decision can be made by the boat captain and/or crane operator.

18. If a crane operator sees a helicopter approaching the flight deck for a landing, the operator must:
    a. Move the crane boom away from the flight deck,
    b. Secure the load,
    c. Shut the operation down, and
    d. Step out of the crane cab until the pilot has stopped the rotation of the rotor blades.

19. Cranes shall not be refueled with the engine running. Fuel tanks shall be filled in a manner that fuel spills or overflows will not run onto engine, exhaust, or electrical equipment, and shall have spill containment to provide environmental protection.

20. Power Lines - All power lines must be considered energized unless the electrical utility owning the lines indicate that the lines are not energized and they are visibly grounded and appropriately marked. When operating near power lines, minimum clearance between the lines and any part of the crane or load must be:

Voltage	**Minimum Clearance**
600 to 50,000	10 feet
50,000 to 75,000	11 feet
75,000 to 125,000	13 feet
125,000 to 175,000	15 feet
175,000 to 250,000	17 feet
250,000 to 370,000	21 feet
370,000 to 550,000	27 feet
550,000 to 1,000,000	42 feet

21. When in transit with no load and boom lowered, the equipment clearance may be decreased by 4 feet in each category. Example: 600 to 50,000 is 6 feet.

22. Where maintaining the proper clearance by sight is difficult for the operator, a signalman must be present. The signalman must be familiar with all the hand signals for the crane operated and the power line guidelines.

Operating Practices

1. The qualified operator has the overall authority to stop and refuse to handle loads or continue operations as safety dictates.

2. The operator shall be familiar with the equipment and its proper care. If adjustments or repairs to the crane are necessary, or any deficiencies that impair safe operation are known, the crane will be taken out of service or its operations restricted to eliminate the unsafe condition.

3. Before starting the crane, the operator shall verify the following:
    a. The pre-use daily inspection has been completed. (Refer to Appendix A)
    b. All controls are in the "off' or "neutral" position.
    c. All personnel are in the clear.

4. Before leaving the control station unattended for a prolonged period, the operator shall:
    a. Land any attached load.
    b. Disengage the master clutch, where applicable.
    c. Set all locking devices.
    d. Put controls in the off or neutral position.
    e. Stop the prime mover.
    f. Assure that no component of the crane will interfere with normal helicopter flight operations.

5. If power or a necessary control function fails during operation, the operator shall:
    a. Set all brakes and locking devices.
    b. Move all clutch or other power controls to the off or neutral position.
    c. If practical, land the suspended load by controlled lowering and stopping.

6. For mechanical cranes, the operator shall operationally test the brakes each time a load approaching the rated load capacity is to be handled. Prior to raising the load, exposed brakes should be warmed and rusted surfaces on the drums cleaned by raising and lowering the boom and load lines under slight brake pressure.

7. When handling loads, the operator shall never start machine movement unless the load is within his range of vision or the appointed signal person is within his range of vision and has given the appropriate signal.

8. The operator shall respond to signals only from the appointed signal person but should obey an emergency stop signal at any time, no matter who gives the signal.

9. The operator shall verify that the appropriate static and dynamic load rating charts are in place for the crane configuration in use (i.e., boom length, load line reeving, counterweight, jib, etc.). The dynamic load chart will be used for any lifts made, to or from, a pier or platform, to or from a boat.

Handling the Load

The Load

1. Crane lifting capacities are based on relative motion conditions between the crane and the load to be handled. All offshore cranes, or any crane which makes lifts from a boat, shall have one static and at least one dynamic load rating chart, derived in accordance with the procedures outlined in API Specification 2C, latest edition.

2. The appropriate load-rating chart for the configuration in use shall be visible to the operator at the control station.
3. The operator shall verify that the hook load is within the cranes applicable Static or Dynamic Rated Load at the radius at which the load is to be lifted.

Attaching the Load

1. The load shall be attached to the hook by means of slings or other suitable devices.
2. The latch shall be closed and locked to secure loose slings.
3. The hoist rope shall never be wrapped around the load.
4. Sling use shall be in accordance with manufacturer’s recommendations and company policy.
5. Tag lines shall be utilized on all loads unless circumstances make it less safe to do so.

Moving the Load

1. No external forces shall be applied to suspended loads that will create significant side loading of the boom. Care should be taken when swinging the crane so as to minimize the pendulum action of the hook and suspended load.
2. The operator shall be aware of the effect of velocity and weight of the load when lowering, to minimize shock load.
3. Personnel riding on the load or hook (unless in a personnel net or basket) is strictly prohibited.
4. The operator shall not move loads over personnel. Loads that are suspended by use of slings or hoists should be blocked or cribbed before personnel are permitted to work beneath or between them.
5. No fewer than five (5) full wraps of rope shall remain on the drum(s) in any operating condition. Consideration should be given to hoist manufacturer's recommended practices, especially for breakaway anchor-type hoists.
6. When two or more cranes are used to lift one load, one qualified operator shall be responsible for the operation. The responsible operator shall analyze the

operations, complete JSA/Lift Plan and instruct all personnel involved in the proper positioning, rigging of the load and the movements to be made.

7. When a crane is to be operated at a fixed radius, the boom hoist auxiliary holding device, where fitted, shall be engaged, especially in the case of mechanical cranes or those without automatic pawl control.

Signals

1. Standard Signals - Signals between the crane operator and the designated signal person shall be discernible, audibly or visually. The operator shall not respond unless signals are clearly understood.

2. Hand Signals - Recommended standard hand signals are identified in Figure 3-1.

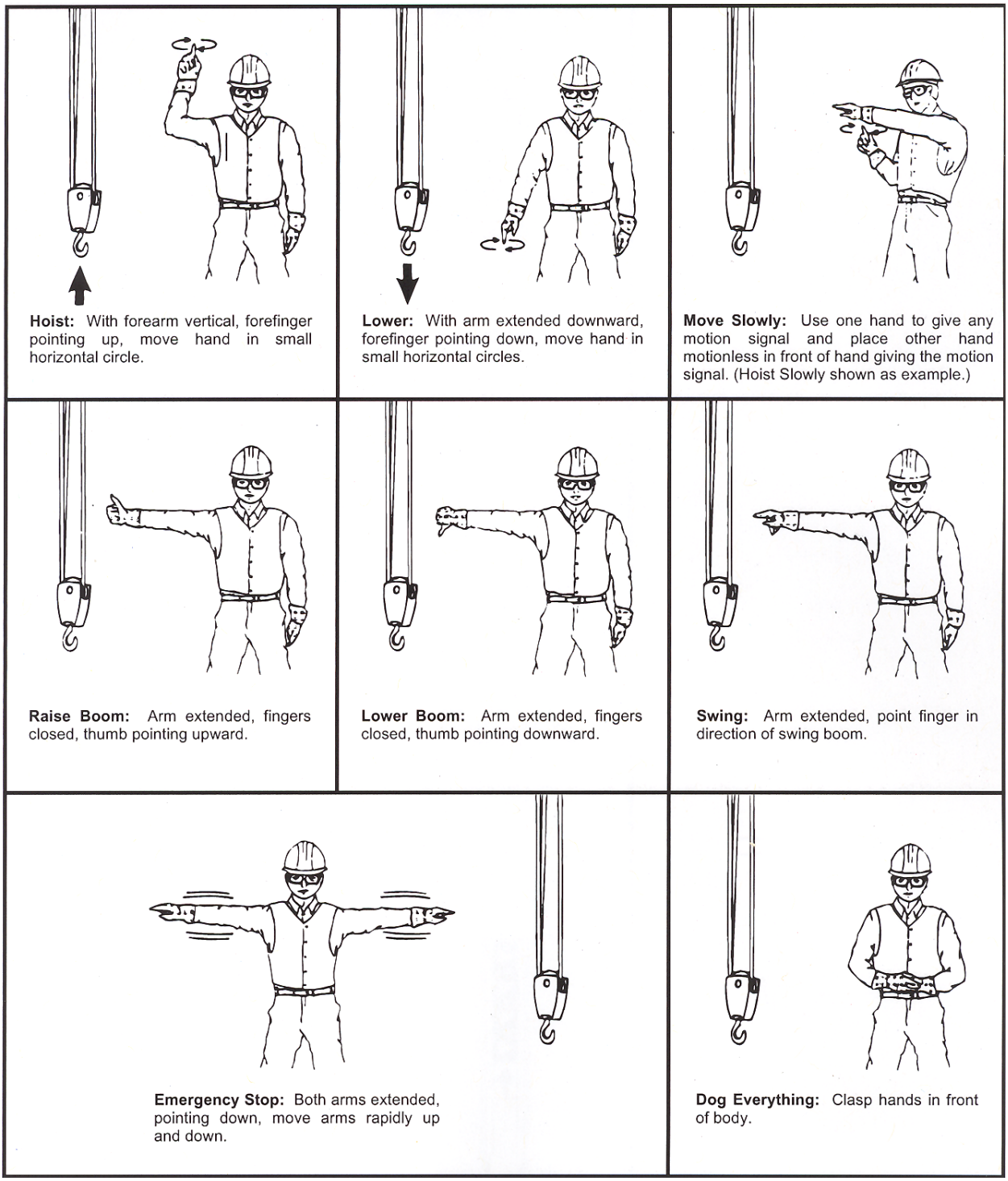
3. Special Signals - For operations not covered in Figure 3-1, or for special conditions, additions or modifications to the recommended standard signals may be required. In such cases, these special signals shall be agreed upon in advance by the operator and the designated signal person and shall not conflict with, or have the potential to be confused with, standard signals.

4. Instructions - If it is desired to give instructions to the operator other than those provided by the established signal system, the crane motion shall be stopped.

5. Signaling - When operations are required to be controlled by signals, a designated signal person should be assigned to work with the crane. The designated signal person shall be qualified by experience with the operations and knowledgeable of the standard hand signals as shown in Figure 3-1.

6. Be in clear view of the operator to ensure that their signals can be seen. Their position should give them a clear view of the load, crane, personnel, and area of operation. If the operator's view of the primary signal person is obstructed, an additional signal person shall be provided.

Figure 3-1 Crane Hand Signals



Source: API RP 2D, *Operation and Maintenance of Offshore Cranes*

Personnel Transfer

General

1. Hoists used to transfer personnel must have a certification on file which states:

   "Approved for Personnel Handling" This certification will be maintained in the crane file on the facility.

2. A crane hook that can be closed and locked, with a pinned or positive locking device shall be used for any personnel lifts. These hooks are designed to prevent the personnel basket sling from coming off the hook accidentally.
3. Never use equipment to lift personnel unless the equipment is certified, designed and rated for that purpose.
4. Prior to making a personnel lift, appropriate pre-use inspection(s) of the net/basket and associated rigging per manufactures guidelines is required. Any deficient items shall be repaired or replaced prior to lifting personnel.
5. All personnel to be lifted on a personnel carrier or basket shall use approved personal flotation devices (PFD) when being lifted over water.
6. The weight of the loaded personnel carrier or basket should not exceed the Personnel Rated Load as defined by API Specification 2C, latest edition.
7. When making personnel lifts, the load shall be under control in both up and down directions. Cranes or working lines with free falling capability are not permitted for personnel transfer.
8. Any crane or working line used for personnel transfer must have an anti-two block device installed.
9. Mechanical cranes are unacceptable for personnel transfers.

Stokes Baskets

Stokes baskets are to be used for emergencies only. (Must have approval from Management see definitions within this policy for "upper-management")

General Requirements:

- Shall have a tag line of adequate length to go to the boat in order to control the basket from the helicopter affect,
- Stokes basket shall be equipped with flotation device for all lifts over water.
- Crane shall meet the general personnel transfer requirements that are stated in this policy.
- A pre-lift meeting attended by the crane operator, rigger, signal person(s) (if necessary for the lift), and employee(s) to be lifted shall be held to review the appropriate requirements of this policy
- Rigging used for stokes basket shall not be used for any other application at any time.

Inspections:

- Inspections shall be made prior to use and shall comply with manufactures recommendations.

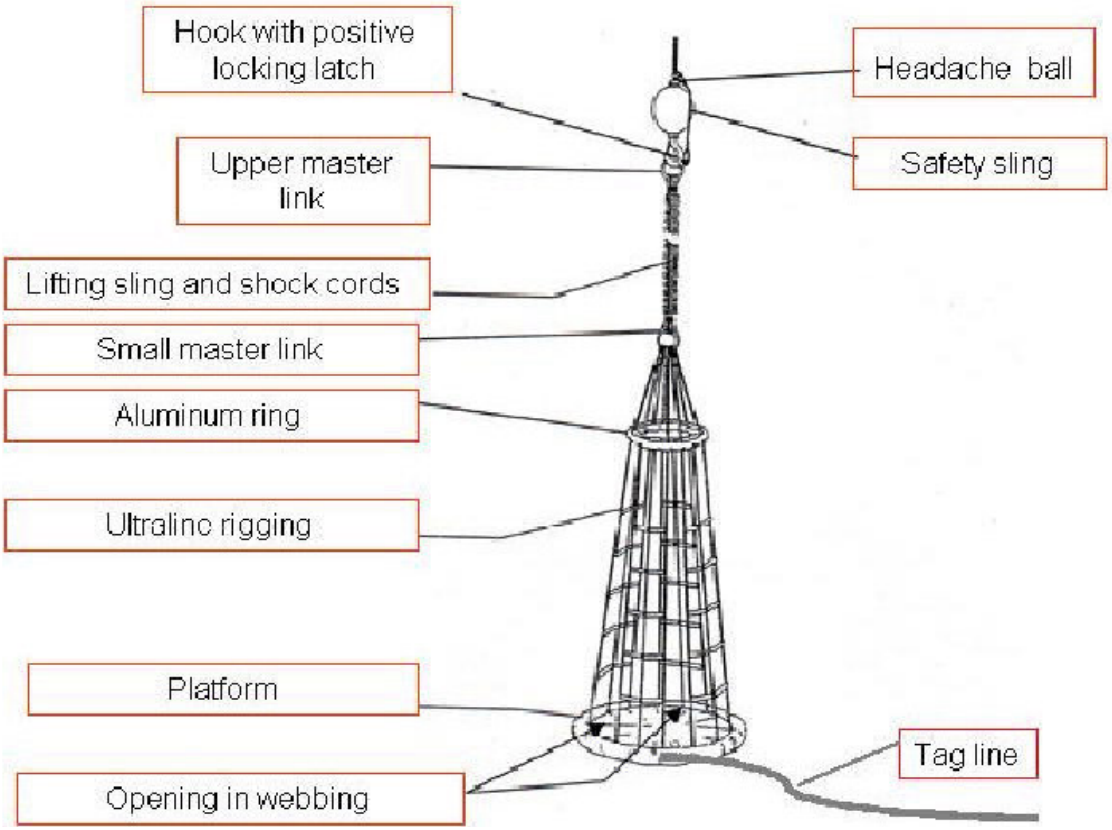
Personnel Nets/Billy Pugh

Billy Pugh's are to be used for emergencies or under the approval of upper management only. (Must have approval from Management see definitions within this policy for "upper-management")

Net occupants

- Occupants of a Billy Pugh should stand, facing inward, on the outer rim of the net in the open area designed in the netting. PFD's must be worn.
- Occupants of a Billy Pugh should anticipate the landing on the deck of the vessel or facility by slightly bending their knees so as not to sustain a possible injury. They should not get off the net until it is settled on the deck of the vessel or facility.
- Personnel lifts with a Billy Pugh must be performed by a certified crane operator and authorized by the facility supervisor.
- When transferring by personnel net, a trained experienced person (i.e. deck hand, company or contract employee, etc.) must be available for loading, to instruct newcomers, and when necessary to assist in directing the crane signal person.
- When transferring personnel between a facility and a vessel, only one person should give signals. However, the crane operator must comply if an emergency stop signal is given by any person. The transfer operation must not resume activity until the signal person clearly indicates that it is safe to do so.

