Health and Safety Plan 2020

TSA Drilling, Inc.
DBA: PeneCore Drilling, Inc.

TABLE OF CONTENTS

GENERAL HEALTH AND SAFETY PLAN

CODE OF SAFE PRACTICES: Section 1: Safety Program
CODE OF SAFE PRACTICES: Section 2: Field Operations
CODE OF SAFE PRACTICES: Section 3: Vehicle Operations

INJURY AND ILLNESS PREVENTION PLAN

HAZARD COMMUNICATIOIN PLAN

RESPIRATORY PROTECTION PLAN

ACCIDENT / INCIDENT INVESTIGATION PLAN

ORG CHART

DUTY STATEMENTS

CEMENT AND DUST (SILICA) EXPOSURE SAFETY PLAN

DRUG AND ALCOHOL TESTING PROGRAM/POLICY

HAZARDOUS WASTE OPERATIONS (HAZWOPER)

RESPIRATORY PROTECTION PROGRAM

ELECTRICAL SAFETY

FIRE PREVENTION

FALL PROTECTION

FORKLIFT OPERATION

HAZARD COMMUNICATION

HEARING CONSERVATION

PERSONAL PROECTION EQUIPMENT (PPE)

TOOL SAFEY AND INSPECTION

CORONAVIRUS (COVID19) and PANDEMIC DISEASE PLAN

2019 Safety Plan Details

	Action Description	Measurement & Monitoring	Timeline	Action Owner's Name
1	**Management Site Safety Visits:** Management and/or supervisors will perform safety related site visits. The safety related site visits will consist of audits and/or informal safety discussions. These site safety visits will be used to engage front line workers (field staff) to ensure their understanding of HSSE expectations, their awareness of the rules and tools, and to determine if they feel properly supported to perform their duties safely.	A minimum of 3 Site Safety Visits during 2019. Audit forms or documentation of site visits must be available upon request by AECOM.	To be performed continuously and monitored monthly.	Tuan Nguyen
2	**Employee Air Quality Monitoring:** Management and/or supervisors will perform quarterly air quality monitoring in actual working environments for field employees. These assessments will ensure proper employees are provided proper PPE and ensure acute and long term respiratory safety for all employees.	A minimum of 1 Site Safety Visit per quarter will be conducted during 2019. During these visits PeneCore Drilling will provide an air quality meter to monitor particulate matter over an 8-hour working period. This will include exposure assessment, HEPA, permissible exposure limit, silica exposure limit, and silicosis.	To be performed continuously and monitored monthly.	Tuan Nguyen
3	**Job Hazard Analysis (JHA) Updates:** Management and/or supervisors will work with field employees to discuss and update JHA's for field tasks monthly. Field employees are expected to assist management with discussion topics and modifications to existing JHA's to further improve safety for all staff.	Each field crew will be expected to meet with management at least once per month to discuss updates to existing JHAs. The updated JHAs will be dated and discussed during PeneCore Drilling's monthly companywide Health and Safety meeting. PeneCore will provide updated JHAs to AECOM upon request.	To be performed continuously and monitored monthly.	Tuan Nguyen

TABLE OF CONTENTS

Introduction	4
Purpose	4
Objective	4
Responsibilities	4
Hazard Analysis	6
Buried or Overhead Utilities	7
Personal Protection	9
Site Work Practices	11
Training	14
Regulated Areas	14
Decontamination	15
Medical Surveillance Program	16
Thermal Exposure	17
Emergency Response Plan	19
Emergency Response Person	21
Local Resources – Emergency Response	22
Work Rest Regimes and Heat Stress Monitoring Frequencies	24
Maximum Measures Level B Decontamination	25
Stations for Level B Decontamination	26
Maximum Measures Level C Decontamination	27
Hazardous Waste Worker Status Report	28
Pre-Project Safety Meeting	29
Injury/Incident Investigation Report	30
Appendixes	23

INTRODUCTION

This Health and Safety Plan contains general requirements for the protection of all PeneCore personnel involved in operations at any project site for remedial actions under the *EPA Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA);* federal DOE, DOD, DOI programs; state and private corporation programs.

PURPOSE

The purpose of this plan is to develop the awareness of PENECORE personnel to general health and safety hazards that may exist on any project.

The following general procedures have been established based on an analysis of potential general hazards that can be present on any site and the personal protection measures necessary to assure safe working conditions. Site-specific health and safety plans are consulted for specific project health and safety hazards, personal protection, hazard action levels, and where applicable will take precedence over this General Health and Safety Plan.

OBJECTIVE

The main objective of PENECORE is safety and as such, "***Safety Is Our Number One Goal!"*** Weekly inspections are conducted with emphasis on good housekeeping, proper use of protective equipment, condition of critical parts of equipment, and preventive maintenance.

RESPONSIBILITIES

The following person will be considered responsible for implementation and effectiveness of the PENECORE Health and Safety Plan:

Tuan Nguyen, President and CEO

PENECORE Management

All the above-named and implied will have the authority to enforce all company safety policies in their respective areas. PENECORE management and the company's safety officer have the overall responsibility for all aspects of the company safety program which include:

- Assure managers and supervisors are trained in workplace safety and are familiar with the health and safety hazards to which employees under their immediate direction or control may be exposed, as well as applicable laws, regulations and corporate safety rules and policies.
- Assure all employees are trained in accordance with this program.
- Inspect, evaluate, and identify work place hazards on a regular and continuing basis.
- Delegate such authority as necessary to project managers and operators for inspection, identification and mitigation of hazards in field operations.
- Develop and implement methods for abating workplace hazards.
- Assure all safety-related infractions are brought into compliance in a timely manner.
- Conduct and review accident and incident investigations.
- Assure communication of safety-related matters on a company-wide basis.
- Perform other duties as necessary to accomplish and promote a safe and healthful workplace.

- Review project health and safety plan, and assure compliance.
- Assure project manager/supervisor is aware of site-specific health and safety hazards.
- Assure required safety equipment is approved and available at project start-up.
- Assure all field personnel are trained in accordance with CFR 1910.120 before field assignment.
- Assure field personnel have been fit-tested for company-approved respiratory protection equipment. Liaison with client health and safety personnel.

Operations and Project Managers

These individuals who oversee site operations have primary responsibility to:

- Assure that all personnel are aware of potential health and safety hazards, and the proper procedures for protection.
- Provide client authorization, in the form of PENECORE Health and Safety Certifications (Hazardous Waste Worker Status Report), that all drilling personnel have satisfied the medical surveillance and training requirements.
- Assure personal protection equipment, as per agreement, are provided and properly utilized by all personnel.
- Monitor site personnel safety performance to ensure all mandatory PENECORE DRILLING health and safety procedures are adequate, and correct any that do not comply.
- Preparation and submission of any and all required health and safety reports.

Client Health and Safety Personnel

Client safety personnel will be responsible to:

- Advise safety officer on all site health and safety matters;
- Implement site specific health and safety plan;
- Monitor site environment to determine levels of personal protective equipment;
- Monitor crews for signs of thermal stress;
- Establish Exclusion Zone(s) and appropriate site decontamination procedures;
- Report any safety violations to the project manager and safety officer.

Field Operators

Rig operators/field leads assume the responsibility of crew safety supervisor, whose responsibilities are to:

- Know, follow, and periodically review company and site-specific safety policies and procedures.
- Ensure that all components of equipment are in good, safe operating condition.
- Conduct weekly safety inspections making sure all items on the checklist are inspected thoroughly, and use crew members to assist with inspections to help keep them alert to safe conditions.
- Emphasize safety by observing and immediately correcting any unsafe work practice.
- Conduct and involve crew members in “tailgate” safety meetings.
- Pay particular attention to the on-the-job training of new crew members to work safety.
- Set the example for safe practices and behavior for the crew to follow.
- Instruct all crew members in use of emergency shutdown devices.

- Check and test safety devices of all assigned equipment at the beginning of each operating day, and after any mobilization and set-up, and not allow activities until all emergency shutdown and warning devices are functioning properly.
- Follow safe site housekeeping practices.
- Maintain a list of site-specific emergency addresses and telephone numbers and inform crewmembers of its location.

Crew Members

Crewmembers' specific safety responsibilities are to:

- Know, follow, and periodically review company and site-specific safety policies and procedures.
- Be responsible for the safety of other crew members.
- Follow supervisory personnel instructions.
- Take all steps necessary to correct any unsafe conditions or hazards when seen and report them to their supervisor.
- See that all injuries, no matter how minor, are treated immediately and reported to a supervisor/manager. Maintain an alert, aggressive, and ambitious attitude toward their job.
- Take an active part in safety meetings.
- Not accept any job which they feel unqualified or not trained to handle.
- Wear proper personal safety protection and use all safety equipment properly.
- See that all machine guards are in place and functioning.

HAZARD ANALYSIS

Each site offers different levels and types of hazards. The purpose of this assessment is to identify general conditions or activities which may pose routine occupation hazards or immediate danger to life or health of site personnel, and information for selection and application of personal protective equipment and environmental monitoring methods.

Physical Hazards

Typical physical hazards include, but are not limited to, the following:

- Slipping, tripping, falling, strains and sprains, cuts, bruises, punctures, heavy equipment pinch points, falling objects, flying objects, and loud noises.

These hazards can be minimized by use of safe work practices and personal protective equipment such as steel toe/steel shank boots, hardhat, gloves, safety glasses, and hearing protection.

Chemical and Radiological Hazards

The possibility of exposure to hazardous chemicals or radioactive contamination varies with each project and specific site. Crews and other field personnel must, however, be cautious of possible routes of exposure or contamination from flammability, skin absorption or contact, and inhalation. Proper personal protection and environmental monitoring will minimize exposure potential.

Potential exposure information is identified in health and safety plans which characterize each site.

Biological Hazards

Different project locations will dictate potential for exposure to various indigenous biological hazards. These may include plants, such as poison oak, and/or reptiles, insects, scorpions, spiders, etc.

Field personnel should take all necessary steps to avoid exposure to any biological hazards described in site-specific health and safety plans for a specific drill site location.

Environmental Monitoring

Airborne contaminants can present a significant often insidious threat to the health and safety of field personnel.

Monitoring for these contaminants is an essential component of any health and safety plan.

Results of monitoring are used for:

- Delineating boundaries of work zones.
- Selecting level of personal protection.
- Assessing potential of health effects of exposure.
- Determining need for specific medical monitoring.

Principal types of contaminants, which are monitored, are organic vapor/dusts, explosive vapors/gases, and radioactivity.

The use of on-site direct reading instruments includes organic vapor monitors, oxygen/explosive meters, calorimetric tubes, and multi-gas meters. Selection of appropriate equipment shall be made by the site health and safety personnel based on site characterization from historical information, physical state of contaminants, and operational activities. Any monitoring equipment used will be maintained and calibrated according to manufacturer's requirements.

Action Levels

Action levels for personal protection or other actions will be determined by the site health and safety personnel on the basis of monitoring results in accordance with published guidelines for specific contaminant levels and their potential for health or physical effect.

BURIED OR OVERHEAD UTILITIES

Excavation or the use of a drill rig on a site or project within the vicinity of overhead utility lines or buried utilities requires the operator to take special precautions.

Buried Utilities

It is the client's responsibility to survey all project sites to determine the location of all buried utilities and mark their location on the drilling site using the following USA color codes:

WHITE ……..	WORK LOCATION
RED……	ELECTRICAL
YELLOW ……..	GAS OR OIL
ORANGE ……..	TELEPHONE
BLUE ……	WATER
GREEN ……..	SEWER

Prior to drilling a hole, the driller will determine beyond any doubt that there are no unknown hazards that may be struck during the drilling process.

This may be accomplished by the following procedure:

- Consult client's job specifications.
- Consultation with client representative for final authorization to proceed.
- PeneCore Drilling will hand auger borings to a minimum of 5' bgs prior to drilling.

When the driller is completely satisfied that the site is clear and client authorization has been obtained, drilling may proceed.

There will be no deviation from the bore hole location without client authorization.

If there is any reason to question the location or reason to expect a buried utility, the driller will:

- Notify the client of a questionable utility location.
- Hand auger bore to a minimum depth of five feet on the outside perimeter of the circumference of the bore hole as many times as necessary to cover the area of the intended bore hole.
- Watch for changes in hand auger returns. Most buried utilities are covered with fill that is not native.

Overhead Utilities

Under no circumstances or by anyone's directions will a derrick be raised within the specified minimum clearances for the overhead nominal system energized voltage rating.

No work activity adjacent to overhead utility lines shall be initiated until a survey has been made to ascertain the safe clearance from energized utility lines.

NOMINAL CLEARANCE FROM ENERGIZED OVERHEAD POWER LINES

KiloVolt (KV)			Distance (ft.)
0	-	50	10
51	-	100	12
101	-	200	15
201	-	300	20
301	-	500	25
501	-	750	35
751	-	1000	45

Any overhead utility line shall be considered to be energized unless and until the client assures that it is not energized and it has been visibly grounded.

Any operations adjacent to overhead utility lines are prohibited unless at least one of the following conditions are met:

- Absolute assurance that power has been shut off, the line has been rerouted or positive means have been taken to prevent the utility lines from being energized.
- Drilling equipment, or any part including hoisting lines or tooling, under any circumstances, cannot come within the minimum clearance from energized overhead utility lines as specified in the clearance table.

For a rig in transit with derrick lowered, the same minimum clearances will be observed.

PERSONAL PROTECTION

Personal protective equipment in the form of chemically resistant outer clothing and respiratory protection help prevent field personnel from coming in contact with potential contaminants.
The appropriate personal protective equipment is detailed in site-specific health and safety plans. Any decision to upgrade personal protective equipment to higher levels(s) is determined by the site health and safety personnel on the basis of site environmental monitoring.

Protection Levels

There are four (4) basic levels of personal protection.

The following lists the required personal protective ensemble for Levels A, B, C, and D as recommended by the U.S. Environmental Protection Agency (EPA):

Level A

Level A provides the highest level of protection from bodily contact, respiratory, and eye contact with contaminants.

Level A ensemble consists of:

- Pressure-demand, full-face SCBA or pressure-demand, supplied-air respirator with escape SCBA.
- Fully-encapsulating, chemically-resistant suit.
- Disposable inner latex and outer chemically-resistant gloves.
- Chemically-resistant, steel toe and shank boots.

- Two-way radio communications.

Level B

Level B is used when there is potential for bodily contact with contaminants and the need for supplied, breathable air.

The Level B ensemble consists of:

- One-piece, chemical-resistant Tyvek (Polyethylene-coated Tyvek/Saranex) splash suit with taped joints between suit, gloves, and boots.
- A NIOSH-approved full-face, supplied air breathing apparatus with a five minute escape bottle.
- ANSI-approved hard hat.
- Chemically-resistant, steel toe and shank boots.
- Disposable outer chemically-resistant boot covers.
- Inner latex and outer chemically-resistant gloves.
- Hearing protection.

Level C

Level C is used when there is less threat from bodily contact with contaminants, and airborne contaminant levels can be held within safe exposure limits with air-purifying respirators.

The Level C ensemble consists of:

- One-piece, chemically-resistant Tyvek splash suit with taped joints between suit, gloves, and boots.
- NIOSH-approved, half-face or full-face mask, with approved cartridge-equipped air-purifying respirator.
- ANSI-approved hard hat.
- Chemically-resistant, steel toe and shank boots.
- Disposable, chemically-resistant outer boot covers.
- Inner latex and outer chemically-resistant gloves.
- Hearing protection.
- ANSI-approved safety glasses/full-face shield.

Level D

Level D is used when there is little or no threat from dermal contact or airborne contaminants.

Level D ensemble consists of:

- Normal outer work clothes.
- ANSI-approved hard hat.
- Chemically-resistant steel toe and shank boots.
- Cotton or appropriate work gloves.
- Hearing protection.
- ANSI-approved safety glasses.

Modified Level D

Modified Level D is used when dermal protection from contact with drilling tools or samples is required.

In addition to the above, the Modified Level D ensemble consists of:

- Tyvek coverall.
- Latex inner gloves.
- Nitrile or other appropriate chemically-resistant outer gloves.

Respiratory Protection

All policies and procedures of PENECORE DRILLING's Respiratory Protection Plan will be followed. (For details, see *Respiratory Protection Plan*)

All personnel who are required, or potentially could be required to wear respirators have been medically qualified for respirator use, and qualitative fit-tested prior to initial issue, and are recertified by annual fit-testing in accordance with 29 CFR 1910.134 (b) (10) and 1910.134 Appendix D.

All respiratory protection utilized by field personnel will be in compliance with 29 CFR 1910.134.

Only properly cleaned and maintained NIOSH/MSHA-approved respirators shall be used for field operations.

Site-specific health and safety plans, and client site health and safety personnel determine any decision on respirator selection, upgrade or downgrade of respirator use.

Any facial hair (beards, moustaches, sideburns, etc.), which interferes with or prohibit proper face-to-face piece seal are prohibited. All personnel are expected to be clean-shaven at the beginning of each day's work shift.

An adaptor must be used when regular eyeglasses are worn with full-face respirators.

Contact lenses will not be worn with respiratory protection equipment.

Crew Communication

When the noise level on-site limits voice communication, personnel shall establish eye contact and give a nod, or some other means of communicating approval before beginning any step in a procedure that is potentially hazardous.

The "buddy system" will be used. At all times during operations, crew members shall know each other's' location and activity.

Emergency Communications Visual Signs

In the event there is an emergency in the Exclusion Zone during operations and oral communication is difficult if not impossible, the following standard visual signals or those specified by a client's health and safety plan should be used:

Situation	Signal
Out of air; can't breathe	Hand clutching throat
Need assistance	Hands on top of head
OK; I'm all right	Thumbs up
No; Negative	Thumbs down
Leave area immediately!	Grip partner's wrist or both hands around partner's waist

SITE WORK PRACTICES

Eating, drinking, chewing gum or tobacco, smoking, or any other practices that increase the probability of hand-to-mouth transfer and ingestion of material possibly contaminated, is prohibited in any area designated as contaminated.

Personnel Precautions

Hands and face must be thoroughly washed upon leaving the drill site.

Whenever decontamination of outer protective clothing is required, the entire body should be thoroughly washed as soon as possible after protective clothing is removed. Contact with contaminated or suspected areas of contamination should be avoided. Personnel should not walk through puddles, leachate, or discolored surfaces; lean, sit, or place equipment on drums, containers, or on soil suspected of being contaminated.

General Site Practices

All field personnel must be orientated to anticipated hazards and trained on personal protective equipment, safety procedures, emergency procedures, and communication. This normally occurs during a site-specific, pre-project safety meeting.

When respiratory protection equipment is used, field personnel must use the "buddy system", and know where each crewmember is at all times.

Visual contact should be maintained between crews and site safety personnel.

All visitors to the site must comply with the site-specific health and safety plan requirements for visitors.

Local medical facilities and emergency phone numbers shall be available on site.

Procedures for leaving a contaminated area must be explained before going to the site.

Removal of materials from protective clothing or equipment by blowing, shaking, or any other means that could disperse contaminated materials is prohibited.

Personnel and equipment in a contaminated area should be limited to the numbers consistent with effective operations.

Skin contact with contaminated or potentially contaminated surfaces, samples, or equipment shall be avoided.

PENECORE DRILLING general and specific safe practices shall be followed for those safe practices not covered by the site-specific health and safety plan.

Fire Prevention

The following measures will be used to prevent fires:

- Smoking will be prohibited in the Exclusion Zone, at or in the vicinity of operations that may present a fire hazard.
- Flammable and/or combustible liquids must be handled only in approved, properly labeled metal safety cans equipped with flash arresters and self-closing lids.
- Transfer of flammable liquids from one container to another will be done only when the containers are electrically bonded.
- Engines of all equipment will be shut off during refueling.

Fire Protection

The following measures will be used to protect against fires:

- All drill rigs and well development rigs will be equipped with one Multi-purpose 20# ABC fire extinguisher, or as may be required. All self-propelled vehicles will be equipped with one Multi-purpose 10# ABC fire extinguisher, or as may be required.
- At least one portable Multi-purpose 20# ABC or higher fire extinguisher unit will be located not less than 25 ft. or more than 75 ft. from any flammable liquid storage area.
- All vehicles and equipment shall be provided with a USFS-approved spark arrester.
- Each field vehicle shall be equipped with a long-handled round-point shovel.

Disposal of Site-Generated Material

Drill cuttings, excavated soil, PPE and decontamination materials will be handled and disposed of in accordance with the site-specific disposal plan.

Site Prep./Preparation

In order to prevent contamination of site surface soil, drill sites will be covered with Visqueen (polyethylene sheeting) to collect any equipment fluid leakage, or small quantity product spills, or other spillage possible during well construction and installation.

At the end of the job, the Visqueen will be rolled up and disposed of in accordance with site-specific requirements. Sufficient quantity of absorbent will be available on-site in event of a large spill.

When absorbent is used, and it becomes saturated, the absorbent and any contaminated soil or gravel, etc., will be placed in heavy-duty plastic bags for temporary storage for final disposal in accordance with site-specific requirements.

Site Housekeeping Practices
All hydraulic fluid systems will be checked daily and during operation for leaks.

When drilling mud accumulates while tripping out drilling tools, work will stop and unsafe quantities of excessive mud will be containerized or otherwise secured and disposed of in accordance with site-specific requirements.

In the event of any field repairs to any fluid system, residual fluid in hose will be drained into a suitable container and open hose ends placed in a container or capped.

All equipment shall be laid out in such a manner as to prevent tripping hazards.

Prior to field set-up, the operator will select equipment location to provide a safe and efficient worksite.

Hand tools, slings, chokers, etc., will be kept picked up from work area and stored in their proper place.

The site will be kept clear of all trash and disposed of as soon as possible in accordance with site-specific requirements.

All personal protective equipment will be kept clean and stored in a clean location until needed.

All well materials will be orderly and in a safe location until needed.

TRAINING

Haz Waste Worker
All field personnel shall complete training that meets requirements specified in 29 CFR 1910.120 (e) (3) (I).

In addition to the minimum 40 hour training off-site, field personnel will have three days of supervised field experience, as specified in 29 CFR 1910.120 (e) (3) (iv).

Project managers and supervisors responsible for field personnel receive an additional eight hours of specialized training as specified in 29 CFR 1910.120 (e) (4).

Training is updated annually as specified in 29 CFR 1910.120 (e) (8).

Personnel Orientation
All field personnel shall receive initial orientation to PENECORE DRILLING safety and health policies. Personnel policies, hazard communication, medical surveillance procedures will be updated at least annually.

REGULATED AREAS

Site organization and establishment of work zones is to prevent or reduce the transfer of hazardous materials off-site by field personnel and equipment used in and around the work site. There are three (3) work zones generally established to reduce the potential for contaminant migration and risk of personnel exposure:

- Exclusion Zone.
- Contamination Reduction Zone.
- Support Zone.

The site safety officer is responsible for establishing the work zones and distance between zones based on contamination potential.

Exclusion Zone

The Exclusion Zone is the area that confines the field activity. Field personnel will don the prescribed level of protective clothing as defined by the site-specific health and safety plan, or as directed by the site safety officer.

The barrier around the Exclusion Zone may be adjusted as site monitoring may indicate for proper personnel protection.

Contamination Reduction Zone

This zone provides a buffer area between the Exclusion Zone and the Support Zone to prevent or reduce the transfer of contaminated materials that may have been picked up by personnel or equipment leaving the Exclusion Zone. Some final decontamination procedures occur in this area.

All contaminated materials, protective clothing, used respirator cartridges, etc., are bagged or sealed in barrels and labeled before leaving this area.

Support Zone

The outer perimeter area of the site is the Support Zone and is considered a clean or non-contaminated area. This zone contains all support activities and facilities, such as first aid, equipment stores, and communication. Personnel in this area will wear normal work clothes or clean protective apparel. No potentially contaminated equipment or personnel clothing are permitted in this area.

DECONTAMINATION

Field personnel could become contaminated in a number of ways:

- Exposure to airborne vapors, gases, mists, or particulates.
- Skin contact with contaminated soils, tools, or fluids.

Personnel

Even with protective clothing and good work practices, clothing, tools and other equipment can become contaminated. To prevent transfer of contaminated materials, decontamination procedures and methods must be established before personnel enters a site and must continue and/or be modified as necessary throughout the activities. (See Appendix)

Decontamination Personnel

Field personnel decontaminating tools will wear the following personal protective equipment, in addition to required protective equipment while operating high-pressure steam cleaner(s):

- Waterproof Tyvek®.
- Chemically resistant gloves, inner or outer as required.
- Safety glasses and full face, splash shield.