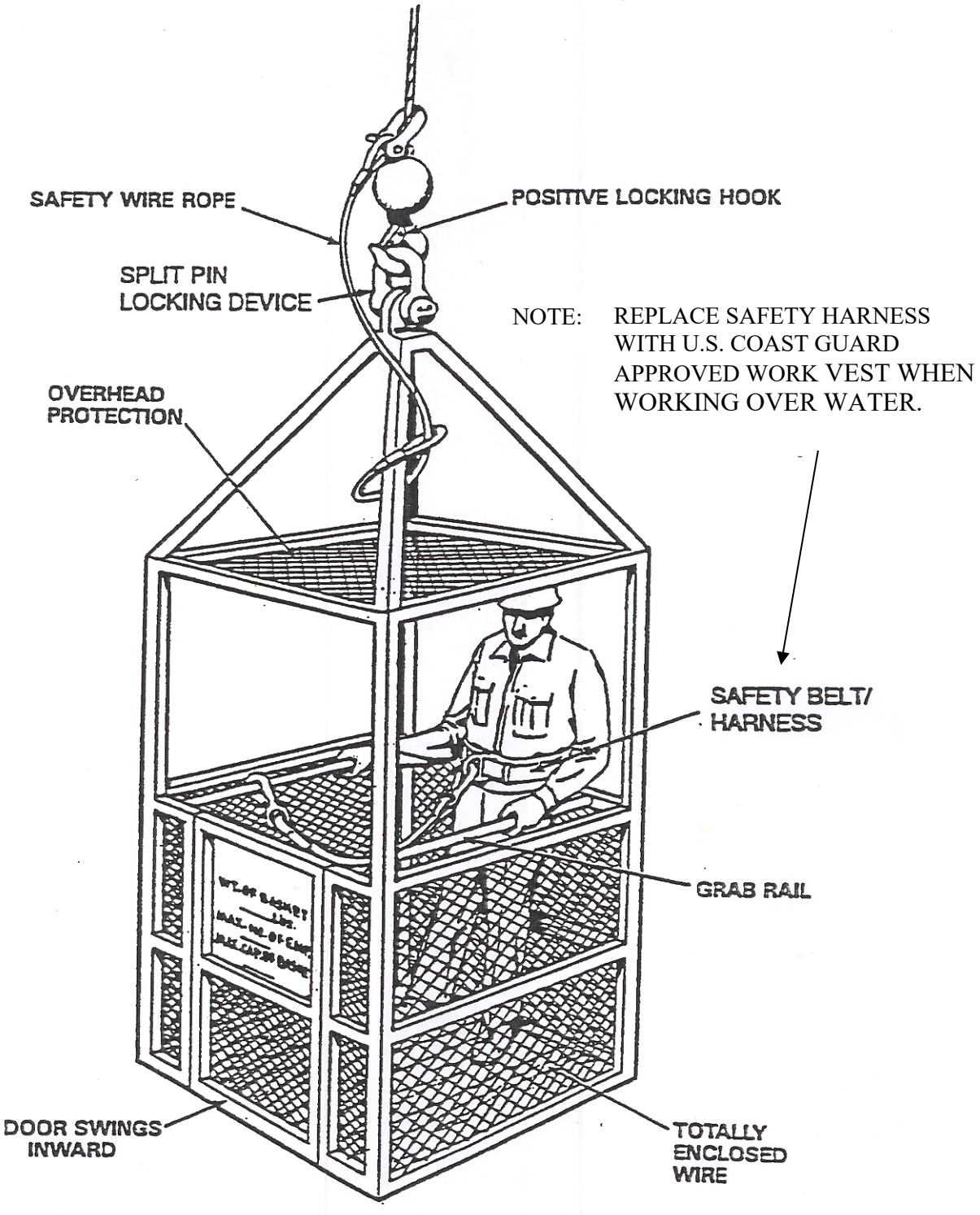
Figure 3-2 Properly Rigged Billy Pugh



Personnel Basket

1. The use of a crane to hoist employees on a personnel basket is prohibited, except when the erection, use, and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform or scaffold, would be more hazardous or is not possible because of structural design or worksite conditions.
2. A pre-lift meeting attended by the crane operator, rigger, signal person(s) (if necessary for the lift), and employee(s) to be lifted shall be held to review the appropriate requirements of this policy.
3. The personnel basket and suspension system shall be designed by a registered engineer.
4. All welding of the personnel basket and its components shall be performed by a certified welder familiar with the weld grades, types and material specified in the basket design.
5. In addition to the use of hard hats, employees shall be protected by overhead protection on the personnel basket when employees are exposed to falling objects (refer to figure 3-3).
6. The personnel basket shall be conspicuously posted with a plate or other permanent marking which indicates the weight of the basket and its rated load capacity (refer to figure 3-3).
7. Prior to hoisting employees on the personnel basket, and after any repair or modification, the basket and rigging shall be proof tested to 125 percent of the basket's rated capacity by holding it in a suspended position for five minutes with the test load evenly distributed on the platform (this may be done concurrently with the trial lift). After proof testing, a qualified operator shall inspect the platform and rigging. Any deficiencies found shall be corrected and another proof test shall be conducted.
8. Except over water, employees occupying the personnel basket shall use a body full body harness system with lanyard appropriately attached to the lower load block or overhaul ball, or to structural member within the personnel basket capable of supporting a fall impact for employees using the anchorage (refer to figure 3-3).
9. Rigging used for man basket shall not be used for any other application at any time.
10. All four legs of the bridle on the personnel basket shall be equipped with safety shackles.

Figure 3-3 Properly Rigged Personnel Basket



Critical Lift Procedure

1. A critical lift, as defined in definitions, cannot be conducted without proper approval. Approval can be obtained from Superintendent or from a Production Foreman.
2. For a Critical Lift Plan to be approved, the proper paperwork must be submitted for review. Below is a list of required documents:
    I. Critical Lift Form as shown in Appendix B
    II. Job Safety Analysis for lift reviewed and signed by UWA/PIC
    III. Explanation of lift: Reason for the lift, and a brief description of the lift, and any additional information as requested by the approver.
3. Required documentation is to be emailed to the appropriate approver's email. Phone call to the approver is recommended in order to inform of the need for approval for a Critical Lift Plan.
4. Once approval is received, the signed copy of the Critical Lift Form and other associated paperwork needs to be posted in the appropriate location. This packet should be archived in the same fashion as other safety documentation.

CRITICAL LIFTS CANNOT BE CONDUCTED WITHOUT APPROVAL

INSPECTION, TESTING, AND MAINTENANCE

Crane Usage Categories

Inspection procedures for cranes are divided into three general categories based upon their usage or duty cycle, which in turn determines different, appropriate intervals at which inspections are to be performed:

1. Infrequent Usage - Infrequent Usage applies to those cranes that are used for 10 hours or less per month, based on the averaged use over a quarter. These cranes are subject to a pre-use inspection and an annual inspection. Crane usage should be reviewed on a periodic basis to ensure proper inspection intervals. Note: Special attention should be given to wire rope on these cranes during pre-use inspections.

2. Moderate Usage - Moderate usage applies to those cranes that are used for more than 10 hours but for less than 50 hours per month, based on the averaged use over a quarter. These cranes are subject to pre-use, quarterly, and annual inspections. Crane usage should be reviewed on a periodic basis to ensure proper inspection intervals.

3. Heavy Usage - Heavy usage applies to those cranes that are used for 50 hours or more per month. These cranes are subject to pre-use, monthly, quarterly, and annual inspections. Cranes assigned to this category need not be reviewed to determine the number of hours used each month.

Inspection Categories

Cranes shall receive inspections in accordance with the usage categories described above. These usage and inspections categories are more clearly defined within API RP 2D, Appendix C. These inspection requirements apply to cranes installed for temporary use. These inspection guidelines are minimum requirements.

Initial Inspection - Initial inspections apply to cranes that are new and are being placed into service, cranes that are being permanently relocated and temporary cranes. A qualified inspector shall perform these inspections. Every initial inspection shall include a load test performed per the procedures given in APIRP 2D, Appendix E.

Pre-use Inspection – (Refer to Appendix A, Daily Inspection) the pre-use inspection shall be performed prior to crane use or during each change in operator, and then as the qualified operator deems necessary during the day for extended operations. A qualified operator shall perform this inspection, and it applies to all cranes, regardless of usage category. A qualified inspector may also perform these inspections. This document must have the inspectors printed name and signature.

If a discrepancy exists, then you must call the Crane Supervisor and/or the Crane Mechanics and red tag the crane.

1. Perform a walk-around visual examination of the crane boom and support structure to ensure that no visible damage, obstructions, or leaks exist.
   - Drip pan hoses
   - Fire nozzles in proper position
   - Ladders clear of obstructions
   - All obstructions that could be impacted by any part of the crane cab, boom, or body as it swings
2. Check all fluid levels of prime mover
3. Check control mechanisms including brakes and clutches for proper operation.
4. Visually check for hoist lubricant oil leakage. In hoists where a sight glass is provided, also check the fluid level.
5. Visually check for leakage or damage to the air and non-mechanical systems.
6. Check the following devices where applicable:
7. Boom Hoist Pawl.
8. Helicopter Warning Light.
9. Crane Hook Latch.
10. Perform a walk-around visual examination of the crane boom and support structure to ensure that no visible damage, obstructions or leaks exist.
11. Ensure the correct load-rating chart for the configuration is visible to the Crane Operator at the primary control station.
12. Visually check wire rope for evident deterioration and damage, or improper revving.
13. Visually check rigging gear to be used, such as slings, sling hooks and shackles.
14. Clean Windows inside and out as necessary.
15. Remove trash and clean the inside of crane cab as needed.

Lubricate components and correct deficiencies as required based on the results of these inspections.

Monthly Inspection – (Refer to Appendix A) the monthly inspection shall be performed once per month, for all cranes assigned a heavy usage category. A qualified inspector performs these inspections. This document must have the inspectors printed name and signature.

Monthly inspections may include but are not limited to the following actions:

1. Check all fluid levels of prime mover.
2. Check control mechanisms including brakes and clutches for proper operation.
3. Visually check for hoist lubricant oil leakage. In hoists where a sight glass is provided, also check the fluid level.
4. Visually check for leakage or damage to the air and non-mechanical systems.
5. Check the following devices where applicable:
   a) Boom Hoist Pawl.
   b) Helicopter Warning Light.
   c) Crane Hook Latch.

6. Perform a walk-around visual examination of the crane boom and support structure to ensure that no visible damage exists.
7. Ensure the correct load-rating chart for the configuration is visible to the Crane Operator at the primary control station.
8. Visually check wire rope for evident of deterioration and damage, or improper revving.
9. Visually check for loose, missing or corroded bolts, pins, keepers or cotter pins.
10. Visually check rigging gear to be used, such as slings, sling hooks and shackles.
11. Further check all control mechanisms for proper adjustment, excessive wear of components and contamination by foreign matter.
12. Check appropriate electrical apparatus for proper function.
13. Check boom hoist limit and anti-two block devices for proper operation. Care shall be exercised to prevent damage to crane components.
14. Clean Windows inside and out as necessary.
15. Remove trash and clean the inside of crane cab as needed.

Lubricate components and correct deficiencies as required based on the results of these inspections. Document these results per company policy.

Quarterly Inspection – (Refer to Appendix A) the quarterly inspection shall be performed once every three months for all cranes assigned a moderate or heavy usage category. A *qualified inspector* shall perform this inspection. This document must have the inspectors printed name and signature.

Quarterly inspections may include but not be limited to the following actions:

1. Check all fluid levels of prime mover.
2. Check control mechanisms including brakes and clutches for proper operation.
3. Visually check for hoist lubricant oil leakage. In hoists where a sight glass is provided, also check the fluid level.
4. Visually check for leakage or damage to the air and non-mechanical systems.
5. Check the following devices where applicable:
    a) Boom Hoist Pawl.
    b) Helicopter Warning Light.
    c) Crane Hook Latch.
6. Perform a walk-around visual examination of the crane boom and support structure to ensure that no visible damage exists.
7. Ensure the correct load-rating chart for the configuration is visible to the Crane Operator at the primary control station.
8. Visually check wire rope for evident of deterioration and damage, or improper revving.
9. Visually check rigging gear to be used, such as slings, sling hooks and shackles.
10. Visually check for loose, missing or corroded bolts, pins, keepers or cotter pins
11. Further check all control mechanisms for proper adjustment, excessive wear of components and contamination by foreign matter.
12. Check appropriate electrical apparatus for proper function.

13. Check boom hoist limit and anti-two block devices for proper operation. Care shall be exercised to prevent damage to crane components.
14. Boom should be inspected for bent chord members, missing or broken lacing and cracked welds on critical members. Boom section end connections should be inspected for cracked welds, deformation and corrosion.
15. Check boom angle/radius indicators over full range for accuracy.
16. Sheaves should be inspected for wear, cracks, and rope path alignment and bearing condition.
17. Check power plants for proper performance compliance with safety requirements.
18. Check belts and chains for proper adjustment.
19. Visually check crane hooks for deformation, and discard if deformations exceed those manufacturer's recommendations.
20. Inspect wire rope as per company rigging policy.
21. Check lubricant level in all hoists and slew drives, including those not fitted with sight glasses.
22. Clean Windows inside and out as necessary.
23. Remove trash and clean the inside of crane cab as needed.

Lubricate components and correct deficiencies as required based on the results of these inspections. Document these results per company policy. Oil sample analysis, as suggested by the hoist manufacturer, is intended primarily to evaluate its mechanical integrity. Oil sample analysis need not necessarily mean a laboratory analysis. It may be effectively achieved by qualitative tests performed in the field by a qualified inspector or crane operator (such as cheese cloth, smell and texture tests).

Annual Inspection (Refer to API RP 2D Appendix C)The annual inspection shall be performed once every twelve months. A qualified inspector shall perform this inspection and it applies to all cranes, regardless of usage category. This document must have the inspectors printed name and signature.

Annual Inspection will include daily, monthly and quarterly inspections, as well as inspections of critical crane components. A basic guideline for annual inspections should consider, but not be limited to, the following:

1. Check all fluid levels of prime mover.
2. Check control mechanisms including brakes and clutches for proper operation.
3. Visually check for hoist lubricant oil leakage. In hoists where a sight glass is provided, also check the fluid level.
4. Visually check for leakage or damage to the air and non-mechanical systems.
5. Check the following devices where applicable:
    a) Boom Hoist Pawl.
    b) Helicopter Warning Light.
    c) Crane Hook Latch.
6. Perform a walk-around visual examination of the crane boom and support structure to ensure that no visible damage exists.

7. Ensure the correct load-rating chart for the configuration is visible to the Crane Operator at the primary control station.
8. Visually check wire rope for evident deterioration and damage, or improper revving.
9. Visually check rigging gear to be used, such as slings, sling hooks and shackles.
10. Visually check for loose, missing or corroded bolts, pins, keepers or cotter pins
11. Further check all control mechanisms for proper adjustment, excessive wear of components and contamination by foreign matter.
12. Check appropriate electrical apparatus for proper function.
13. Check boom hoist limit and anti-two block devices for proper operation. Care shall be exercised to prevent damage to crane components.
14. Boom should be inspected for bent chord members, missing or broken lacing and cracked welds on critical members. Boom section end connections should be inspected for cracked welds, deformation and corrosion.
15. Check boom angle/radius indicators over full range for accuracy.
16. Sheaves should be inspected for wear, cracks, and rope path alignment and bearing condition.
17. Check power plants for proper performance compliance with safety requirements.
18. Check belts and chains for proper adjustment.
19. Visually check crane hooks for deformation, and discard if deformations exceed those manufacturer's recommendations.
20. Inspect wire rope as per company rigging policy.
21. Check lubricant level in all hoists and slew drives, including those not fitted with sight glasses.
22. Clean Windows inside and out as necessary.
23. Remove trash and clean the inside of crane cab as needed.

Lubricate components and correct deficiencies as required based on the results of these inspections. Document these results per company policy. Oil sample analysis, as suggested by the hoist manufacturer, is intended primarily to evaluate its mechanical integrity. Oil sample analysis need not necessarily mean a laboratory analysis. It may be effectively achieved by qualitative tests performed in the field by a qualified inspector or crane operator (such as cheese cloth, smell and texture tests).

Inspection of critical crane components: The Annual Inspection of critical components appropriate for an individual machine will differ, depending on the crane type and design of the individual components. A basic guideline for inspection of critical crane components should consider but not be limited to the following:

1. **Hoist Assemblies**- Annual Inspection and maintenance of the hoist should be determined by the crane owner as a function of the hoist type, past and anticipated duty cycle, and condition. The quality of the hoist lubricant is considered a primary indicator of the mechanical integrity of the hoist. Brakes should be tested by stalling the drive.

2. **Foundation**- Weld-ments in the crane's pedestal and supporting deck structure should be visually examined for fracture, deformation and corrosion. Special attention should be paid to areas of rust and cracked paint.
3. **Swing Circle Assembly**- The swing circle assembly is the connecting component between the crane revolving upper structure and the pedestal. Consequently, regular inspections are paramount to insure a long and safe operational life.

There are three main types of swing circle assemblies typically used on pedestal-mounted cranes:

- Hook and Roller Assemblies.
- King Posts.
- Ball/Roller Bearings.

Load Testing

Load Test Criteria

A crane load test is required under the following conditions:

- New cranes being placed into service
- Cranes that are being permanently relocated
- Temporary/rental cranes after each rig-up or relocation

Annual Inspections

1. The designated qualified Inspector must carefully choose the load applied to the crane during the test. Since the test loads are based on the crane rating chart, the Qualified Inspector must be familiar with the applicable load rating chart. Since the crane hoists and ropes will be used to impose the overload on the crane, the qualified Inspector will choose a test load that is within the capacity of the hoist(s) and rope(s) as normally rigged. The crane will not be rigged with extra parts of line to lift a greater test load at a closer radius.

2. The test load can be imposed on the crane with a lesser load at a greater radius. However, the test load will be to API RP 2D requirements and will be based on the heaviest specified or the typical load weight to be lifted. A water bag is recommended to perform the test. A company representative or his/her delegate will witness the load test and all annual crane inspections.

Maintenance

All company cranes and associated hardware shall be maintained and operated in accordance with API RP 2C, API RP 2D and manufactures recommendations. Additionally, cranes located in CA, 29 CFR 1910.184, Title 8 CCR, subsection 5006.1.

1. Maintenance Procedure
    a. A Preventive Maintenance (PM) program is required for all cranes. This program will ensure that cranes are reliable and safe to operate. Key factors

considered in designing the maintenance plan are crane type, usage, maintenance history and manufacturer's recommendations.

b. All PM work will be documented and scheduled. The PM activities will be completed as scheduled. Actions will be taken promptly to correct a deficiency, or the crane will be taken out of service.

c. Temporary, rental and platform drilling rig cranes will comply with these PM program requirements.

2. Repairs and Replacements

a. The following guidelines have been established if repairs or part replacement is required:

- Immediately take a crane out-of-service if an unsafe condition is identified or restrict the cranes operation to eliminate the unsafe condition.
- Repair or replace all critical components promptly.
- An API 2C licensed shop or the original equipment manufacturer will supply crane parts or components (booms, winches, bearings, gantry's pedestals, etc.). Repairing of the structural members by a non-authorized shop that does not have either an API, or a quality plan and procedures is not acceptable.
- Document in writing all repairs or replacements as per the PM program.
- Any change in a crane's configuration (boom length, cable size, number of parts of line, etc.) will require a load test before it is returned to service. An approved load chart reflecting the new configuration will be attached to the crane before use.
- Use only replacement parts that meet or exceed the OEM specifications.
- No welding repairs will be made to critical components such as booms and swing circle assemblies unless a repair procedure and recommendations are obtained from the crane manufacturer or other qualified source (licensed 2C crane manufacturer, or licensed engineer experienced in the design of the crane).
- Care will be taken to ensure that arcing does not occur across the bearings.
- Welding is not permitted on load hooks or sling hooks.
- Hooks should not be exposed to excessive heat.

3. The following precautions, where applicable, should be taken before adjustments, repairs and maintenance are started on a crane.
    a. Means of starting should be rendered inoperative.
    b. Appropriate out-of-service signs should be placed at the control station and/or on the prime mover.

Lubrication

1. Consult and consider the crane manufacturer's recommendations for:
    - Lubrication Points
    - Lubrication Frequency
    - Maintenance of Lubricant Levels
    - Lubricant Compatibility

Crane Re-rating

1. Where re-rating of a crane is necessary, it should be conducted in accordance with the recommendations of the crane manufacturer, or other qualified source (such as an API licensed 2C crane manufacturer, authorized surveyor, or an engineer experienced in the design of the crane, as determined by the owner). Re-rating reports should be readily available.
2. No crane should be re-rated in excess of the original load ratings unless such rating changes are approved by the crane manufacturer, or other qualified source (such as an API licensed 2C crane manufacturer, authorized surveyor, or an engineer experienced in the design of the crane, as determined by the owner), and a new load-rating chart is available.

WIRE ROPE INSPECTION

Wire Rope Introduction

Wire rope is a structural component of the crane that requires periodic replacement due to loss of strength due to wear, abuse and other forms of deterioration. The *Qualified Inspector* determines whether replacement is necessary.

1. Wire Rope Inspection

   Wire rope inspection program is part of the required PM program and is based on the following:

- Crane type
- Crane usage
- Crane maintenance history
- Wire rope manufacturer's recommendations
- Crane manufacturer's recommendations
- Visual inspections of the wire rope by the *Qualified Operators* or *Qualified Inspector* during pre-use and monthly inspections
- Quarterly and annual Inspections by the *Qualified Inspector*

Areas affecting rope performance and rope life will be checked when rope is replaced or when quarterly and annual inspections are performed.

2. Wire Rope Replacement

   The following guidelines will be utilized to determine continued use or retirement of the wire rope:

- Rope conditions found during inspection
- Replacement interval for running ropes - 5 years
- Replacement interval for standing lines - 5 years
- Worn out or damaged wire rope identified prior to replacement intervals will be considered unfit for use and immediately removed from service

Wire Rope Maintenance

Wire rope should be handled with care. The following guidelines should be followed to maintain the wire rope in optimum condition:

1. When unreeling or uncoiling wire rope, attention will be given to avoid the introduction of kinks or twists into the rope. Wire rope in the boom hoist and load
2. Hoist systems will be installed and reeved as recommended by the crane and/or wire rope manufacturer.
3. Prior to cutting a wire rope, seize the rope at either side of the cut to prevent inlaying of the strands.
4. Wedge socketing or terminating of the wire rope will be performed or supervised by a Qualified Operator or a Qualified Inspector.
5. Wedge-type sockets will be properly installed.
6. Maintain the wire rope in a well-lubricated condition to minimize internal and external corrosion or friction. Apply lubricant to wire rope as rope passes over a sheave.
7. Field applied lubricant must be compatible with the lubricant applied by the manufacturer.
8. Used oil will not be used as a lubricant because of possible contamination.
9. Obtain a wire rope manufacturer’s test certificate when purchasing new wire rope.
10. These tests will include an actual break test certificate. Certificates will be kept on file at the platform.
11. Malleable wire rope clips will not be used. Use drop forged clips.
12. Wire rope clips will be installed in accordance with wire rope or clip manufacturer’s recommendations (refer to Figure 5-1).
13. The saddle portion of the clip will be applied to the live rope segment and the U-bolt to the dead or shortened end segment (refer to Figure 5-1).

Figure 5-1 Applying Wire Rope Clips



Right Way for maximum rope strength



Wrong Way clips staggered



Wrong Way clips reversed

TRAINING REQUIREMENTS

Crane Operator Training (pedestal)

Outlines of the major items that are included in the Crane Operator training program are as listed below. The training program should be tailored to the particular crane(s) or crane type(s) for which the operator is to be qualified. The program shall include class room training, hands on training, and a full review of API RP 2D Sixth Edition. Operators will remain qualified to operate the cranes on which they have been trained, provided they successfully complete refresher training requirements every four (4) years. Operators shall obtain a current Company Physical Exam card. *Classroom training shall be performed by a Qualified Trainer.* A passing grade of 90% on a written exam is required. Failure of the written exam will be subject to 30 day waiting period before retaking. A crane operator training outline follows:

Training Outline

a. Types of Cranes Used Offshore:
   1. Mechanical/Friction cranes
   2. Diesel/Hydraulic cranes
   3. Electric/Hydraulic powered cranes
   4. Other crane types (Monorail/JIB)

b. Crane Components and Lifting Capacities:
   1. Components of a stationary mounted crane
   2. Boom Angle and Load Radius, reading a range diagram or load rating chart
   3. Number of parts of line and relationship to rated load
   4. Limitations of the size and type of wire ropes used in boom hoist lines, pendants and load hoist line
   5. Lifting capacity of the auxiliary hook
   6. Lifting capacity of load and boom hoist drums

c. Wire Rope Construction and Use:
   1. Mechanics of wire rope
   2. Classes, designation and characteristics of wire rope
   3. Handling of wire rope
   4. Guidelines for replacement of wire rope

d. Mounting Features of the Revolving Upper structure:
   1. Hook rollers
   2. Ball ring
   3. King post
   4. Others

e. Boom Structure:
   1. Types of boom construction (lattice, box, etc.)
   2. Wire rope guides
   3. Boom bolts
   4. Pin connections

f. Limit Devices:
1. Boom-hoist limit
2. Load hoist limits
3. Boom stops
4. All locking devices
5. Anti-two block devices

g. Additional Items:
1. Sheaves
2. Hand signals
3. Control markings
4. Engine emergency stop
5. Gauges and indicators

h. Hands on proficiency test (Qualified Trainer)
1. Demonstrate ability to safely operator the crane
a. Main Line
i. Static
ii. Dynamic
b. Auxiliary line
i. Static
ii. Dynamic

Physical Requirement
Operators must meet the following physical qualifications to become a Qualified Operator:

1. Have vision of at least 20/30 Snellen in one eye and 20/50 in the other with or without glasses and have depth perception.
2. Be able to distinguish red, green and yellow, regardless of position of colors, if color differentiation is required for crane operation.
3. Have hearing, with or without a hearing aid, adequate for the specific operation.
4. Have no history of a disabling medical condition, which may be sufficient reason for disqualification.