General Procedures

Generally, PENECORE DRILLING supplies the high pressure, hot water machine and personnel to perform decontamination of tools before, during and after drilling operations. Other procedures and supplies are available per site-specific requirements.

All tools or equipment that will go into a boring will be cleaned/decontaminated prior to and during drilling.

All sample tools will be cleaned between runs according to site-specific requirements with hot water, soap, or any additional method, as required ensuring cross-contamination does not occur.

All contaminated materials, fluids, clothing, equipment, etc., will be containerized, labeled and disposed of in the manner determined by agreement and according to local, state, and federal regulations.

MEDICAL SURVEILLANCE PROGRAM

All field personnel shall have successfully completed a baseline medical examination by a company occupational health physician in accordance with requirements pursuant to 29 CFR 1910.120 (f), 1910.134 (e) (6). Personnel will be found medically qualified for hazardous site work prior to 40 hour training and re-examined at least annually for surveillance purposes. (See Appendix for Health Certification Form)

Pursuant to 29 CFR 1910.120 and *Occupational Safety and Health Guidance Manual for Hazardous Site Activities*, October 1985, for baseline physiological information and surveillance, the following tests will be performed:

- Vital signs.
- Pulmonary function (FEV_1, FVC).
- Audiometry (500 to 8,000 Hz).
- Visual acuity and Ishihara color discrimination.
- Urinalysis.
- Blood testing: GGPT, LDH, SGOT, SGPT, BUN.

Environmental physicals will be conducted in the event of exposure. In addition, pre- and post-work assignment examinations may be required for specific projects as determined by the medical consultant where exposure may include certain types and levels of contaminants.

Approved Field First Aid Kit

Each drill rig will be equipped with an approved field first aid kit which will be inspected at least weekly, and restocked as necessary.

Example:

ITEM	QUANTITY
Bandage, Adhesive, 1" (Band-Aids)	Small box (16/pkg.)
Bandage, Compress, 4" x 4"	12
Elastic (ACE), 3" or 4"	2
Roll, Gauze, 2"	1
Triangular	3
Blanket, Emergency	1
Book, First Aid, Standard or Advanced	1
Dressing, Multi-Trauma, 8" x 10"	1
Eye, Packet	1
Flush, Eye	1 pt. – 1 qt., min.
Gloves, Disposable	1 box
Ice Pack, Kwik-Kold	1
Kit, Scissors and Forceps	1
Report, Injury	1
Resuscitator, 1-way shield	1
Tape, Adhesive, 1"	1 roll

Medical Emergency

Field personnel are trained in First Aid and Adult CPR, and will provide emergency first aid treatment as required by WAC 296-155-120.

A site-specific HSP with key project personnel names, emergency agency phone numbers, location and route to nearest hospital or medical treatment center will be received by each crew prior to beginning work and will be kept on site in a support vehicle which has been designated as an emergency vehicle.

Medical Records

Pursuant to 29 CFR 1910.120 all medical records will be maintained for the duration of employment plus 30 years. Medical records will be made available to employees, their authorized representatives, and authorized OSHA representatives.

Pursuant to 29 CFR 1904, records of occupational injuries and illnesses and a summary report (OSHA 200 Log) will be maintained at each project worksite with the company summary maintained and posted annually at the corporate office.

THERMAL EXPOSURE

Protection of field personnel from weather conditions is an important consideration for any operation. Extremes of either hot or cold temperatures can cause physical discomfort, loss of efficiency and personal injury.

Heat Stress

The nature of environmental services often requires that crews be required to wear protective clothing appropriate for potential hazards they may encounter.

Materials used for protective suits for Levels A, B, and C are designed to provide an impermeable barrier between the body and particulates (dust), liquids, gases, and vapors. By their design, they also create a barrier between the body and the work environment.

When ambient temperature and/or level of protective clothing indicate possible heat problems, there are several things that crews can do to prevent heat stress:

- Crews should follow a regular work-rest schedule: over 70°F, work 45 minutes, rest 15 minutes, etc., in accordance with ACGIH, *Occupational Safety and Health Guidance Manual*, or some other informed sources (See Appendix).
- Remove all protective clothing during rest periods.
- If possible, wear only long, cotton underwear under protective clothing, not full Level D gear. The cotton underwear will keep sweat next to the skin to provide the maximum cooling from the limited evaporation that occurs underneath protective clothing.
- Drink plenty of fluids before, during and after work, (i.e., Gatorade) – 16 oz. (1/2 qt.) before starting work, and 1-2 cups (8-16 oz.) during each rest period, thirsty or not. The normal thirst mechanism is not sensitive enough to ensure enough fluids will be consumed to replace what is lost.
- Have extra personnel to rotate into job functions to allow one crew member to rest 1-2 hours every 3-6 hours; trade-off job functions to minimize stress or over exertion at one task.
- If possible, shade work area from direct sun.
- Wear cooling vests.

Cold Exposure

Cold exposure can occur in temperatures near or below freezing. Without proper protection, prolonged exposure to cold can cause the effects of cold exposure to occur in temperatures above freezing.

The combination of ambient temperature and wind velocity can create cold injuries.

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperatures, and symptoms generally occur in five stages:

- Shivering.
- Apathy, listlessness, sleepiness, and rapid body cooling.
- Glassy stare, slow pulse and respiration, unconsciousness.
- Freezing of extremities (fingers, toes, ears).
- Death.

The following are recommendations for field personnel to avoid the effects of cold exposure:

- Wear cotton undergarments to absorb perspiration from the body.
- Wear light outer clothing in layers. The layers hold in air which traps body heat, and can be removed as temperatures rise during the work day to avoid sweating and further unnecessary loss of body heat.
- Pay close attention to subjective signs and symptoms as outlined above.
- Take appropriate breaks in a warm, sheltered rest area.
- Install a wind break at the drill site to keep cold winds from blowing directly on personnel
- Maintain good eating, drinking, and rest habits.

Thermal Exposure Monitoring

Typically the site safety officer will monitor ambient temperatures and personnel for signs and symptoms of thermal exposure. Crews will also monitor each other during periods of work and rest periods for objective signs of thermal exposure.

EMERGENCY RESPONSE PLAN

Any operation involves risk to personnel. Hazardous waste activities add additional risks that can be minimized by good work practices, staying alert, thinking safe, and using proper protective equipment.

Emergency Fluid Spill

Since hazardous waste spills are not generally within the scope of our work, specific spill responses are prepared when necessary.

However, in the event of the overturn of a barrel of cuttings or spillage of decontamination water, the material will be contained with an absorbent (i.e., dirt, dry-sorb) available on-site, drummed and labeled for disposal in accordance with site requirements.

Also, leakage or loss of any fluid such as hydraulic or engine oil, diesel, or anti-freeze will be treated as a hydrocarbon and be contained with an absorbent (i.e., dirt, dry-sorb) available on-site, drummed and labeled for disposal in accordance with site requirements.

Emergency

An emergency condition is considered to exist if:

- Any field personnel are involved in an accident or experiences any adverse effects of symptoms of exposure while on site.
- A condition is discovered that suggests the existence of a situation more hazardous than anticipated.

All PENECORE personnel will know and follow the PENECORE Emergency Response Plan.

All PENECORE personnel will:

- Have received and been briefed on the site-specific HSP.
- Know the location of the site-specific HSP.
- Know the location of site emergency response equipment.

The following general emergency procedures shall be followed:

- Crews shall use the "buddy system" and know the location of each crew member while in the Exclusion Zone.
- Use emergency hand signals when ambient noise and hearing protection and/or respiratory protection prevents normal oral communication.
- The discovery of any condition that suggests the occurrence of a situation more hazardous than anticipated should result in the evacuation of personnel and re-evaluation of the hazard level of protection required before personnel return to the site.

Personnel Injury

In the event of an accident or a crewmember experiences any adverse effects or symptoms of exposure, work will immediately halt. The extent of any injury will be assessed and treated appropriately, and the directions of the PENECORE management or site safety officer will be followed.

If injury results from an accident, the following procedures shall be followed:

- All field personnel are trained in First Aid/CPR and will provide appropriate emergency first aid treatment.
- The injured person will be stabilized and any decontamination will be performed to the extent possible before transportation, if necessary.

For injuries requiring more than first aid, the injured worker shall be escorted by a crewmember and transported to the nearest hospital or medical treatment center, by ambulance if necessary.

The accident/injury will be reported to a PENECORE supervisor.

Electrical Contact

If equipment such as a drill rig makes contact with electrical wires, it may or may not be insulated from the ground by the carrier tires. Under either circumstance, if the human body comes in contact with the drill rig and the ground simultaneously, the body will act as a conductor to ground and death or serious injury can result.

If equipment makes contact with overhead or buried electrical lines:

- Under most circumstances, personnel in or on the vehicle should remain on the vehicle and not attempt to leave the vehicle.
- Do not touch or move any part, particularly a metallic part, of the vehicle.
- If it is determined that it is safe to vacate the vehicle, personnel should jump clear and as far as possible from the vehicle, not step off or hang on to the vehicle when jumping.
- Personnel on the ground shall stay away from the vehicle, keep others away and seek assistance from emergency personnel such as the fire department or police.
- If an individual is injured and in contact with the vehicle or power lines, any attempt at rescue must be done with extreme caution. Only dry, unpainted wood or a long dry, clean piece of rope should be used. Keep as far away from the victim as possible, and do not touch the victim until completely clear of the vehicle or electrical line.

- Once clear of electrical source, and if unconscious and a pulse cannot be detected, CPR should begin immediately and continued until emergency medical help arrives and assumes responsibility.

Chemical Exposure

The following procedures shall be followed if an individual or crew is exposed to hazardous chemicals:

- Remove the individual or crew from the immediate area.
- Avoid exposure of others to the chemicals.
- If clothing is contaminated, if possible, decontaminate the clothing and remove the clothing, if safe to do so.
- Any skin exposed should be rinsed with copious amounts of clean water, for at least 15 minutes.
- Eyes exposed should be washed with emergency eye wash for at least 15 minutes, followed by immediate medical attention.
- If the nature of injury requires it, the injured worker should be escorted by a crewmember and transported to the nearest hospital or medical treatment center, by ambulance if necessary.

Radioactive Exposure

In the event of radioactive exposure, contact the client's radiation control technician immediately.

Fire and Explosion

In the event of a fire or explosion on the site, all personnel shall evacuate the site and, depending on level of protection worn, assemble at the decontamination line or in the Safe Zone.

No personnel shall re-enter the site until it has been found safe to do so by the responding fire department and/or site health and safety personnel.

Protective Equipment Failure

If there is any failure or alteration of personal protective equipment that reduces its protection factor (PF), the employee affected will immediately leave the Exclusion Zone. Re-entry will not be permitted until the equipment is repaired or replaced.

Reporting Accidents

All accidents or injuries, no matter how minor, must be immediately reported. In the event of an accident the PM and/or operator shall immediately notify PENECORE management. An accident report (please review the PENECORE Injury Investigation Report in the Appendix) must be completed within 24 hours and a copy delivered to PENECORE Health and Safety Manager.

All other reporting of accidents or injuries shall be made in compliance with applicable OSHA standards and regulations, per 29 CFR 1904.

All personnel involved in an accident may be subject to a post-accident drug test.

EMERGENCY RESPONSE PERSON

The potential for an emergency which can occur during a project are physical injuries caused by personnel or equipment and accidental chemical exposure to site contaminants. In the event of such an emergency the following information is applicable.

Responsible Person

The Responsible Person on site is the PENECORE TSA/PM. The operator has the authority to act as the PM when PM is off the site.

Emergency Contacts

Tuan Nguyen: PENECORE Health and Safety Manager
Office: 530-661-3600
Cell: 530-681-3198

Site-Specific

A site safety officer briefing will be given to each crew member prior to beginning work and will be kept on site. All PENECORE personnel on site will know its location.

The site-specific health and safety plan (HSP) will provide key project personnel, agency phone numbers, location and route to nearest hospital or medical treatment center.

Notify site key personnel in the event of an emergency.

PENECORE personnel will follow the site-specific HSP/PENECORE HSP with regard to emergency situations as well as know the location of site-specific emergency contact phone numbers.