Documentation

The following shall be submitted by the Qualified Trainer to the Training Administrator for issuance of certificate and qualification card:

- Crane Training Sign-in sheet
- Crane Familiarization check off sheet
- Crane Operator experience and background survey
- Offshore Crane Operator written exam with a passing score of 90%
- Crane Operator Qualification Log Sheet
- Offshore Crane Operator Upgrade Check Off List (If applicable)

Operator Qualifications for upgrade:

1. **Class C Operator**
    - Must complete classroom training per section VI of training requirements.
    - Should have a minimum of one year as a qualified rigger.
    - Must hold a current company physical exam card
    - Must complete hands on training with a pedestal crane trainer

2. **Class B Operator**
    - Must pass a written refresher exam.
    - Hands-on proficiency test completed by a pedestal crane trainer.
    - Meet logged hour requirements as listed below

    Friction Crane: Must have minimum of 45 logged hours as outlined below for Main and Auxiliary line as a qualified C Operator.
        - Main
            - 15 hours static
        - Auxiliary
            - 15 hours static and 15 hours dynamic

    Hydraulic Crane: Must have minimum of 30 logged hours as outlined below for Main and Auxiliary line as a qualified C Operator.
        - Main
            - 10 hours static
        - Auxiliary
            - 10 hours static and 10 hours dynamic

3. **Class A Operator**
    - Must pass a written refresher exam.
    - Hands-on proficiency test by a pedestal crane trainer

    - **Friction Crane**: Must have minimum of 25 logged hours as outlined below for Main and Auxiliary line as a qualified B Operator. .
        - Main
            - 5 hours static and 10 hours dynamic
        - Auxiliary
            - 5 hours static and 5 hours dynamic

    - **Hydraulic Crane**: Must have minimum of 25 logged hours as outlined below for Main and Auxiliary line as a qualified B Operator.
        - Main
            - 5 hours static and 10 hours dynamic
        - Auxiliary
            - 5 hours static and 5 hours dynamic

Designation of crane operator qualifications shall be at the discretion of the company.

Small Mobile Cranes: (cranes having a boom length of less than 25 feet or a maximum rated load capacity of less than 15,000 pounds (7 ½ ton).

The company will operate mobile cranes specified above as small mobile crane. Operator must demonstrate his/her ability to safely operate the crane; this will be verified by the company or designee. All operators must have a current, company training card on their persons when operating a small mobile crane.

- Daily, monthly, quarterly and annual inspection shall be completed by a qualified inspector as per section IV of this policy.
- All operations shall comply with the manufacture recommendations.

Mobile Crane Operator Training (California - state specific)

The company shall not operate a mobile crane that have a boom length over 25 feet or a maximum rated load capacity over 15,000 pounds (71/2 ton); all mobile cranes falling in this category will be operated by qualified third party. In addition, qualified third party will be responsible for all maintenance and inspections in accordance with all Fed/State regulations (API regulations for offshore operations).

Monorails / Jib cranes
Company/Contract Operators will operate monorails/Jib cranes per manufacture recommendation; operators must demonstrate his/her ability to safely operate this style crane, this will be verified by the company. All operators must have a current company training card on their persons; this training card may be issued by a Lead Operator, Foremen or designee.

Safe work practices (monorails/Jib cranes):

- Avoid side pulling – This will damage cable and make it unsafe for lifting.
- Never transport loads over the heads of workers.
- Do not permit anyone to stand under loaded hook.
- Keep load block at least 8 feet above floor, except when making a lift. Painting it a bright color will make it conspicuous and tend to discourage collisions and resulting injuries.
- Avoid plugging, inching and quick reversals. This type of operation will drastically shorten the life of the motor and cause excessive wear on the brakes.

- Never exceed the maximum capacity given on the crane capacity plate
- Never swing until the load is clear of the ground/floor.
- Do not exceed the fuse rating recommended by the National Electric Code.
- Do not operate the hoist beyond the limits of the recommended duty cycle.
- Check cables daily.
- Check hooks daily for nicks, gouges and signs of deforming.
- Test motor brakes and load brakes at start of each shift.
- Check hoist limit switch at start of shift.

Rigger Training

Rigger training should incorporate familiarization with rigging hardware, slings, and safety issues associated with rigging, lifting loads, and lift planning. Training should include classroom-type, hands-on training, and examination. Hands-on training should include proper inspection, use, selection, and maintenance of rigging gear (slings, shackles, hooks, etc.). Riggers will remain qualified provided they successfully complete refresher training in accordance with this plan every four (4) years. Classroom training shall be performed by a qualified trainer.

Training Outline

a. Rigging Hardware:
1. Sheaves, blocks
2. Hooks, latches
3. Rings, links, swivels
4. Shackles
5. Turnbuckles
6. Spreader and equalizer beams
7. Cable clips
8. Pad eyes, eyebolts, and other attachment points

b. Slings:
1. Sling configuration
2. Sling angle
3. Rated Load
4. Sling types (synthetic, wire, chain, etc.)
5. Cargo nets, personnel baskets, and other basket types
6. Flat nylon slings are against company policy (round poly slings only)

c. Procedures and Precautions:
1. Load control/taglines
2. Lift planning (load weight, center of gravity, etc.)
3. Sling inspection/rejection criteria
4. Unbinding loads
5. Personnel transfer
6. Sling handling and storage

d. Rigging Basics:
1. Pinch points/body position
2. Personal Protective Equipment (PPE)
3. Signals/communications
4. Load stability

Reserve Crane Operator Compensation Adjustment:

The Company realizes the value of professionals dedicated to the operation of company cranes. Operation of the cranes require extensive training, keen sense of heavy machinery, and natural talent. As such, The Company incentivizes our non-crane operator employees in all departments who obtain and ~~crane operators who can~~ maintain crane certification with an adjustment to the crane operator's compensation. Crane operator compensation adjustment outline follows:

Requirements for Compensation Adjustment:

- Crane certification and physical requirements must be maintained and in good standing order.
- Crane hours must be logged into the company's crane log database. No hours will be accepted if logged improperly.
- The company believes consistent operation of the crane is necessary to reduce incidents and injuries. Crane operator hours will be reviewed on a quarterly basis. Not meeting quarterly crane hours can result in the suspension of compensation and revocation of crane certification.
- Excessive crane incidents can result in the suspension of compensation adjustment and revocation of crane certification.
- Adjustments in compensation are for Class A and Class B crane operators only.

Quarterly Review of Compensation Adjustment:

Each quarter the company will review crane incidents and hours logged into the crane log database to verify if a crane operator should maintain their compensation adjustment. Below are the minimum hours required to maintain compensation adjustment:

Friction Crane Operators must log a minimum of 3 hours per quarter. This applies to both Class A and Class B crane operators. This should be a mixture of auxiliary and main block type lifts.

- Class A operators shall have a minimum of 1 dynamic block pick per quarter
- Class B operators shall have a minimum of 1 dynamic auxiliary pick per quarter

Hydraulic Crane Operators must log a minimum of 2 hours per quarter. This applies to both Class A and Class B crane operators. This should be a mixture of auxiliary and main block type lifts.

- Class A operators shall have a minimum of 1 dynamic block pick per quarter
- Class B operators shall have a minimum of 1 dynamic auxiliary pick per quarter

Individuals who maintain both friction and hydraulic crane certification will need to meet a minimum of 3 hours per quarter in a friction crane. These hours will suffice for both crane certifications. Due to the inherent added difficulty of friction cranes, hours on a hydraulic crane will not maintain individuals with dual certifications.

- Class A operators shall have a minimum of 1 dynamic block pick per quarter
- Class B operators shall have a minimum of 1 dynamic auxiliary pick per quarter

Removal of Compensation Adjustment:

Individuals who are unable to maintain minimum quarterly hours or who have elevated crane incidents can be removed from receiving this compensation adjustment.

A grace period of 30 days can be issued on the discretion of the company for unforeseen circumstances.

Not meeting required hours in two subsequent quarterly reviews can result in the revocation of crane certifications

Crane Operator Compensation Adjustment can be revoked by the company at any time

Acknowledgment of Crane Operator Compensation Adjustment

I understand that my compensation is being adjusted due to obtaining a crane certification. I understand that I must meet certain criteria to maintain the Crane Operator Compensation Adjustment as listed below:

- Crane certification and physical requirements must be maintained and in good standing order.
- Crane hours must be logged into the company's crane log database. No hours will be accepted if logged improperly.
- The company believes consistent operation of the crane is necessary to reduce incidents and injuries. Crane operator hours will be reviewed on a quarterly basis.
    - Friction Crane Operators must log a minimum of **3 hours** per quarter. This applies to both Class A and Class B crane operators. This should be a mixture of auxiliary and main block type lifts.
        - Class A operators shall have a minimum of 1 dynamic block pick per quarter
        - Class B operators shall have a minimum of 1 dynamic auxiliary pick per quarter
    - Hydraulic Crane Operators must log a minimum of **2 hours** per quarter. This applies to both Class A and Class B crane operators. This should be a mixture of auxiliary and main block type lifts.
        - Class A operators shall have a minimum of 1 dynamic block pick per quarter
        - Class B operators shall have a minimum of 1 dynamic auxiliary pick per quarter
    - Individuals who maintain both friction and hydraulic crane certification will need to meet a minimum of **3 hours** per quarter in a friction crane.
        - Class A operators shall have a minimum of 1 dynamic block pick per quarter
        - Class B operators shall have a minimum of 1 dynamic auxiliary pick per quarter
- Excessive crane incidents can result in the suspension of compensation adjustment and revocation of crane certification.
- Individuals who are unable to maintain minimum quarterly hours or who have elevated crane incidents can be removed from receiving this compensation adjustment.
- Not meeting required hours in two subsequent quarterly reviews can result in the revocation of crane certification.
- Crane Operator Compensation Adjustment can be revoked by the company at any time.

Crane Operator
Acknowledgment Signature: _____

Date: _____

DAILY CRANE INSPECTION CHECKLIST

THIS PRE-USE INSPECTION CHECKLIST CONFORMS TO THE (API RP 2D) RECOMMENDED PRACTICE FOR OPERATION AND MAINTENANCE OF OFFSHORE CRANES. THE CRANE OPERATOR SHALL CHECK EACH CRANE FOR THE FOLLOWING ITEMS DAILY BEFORE IT IS PLACED IN OPERATION. WHEN THE CRANE IS BEING OPERATED BY MORE THAN ONE OPERATOR DURING A DAY, EACH OPERATOR IS REQUIRED TO PERFORM THIS INSPECTION (OPERATOR "1", "2", OR "3" BELOW). THE OPERATOR(S) WILL CHECK "✔" EACH ITEM THAT IS ACCEPTABLE. ITEMS THAT ARE NOT ACCEPTABLE MUST BE BROUGHT TO THE ATTENTION OF THE ON-DUTY PLATFORM SUPERVISOR AND CRANE MECHANIC, MARKED WITH AN "X", AND EXPLAINED IN THE REMARKS SECTION BELOW. THE CRANE SHALL BE TAKEN OUT OF SERVICE & NOT OPERATED IF ANY ISSUES ARE FOUND THAT COULD AFFECT ITS SAFE OPERATION.

PLATFORM: _____ CRANE MAKE & MODEL: _____

WEEK OF: _____ CRANE SERIAL #: _____

FLUID LEVEL CHECKS

1. ENGINE OIL
2. HYDRAULIC FLUID/TORQUE CONVERTER FLUID
3. ENGINE COOLANT
4. FUEL LEVEL

TH			FR			SA			SU			MO			TU			WE		
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3

CONTROL & SAFETY MECHANISM OPERATIONAL CHECKS

1. CLUTCHES
2. BRAKES
3. BOOM HOIST PAWL
4. ENGINE START & STOP CONTROL
5. BALL & LOAD LINE HOOK SAFETY LATCH
6. HELICOPTER WARNING LIGHT
7. ANTI TWO-BLOCK SYSTEM
8. AUTOMATIC UPPER BOOM LIMIT DEVICE
9. WEIGHT INDICATOR SYSTEM

TH			FR			SA			SU			MO			TU			WE		
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3

VISUAL CHECKS

1. CHECK FUEL, HYDRAULIC, & COOLING SYSTEM FOR LEAKS
2. EXAMINE CRANE BOOM & SUPPORT STRUCTURE FOR ANY DAMAGE
3. CHECK WIRE ROPE FOR DAMAGE
4. CHECK FOR LOOSE OR MISSING BOLTS, PINS, KEEPERS, OR COTTER PINS
5. ENSURE CORRECT LOAD RATING CHARTS ARE IN USE AND VISIBLE TO OPERATOR AT OPERATING STATION
6. VISUALLY CHECK ALL LOOSE GEAR SUCH AS SLINGS, SLING HOOKS, SHACKLES, LINE LUBRICATION AND END FITTINGS
7. DRAIN PANS

TH			FR			SA			SU			MO			TU			WE		
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3

INSPECTION TIMES & OPERATORS' INITIALS

OPERATOR 1:
TH _____ FR _____ SA _____ SU _____ MO _____ TU _____ WE _____

OPERATOR 2:
TH _____ FR _____ SA _____ SU _____ MO _____ TU _____ WE _____

OPERATOR 3:
TH _____ FR _____ SA _____ SU _____ MO _____ TU _____ WE _____

CRANE ENGINE		TH	FR	SA	SU	MO	TU	WE
HOUR METER:	BEGINNING							
	ENDING							
GALLONS FUEL CONSUMED								

REMARKS: (If remarks are made, email to Crane Mechanics and the Mechanics Supervisor)

_____

_____

_____

DCOR REPRESENTATIVE: _____ **DATE:** _____



DCOR, LLC
1000 Town Center Drive Suite 600
Oxnard, CA 93036
(805) 535-2000 Fax (805) 535-2100