Evacuation Alarm

Vehicle horn blasts eight times or as defined in site-specific HSP.

Evacuation Route/Site Location

Follow site-specific protocol, or immediately leave site location until directed otherwise by site safety officer.

A pre-project meeting will be held to discuss the content of the site-specific health and safety plan, specific site requirements, and responsibility of all site personnel under normal and emergency conditions.

LOCAL RESOURCES

Hospital

Hospital location and routes to local hospital will be detailed in site-specific Health and Safety Plan.

Ambulance
9-1-1, or as specified in site-specific HSP.

Police
9-1-1, or as specified in site-specific HSP.

Fire
9-1-1, or as specified in site-specific HSP.

National Response Center
1-800-424-8802

RCRA Hotline
1-800-424-9436

APPENDIXES
- Measures for Level C Decontamination

PENECORE DRILLING WORK REST REGIMES AND HEAT STRESS MONITORING FREQUENCIES

A. Work-Rest Regimes [a,b]

Work-Rest (per hour)
Continuous

75% work	25% rest
50	50
25	75

Maximum Adjusted Temperature, °F

Light Work	Moderate Work	Heavy Work
86	80	77
87	82	79
89	85	82
90	88	86

B. Frequency of Heat Stress Monitoring [c]

Adjusted Temperature	Frequency (max. elapsed time, minutes)	
°F	PPE, Level D	Levels A, B, C

>90	45	15
87.5 – 90	60	30
82.5 – 87.5	90	60
77.5 – 82.5	120	90
72.5 – 77.5	150	120

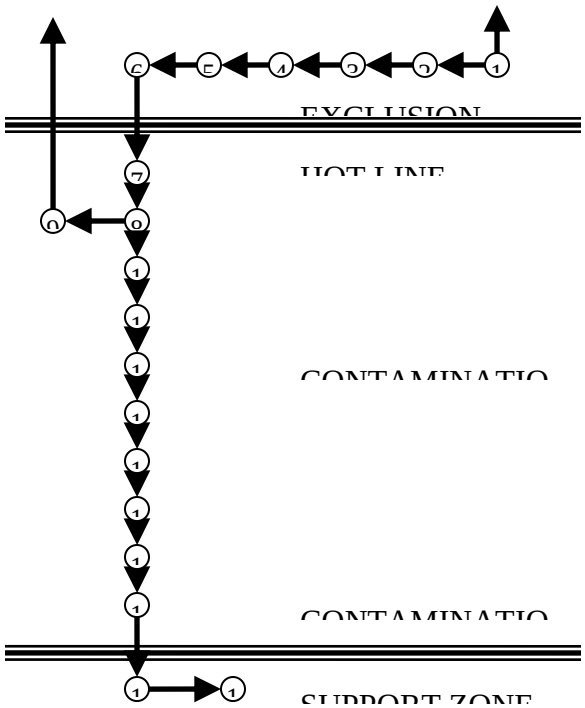
a. Based on permeable clothes.
b. Adapted from ACGIH 1989.
c. Adapted from NIOSH et al 1985.

MAXIMUM MEASURES FOR LEVEL B DECONTAMINATION

STATION		EVENT
Segregated Equipment Drop	1.	Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. During hot weather operations, a cool down station may be set up in this area.
Boot Cover and Glove Wash	2.	Scrub outer boot covers and gloves with decon solution or detergent/ water.
Boot Cover and Glove Rinse	3.	Rinse off decon solution from station 2 using copious amounts of water.
Tape Removal	4.	Remove tape around boots and gloves and deposit in container with plastic liner.
Boot Cover Removal	5.	Remove boot covers and deposit in container with plastic liner.
Outer Glove Removal	6.	Remove outer gloves and deposit in container with plastic liner.
Suit and Safety Boot Wash	7.	Wash chemical resistant splash suit, SCBA, gloves and safety boots. Scrub with long handle scrub brush and decon solution. Wrap SCBA regulator (if belt mounted) with plastic to keep out water.
SCBA, Suit, Boot Glove Rinse	8.	Rinse off decon solution using copious amounts of water.
Tank Exchange	9.	If worker leaves exclusion area to change air tank, this is the last step in the decon procedure. Worker's air tank is exchanged, new outer gloves and boot covers donned, and joints taped. Worker returns to duty.
Safety Boot Removal	10.	Remove safety boots and deposit in container with plastic liner.
SCBA Removal	11.	While still wearing face piece, remove SCBA, gloves and safety Disconnect hose from regulator valve.
Splash Suit Removal	12.	With assistance of helper, remove splash suit, inside-out. Deposit in container lined with plastic.
Inner Glove Wash	13.	Wash inner gloves with decon solution.
Inner Glove Rinse	14.	Rinse inner glove with water.

Face Piece Removal	15.	Remove face piece. Deposit in container lined with plastic. Avoid touching with fingers.
Inner Glove Removal	16.	Remove inner gloves and deposit in container lined with plastic.
Inner Clothing Removal	17.	Remove inner clothing. Place in container with liner. Do not wear inner clothing off site since there is a possibility that small amounts of contaminants might have been transferred in removing the splash suit
Field Wash	18.	Wash Hands and face with clean water and soap.
Redress	19.	Put on the clean clothes.

STATIONS FOR LEVEL B



MAXIMUM MEASURES FOR LEVEL C DECONTAMINATION

STATION		EVENT
Segregated Equipment Drop	1.	Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. During hot weather operations, a cool down station may be set up in this area.
Boot Cover and Glove Wash	2.	Scrub outer boot covers and gloves with decon solution or detergent/ water.
Boot Cover and Glove Rinse	3.	Rinse off decon solution from station 2 using copious amounts of water.
Tape Removal	4.	Remove tape around boots and gloves and deposit in container with plastic liner.
Boot Cover Removal	5.	Remove boot covers and deposit in container with plastic liner.
Outer Glove Removal	6.	Remove outer gloves and deposit in container with plastic liner.
Suit and Safety Boot Wash	7.	Wash chemical resistant splash suit, SCBA, gloves and safety boots. Scrub with long handle scrub brush and decon solution.
Suit, Boot Glove Rinse	8.	Rinse off decon solution using copious amounts of water.
Mask or Cartridge Exchange	9.	If worker leaves exclusion area to change air tank, this is the last step in the decon procedure. Worker's air tank is exchanged, new outer gloves and boot covers donned, and joints taped. Worker returns to duty.
Safety Boot Removal	10.	Remove safety boots and deposit in container with plastic liner.
Splash Suit Removal	11.	With assistance of helper, remove splash suit, inside-out. Deposit in container lined with plastic.
Inner Glove Wash	12.	Wash inner gloves with decon solution.
Inner Glove Rinse	13.	Rinse inner glove with water.
Respirator Removal	14.	Remove respirator. Deposit in container lined with plastic. Avoid touching with fingers.
Inner Glove Removal	15.	Remove inner gloves and deposit in container lined with plastic.
Inner Clothing Removal	16.	Remove inner clothing. Place in container with liner. Do not wear inner clothing off site since there is a possibility that small amounts of contaminants might have been transferred in removing the splash suit
Field Wash	17.	Wash Hands and face with clean water and soap.
Redress	18.	Put on the clean clothes.

PENECORE DRILLING-HAZARDOUS WASTE WORKER STATUS REPORT

Name: _____ Social Security No. _____

Position: _____

BASIC TRAINING AND MEDICAL REQUIREMENTS			
Record first expiration date from basic training and medical information below. First Expiration Date:			
			Expiration Date:
Annual 8-Hour Refresher			
	Expiration Date:		Expiration Date:
Rad Worker II		Annual Physical	
HSO/HGET		Mask Fit	
Whole Body Count		First Aid /CPR	
Waste Site Field Experience (Date Completed/Initial Training Only)			
ADDITIONAL TRAINING / CERTIFICATIONS			
	Expiration Date:		Expiration Date:
W.A. State Driller's License No.		Commercial Driver's License (CDL)	
Crane		SKA-PAK	
Forklift		Fall Protection	
		Guzzler Drill Cuttings Containment System	
SPECIAL REQUIREMENTS			

The above named employee is medically cleared to perform hazardous waste work. The required training has been verified as complete and the employee is qualified to perform work on a hazardous waste site.
If there are any changes that affect the status of either the medical clearance or the training certification during the course of work (such as medical restrictions or expired training), the employee's supervisor will notify Hazardous Waste Site Health & Safety.

Verified by PENECORE Safety
Manager:_____Date:_____

PENECORE-PRE-PROJECT SAFETY MEETING

Date:_____

Job Number: _____

Project Name/Location: _____

Review Provided By: _____

I,_____
Print Name SSN Number Sign Name

have read and understand the *Health and Safety Plan* that _____
Client Name
provided PeneCore I have read and understand that I may be working in an environment with potential chemical hazards and that I will comply with all conditions of this *Health and Safety Plan*.

Comments: _____

As the operator of the rig being assigned to this project, I understand that I am totally responsible for the health and safety of my drilling crew, that I am the designated site safety officer for my operation for the duration of my stay on this project. I also understand that pursuant to OSHA regulations, I am responsible to assure that my crew follows all of PeneCore safety procedures and policies, and I may be held civilly and criminally liable for any serious injury that may occur as a result of my willful negligence.

Comments: _____
_____

_____ _____
Print Name Sign Name

PENECORE - INJURY/INCIDENT INVESTIGATION REPORT

Injured Employee: _____

Employee Job Title: _____

Accident/Incident Information:
Date: _____ Time: _____
Location: _____
Client: _____
Well Site: _____
Photos/Videos: _____

Witness(s): _____
_____
_____

Rig/Job: _____

Supervisor: _____

Rig Operator: _____

Crew Members:
_____
_____
_____
_____
_____
_____

Employee Activities at Time of Injury/Incident:
_____
_____
_____
_____
_____
_____

How Did the Injury/Incident Occur (Use back of form to record notes, measurements, sketches, etc.):
_____
_____
_____
_____
_____
_____

Describe Injury/Incident in Detail (Including weather and site conditions):
_____
_____
_____
_____
_____
_____

Employee Seen by Doctor? □ Yes □ No
First Aid Injury □ Yes □ No

Escorted by Company Personnel? □ Yes □ No
Escort Name: _____

First Aider/Treatment Center_____
(Name, address, phone no.) _____

Was Supervisor present at Treatment Center? □ Yes □ No

Lost Time Injury? □ Yes □ No

Supervisor Signature: _____ **Date:** _____

Report Completed By: _____ **Date:** _____

TABLE OF CONTENTS

Introduction	32
Program Objectives	32
Personal Protection Programs	34
General Safe Practices	35
LockOut/TagOut (LOTO)	35
Injuries and Treatment	37
Fire Prevention and Protection	37
Material Storage	39
Material Disposal	39
Jacks and Jack Stands	39
Hand Tools	40
Shop Safety	41
Grinders	42
Welding Safety	42
Electrical Safety	45
Vehicle Maintenance	47
Office Safety	49
Welding Lens Density Chart	50
Injury Investigation Report	51

INTRODUCTION

Safety for the public and for all our employees is a primary concern of PeneCore

As we all know, almost daily there are changes taking place in city, county, state, and federal safety regulations. PENECORE will make every effort to keep employees up to date and informed of any changes through weekly "tailgate" safety meetings, and other written or verbal forms. The Health and Safety Orientation Training, and Code of Safe practices highlights areas of safety concern which each employee needs to be aware of and details of PENECORE policies and procedures.

All legislated regulations in effect will take precedence over any current company policy.

PROGRAM OBJECTIVES

The primary objective of PENECORE safety program code of safe practices is to provide for and ensure the safest work place possible. PENECORE wants to remain an industry safety leader.

Safety is the responsibility of every PENECORE employee. Demonstrating safe working practices (leading by example) should be the focus of all employees.

Tuan Nguyen, President and Chief Executive Officer; and the Safety Manager are responsible for all aspects of the safety program.

Operations Managers

Operations manager's responsibilities for safety will be to:

- Familiarize themselves with company and site-specific health and safety plans, and ensure their effective implementation.
- Be aware of all safety considerations when introducing a new process, procedure, machine or material into the work place.
- Give maximum support to all programs and committees whose function is to promote health and safety.
- Actively participate on the Safety Committee, as required.
- Review all accidents and near misses to ensure that proper reports are completed and appropriate action is taken to prevent repetition.
- Provide the leadership role for all employees to think and work safely.

Project Managers and Operators: Shared Responsibilities

All project managers are defined as field operations managers, field operations supervisors, and safety managers. These individuals, delegated by the operations manager, as the individual responsible for implementing safe working practices in field operations. When on site, project managers will have primary responsibility for site operational safety.

Project managers and rig operators shared responsibilities for safety in the field include:

- Knowledge of the contents of the companies and/or client's site-specific health and safety plans.
- Assure complete safety training of employees prior to assignment of duties.

- Consistently and fairly enforce all company safety rules.
- Investigate injuries to determine cause, and take immediate action to prevent repetition.
- See that all injuries, no matter how minor, are treated immediately and reported to PENECORE DRILLING management supervisor/manager.
- Use company self-inspection checklist as required for frequent work area inspections for unsafe conditions and work practices.
- For assigned project, review all inspection sheets for accuracy.
- Document employee infractions of safety rules.
- Review all "tailgate" safety meeting material to ensure proper topics are being covered.
- Monitor all personnel under their supervision and demonstrate the leadership which will instill the proper attitude and performance in all matters of safety.

Operators

The operator on any job site is the key person responsible for the safe operation of equipment, safety of crews, enforcing safety policies and preventing accidents. Specific safety responsibilities include the following:

- Know, follow, and periodically review company and site-specific health and safety plans.
- Ensure that equipment is in good, safe operating condition.
- Conduct weekly safety inspections, making sure all items on the checklist are inspected thoroughly, and using crew members to assist with inspections to help keep them alert to safe conditions.
- Correct all unsafe conditions.
- Constantly emphasize safety by observing and immediately correcting any unsafe work practice.
- Conduct and involve crew members in "tailgate" safety meetings.
- Pay particular attention to the on-the-job training of new crew members' safe work practices.
- Set the example for safe practices and behavior for the crew.
- Instruct all crew members in the use of emergency shutdown devices.
- Check and test all safety devices of all assigned equipment at the beginning of each operating day, after any mobilization and rig up, and not allow activities to start/resume until all emergency shutdown and warning devices are functioning properly.
- Maintain a list of site-specific emergency addresses and telephone numbers and inform crew members of the list's location. Only operate the equipment from the console.
- Ensure safe "housekeeping" practices are followed on the work site.

Crew

Crew member specific safety responsibilities are to:

- Know, follow, and periodically review company and site-specific health and safety plans.
- Be responsible for their own and the safety of other crew members.
- Follow supervisory personnel instructions.
- Take all steps necessary to correct any unsafe conditions or hazards when seen and report them to their supervisor.
- See that all injuries, no matter how minor, are treated immediately and reported to a supervisor/manager.

- Maintain an alert, aggressive and ambitious attitude toward their job.
- Take an active part in safety meetings.
- Not accept any job for which they feel unqualified or not trained to perform safely.
- Wear proper personal safety protection and use all safety equipment properly.
- Ensure all machine guards are in place and functioning.

New Crew Members

Safe practices are equally as important as the skills they will learn.

In addition to responsibilities for general crew member, the new crew member is responsible to:

- Be sure to know how to do something they are asked to do.
- Ask if not sure about an assignment. Correct on the job training is important.

Drivers

Drivers' specific responsibilities are to:

- Obey all traffic rules.
- Know, follow, and periodically review safety policies and procedures.
- Drive defensively and stay alert behind the wheel.
- Exercise courtesy at all times when driving.
- Yield right-of-way.
- Do not exceed DOT or state driving periods, and take all DOT or state required rest periods.
- Ensure the WEIGHT and for LOADING of the vehicle and conveyance are properly kept. If a fine is levied for violation of the California Vehicle Code pertaining to: WEIGHT and for LOADING of the vehicle and conveyance, the driver will be responsible for paying this fine.
- Inspect truck/trailer before, during, and after each trip, and report any unsafe conditions or hazards to supervisor.
- Wear seat belt and ensure all passengers do the same.

PERSONAL PROTECTION PROGRAMS

In addition to the personal protective equipment normally required for industry, PENECORE also maintains personal protection programs:

- Respiratory Protection (See PENECORE *Respiratory Protection Plan*).
- Modified Hearing Conservation Program.

Hearing Conservation

In the interests of employees' health, PENECORE conducts a modified Hearing Conservation Program. During the initial physical examination, all new employees are given an audiometric screening test which establishes a baseline for hearing acuity; and all employees are given audiometric surveillance tests during the annual monitoring physical.

To support this program and encourage compliance:

- Training in hearing protection and use of ear protection is delivered during Health and Safety Orientation.
- PENECORE provides a variety of approved hearing protection devices for all employees.

GENERAL SAFE PRACTICES

Personal Protection

Hard hats shall be worn on all sites, or in the shop or yard where work might be performed under heavy objects, or where there is the possibility of injury from falling objects; they shall be clearly marked as meeting ANSI Z89.1, Type A or B requirements. Rings and jewelry shall not be worn during a work shift.

Safety toe boots will have a firm grip, non-slip design sole and flat heel made of puncture proof, chemical and moisture resistant material and comply with ANSI Z41.1 requirements and shall be worn at all times while in all work areas. Athletic/jogging type safety toe shoes will not be worn in any work area.

When necessary because of wet areas, mixing, drilling, chemicals, and mud, steel toe rubber boots shall be worn.

In addition to protection against chemicals, all crew members and shop or yard personnel shall wear gloves for protection against cuts and abrasions which can occur when handling wire rope, and from sharp edges or burrs on drums, drill rods, or other drilling or sampling tools.

All gloves will be snug fitting with no loose cuffs or draw strings, and proper for the task.

Safety glasses shall be ANSI Z87.1 approved with side shields and will be worn on all sites, or in the shop or yard during grinding operations or anytime when there is potential for eye injuries, such as punctures, scrapes, cuts or burns from sharp objects, flying particles, or hazardous substances.

Face shields shall be worn over safety glasses when additional face shielding is required against flying particles and/or splash and spray of water or hazardous liquids.

Clear or shaded lens safety glasses will not be worn for any welding. Only helmets approved for arc welding, or welding glasses approved for gas welding shall be worn (See Appendix). Contact lenses will not be worn if required by the HSP.

LOCKOUT / TAGOUT (LOTO)

LockOut/TagOut (LOTO) or lock and tag is a safety procedure which is used in industry and research settings to ensure that dangerous machines are properly shut off and not able to be started up again prior to the completion of maintenance or servicing work. LOTO means the use of devices, positive methods and procedures to effectively isolate or secure prime movers (the source of mechanical power), machinery and equipment from hazardous energy sources. Examples of hazardous energy sources include mechanical, hydraulic, pneumatic, chemical, electrical, thermal, and other sources. LOTO is required when the unexpected energization or start up (or release of stored energy) of machines, equipment or prime movers could injure workers during cleaning, repairing, servicing, setting-up, adjusting and un-jamming.

Purpose

LOTO procedure establishes the minimum requirements for lockout of sources that could cause injury to personnel. All employees shall comply with the procedure.

Responsibility

The responsibility for seeing that this procedure is followed is binding upon all employees. All employees shall be instructed in the safety significance of the procedure below. Each new or transferred affected employee shall be instructed in the purpose and use of the LOTO procedure.

Preparation for LockOut/TagOut

Employees authorized to perform LOTO shall be certain as to which switch, valve, or other isolation devices apply to the equipment being locked out. More than one source (electrical, mechanical or others) may be involved. Any questionable identification of sources shall be cleared by the employees with their supervisors. Before LOTO commences, job authorization should be obtained.

LockOut/TagOut Procedure

1. Notify all affected employees that a LOTO is required and the reason therefore.
2. If the equipment is operating, shut it down by the normal stopping procedure, i.e., depress stop button, open toggle switch.
3. Operate the switch, valve or other energy isolating devices so that the energy source(s) is disconnected or isolated from the equipment.
4. LOTO energy isolating devices with an assigned individual lock.
5. Stored energy, such as capacitators, springs, elevated machine members, rotating fly wheels, hydraulic systems, air, gas, steam/water pressure, etc. must also be dissipated or restrained by methods such as grounding, repositioning, locking, or bleeding down.
6. After ensuring that no personnel are exposed and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate. CAUTION: Return operating controls to neutral after the test.
7. The equipment is now locked out.

Restoring Equipment to Service

1. When the job is complete and equipment is ready for testing or normal service, check the equipment area to see that no one is exposed.
2. When equipment is clear, remove all locks. The energy isolating devices may be operated to restore energy to equipment.

Procedure Involving More Than One Person

In the preceding steps, if more than one individual is required to LOTO equipment, each shall place his/her own personal lock on the energy isolating device(s). One designated individual of a work crew or a supervisor, with the knowledge of the crew, may LOTO equipment for the entire crew. In such cases, it may be the responsibility of the individual to carry out all steps of the LOTO procedure and inform the crew when it is safe to work on the equipment. Additionally, the designated individual shall not remove a crew lock until it has been verified that all individuals are clear.

INJURIES AND TREATMENT

No matter how minor, all injuries shall be reported to a supervisor immediately, who will complete and submit an Industrial Injury Report to the office as soon as possible.

First Aid Kits

Each rig, support vehicle and field truck is equipped with a fully supplied, approved first aid kit.

Extinguishers are also located in the company's main office, copier room, and shop area.

All field personnel must successfully complete an approved First Aid and CPR training course and maintain current recertification as required.

First Aid Treatment

First aid is emergency medical treatment rendered to an injured person to prevent further injury or death before proper medical treatment can be obtained. Annual first aid training is provided for all employees.

An injury requiring more than first aid is considered serious.

When possible, any seriously injured employee should be accompanied by another PENECORE employee and taken immediately to the nearest doctor or medical facility.

In the event of an accident on the job resulting in an injury, the injured employee and the crew will be drug tested.

Illness

Any employee who becomes ill while at work shall report immediately to his supervisor.

FIRE PREVENTION, PROTECTION AND FIRE EXTINGUISHER TRAINING

Purpose

Areas around shop and field equipment shall be kept free of oil and other materials which might create or aggravate fire hazards. Employees annually view OSHAs Fire Extinguisher Training video. New employees view this video as part of their new employee orientation.

Combustible materials such as oily rags and waste shall be stored in covered metal containers and disposed of on a regular schedule.

When conditions require it, a 100' perimeter around the site shall be cleared and maintained free of dry combustible material such as grass or weeds. Spills or any flammable liquid such as diesel or hydraulic fluid shall be immediately cleaned up with absorbent material and properly disposed. All flammable liquids will be stored in clearly marked, approved containers/cabinets.

Firefighting equipment shall not be tampered with nor removed from their designated location except for fire protection or suppression. All vehicles and equipment shall be provided with a USFS approved spark arrester.

Drill rigs will be equipped with a minimum of one 20# multipurpose ABC extinguisher; support vehicles will be equipped with a 5% ABC multipurpose extinguisher; and forklifts will be equipped with a 2 ½ # ABC multipurpose extinguisher.

Fire extinguishers shall be visually inspected monthly for condition and expiration date, and tagged with date of annual inspection and inspector's name.

Extinguishers found to be damaged, unserviceable, expired or have been used shall be sent to the yard as soon as possible for replacement, and recharge by a qualified technician.

A maintenance inspection will be performed annually by a qualified technician.

Each drill rig or field vehicle shall be equipped with a shovel.

Fire Prevention/Protection Policy is intended to provide compliance with all related regulation and standard safe work practice. The purpose of the policy is to prevent fires and to provide guidelines for action in the event that a fire does occur.

Fire prevention program combines the following policies:

- PPE Policy
- Electrical Safety Policy
- Emergency Action Plan

These policies encompass methods used for incidence avoidance, incident response and specialized training required in the event of a fire.
Issues addressed in the above policies include, but are not limited to:

- Evacuation Procedure
- Extinguisher Training
- Basic Process Safety Training (if applicable)
- Hot Work Safety Training (if applicable)
- Confined Space Entry Safety Training (if applicable)
- Emergency Life Support Training
- Respiratory Protective Devices Training (if applicable)
- Assured Grounding Programs

Employees shall be informed of the proper actions to take in the event of a fire. This includes, but is not limited to; notification, extinguishing methods, and evacuation procedures. It is STRESSED that at no time does the task of fighting fire supersede an employee's primary duties of:

- Ensuring their own personal safety and the safety of others.
- Reporting the incident to the proper authority and ensuring personnel accountability for yourself and all subordinates at the jobsite, in accordance with company and client policy.