1.1.1 MONTHLY INSPECTION REPORT

BY
DCOR, LLC

Model No.: _____

Serial No.: _____

Boom Length: _____

Location: _____

Date of Inspection: _____
Owner Representative: **DCOR** _____

Inspected By: _____

_____

_____

_____

	Condition			Comments
	Good	Fair	Rep.	
MAIN HOIST				
Frame Structure				
Drum-Condition				
Brake Band-Condition				
Brake Band-Adjustment				
Brake Cam & Bushings				
Brake Actuator-Condition				
Brake Actuator-Operation				
Hoist Shaft Retainers				
Wedge/Socket/Cable Dead End				
Hydraulic Motor-Size				
Hydraulic Motor-Condition				
Shaft Spleen-Condition				
Gearbox Internals-Condition				
Gearbox Oil Levels				
Drum RPM				
AUXILIARY HOIST				
Frame Structure				
Drum-Condition				
Brake Band-Condition				
Brake Band-Adjustment				
Brake Cam & Bushings				
Brake Actuator-Condition				
Brake Actuator-Operation				
Hoist Shaft Retainers				
Wedge/Socket/Cable Dead End				
Hydraulic Motor-Size				
Hydraulic Motor-Condition				
Shaft Spleen-Condition				
Gearbox Internals-Condition				
Gearbox Oil Levels				
Drum RPM				
BOOM HOIST				
Frame Structure				
Drum-Condition				
Brake Band-Condition				

	Condition			Comments
	Good	Fair	Rep.	
Brake Band-Adjustment				
Brake Cam & Bushings				
Brake Actuator-Condition				
Brake Actuator-Operation				
Hoist Shaft Retainers				
Wedge/Socket/Cable Dead End				
Hydraulic Motor-Size				
Hydraulic Motor-Condition				
Shaft Spleen-Condition				
Gearbox Internals-Condition				
Gearbox Oil Levels				
Drum RPM				
Boom Dog Operation				

SWING SYSTEM

Drive Pinion-Condition				
Swing Bearing Grease Sample				
Swing Bearing Indicator Reading				
Required Bolt Torque				
Gearbox Oil Level				
Drive Motor-Condition				
Crossover Valve-Operation				
Swing Brake-Operation				

CAB / TURNTABLE

Glass-Condition				
Controls-Condition				
Controls-Operation				
Seat-Condition				
Gauges & Instruments				
Fuel Shutdown-Operation				
Emergency Shutdown-Operation				
Throttle-Operation				
Boom Relief-Settings				
Main/Auxiliary Relief-Settings				
Swing Relief-Setting				
Control Valve Linkage-Condition				
Load Charts-Condition				

	Condition			Comments
	Good	Fair	Rep.	
Load Indicator				
Hoses-Condition				
Boom Foot Mounting Plates				
Turntable to Gantry Bolting Pads				
Lower Bearings-Condition				
Air Valve Panel Supply				

ENGINE HOUSE

Make				
Model				
Engine Hours				
Fuel Filters				
Air Breather				
Radiator				
Water Level				
Oil Level				
Oil Cooler				
Fan Belts				
Starter-Type				
Starter-Condition				
Tachometer Drive				
Muffler & Rain Cap				
Charge Pump Pressure				
System Relief Valve-Setting				
Air Line-Condition				
Triple Pump Drive Assembly Oil-Condition				
Clutch Assembly-Condition				

BLOCK & SPREADER

Structure				
Spreader Pin & Retainer				
Sheaves				
Sheave Shaft & Retainer				

GANTRY

Structure				
Bolts / Nuts / Lock washers				
Sheaves				
Sheave Shaft & Retainer				

	Condition			Comments
	Good	Fair	Rep.	
Ladders & Decks				
Wire Rope Dead End				

WIRE ROPE & PENDANTS

Boom Hoist:				
Diameter / Condition				
Main Hoist:				
Diameter / Condition				
Auxiliary Hoist:				
Diameter / Condition				
Pendant Lines:				
Diameter / Condition				
Pins & Keepers				

BOOM

Point / Jib:				
Chords / Lacing				
Pins & Keepers				
Sheaves				
Sheave Shaft / Retainers				
Cable Guard				
Anti-Two Block System				
Wire Rope Dead End				
General Condition				
Butt:				
Chords / Lacings				
Pins & Keepers				
Radius Indicator				
Boom Foot Bushings				
Boom Foot Pins				
General Condition				
Straights:				
Quantity				
Chords / Lacings				
Pins & Keepers				
General Condition				

HEADACHE BALL

Structure				

	Condition			Comments
	Good	Fair	Rep.	
Hook Condition				
Pin & Keeper				
Safety Latch				
MAIN BLOCK				
Structure				
Hook & Safety Latch				
Thrust Bearing				
Sheaves				
Sheaves Shaft & Retainer				
BEARING MOUNTING				
Structure				
HYDRAULIC SYSTEM				
Pump				
Filters / Strainers				
Oil Level / Condition				
Hose & Fittings				
Hydraulic Pump Couplings				

Appendix A QUARTERLY INSPECTION REPORT

Model No.: _____

Serial No.: _____

Boom Length: _____

Location: _____

Date of Inspection: _____

Owner Representative: **DCOR**

Inspected By: _____

NOTES:

1.)
2.)
3.)

	Condition			Comments
	Good	Fair	Rep.	
MAIN HOIST				
Frame Structure				
Drum-Condition				
Brake Band-Condition				
Brake Band-Adjustment				
Brake Cam & Bushings				
Brake Actuator-Condition				
Brake Actuator-Operation				
Hoist Shaft Retainers				
Wedge/Socket/Cable Dead End				
Hydraulic Motor-Size				

	Condition			Comments
	Good	Fair	Rep.	
Hydraulic Motor-Condition				
Shaft Spline-Condition				
Gearbox Internals-Condition				
Gearbox Oil Levels				
Drum RPM				

AUXILIARY HOIST

Frame Structure				
Drum-Condition				
Brake Band-Condition				
Brake Band-Adjustment				
Brake Cam & Bushings				
Brake Actuator-Condition				
Brake Actuator-Operation				
Hoist Shaft Retainers				
Wedge/Socket/Cable Dead End				
Hydraulic Motor-Size				
Hydraulic Motor-Condition				
Shaft Spline-Condition	N/A			
Gearbox Internals-Condition				
Gearbox Oil Levels				
Drum RPM				

BOOM HOIST

Frame Structure				
Drum-Condition				
Brake Band-Condition				
Brake Band-Adjustment				
Brake Cam & Bushings				
Brake Actuator-Condition				
Brake Actuator-Operation				
Hoist Shaft Retainers				
Wedge/Socket/Cable Dead End				
Hydraulic Motor-Size	N/A			
Hydraulic Motor-Condition	N/A			
Shaft Spline-Condition	N/A			
Gearbox Internals-Condition				
Gearbox Oil Levels				

	Condition			Comments
	Good	Fair	Rep.	
Drum RPM				
Boom Dog Operation				

SWING SYSTEM

Drive Pinion-Condition				
Swing Bearing Grease Sample				
Swing Bearing Indicator Reading	N/A			
Required Bolt Torque				
Gearbox Oil Level				
Drive Motor-Condition				
Crossover Valve-Operation	N/A			
Swing Brake-Operation				

CAB / TURNTABLE

Glass-Condition				
Controls-Condition				
Controls-Operation				
Seat-Condition				
Gauges & Instruments				
Fuel Shutdown-Operation				
Emergency Shutdown-Operation				
Throttle-Operation				
Boom Relief-Settings	N/A			
Main/Auxiliary Relief-Settings	N/A			
Swing Relief-Setting	N/A			
Control Valve Linkage-Condition				
Load Charts-Condition				
Load Indicator				
Hoses-Condition				
Boom Foot Mounting Plates				
Turntable to Gantry Bolting Pads				
Lower Bearings-Condition				
Air Valve Panel Supply				

ENGINE HOUSE

Make				
Model				
Engine Hours				
Fuel Filters				

	Condition			Comments
	Good	Fair	Rep.	
Air Breather				
Radiator				
Water Level				
Oil Level				
Oil Cooler				
Fan Belts				
Starter-Type				
Starter-Condition				
Tachometer Drive				
Muffler & Rain Cap				
Charge Pump Pressure	N/A			
System Relief Valve-Setting	N/A			
Air Line-Condition				
Triple Pump Drive Assembly Oil-Condition	N/A			
Clutch Assembly-Condition				

BLOCK & SPREADER

Structure				
Spreader Pin & Retainer				
Sheaves				
Sheave Shaft & Retainer				

GANTRY

Structure				
Bolts / Nuts / Lock washers				
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Wire Rope Dead End				

WIRE ROPE & PENDANTS

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Diameter / Condition				
Main Hoist:				
Diameter / Condition				
Auxiliary Hoist:				
Diameter / Condition				
Pendant Lines:				
Diameter / Condition				

	Condition			Comments
	Good	Fair	Rep.	
Pins & Keepers				

BOOM

Point / Jib:				
Chords / Lacing				
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Sheaves				
Sheave Shaft / Retainers				
Cable Guard				
Anti-Two Block System				
Wire Rope Dead End				
General Condition				
Butt:				
Chords / Lacings				
Pins & Keepers				
Radius Indicator				
Boom Foot Bushings				
Boom Foot Pins				
General Condition				
Straights:				
Quantity				
Chords / Lacings				
Pins & Keepers				
General Condition				

HEADACHE BALL

Structure				
Hook Condition				
Pin & Keeper				
Safety Latch				

MAIN BLOCK

Structure				
Hook & Safety Latch				
Thrust Bearing				
Sheaves				
Sheaves Shaft & Retainer				

BEARING MOUNTING

Structure				

	Condition			Comments
	Good	Fair	Rep.	
HYDRAULIC SYSTEM				
Pump				
Filters / Strainers				
Oil Level / Condition				
Hose & Fittings				
Hydraulic Pump Couplings				

Appendix B - Critical Lift Plan and Authorization

DCOR
Crane Critical Lift Checklist and Authorization

o Any Load Exceeding 75% of Rated Capacity o Personnel Lift o Blind Lift

Platform
Crane Make _____

Crane Capacity (Main/Whip) _____
Load Test _____
Required for lift over 75% of rated crane capacity

List crew members involved in lift:

_____ _____
_____ _____

Weather:

Wind speed _____ Rain? _____ Sea Conditions _____ Other _____

Communications:

Verbal _____ Radio _____ Hand Signals _____ Other _____

Slings:

Wire Rope _____ Nylon _____ 2- Ways _____ 4- Ways _____

Angle _____ Sling rating _____ Shackle rating _____ Other _____

Type of Pick:

Man Basket _____ Billy Pugh _____ Cargo _____ Other _____

Boat to Deck _____ Deck to Boat _____ Deck to Deck _____ Other _____

Item to be lifted:

Discription: _____ Weight: _____ Condition of Item: _____

Dimensions: Length _____ Width _____ Height _____

Has the JSA been completed and reviewed with all crew members? _____

If the type of pick is Billy Pugh, who authorized it? Time: _____ Authorized by: _____

If personnel pick, is anti-two block in place and functional? _____ Checked by: _____

Crane operator Print and sign: _____ Date/Time _____
Must be an "A" operator or "B" with the approval from upper management

Signal Person Print and sign: _____ Date/Time _____

Person in Charge Print and sign: _____ Date/Time _____

DCOR Authorization: _____ Date/Time _____

APPENDIX C – Pre-load Check List

Pre-load Cargo Inspection Checklist

Date: _____

Platform or Facility Name: _____

- □ Perform pre-use inspection on all rigging per DCOR rigging policy and API RP 2D.
- □ Inspect all shackles for damage and verify all shackle pins are secure with hitch pins or tie wraps.
- □ Ensure all doors, lids, hatches, etc. are secure. This includes food bin door handles and roll-off bin lid latches.
- □ Ensure cargo in container bins do not exceed gross weight of cargo bin.
- □ Verify rigging is rated for a minimum of 1.5 times the load weight.
- □ Verify rigging has a proper tag that has been attached by the manufacturer.
- □ Ensure that loose or irregular shaped items are put into baskets or bins. This may include plate steel, super sacks, life rafts and any other items that cannot be safely rigged and loaded onto the boat without the use of a bin or basket.
- □ Ensure that all palletized material is loaded on wing pallets or pallet carrier. Non-wing pallets are <u>not</u> to be rigged in any way.
- □ Ensure that loads are free of debris. This includes sand, scale, mud, etc.
- □ Ensure that loads have no loose items such as hand tools, nuts and bolts, pieces of steel, etc., that may fall off the load during crane operations.
- □ Verify that all loads (going to the boat or otherwise) have tag line(s) attached.
- □ Ensure that all ends of bundling chains are zip tied to the main body of the chain.

_____ _____

(Signature API Certified Rigger) (Date)

By signing this document you declare after close inspection and reasonable inquiry that this load conforms to the rigging policy set forth in the DCOR, LLC Safety Manual.

APPENDIX D - Qualification Log Sheet

DCOR, LLC Crane Operator Qualification Log Sheet

Print Name:_____ Signature:_____

Facility: _____ Cert. Level:_____

DATE	HOURS	CRANE TYPE (H/F)	MAIN BLOCK/AUXILARY	LIFT TYPE (STATIC/DYNAMIC)	CERTIFIED OPERATOR (Print NAME)

All crane operators performing lifts requiring a certification greater then currently held MUST operate under the supervision of an appropiately certified crane operator. Crane operators may only be upgraded with the recommendation of an "A" rated crane operator and a completed Upgrade Check-Off List and Operator Qualification Log Sheet or by a certified crane instructor.

APPENDIX E - Crane Familiarization Form

COMPANY/CONTRACT CRANE OPERATOR
CRANE FAMILIARIZATION CHECK OFF SHEET

Scope and Purpose: DCOR utilizes several different makes and models of cranes on its offshore platforms. Because of these various equipment types, it is imperative that all Contract Crane Operators receive comprehensive crane familiarization training by a Qualified Crane Trainer. More specifically, familiarization training is required for Contract Crane Operators on cranes that the Operator has not previously operated.
Once this training is complete the crane make, model, and location would be added to the Contract Crane Operator Certification card.