Procedure

All employees will be trained in the use of fire suppression methods and given the knowledge in which to apply those methods.

- All employees are responsible for good housekeeping practices to enhance fire prevention methods. Supervisors will be held accountable for the housekeeping of their job sites.
- If applicable, welding machine mufflers will be equipped with an approved spark arresting muffler.
- Only approved containers will be used during fueling operations. These shall be of the self-closing type.
- Flammable material shall be kept under the control. It shall be stored in compliance with applicable OSHA and client regulations. The quantity of flammable/combustible material shall be kept to a minimum on the job site.
- Welding, cutting and grinding sparks shall be contained.
- Hot work areas shall be kept wetted down, and a fire extinguisher and hose maintained on each jobsite.
- Oily rags shall be immediately disposed of in designated hazardous waste containers.
- No hot work is to be performed without a Hot Work Permit.
- All vehicle entry into process areas requires a permit or permission from the operator.
- Use bonding straps to discharge and prevent static charges during transfer of flammable liquids from one container to another.
- Report all spills or suspicious odors immediately.
- Fire extinguishers are to be kept in areas easily accessible to employees. Only approved fire extinguishers are to be used. They must have an inspection tag attached. Extinguishers are to be maintained in a fully charged, ready to operate state. Extinguishers are to be inspected before each use and documented annually. Training is provided to all employees who use or may use fire extinguishers.
- **NEVER** put yourself or others a risk while attempting to extinguish an incipient fire.
- **DO NOT USE** any fire hoses larger than 1-3/4", unless fully trained as an industrial firefighter.
- **NEVER** attempt to extinguish a pressurized-fuel fed fire.
- **DO NOT** direct a fire nozzle with a straight stream at any type of LPG fire. This action could extinguish the fire, producing an LPG vapor cloud capable of detonation.
- **DO NOT USE** fire monitors as the force can damage small equipment and certain high chrome alloy equipment cannot have water applied as cracking could occur.
- **DO NOT APPLY** water to any acid or caustic release as it can cause a violent reaction. Additionally, low concentration acids or caustics become extremely corrosive, causing an increasing leak condition.

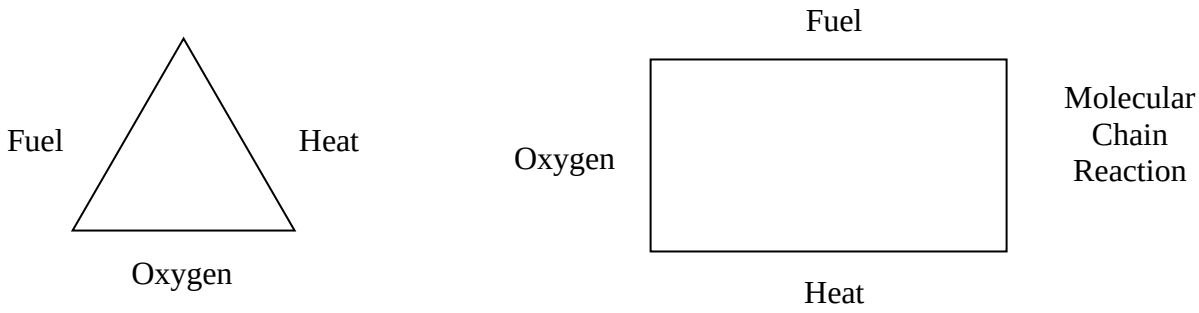
In The Event of a Fire

- Remain calm.
- Only extinguish a fire when it is clearly within your abilities and the equipment available.
- Know the location of the nearest alarm and how to activate the emergency system.

- Know the evacuation routes and collection points.
- If the fire cannot be extinguished, leave the area immediately and report to your evacuation area.
- Await further instructions from the Incident Commander, or designated responsible personnel.

Basic Fire Science

The combination of fuel, heat, oxygen equals the well-know fire triangle. To understand fire better, a fourth factor is added, a molecular chain reaction. This is due to the fact that fire results from a series of reactions in which complicated molecules "crack" into easily oxidized fragments. Disruption of this chain, along with the removal of fuel, heat or oxygen, is recognized as a method of fire extinguishment through the use of dry chemical extinguishers.



Heat Energy - Can be produced by building up molecules (composition) or breaking apart (decomposition) by heat or a solution when materials are dissolved in a liquid, or by combustion.

Heat Transfer - A law of physics states that heat tends to flow up from a hot substance or place to a cold substance or place. This is through conduction (transfer of heat through a medium such as metals) or through convection (transfer of heat with a medium-usually circulatory).

Fuels - Those substances that will burn when heat is applied. The most common fuels are not pure elements such as carbon, but compounds and mixtures such as paper and wood.

Oxygen - Makes up a major portion of the oceans and earth's crust and one-fifth of our atmosphere. Atmospheric oxygen is the major source of oxygen that supports combustion. Oxygen itself does not burn, however, without it, combustion is impossible. Normal burning is the combination of fuels with oxygen under the influence of heat.

Combustion - A rapid oxidation or chemical combination accompanied by heat.

Oxidation - The ability of materials to produce oxygen during a chemical reaction.

Spontaneous Combustion - When oxidation is allowed to occur, enough oxygen is available, heat is produced, molecules become more energetic and combine with oxygen at an increasing rate, temperatures rise and visible heat (flames) are produced.

Classes of Fires

Class A - **Ordinary combustibles (wood/paper/textiles)**

Class B - **Flammable liquids (gasoline/oils/grease)**

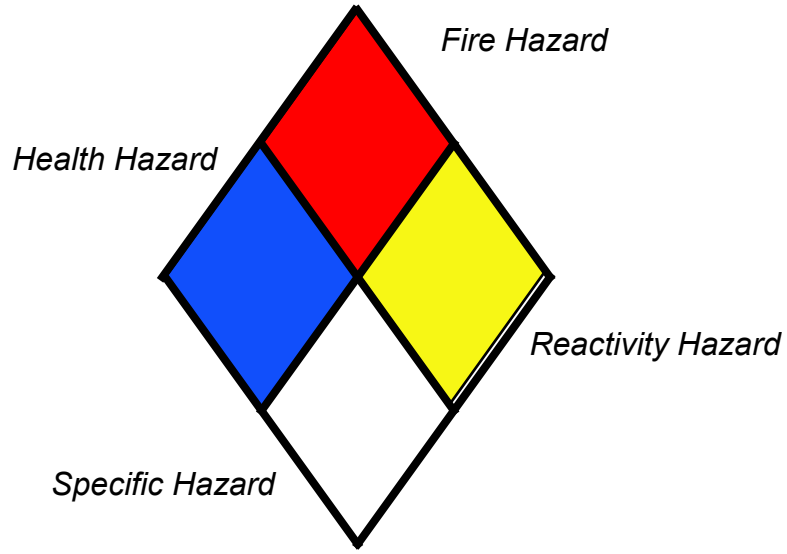
Class C - **Live electric (wiring/generators/motors)**

Class D - **Combustible metals (finely divided form/chips, turnings)**

Types of Fire Extinguishers

Water - extinguisher for ordinary combustible fires
Dry Chemical or CO2 - extinguisher for electrical equipment fires and for flammable liquid fires
Multipurpose Dry Chemical - extinguisher for ordinary combustible fires, liquid fires, and electrical equipment fires
Foam - extinguishing agent for hydrocarbon fires

NFPA Diamond:



Scale ranges from 0 (lowest hazard) to 4 (highest hazard)

Fire Hazard (Red)	**Health Hazard (Blue)**	**Reactivity (Yellow)**	**Specific Hazards (White)**
Flash Points 4 below 73^0 F 3 below 100^0 F 2 from 100 - 200^0 F 1 above 200^0 F 0 will not burn	4 Deadly 3 Extreme Danger 2 Hazardous 1 Slight Hazard 0 Normal Material	4 may detonate 3 shock and heat, may detonate 2 violent chemical change 1 unstable if heated 0 stable	Oxidizer = OX Acid = ACID Corrosive = COR Use no water = ~~W~~ Radioactive =

Lifting and Carrying

Proper lifting techniques as instructed during training shall be used.

Whenever possible, heavy objects will be moved with the aid of hand trucks, forklifts or additional personnel.

When carrying loads with others, all should agree who is leading and what signals are to be used.

A load should not be released until all personnel are ready.

When carrying extended loads such as pipe, watch to avoid striking objects or other workers.

Loads shall not be carried so vision is obstructed.

Drums

Precautions shall be taken when handling full drums.

Gloves shall be used as hand protection against cuts caused by mill burrs or rough edges.

Handhold shall be released before a hand or fingers can be pinched between other drums or objects. Drums should be pushed away with feet, not with hands. They should not be kicked.

Before drums are pulled over on their sides, all caps/bungs shall be securely in place, and there is sufficient clearance for hands and feet when laying drums down.

When uncertain of the contents of an unlabeled drum, take appropriate measures to ensure personnel safety prior to removing the lid or inspection plug.

When opening closed drums that have been exposed to heat from the sun or other sources, personnel shall stand clear and open slowly until the pressure is relieved.

MATERIAL STORAGE

Bagged material shall be stacked by stepping back the layers and cross-keying bags at least every 10 bags high.

Bags around the outside of the stack shall be place with the mouths of the bags facing the center of the stack.

During unstacking, the top tier shall be kept nearly level and the necessary setback maintained.

Materials shall be stacked so the weight is equally distributed, and the pile does not project into passages or walkways. Re-stack material if pile is unstable and may fall.

Material storage areas shall be kept orderly and free of trip hazards.

Pipe, drill rod, casing, augers, and similar cylindrical drill tolls shall be stacked and blocked orderly on racks or sills to prevent spreading, rolling, or sliding.

Unless in racks, pipe and well casing shall not be stacked higher than five feet.

Where a batten is used, the outside pipe or casing shall be securely chocked, and each tier of pipe shall be tapered back at least one pipe or casing.

Flammable Materials

Oils, greases and other flammable materials shall be labeled and properly stored in approved containers in designated locations.

MATERIAL DISPOSAL

Scrap, trash, and other junk material shall be disposed of properly.

Hazardous materials will be separated from non-hazardous waste and disposed of in containers provided for each type of materials.

Waste such as soil, cuttings or decon water will not be removed from a site under any circumstances, unless directed by the client. Waste oil will be disposed of in a designated waste oil tank.

Used oil filters will be drained off and waste oil deposited in a designated barrel for final disposal. Spent batteries will be stored in a designated area for proper disposal.

JACKS AND JACK STANDS

No one shall work under any vehicle which is not properly supported by cribbing, jacks, or jack stands designed for that purpose.

Wheels will be blocked, leveling jacks lowered, and the hand brake set before working under any carrier/drill rig.

Rated capacity of any jack shall not be exceeded.

Jacks shall be properly maintained according to the manufacturer's recommendations, and shall be inspected before and after each use.

Jacks leaking hydraulic oil shall be taken out of service for replacement or repair.

Jacks shall not be thrown or dropped. Handles of hydraulic jacks shall not be left down creating a tripping hazard.

Jack handle swing shall be unobstructed and personnel will stand aside before operating the jack.

Jacks shall be placed on clean level surfaces.

Hardwood blocking at least twice (2x) the size of the base shall be positioned under jacks used on any earthen surface.

Unless a jack is designed to prevent load shifting, metal-to-metal contact between the jack head and the load shall not be permitted.

If necessary, a minimum 2” thick hardwood block larger than the jack head shall be used between the jack and the metal contact surface.

Wood or metal extenders shall not be used to increase a jack’s lift height.

All lifts shall be vertical with the jack centered under the load.

After raising a load, it shall be supported by proper jack stands or substantial wooden blocking.

When several jacks are used to lift a heavy load, they shall be raised simultaneously a little at a time in order to keep the load level.

TOOL SAFETY AND INSPECTION

Purpose

There are various types of tools and equipment used in the workplace for many different purposes. Examples include, but are not limited to, portable hand tools, power tools, pneumatic tools, and powder-actuated tools.

The purpose of this policy is to provide employees with appropriate knowledge relating to the care and use of tools and equipment and to protect employees from hazards associated with improper use of tools and equipment and defective and poorly maintained tools and equipment.

Policy

Only trained and/or experienced employees may use/operate tools or equipment. Tools and equipment shall not be modified and they are to be used only for their designed purpose. It shall be the responsibility of the employee to inspect tools and equipment prior to use and to use all tools and equipment in a safe manner. Employees observed abusing, altering, modifying or misusing tools or equipment shall be subject to disciplinary action. Employees shall wear all appropriate personal protective equipment while using tools and equipment. Additionally if a tool or piece of equipment is found to be defective, the tool/equipment shall be red-tagged, taken out of service until it can be replaced or repaired by a qualified person.

It shall be the responsibility Project Manager or Site Superintendent to designate a competent person who will be assigned to be responsible for testing/inspecting and repairing all tools and equipment. All periodic inspections, maintenance and repairs of tools or equipment shall be documented.

To promote safety and efficiency, the following procedures shall be followed:

Procedure

1. General Tool Safety

Many serious injuries have resulted from the improper use of tools and equipment. Many of these injuries could have been prevented if the following rules were followed:

Inspection and Maintenance

All tools shall be identified and inventoried either individually or by group.

All tools in the inventory shall have a documented inspection at least once every six months. In addition to these periodic documented inspections all tools shall be inspected prior to issue and upon return by the tool room attendants and prior to each use by the user.

All tools will be kept in good working condition with no modifications.

All periodic inspections and all maintenance & repairs shall be documented. Completed forms shall be kept in a binder in the tool room or tool trailer for one year. The binder shall contain a copy of the inspection checklist for the type for tools and/or equipment being inspected.

Selection

Use the right tool for the task instead of trying to make the wrong one fit.

Use

Keep control of yourself, the tool, and the job. When applying force with a tool, remember that it may slip, break, or just suddenly do its job. Watch your hands and your balance (body mechanics) to avoid injury.

Vibration Absorbing Gloves are to be made available to workers using pneumatic impact guns or other vibrating equipment. These gloves are required PPE for worker's operating heavy vibrating tools (i.e. jack hammers, 90 guns, impact guns etc.). The use of these gloves are designed to dampen vibration, dissipate impact and absorb shock, they can assist in the prevention of cumulative trauma injury often associated with operating this type of equipment. They only work if you use them.
Select the right protective equipment for the task and use it properly.
Do not use tools and equipment that you have not been trained to use.

Care
Take proper care of your tools and equipment. Keep them stored where they will not get damaged and will not present a hazard.
Check your tools and equipment prior to use for defects, wear, or damage. Immediately remove from service and tag any defective tools. Damaged tools shall be turned into the tool room for repair or replacement.

Supervision
Supervisors shall be responsible for ensuring that employees are trained before using a specific tool. Watch your employees at work. Ask them about their immediate assignment and take an interest in finding the safest way to do the job. Then follow up to insure that the tools and equipment in your area are being used safely.

2. Hand Tool Safety
Hand tools shall only be used for the purpose for which they are intended.
All appropriate PPE will be worn while using hand tools.
Wrenches, including adjustable, pipe and socket shall not be used when jaws are sprung to the point of slippage.
Pipe wrench parts (i.e., jaws) are not to be removed and used for anything other than the manufactured use.
The use of snipes and cheater bars or double wrenching to gain leverage is prohibited.
Always use tool holder while using hammer and knocker wrenches.
Hand tools shall be tagged and removed from service if any of the following defects are present:

- Impact tools, such as hammers, flange wedges chisels, drift pins, pin bars and knocker wrenches with visible signs of mushrooming, cracking or bending.
- Wooden handle tools, such as hammers, picks, shovels, and brooms with visible sign of cracking, loosening or splintering of the handle.
- Wrenches, such as adjustable, combo and pipe with visible signs of bending, cracking, defective handles or other defects that impair their strength.

3. Electrical Power Tool Safety
All appropriate PPE will be worn while using power tools.
Be sure that the proper permit has been obtained prior to use of electrical power tools.
GFCI's are to be used with all portable electric equipment. GFCI's are to be inspected and tested prior to each use. Do not connect electrical power unless the operating switch is turned off.
Employee shall avoid loose fitting clothing when operating power tools.

The power source on tools shall be physically disconnected prior to attempting any repairs or attachment replacement.
Protective guards on power tools shall not be removed, altered or modified.
Trigger/switch locks on power tools are prohibited.
All electrical tools and power cords must be inspected per the Electrical Equipment Safety and Inspection Policy.
Electrical tools and power cords must display the current inspection color code for the current inspection period to it being placed in service.
Electrical tools shall not be hoisted or carried by their power cords.
Cords are tripping hazards. Route them so as to minimize interference in walkways. Overhead is preferred.
Electrical power tools shall be tagged and removed from service if any of the following defects are present:

- Electrical power tool cord does not have current inspection color code.
- Power cord is frayed, cut or damaged. The use of electrical tape to cover damage to cords is prohibited.
- Defective or faulty on/off switches.
- Loose or defective components.

4. Air Power Tool Safety

All hoses exceeding 1/2" inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.
Chicago fittings shall be pinned.
Attachments on air tools shall be secured by retainer pins and rings.
Do not connect air unless the operating switch is turned off.
Do not disconnect tool until air supply is shut off and air pressure is bled off.
Air power tools shall not be hoisted or carried by their hoses.
Hoses are tripping hazards. Route them so as to minimize interference in walkways. Overhead is preferred.
Air power tools shall be tagged and removed from service if any of the following defects are present:

- Air power tools, such as air power grinders, impact wrenches, German hacksaws with visible signs of deformities in the body of the tool, improperly functioning actuator, bent or deformed blades, or any signs of obvious damage to the air supply line fittings.
- Hoses must be visually inspected for cracking, signs of aging, worn or damaged connecting fittings, or any other obvious deformities, such as blistering or bulges.

5. Powder Actuated Tool Safety

Only employees who have received an approved training course and license for the particular tool to be used may operate powder-actuated tools.
Toolroom personnel shall not issue powder-actuated tools unless the person requesting the tool can provide a current license for that tool.
Powder-actuated tools shall be tested prior to use to ensure all safeties are functioning.
The fastener shall not be loaded until ready for the shot.

The tool shall not be left unattended unless it is unloaded. Never point either an empty or loaded tool at any person.
Keep both hands and feet clear of the open-end of the barrel.
In the event of a misfire, the operator shall hold the tool firmly against the work surface for a period of 30 seconds and then follow manufacturer's instructions.
Personnel, other than the operator of the tool, must stay clear of the area where the tool is being used.
Operators of powder-actuated tools shall wear goggles for eye protection while operating these tools.
A sign at least 8 x 10 inches, using boldface type no less than 1 inch in height, shall be posted within 50 feet of the area where the tool is being used. The sign shall bear the following wording:
CAUTION
POWDER-ACTUATED TOOL IN USE
Powder-actuated tools shall be tagged and removed from service if any of the following defects are present:

- Tool has visible signs of worn or damaged parts.
- Missing or malfunctioning parts or accessories.
- Missing operator's instruction manual or missing power load and fastener chart.
- Tool misfires more than one time during use.

6. Abrasive Wheel Machinery

Abrasive wheels shall be used only on machines provided with safety guards as defined:

- The safety guard shall be mounted so as to maintain proper alignment with the wheel, and the strength of the fastenings shall exceed the strength of the guard.
- Grinding machines shall be equipped with flanges
- Abrasive wheel machinery guards shall meet the design specifications of the American National Standard Safety Code for the Use, Care, and Protection of Abrasive Wheels, ANSI B7.1-1970, which is incorporated by reference as specified in Sec. 1910.6.

Hand Tools

General rules which apply to the safe use of several of the hand tools frequently used in field operations and in the maintenance shop include:

The proper tool, in good condition shall be used for the job being performed.

All tools and equipment must be inspected and maintained on a regular basis.

If a tool is damaged, it will be repaired before use or replaced. All repairs and replacement shall be made without delay.

Employees shall clean and return all tools, equipment and materials to their proper place when a job is finished.

Hand tools that have been subjected to high heat will not be used.

Aluminum pipe wrenches shall not be used for the purpose of breaking drill rods.

Adjustable, pipe, end, and socket wrenches shall not be used if the jaws are sprung or worn such that slippage might occur.

All pipe wrenches will be kept clean and in good repair.

Jaws of pipe wrenches shall be wire-brushed frequently to prevent a buildup of dirt, pipe dope or grease which can cause the wrench to slip.

Hook and heel jaws will be replaced when they become visibly worn.

Pipe wrenches will not be used in place of a drill rod holding device.

Pipe wrench jaws will not be heated. Pliers or pipe wrenches shall not be used to loosen or tighten nuts.

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

Files without handles will not be used. Wooden handles on hand tools shall be kept free of splinters and/or cracks and shall be kept tight on tools.

Files shall be cleaned frequently with a file card, and stored in a dry location.

Use screwdrivers with blades that fit the screw slot properly.

SHOP SAFETY

All non-essential personnel shall not stand in the shop work area unless work has been temporarily stopped.

Safety glasses will be worn when operating hammers, chisels, and power tools.

Ear protection will be worn when the noise level exceeds 85 dBs.

Floors shall be kept clear of combustibles (cardboard, papers, etc.).

Electrical cords, when in use, shall be placed in a manner to avoid becoming a tripping hazard. When not in use, cords should be coiled and properly stored.

All fluid spills will be cleaned up immediately. Absorbent shall be readily available.

Whenever possible, heavy objects will be moved with the aid of hand trucks, forklifts, or additional personnel.

GRINDERS

Only proper, ANSI approved, reinforced wheels designed for the machines will be used.

Each wheel will be "ring" tested before installation. Cracked or fractured wheels will not be used.

Cutoff wheels will not be used for grinding, or forced when cutting.

Machine will only be operated within rated capacity.

A full-face shield and safety glasses will be worn when operating the cutoff machine or grinder.

Hands will be kept clear of cutting area.

All safety guards will be securely in place and properly adjusted before starting tools/machines.

WELDING SAFETY

Employees performing welding, cutting, or heating shall be protected from welding hazards by appropriate and approved personal protective equipment such as welding leathers, leather gauntlet gloves, welding helmet or welding glasses.

Safety glasses will not be used in place of proper welding glasses for welding or cutting.

Welding will not be done without proper eye protection.

All eye and face protection devices used when welding, cutting, chipping or grinding shall comply with the ANSI Z87.1 standard.

See Appendix, "Welding Lens Density Chart" for selection of proper welding lens. When necessary, proper respiratory protection will be used.

All welding and cutting equipment and operations shall be in accordance with standards and recommended practices of ANSI Z49.1.

Workers and visitors shall be shielded from welding rays, flashes, sparks, molten metal, and slag.

Cables, hoses, and other equipment shall be kept clear of passageways, ladders, and stairways.

All welding, cutting, and metal heating operations shall be ventilated (natural or mechanical) such that personnel exposures to hazardous concentrations of airborne contaminants are kept within acceptable limits.

Before welding or heating any surface covered by preservative coating whose flammability is not known, a test shall be made to determine its flammability. The coating will be scraped and shall be considered highly flammable when scrapings burn with extreme rapidity.

Preservative coatings shall be removed a sufficient distance from the work area to ensure the temperature of the exposed area will not be appreciably raised. Artificial cooling of the metal surrounding the work area may be used to limit the size of the area to be stripped.

Gas Welding

Oil or other petroleum products shall not be used on any threaded portions of oxygen/acetylene cylinders or gauges.

Regulators shall not be forced onto a cylinder valve.

Regulators shall not be over tightened when installing on cylinders.

"Creeping" regulators, faulty regulators which will not maintain a constant set pressure, shall not be used. Pressure will not be left on unattended regulators.

Hoses shall be inspected frequently for cracks, abrasions, and loose connections, and shall be replaced if found defective.

Fuel gas and oxygen hoses shall be readily distinguishable from each other, and shall not be interchangeable.

When parallel runs of oxygen and fuel gas hose are taped together, not more than 4 out of every 12 inches shall be covered by tape.

Hoses that have been contaminated by oil, grease or other petroleum products shall not be used.

Before lighting the torch for the first use each working shift, hoses shall be purged individually.

Hoses extended over the ground or shop floor shall be kept free of kinks or loops.

Matches, lighters or hot metal shall not be used in place of proper friction lighters to light torches.