The following items must be fulfilled in their entirety and signed off below:

1.) **Crane Operators Manual:**

Crane Operator has read crane operators manual and fully understands the operating safety characteristics of the cane the operator is training on. Crane Operator Init. _____ Trainer Init._____

a. Discuss Control positions and functions: Pass _____ Trainer Init_____
Trainer comments: _____
_____
_____

b. Discuss the safety features associated with crane: Pass _____ Trainer Init. ____
Trainer comments: _____
_____
_____

c. Discuss crane pre-start procedure: Pass _____ Trainer Init _____
Trainer comments: _____
_____
_____

2.) Hands on practical application:

a. Perform and properly fill out the Daily Pre-Start checklist form: Pass_____
Trainer Init._____
Trainer comments:_____
_____
_____

b. Demonstrate control function: Pass _____ Trainer Init._____
Trainer comments:_____

c. Crane Operator demonstrates his/her ability to operate the crane in a smooth safe manner. Pass_____ Trainer Init_____
Trainer comments: _____
_____
_____

d. Crane Operator demonstrates proper shut down procedure: Pass_____
Trainer Init._____
Trainer comments:_____
_____
_____

Crane Operator Name:_____Signature:_____Date:_____

Trainer for contract crane operator:_____Signature:_____
Date:_____

DCOR Trainer Name:_____ __Signature:_____Date:_____

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OSHA INSPECTION POLICY

It is the policy of the Company to cooperate with any governmental agency seeking to lawfully enforce federal, state, or local laws or regulations pursuant to the safeguards guaranteed us by the Constitution of the United States. We are familiar with federal decisions and the U. S. Supreme Court's ruling in Marshal vs. Barlow's, Inc. holding that all warrantless searches or inspections of company property, or any portion thereof, conducted pursuant to Section 8 (a) of the Occupational Safety and Health Act of 1970 are unconstitutional. Therefore, we choose to exercise our constitutional right and will not permit, nor is any employee of this company (except a company officer) authorized to permit, any search or inspection by any representative of the Occupational Safety and Health Administration unless conducted pursuant to a valid warrant.

The Company does not believe that probable cause exists for an OSHA inspection of its property. In the event that the Secretary of Labor believes otherwise and decides to make application for an inspection warrant, we hereby request that we be given advance notice of such application in order to have an opportunity to oppose the same.

The Statement of Policy has been reduced to writing and is being delivered in hand to the OSHA representative(s) seeking to make a warrantless search of our property so that OSHA will be officially advised of everything stated herein.

STEPS TO BE FOLLOWED DURING AN OSHA INSPECTION

In the event of a visit by OSHA Safety Compliance Officer, the following steps are to be followed:

RANDOM INSPECTIONS

If the nature of the visit is to perform a random inspection the following procedure applies

1. Be courteous and excuse yourself to make a phone call. Inform Riston Francis that OSHA is at your work site.

   Riston Francis
   (805) 535-2071 (work)
   (805) 901-2575 (mobile)

2. Place the OSHA Safety Compliance Officer on the phone to talk to Scott.

3. Stand-by for further instructions.

WARRANTS

If the OSHA Safety Compliance Officer produces a warrant to inspect your work site, the following procedure applies.

1. Call Riston Francis at the numbers provided in Random Inspections and inform of the situation.

2. Fax a copy of the warrant immediately for review at the Oxnard office. (Fax No. (805) 535-2071).

3. Place the OSHA Safety Compliance Officer on the phone to speak with Riston.

4. Stand-by for further instructions.

EMPLOYEE COMPLAINTS

Follow the same procedure as indicated above under WARRANTS.

NOTE:

These steps are for Employee and Designated contractor use only and should be kept readily available at all times. Direct all questions pertaining to the OSHA Policy and steps to be followed to Scott Knight (805) 535-2066.

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AUTOMATED EXTERNAL DEFIBRILLATOR (AED)

PURPOSE

To establish and implement a written policy for use by all employees who may wish to voluntarily assist in responding to a cardiac emergency at Company facilities. The purpose of this policy is to explain the use and response as well as describe the basic operation of the Automated External Defibrillator (AED) units located at Company facilities.

SCOPE

This policy defines the purpose, responsibility and methods by which the Company personnel will comply with the AED procedures per California Senate Bill 911.
All Company personnel who voluntarily provide emergency care through the use of an AED or Cardio Pulmonary Respiration (CPR) will be protected under law. For the purposes of this policy, all AED equipment at Company facilities shall be covered by the procedures in this policy.

APPLICABILITY

This policy applies to all Company employees and contingent workers working at Company facilities that have an AED, which have been trained and are currently certified in CPR/AED.

DEFINITIONS

AED is the acronym used to describe the Automated External Defibrillator. Operating instructions and maintenance manuals are available adjacent to each unit and from the safety department.

AED Coordinator is an employee of the company who is the primary individual coordinating the AED program. This person has responsibility for maintaining all equipment and supplies, organizing training programs and regular re-training programs, and holding post-incident debriefing sessions for any employees involved. The Safety Coordinator is responsible for AED coordination. At each Company facility with an AED, the Lead Operator is responsible for onsite coordination.

Voluntary Responders are specific individuals who have volunteered and been trained to use an AED in a sudden cardiac arrest emergency. A list of trained, voluntary responders can be obtained by contacting the safety department.

RESPONSIBILITIES

AED Coordinator:

- To establish an AED standard operating procedure which includes procedures for instruction and training for proper AED operation as well as inspection, repair and maintenance of all AED equipment
- To provide and maintain the AED equipment suitable for the purpose intended.
- To identify existing and new equipment, where AED devices should be installed, and for providing any necessary safety equipment.
- To provide for appropriate signage and identification of equipment where AEDs are required or determined to be necessary.
- Complete AED investigation report after AED use.
- To ensure that all participating personnel are identified and trained in the Company AED policy and AED procedures.

Facility Supervisor at facilities with AEDs:

- To assure that proper safety procedures regarding AED use are followed.
- To bring to the attention of the AED Coordinator, any use of the AED (within 4 hours of use), or problems, violations, inconsistencies and improvements related to the AED procedures.
- To conduct response, use and inspection procedures in accordance with instructions and training received as outlined in this policy.

Employee or Contingent Worker:

- To conduct response, use and inspection procedures in accordance with instructions and training received as outlined in this policy.
- To report any AED use, indicators or alarms, or missing AEDs to their supervisor.

EQUIPMENT INSPECTION AND MAINTENANCE

Inspections of AED Units

- A site representative designated by the facility supervisor shall inspect the AED at least monthly. At some facilities, this can be incorporated into the facility's fire extinguisher inspection checklist.
- Inspection shall confirm that the AED is:
    - In place and accessible
    - Ready for use
    - And related supplies are in place
- The inspection date and initials of the inspector shall be recorded on the AED inspection form..

Maintenance

Monthly – Inspect using Monthly Inspection form 6182 (Appendix 4) AED will be inspected for readiness as well as condition of accessories will be evaluated. Batteries and pads will be replaced as necessary or as they expire.

PROCEDURES

Responding to an Emergency

In the event of an emergency potentially requiring the use of CPR or the AED unit, the first responder shall immediately call or direct someone to call "911" or direct dial emergency services and state:

- The nature of the emergency
- The location
- Caller's name

The normal response steps then continue starting with determination of breathing and pulse. Begin CPR, if indicated. Prepare the AED for use while CPR is in progress. Once the AED is operating, follow directions provided by the AED unit. Operation and use of the AED is only to be performed by personnel currently certified in the use of the AED. A more detailed response description and treatment algorithm is found in Appendix 2 and copies are placed with each AED unit.

Post Incident - Document on Company CPR/AED Use Report, form 6181. Immediate notification (within two hours) of the use of the AED must be made to the AED Coordinator. Notification can be made by phone, e-mail or other means. If contact is not acknowledged by the AED Coordinator within two (2) hours. Report information should include:

- Date/time of the incident
- Nature of the incident
- Location of the AED used
- Patient name
- Responders names
- Follow-up care (hospital, doctor, phone numbers)

The AED Coordinator or lead site responder will do the following after any AED use:

- Conduct incident debriefing, as needed.
- Complete incident follow-up report as deemed necessary by the AED Coordinator.
- Restock any used electrode pads, batteries, razors or gloves.
- Inspect unused supplies for any damage or old expiration dates.
- Remove and replace battery in the AED and do a Battery Insertion Test (BIT) prior to replacing the AED into service.
- Clean the AED if needed. Review User's Guide for list of appropriate cleaning agents.

Program Evaluation

The AED program will be evaluated annually or following each use of an AED by the AED Coordinator.

TRAINING, REPORTING AND RECORDKEEPING REQUIREMENTS

Training Records

All Company personnel who have been trained and are current in CPR/AED may voluntarily perform emergency response or AED use. They shall receive training on this policy, general safety procedures and on the use of any necessary personal protection equipment. Training will be consistent with applicable state laws and American Heart Association guidelines. Prior to or concurrent to being trained in the use of the AED, the trainee must hold a valid and current CPR certificate. Initial AED training shall consist of training meeting the guidelines of the American Heart Association and the local EMS Agency with mandatory refresher training thereafter. The refresher training is required to maintain proficiency. Certification may take a variety of forms. All training will be coordinated from the safety department.

Training records shall be kept with other personnel training records at the company safety department.

Reporting and Recording AED Use

A. Any use of the AED will be reported to the AED Coordinator within two (2) hours of use.

B. AED use records shall be maintained in accordance with the requirements stated in the Company Safety Program manual and as required by law.

REFERENCES

American Heart Assn. AED Training Manual; 1999.
California SB911, 1999.

Cardiac Science G3 User Manual

CONTINGENCIES

The Appendices to this policy may be updated at any time without revising the policy. Superceded Appendices will be archived with the original policy.

APPENDIX A **Response Description and Treatment Algorithm**

In Case of Emergency, Initiate Chain of Survival:

Activate 9-1-1 or direct dial emergency services

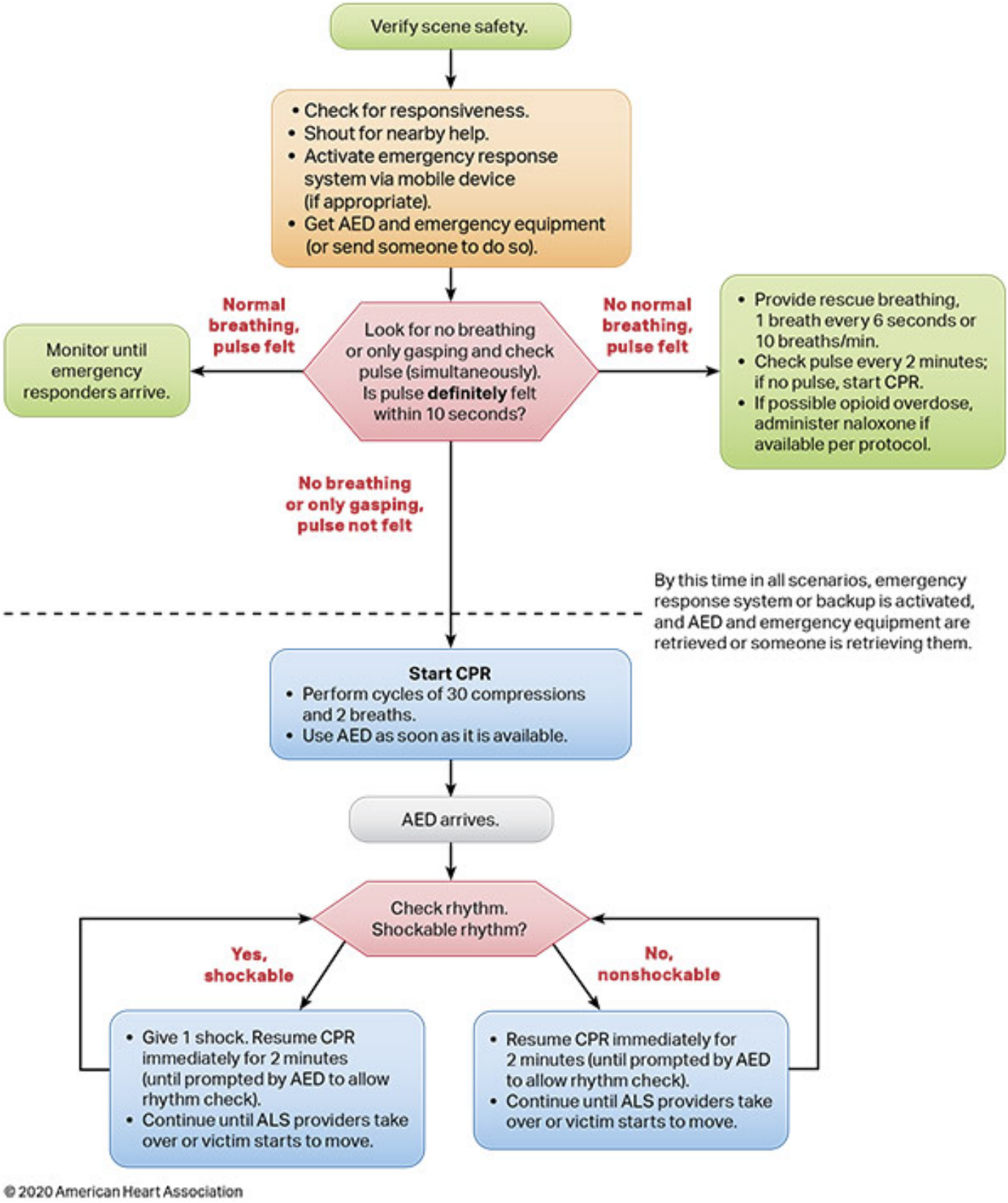
1. Assess responsiveness. Tap shoulder and shout, “Are you OK?”
2. Activate emergency response plan.
3. Try to get the person to respond; if he doesn't, roll the person on his or her back.
4. Start chest compressions. Place the heel of your hand on the center of the victim's chest. Put your other hand on top of the first with your fingers interlaced.
5. Press down so you compress the chest at least 2 inches in adults, Give 30 chest compressions at a rate of 100 compressions per minute.
6. If you've been trained in CPR, you can now open the airway with a head tilt and chin lift.
7. Pinch closed the nose of the victim. Take a normal breath, cover the victim's mouth with yours to create an airtight seal, and then give two, one-second breaths as you watch for the chest to rise.
8. Continue compressions and breaths -- 30 compressions, two breaths -- until help arrives.

- **Early Defibrillation:** Instructions for one-rescuer approach: When defibrillator arrives:
  - Place the AED near head of patient on same side as the rescue.
  - Turn on the AED.
  - Bare and prepare chest (cut or tear away clothing, if excessive chest hair, shave or clip; dry the chest if wet).
  - Follow the AED verbal and visual prompts.
  - Apply electrodes (follow drawings on pads).
  - Allow the AED to analyze.
  - If indicated, deliver shock by pressing the shock button.
  - Continue care per AED Treatment algorithm (see Appendix B).

- **Early Advanced Care Life Support:**
  - Have a designated person wait for EMS providers at front entrance or near heliport offshore and help guide them through facility to the patient.
  - Responders working on the victim should communicate any important information to the EMS providers such as:
    - Victim’s name.
    - Any known medical problems, allergies or medical history.
    - Time the victim was found.
    - Initial and current condition of victim.
    - Number of shocks delivered
  - Assist Advanced Life Support (EMS) as needed

Adapted from AHA AED Treatment Algorithm, 2020

APPENDIX B Automated External Defibrillator (AED) Flow Diagram



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APPENDIX C

CPR/AED USE REPORT

(To be completed within 24 hours of incident)

Name of Patient: _____ Sex: M F

Social Security Number: _____

Department Job Title: _____

Date/Time of Incident: _____ Date Reported: _____

Patient transported to: _____

By (EMS Co.): _____

Event Actions:			**Cause Related to:**		
CPR/AED Used:	Yes	No	Medical Condition:	Yes	No
EMT Response:	Yes	No	Vehicle Accident:	Yes	No
Hospitalization:	Yes	No	Equipment Accident:	Yes	No
Fatality:	Yes	No	Trauma:	Yes	No

Location of Incident: _____

Describe Job Task in Progress: _____

Names of Witnesses:

1. _____
2. _____
3. _____

Witnesses Interviewed? Yes No

Notes Attached? Yes No

Names of Responders:

AED Serial No: _____ Data Card Serial No: _____

Information from AED Screens: _____

Number of Shocks Delivered: _____

Time Defibrillator in Use: _____

Responders Interviewed? Yes No

Notes Attached? Yes No

Data Coordinator Transfer History: (each handler signs off below)

From Date/Time _____ To Date/Time _____

From Date/Time _____ To Date/Time _____

From Date/Time _____ To Date/Time _____

Manager Signature: _____ Date: _____

Safety Manager Signature: _____ Date: _____

COPY OF COMPLETED FORM TO SAFETY DEPARTMENT & WORKER'S FILE Tef6181

APPENDIX D

AED Monthly Inspection

AED Unit #:

Serial Number:

Date Of Inspection:	
AED: Clean, Correctly Stored and No Visible Damage	
Battery Percentage: Battery Percentage Shown When Cover is Opened	
Pads: Two Sets of Defibrillator pads sealed and within Exp. Date:	
Accessory Supplies: Scissors, Razor, CPR Mask and 1 Pair of Gloves	
Spare Battery: Spare Battery within Install by Date	
Status Indicator: Shows a Green Rescue Ready indicator.	
Function Test: Self-Starts and Prompts Begin when Cover Opened	
AED Standard Operating Procedure (SOP) Manual: In place behind AED unit.	
Remarks, Problems, Corrective Actions	
Inspected By: Signature of operator completing inspection.	

DCORf6182

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Appendix A – Guidelines for Heat Exposure Limits

HEAT ILLNESS

OBJECTIVE

Many workers at DCOR work in hot environments. Working in hot conditions poses many safety and health hazards to the workers. This policy addresses ways to minimize and control these hazards. The objective of this policy is to reduce the risk of illness, injury or fatality to DCOR employees, contractors and related personnel from heat related disorders.

California Employers with any outdoor places of employment must comply with the Heat Illness Prevention Standard T8 CCR 3395. These procedures have been created to assist the employer in crafting their heat illness prevention procedures, and to reduce the risk of work-related heat illnesses among their employees.

AUTHORITY

Title 8 CCR 3395, Heat Illness Standard

POLICY

This policy sets forth DCOR, requirements for work in hot environments.

DEFININTIONS

Acclimatization: means temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat.

Heat Illness: means a serious medical condition resulting from the body's inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.

Environmental risk factors for heat illness: means working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by employees.

Personal risk factors for heat illness: means factors such as an individual's age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body's water retention or other physiological responses to heat.

Preventative recovery period: means a period of time to recover from the heat in order to prevent heat illness.

Shade: means blockage of direct sunlight. Canopies, umbrellas and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning.

RESPONSIBILITIES

Safety Manager is available to monitor the heat exposure of individual jobs and make recommendations to reduce heat stress risk. If employees must work for extended periods (i.e. more than 1 continuous hour/day) outdoors during hot weather or above the threshold limit value (TLV) for heat exposure.

Supervisors have the primary responsibility for the implementation of the Heat Stress Prevention Program in their work area. The supervisor has ultimate responsibility for the safety of the employees. This includes evaluation of the work to be performed, providing ready access to drinking water or electrolyte replacement drinks, ensuring workers are familiar with the signs and symptoms of heat related disorder, allow for acclimatization of workers in hot environments, adoption of work rest regimes and scheduling of work to reduce heat stresses as appropriate and providing training for employees.

Employees are responsible for attending training and following the instructions given. They are also responsible for monitoring themselves for signs and symptoms of heat stress.

GENERAL REQUIREMENTS

1. Employees shall have access to potable drinking water. Where it is not plumbed or otherwise continuously supplied, it shall be provided in sufficient quantity throughout the work shift.

2. Employees suffering from heat illness or believing a preventative recovery period is needed, shall be provided access to an area with shade that is either open to the air or provided with ventilation or cooling. Such access to shade shall be permitted at all times.

3. Supervisors must receive training in the prevention of heat related illnesses prior to supervising employees working in heat.

4. Supervisors must be trained in the employer's heat illness procedures to prevent heat illness and procedures to follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.

5. Procedures must be in place to control the effects of environmental factors that can contribute to heat related illness. The most common environmental factors are air temperature, humidity, radiant heat sources and air circulation. Refer to *Procedures* section for specific requirements.

6. Physical factors that contribute to heat related illness should be taken into consideration before performing a task. The most common physical factors that can contribute to heat related illness are type of work, level of physical activity and duration, and clothing color, weight and breathability.

7. Supervisors must ensure personal factors that contribute to heat related illness are taken into consideration before assigning a task where there is the possibility of a heat-related illness occurring. The most common personal factors that can contribute to heat related illness are age, weight/fitness, drug/alcohol use, prior heat-related illness, etc.

8. Employees will have access to shade. At or below 80 degrees Fahrenheit all employees shall have timely access to shade upon request. For temperatures at or above 80 degrees Fahrenheit, one or more areas with shade shall be provided at all times while employees are present. Shade shall accommodate the number of employees on recovery or rest periods.

9. High-heat procedures shall be followed when the temperature exceeds 95 degrees Fahrenheit. High-heat procedures shall include, but are not limited to:

    - Effective communication by voice, observation or electronic means
    - Observation of employees for alertness and signs/symptoms of heat illness
    - Designating one or more employees on each worksite as authorized to call for emergency medical services
    - Reminding employees to drink water throughout the shift
    - Pre-shift meetings before beginning work to review the high heat procedures, encourage drinking water, and remind employees of their right to take a cool-down rest when necessary.

Refer to *High Heat Procedures* section of this policy for additional guidance on high heat procedures.

PROCEDURES

These procedures are not intended to supersede or replace the application of any other Title 8 regulation, particularly T8 3203 Injury and Illness Prevention Program (IIPP). Title 8 CCR 3203 requires an employer to establish, implement, and maintain an effective IIPP.

There are other standards that apply to Heat Illness Prevention some of the provisions that were already required by regulation include:

- Providing for Emergency Medical Services (EMS)
- Providing adequate supply of Potable Water
- Keeping drinking water fresh and suitably cool
- Keeping clean drinking cups available
- Provide CPR/First Aid training for any remote location.

The key elements within this Heat Illness Prevention Program are those contained in Title 8 of the California Code of Regulations, Section 3395 (T8 CCR 3395) and consist of the following:

1. Provisions for Water
2. Access to Shade
3. Written Procedures
4. Training

PROVISIONS FOR WATER

Water is a key preventive measure to minimize the risk of heat related illnesses.
3395(c): Employees shall have access to potable drinking water meeting the requirements of Sections 1524, 3363, and 3457, as applicable including but not limited to the requirements that it be fresh, pure, suitably cool, and provided to employees free of charge. Where the supply of water is not plumbed or otherwise continuously supplied, water shall be provided in sufficient quantity at the beginning of the work shift to provide **one quart per employee per hour for drinking** for the entire shift.

Supervisors may begin the shift with smaller quantities of water if they have effective procedures for replenishment during the shift as needed to allow employees to drink one quart or more per hour. The frequent drinking of water, as described in (e), shall be encouraged.

Procedures for Provisions of Water

1. Bring at least 2 quarts per employee at the start of the shift, and Supervisor/designated person will monitor water containers every 30 minutes, and employees are encouraged to report to supervisor/designated person low levels or dirty water.
2. Supervisor will provide frequent reminders to employees to drink frequently, and more water breaks will be provided.
3. On days that will exceed 75 degrees F, every morning there will be short tailgate meetings to remind workers about the importance of frequent consumption of water throughout the shift.

4. Place water containers as close as possible to the workers, not away from them.
5. When drinking water levels within a container drop below 50%, the water shall be replenished immediately; or water levels should not fall below the point that will allow for adequate water during the time necessary to effect replenishment.
6. Disposable/single use drinking cups will be provided to employees, or provisions will be made to issue employees their own cups each day.
7. Noise making devices, such as air horns, may be used to remind employees to take their water break.

To ensure access to sufficient quantities of potable drinking water Supervisors must either provide clean iced coolers or iced bottled water **one quart per employee per hour.**

To encourage frequent drinking of potable water Supervisors must give adequate work breaks and ensure employees are drinking water on regular intervals.

ACCESS TO SHADE

Access to rest and shade or other cooling measures are important preventive steps to minimize the risk of heat related illnesses. *3395(d)* Employees suffering from heat illness or believing a preventative recovery period is needed, shall be provided access to an area with shade that is either open to the air or provided with ventilation or cooling for a period of no less than five minutes. Such access to shade shall be permitted at all times.

Procedures for providing Shade:

- Supervisor will set-up an adequate number of; umbrellas, canopies or other portable devices, at the start of the shift and will relocate them to be closer to the crew, as needed. Equipment should be placed in close proximity (i.e., no more than 50-100 yards) to the work activity.
- Employees have access to office or construction trailer, or other building with air conditioning.
- Every morning there will be short tailgate meetings to remind workers about the importance of rest breaks and the location of shade.
- Non-agricultural employers can use other cooling measures if they demonstrate that these methods are as effective as shade.

To ensure access to shade at all times Supervisors shall provide easy ups when ambient temperature exceeds 75 degrees F. To ensure that employees have access to a preventative recovery period Supervisors shall ensure employees take regular breaks in increasing amounts based on temperature.

HIGH HEAT PROCEDURES

When the temperature equals or exceeds 95 degree Fahrenheit, the Site Supervisors shall implement the high-heat preventive procedures by:

1. Ensuring that effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor when needed. An electronic device, such as a cell phone or text messaging device, may be used for this purpose only if reception in the area is reliable.

   This preventive measure is particularly important in circumstances where the supervisor is not present at the site and needs to be immediately alerted of a problem, such as when the outdoor temperature has suddenly spiked or the water used for replenishing containers have run out.

2. Observing employees for alertness and signs or symptoms of heat illness.

   Recognition of signs or symptoms of heat illness by a supervisor is crucial for assuring that sick workers be provided immediate access to shade and medical treatment. Delay of prompt medical response is likely to occur if employees working individually or in small groups suffer heat syncope, disorientation or loss of consciousness or any other symptoms of heat illness without the supervisor's knowledge.

   In instances where employees work in small groups without a supervisor present throughout the shift, the supervisor must designate an employee with sufficient experience and training to look for signs and symptoms of heat illness. Such a designated observer must know what steps to take if heat illness occurs.

3. Reminding employees throughout the shift to drink plenty of water.

   During period of high temperatures workers may be more likely to skip drinking water and or take rest breaks because they are in a rush to finish their work, and do not realize this can increase their risk of heat illness.

4. Close supervision of a new employees for the first 14 days of employment. Exceptions to the close supervision requirements are if the employee indicates at the time of hire that he or she has been doing similar outdoor work for at least 10 of the past 30 days for 4 or more hours per day.

   It is important to supervising new employees to ensure that necessary preventive measures such as frequent drinking of water and taking cool down breaks are followed.

EMERGENCY PROCEDURES

Written emergency procedures help reduce the risk of heat related illnesses, and ensure that assistance is provided without delay. *3395(e)(3)* The Company's procedures required by subsections *(e)(1)(B), (G), (H),* and *(I)* shall be in writing and shall be made available to employees and to representatives of the Division upon request. These include:

- Procedures for complying with the requirements of this standard,
- Procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary,
- Procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by an emergency medical service provider;

- Procedures for ensuring that, in the event of emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders.

Procedures for complying with the Heat Illness Standard:

- All employees will be trained prior to working outdoors.
- Working hours will be modified to work during the cooler hours of the day, when possible.
- When a modified or shorter work-shift is not possible, more water and rest breaks will be provided.
- Supervisors will continuously check all employees, and stay alert to the presence of heat related symptoms.
- Supervisors will carry cell phones or other means of communication, to ensure that emergency services can be called, and check that these are functional at the worksite prior to each shift.
- Every morning, workers will be reminded about address and directions to the worksite and emergency procedures.

To reduce the risk of heat-related illness (HI) and respond to possible symptoms of HI Supervisors shall monitor employees for heat related illnesses during hot days. In the event of an emergency Supervisors shall keep emergency medical numbers to the nearest location readily available.

TRAINING

Training is critical to help reduce the risk of heat related illnesses and to assist with obtaining emergency assistance without delay. *3395(e)(1)* Employee training: Training in the following topics shall be provided to all supervisory and non-supervisory employees:

- The environmental and personal risk factors for heat illness;
- The employer's procedures for complying with the requirements of this standard;
- The importance of frequent consumption of small quantities of water, up to 4 cups per hour, when the work environment is hot and employees are likely to be sweating more than usual in the performance of their duties;
- The importance of acclimatization;
- The different types of heat illness and the common signs and symptoms of heat illness;
- The importance to employees of immediately reporting to the employer, directly or through the employee's supervisor, symptoms or signs of heat illness in themselves, or in co-workers;

- The employer's procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary;
- The employer's procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by an emergency medical service provider;
- The employer's procedures for ensuring that, in the event of an emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders. Communication for employees shall be in a form readily understandable by all affected employees.

Supervisor training: Prior to assignment to supervision of employees working in the heat, training on the following topics shall be provided:

- The information required to be provided by section *(e)(1)* above.
- The procedures the supervisor is to follow to implement the applicable provisions in this section.
- The procedures the supervisor is to follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.

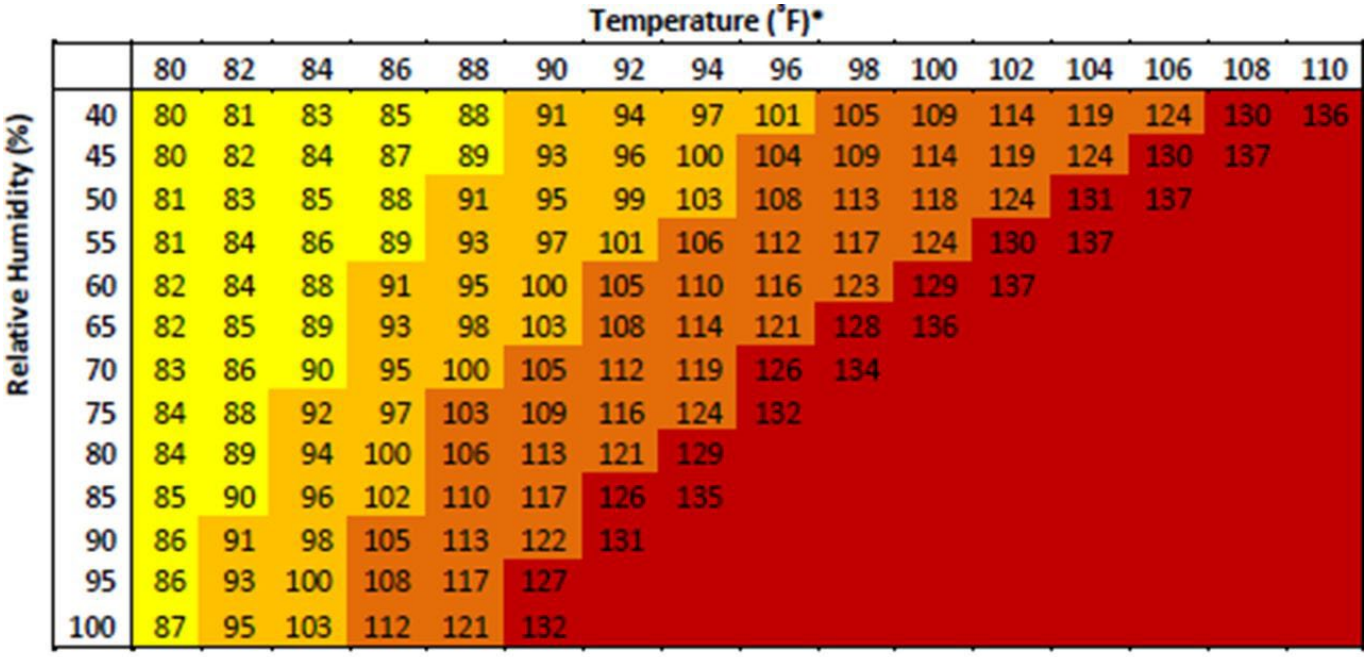
Procedures for complying with the heat illness training provision:

- All employees will receive heat illness prevention training prior to working outdoors. Especially all newly hired employees.
- On hot days, and during a heat wave, supervisors will hold short tailgate meetings to review this important information with all workers.
- All newly hired workers will be assigned a buddy or experienced coworker to ensure that they understood the training and follow the company procedures.
- Supervisors will be trained prior to being assigned to supervise outdoor workers.

Appendix A - Guidelines for Heat Exposure Limits

Always monitor signs and symptoms of heat-stressed workers. Discontinue any activity for a person when:

- Sustained heart rate greater than 160 beats per minute for those under 35 and 140 for those 35 and over.
- There are complaints of sudden and severe fatigue, nausea, dizziness, lightheadedness, or fainting.
- There are periods of inexplicable irritability, malaise or flu-like symptoms.
- Sweating stops and the skin becomes hot and dry.



Relative Humidity (%)	Temperature (°F)*															
	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Heat Index	Category	Hazard of Heat Disorder
~80 - 89°F	Caution	Possible fatigue with prolonged exposure
~90 - 104°F	Extreme Caution	Heat exhaustion possible with long exposure
~105 - 125°F	Danger	Heat stroke possible and heat exhaustion likely
~≥126°F	Extreme Danger	High risk of heat stroke

* Formula to convert Fahrenheit to Celsius: (°F - 32) x 5/9 = °C

Apparent temperature, Heat Stress Index (HSI): A measure of how hot it really feels in degrees Fahrenheit when relative humidity is factored with the actual air temperature. This chart has been adapted from the National Weather Service's "heat index" and an adjustment has been made with the apparent temperature categories to match more closely working in full sunshine. This guideline should be followed for employees not wearing protective clothing.

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Appendix A – Violent Incident Log

Workplace Violence

OBJECTIVE

Employees including supervisors and managers can be victims of workplace violence, which entails a substantial risk of physical and emotional harm. Some of these incidents of workplace violence result in fatal injury, and others result in nonfatal injuries, requiring medical treatment, missed work, lost wages, and decreased productivity. Employers are required to address workplace violence hazards to protect employees and comply with the regulatory requirement of establishing, implementing, and maintaining an effective written Workplace Violence Prevention Plan (WVPP).

AUTHORITY

Labor Code section 6401.9

POLICY

This policy sets forth DCOR LLC, requirements for workplace violence prevention.

DEFINITIONS

Emergency: Unanticipated circumstances that can be life threatening or pose a risk of significant injuries to employees or other persons.

Engineering controls: An aspect of the built space or a device that removes a hazard from the workplace or creates a barrier between the employee and the hazard.

Log: the violent incident log required by LC section 6401.9.

Plan: the workplace violence prevention plan required by LC section 6401.9.

Workplace violence: "Workplace violence" is defined as any act of violence or threat of violence that occurs in a place of employment. This includes, but is not limited to, the following: the threat or use of physical force against an employee that results in, or has a high likelihood of resulting in, injury, psychological trauma, or stress, regardless of whether the employee sustains an injury. An incident involving a threat or use of a firearm or other dangerous weapon, including the use of common objects as weapons, regardless of whether the employee sustains an injury.

Serious injury or illness: Any injury or illness occurring in a place of employment or in connection with any employment that requires inpatient hospitalization for other than medical observation or diagnostic testing, or in which an employee suffers an amputation, the loss of an eye, or any serious degree of permanent disfigurement, but

does not include any injury or illness or death caused by an accident on a public street or highway unless the accident occurred in a construction zone.

Threat of violence: Any verbal or written statement, including, but not limited to, texts, electronic messages, social media messages, or other online posts, or any behavioral or physical conduct, that conveys an intent, or that is reasonably perceived to convey an intent, to cause physical harm or to place someone in fear of physical harm, and that serves no legitimate purpose.

Type 1 violence: means workplace violence committed by a person who has no legitimate business at the worksite and includes violent acts by anyone who enters the workplace or approaches workers with the intent to commit a crime.

Type 2 violence: means workplace violence directed at employees by customers, clients, patients, students, inmates, or visitors.

Type 3 violence: means workplace violence against an employee by a present or former employee, supervisor, or manager. The primary target of a type 3 event can be a co-employee, a supervisor, domestic partner, or manager of an individual who may be seeking revenge for what they perceive as unfair treatment at the workplace.

Type 4 violence: means workplace violence committed in the workplace by a person who does not work there but has or is known to have had a personal relationship with an employee.

RESPONSIBILITIES

The WVPP administrator, HR Manager, has the authority and responsibility for implementing the provisions of this plan for DCOR LLC. If there are multiple persons responsible for the plan, their roles will be clearly described.

Supervision: All managers and supervisors are responsible for implementing and maintaining the WVPP in their work areas and for answering employee questions about the WVPP.

Employees: All employees will follow all workplace violence prevention plan directives, policies, and procedures, and assist in maintaining a safe work environment.

EMPLOYER REPORTING RESPONSIBILITIES

As required by California Code of Regulations (CCR), Title 8, Section 342(a). Reporting Work-Connected Fatalities and Serious Injuries, DCOR LLC. will immediately report to Cal/OSHA any serious injury or illness (as defined by CCR, Title 8, Section 330(h)), or death (including any due to Workplace Violence) of an employee occurring in a place of employment or in connection with any employment.

General Requirements

1. New employee orientation includes workplace violence prevention policies and procedures.

2. Training current employees, supervisors, and managers in the provisions of DCOR LLC. WVPP

3. Effective procedures to ensure that supervisory and nonsupervisory employees comply with the WVPP.

4. Recognizing employees who demonstrate safe work practices that promote the WVPP in the workplace.

5. Regularly scheduled meetings that address security issues and potential workplace violence hazards.

6. Effective communication between employees and supervisors about workplace violence prevention and violence concerns.

7. Posted or distributed workplace violence prevention information.

8. Employees can report a violent incident, threat, or other workplace violence concern to their employer or law enforcement without fear of reprisal or adverse action.

9. All threats or acts of workplace violence are reported to an employee's supervisor or manager, who will inform the WVPP administrator. If an employee is unable to reach their immediate supervision, then the employees will report incidents directly to the WVPP administrator, HR Manager.

PROCEDURES

These procedures are not intended to supersede or replace the application of any other Title 8 regulation.

Post Incident Response & Investigation

1. Visit the scene of an incident as soon as safe and practicable.

2. Interview involved parties, such as employees, witnesses, law enforcement, and/or security personnel.

3. Review security footage of existing security cameras if applicable.

4. Examine the workplace for security risk factors associated with the incident, including any previous reports of inappropriate behavior by the perpetrator.

5. Determine the cause of the incident.

6. Take corrective action to prevent similar incidents from occurring.

7. Record the findings and ensure corrective actions are taken.

8. Obtain any reports completed by law enforcement.

9. The violent incident log will be used for every workplace violence incident and will include information, such as: See Appendix A

Recordkeeping

DCOR LLC. will create and maintain records of workplace violence hazard identification, evaluation, and correction, for a minimum of five (5) years.

Create and maintain training records for a minimum of one (1) year and include the following: Training dates, contents or a summary of the training sessions, names and qualifications of persons conducting the training, names and job titles of all persons attending the training sessions.

Maintain violent incident logs for minimum of five (5) years. Maintain records of workplace violence incident investigations for a minimum of five (5) years.

The records shall not contain medical information per subdivision (j) of section 56.05 of the Civil Code.

All records of workplace violence hazard identification, evaluation, and correction; training, incident logs and workplace violence incident investigations required by LC section 6401.9(f), shall be made available to Cal/OSHA upon request for examination and copying.

EMPLOYEE ACCESS TO RECORDS

The following records shall be made available to employees and their representatives, upon request and without cost, for examination and copying within 15 calendar days of a request: Records of workplace violence hazard identification, evaluation, and correction. Training records and violent incident logs.

Violent Incident Log Description

This log must be used for every workplace violence incident that occurs in our workplace. At a minimum, it will include the information required by LC section 6401.9(d).

The information that is recorded will be based on: Information provided by the employees who experienced the incident of violence, witness statements, and all other investigation findings.

All information that personally identifies the individual(s) involved will be omitted from this log, such as: Names, addresses, telephone numbers, and social security numbers.

Note: It's important to understand that "Workplace Violence Type" and "Type of Incident" have separate requirements. For this part of the log, "Type of Incident" specifically refers to the nature or characteristics of the incident being logged. It does not refer to the type of workplace violence.

Appendix A

Workplace Violent Incident Log **Title 8 CCR §3343 (d)**	*The employer shall record information about workplace violence threats, incidents and post-incident responses that meet the definition of workplace violence types in the Workplace Violence Standard 3343.*
	The employer shall ensure that individuals' Personally Identifiable Information (PII: information sufficient to allow identification of any person involved in a violent incident, such as a person's name, address, electronic mail address, telephone number, or social security number, or other information that, alone or in combination with other publicly available information, reveals the person's identity) and Sensitive Personally Identifiable Information (SPII: PII which if lost, compromised, or disclosed without authorization, could result in substantial harm, embarrassment, inconvenience, or unfairness to an individual), is not included on this Log.

(A)	(B)					(C)	(D)				(E)
Month / Year	Location of Incident (Check one box)					Workplace Violence Type	Severity of Incident (Check one box				Case No.
	Facility/ Building	Field	Office	Work Travel	Off-site	Enter Type (1-4)	0	1	2	3	

(C)	*Type 1 Violence: means workplace violence committed by a person, who is unrelated to the business function, at the place of employment.*
	Type 2 Violence: means workplace violence directed at employees by customers, clients, patients, students, or visitors
	Type 3 Violence: means workplace violence against an employee by a present or former employee, supervisor, or manager
	Type 4 Violence: means workplace violence committed in the place of employment by someone who does not work there, but has or is known to have had a personal relationship with an employee
(D)	*Severity 0: No policy violation substantiated*
	Severity 1: No injury/discipline short of termination
	Severity 2: Non-lethal injury/arrest/job loss
	Severity 3: Death/data loss/business shutdown
(E)	*Include case number that corresponds with employer investigation*