Defective torches shall not be used; torches shall be inspected at the beginning of each working shift for leaking shut-off valves, hose couplings and tip connections.

Clogged torch tip openings shall be cleaned with suitable cleaning wires, drills or other devices designed for such purposes.

Torch valves shall be closed and the gas supply valves will be shut off whenever work is suspended.

No cutting or welding on or near any container that contains or may have contained any flammable or explosive material. Cutting or welding shall not be done directly on concrete.

When cutting any container with a closed bottom, the welder's face shall be kept to one side.

Cutting or welding shall not be performed in hazardous locations.

Cutting or welding shall not be performed near flammable vapors, liquids, dust, or loose combustible material.

When possible, all combustibles shall be moved at least 30 to 40 feet from the cutting/welding area.

Welder shall not be in such a position as to allow cutoffs to fall on feet, legs or other body parts.

When finished welding or cutting, material shall be marked "HOT" with soapstone.

When welding or cutting in the field, fire extinguishers shall be readily available, and a spotter will be used to watch sparks and slag.

Compressed gas cylinders shall be secured by two chains when in an upright position.

Compressed Gas Cylinders

When not in use, the protective cap shall always be in place.

When in storage, all compressed gas cylinders shall be separated from flammables by a non-combustible barrier with at least a half-hour fire rating, or kept at least 20 feet from flammables.

Unless protected by a guard integral to the body of a vehicle, compressed gas cylinders shall only be transported with gauges removed, cylinders properly secured, and protective caps in place.

All empty cylinders shall be suitably marked as "EMPTY" or "MT".

Employees will stand to one side and slowly open compressed gas bottles.

Oxygen Cylinders

Oxygen cylinders when transported in a horizontal position shall be properly blocked or secured to prevent rolling or movement.

Oxygen shall not be used as a substitute for compressed air.

Oxygen cylinders shall be stored in an area separate from acetylene.

Oxygen cylinder valve shall be fully open when in use.

Oxygen regulator setting shall not exceed the normal 40 psi working pressure. Oxygen cylinders shall not be moved with oily hands or gloves.

Acetylene

Acetylene bottles shall never be laid down, and shall always be stored or transported in a secure, upright position.

When in use, the acetylene valve shall only be opened ¼ turn.

Acetylene regulator discharge setting shall not exceed the 15 psi safe working pressure.

If not equipped with a shut-off wheel, the square key wrench or other suitable tool shall be kept with the acetylene cylinder for emergency shut-off.

The acetylene valve shall be pointed away from the oxygen cylinder when in tandem.

ARC Welding

Electric arc welding requires the use of welding helmets fitted with No. 1 or darker filter lenses.

Anyone helping an arc welder shall also wear a No. 10 or darker filter lens. See Appendix, "Welding Lens Density Chart" for correct welding lens.

Protection shall be provided for co-workers when welding at night. Arc welders shall not stand on wet floor or come in contact with a grounded surface.

All welder-generators shall be properly grounded to vehicles before use.

When welding casing joints together as they are going in the hole, the ground clamp shall be connected to the casing or casing clamp, not the rig.

All welding leads shall be regularly inspected and maintained in good, safe working order.

Cables shall be completely insulated, flexible and capable of carrying the maximum current required for the job.

Coiled welding cable shall be spread out before use.

Cables with splices or repaired insulation within 10 feet of the stinger shall not be used. When it becomes necessary to connect or splice lengths of cable together, insulated connectors of a capacity at least equivalent to the cable shall be used.

If connections are made by cable lugs, they shall be securely fastened together to provide good electrical contact, and the lug's exposed metal parts shall be completely insulated.

ELECTRICAL SAFETY

Makeshift wiring and equipment will not be permitted. All electrical circuits, associated with drilling operations, should be designed with high quality components which take into consideration the drilling environment.

All wiring and fixtures used to provide electricity for drilling operations shall be installed by qualified personnel in accordance with the National Fire Code (NFPA 70-1984) with consideration of the American Petroleum Institute's recommended practices for electrical installations for production facilities (API-RP-500B).

Live parts of wiring or equipment shall be guarded to protect all persons or objects from harm.

Electrical cables will be guarded and located to prevent damage by drilling operations or by the movement of personnel, tools, or supplies.

Patched, oil soaked, worn or frayed electrical cords shall not be used. All extension cords shall be of the three-wire, grounded type of the proper amperage rating for the intended use.

All electrical tools shall have three-pronged, U-blade plugs.

All plug receptacles will be three-pronged, U-blade, grounded type and of the proper amperage rating for the tools that may be used.

Electrical hand tools shall be plugged into a circuit equipped with an approved ground fault circuit interrupter (GFCI). Electrical tools with "lock-on" devices shall not be used.

All electrical welders, generators, control panels and similar devices shall be properly grounded.

Hands, boots and clothing shall be dry when handling electrical equipment.

Control panels, fuse boxes, transformers and similar equipment shall be installed in an approved, properly secured, protective enclosure.

Before working on electrical power or lighting systems, the main distribution panel box will be locked-out and the key shall be kept in personal possession of the employee performing the work until the work is completed.

Power shall be turned off before changing fuses or light bulbs, or performing any repair or maintenance.

Site Lighting For Night Work

Field projects sometimes require working at night or around the clock and require temporary electrical lighting.

All lights in the working areas shall be enclosed in cages or similar enclosures to prevent loose or detached lamps or vapor tight enclosures from falling on workers.

Portable light towers will be used when necessary and must meet the OSHA required five foot candles of illumination.

Lights shall be installed in a manner so as to produce the least possible glare or blind spots on tools, ladders, walkways, platforms and the entire work area.

Electric lighting cables shall not be attached to the derrick or other components of the drill rig. If this must be done, only approved fasteners shall be used.

Electrical wiring shall not be "strung" through the derrick.

Battery Service

Extreme caution will be used when servicing batteries.

Batteries will only be serviced in well ventilated areas while wearing safety glasses and a face shield.

When removing or charging a battery, the ground cable will be disconnected first to avoid the possibility of making a spark which could ignite flammable battery gases. For the same reason, when installing a battery, the ground will be connected last.

When charging a battery, the power source to the charger will be shut off before connecting or disconnecting the charger leads to the battery posts.

Before charging, cell caps shall be loosened to permit the escape of any explosive hydrogen gas generated during charging.

Cells shall be kept filled with electrolyte. If necessary to visually check electrolyte level, only a flashlight will be used.

All tools shall be kept off battery tops. Spilled battery acid can burn skin and damage eyes.

In the event of a splash, immediately rinse acid from your skin with lots of cool water.

If acid should get in the eyes, flush immediately with large amounts of cool water for at least 15 minutes, and get medical attention at once.

VEHICLE MAINTENANCE

Except for those repairs or adjustments that can only be made with the engine running, the vehicle engine shall be shut down to make repairs/adjustments or for lubrication (Also see Vehicle Operation section).

During maintenance, the ignition key shall be tagged as out of service, or the ignition key will be removed to prevent accidental starting of an engine.

When possible and appropriate, the drill rig shall be reduced "zero energy state" by relieving pressure on all hydraulic, drilling fluid, and air systems.

Caution will be used when opening drain plugs, radiator caps, and other plugs and caps that might be under pressure.

Before returning the equipment to service, all caps, filler plugs, protective guards or panels, high pressure hose clamps, chains or cables that may have been removed for maintenance, will be replaced.

A hot engine or exhaust system will not be touched until it has had time to cool.

Fuel Safety

Fuels shall never be used as cleaning solvents.

Fuels shall only be stored or transported in red, approved portable containers equipped with internal flame arresters, and the fuel type clearly marked on the container.

To allow for temperature expansion, portable containers shall not be completely filled.

Fuels shall never be transported inside of cars or truck cabs.

Fuels shall not be poured, handled, or stored in open plastic or glass containers, in unventilated areas, near sources of flame, near electrical equipment, or near combustible materials such as cloth, cardboard boxes, paper, etc.

Fuels shall not be siphoned by mouth.
All electrical equipment and heaters in carrier cabs shall be turned off when fueling the carrier or drill rig, or other vehicle.

Do not fill fuel tank of any vehicle to the top; allow room for expansion. All engines will be turned off before checking fuel level or fueling.

Use extra caution when refueling vehicle when engine is hot. Refuel only in well ventilated areas.

A vehicle will not be left unattended while fueling. No smoking or open flame within 50 feet of fuel islands.

All fuel tanks shall be marked appropriately, and care shall be taken to ensure the correct fuel is put into the proper tank.

Only the type and quality of fuel recommended by the engine manufacturer will be used.

Do not spill fuel on hot surfaces; clean up any spillage before starting an engine.

Wool or metallic cloth or other material which can create static electricity will not be used to wipe up spills.

Spilled fuels or other flammable liquids will be contained with absorbent material and disposed of properly.

A 20# multipurpose fire extinguisher shall be immediately available during any refueling involving operation that involves large equipment, such as drill rigs.

OFFICE SAFETY

Desk drawers and file drawers shall be kept closed when not in use.

Heavy materials shall not be stored on top of file cabinets.

Office machine cords shall be kept out of walkways or properly covered to prevent tripping hazards or damage to cords.

Any defective electric cords, light fixtures or switches shall be reported immediately.

Broken glass or other sharp objects shall not be placed in waste baskets.

Razor blades or other sharp objects shall not be left loose in desk drawers. Store such items in a suitable container.

Smoking is not allowed in any office area.

Computer terminals will be mounted so that their position and height can be adjusted to reduce glare and for general operator comfort.

Chairs will be so designed that their height and position can be adjusted for proper sitting posture and to prevent tipping.

WELDING LENS DENSITY CHART

Filter lenses or plates used in welding operations shall be in accordance with the following table:

(Note: These are minimum densities. Shades denser than those listed may be used to suit an individual's needs.)

Required Shades for Filter Lenses & Glasses in Welding, Cutting, Brazing, and Soldering:

Operation	**Shade Number**
Soldering	2
Torch Brazing	3 or 4
Cutting: Light, < 1"	3 or 4
Medium, 1" to 6"	4 or 5
Heavy, > 6"	5 or 6
Gas Welding:	
Light (up to 1/8")	4 or 5
Medium (1/8" to ½")	5 or 6
Heavy (> ½")	6 or 8
Arc Welding:	
Inert-Gas Metal-Arc:	
1/16" to 5/32" Electrodes (non-ferrous)	11
1/16" to 5/32" Electrodes	12
Shielded Metal-Arc:	
1/16" to 5/32" Electrodes	10
3/16" to ¼" Electrodes	12
5/16" to 3/8" Electrodes	14
Carbon Arc Welding	14

PENECORE – INJURY/INCIDENT INVESTIGATION REPORT

Injured Employee: _____

Employee Job Title: _____

Accident/Incident Information:
Date: _____ Time: _____
Location: _____
Client: _____
Well Site: _____
Photos/Videos: _____

Witness(s): _____
_____
_____

Rig/Job: _____

Supervisor: _____

Rig Operator: _____

Crew Members:
_____
_____
_____
_____
_____
_____

Employee Activities at Time of Injury/Incident:
_____
_____
_____
_____
_____
_____

How Did the Injury/Incident Occur (Use back of form to record notes, measurements, sketches, etc.):
_____
_____
_____
_____
_____
_____

Describe Injury/Incident in Detail (Including weather and site conditions):
_____
_____
_____
_____
_____
_____

Employee Seen by Doctor? ☐ Yes ☐ No
First Aid Injury ☐ Yes ☐ No

Escorted by Company Personnel? ☐ Yes ☐ No
Escort Name: _____

First Aider/Treatment Center_____
(Name, address, phone no.) _____

Was Supervisor present at Treatment Center? ☐ Yes ☐ No

Lost Time Injury? ☐ Yes ☐ No

Supervisor Signature: _____ **Date:** _____

Report Completed By: _____ **Date:** _____

TABLE OF CONTENTS

General Field Practices and Site Communication	53
Work Areas	53
Site Housekeeping	54
Manage of Change (MOC)	55
Fall Protection	56
Work in Derrick or High Places	57
Hoisting Safety	57
Hoisting Equipment	58
Hoist Line Installation and Replacement	62
Cathead	62
General Drilling Practice	63
Utilities	64
Overhead Utilities	65
Start-Up Safety	65
Decontamination Support Equipment	67
Safe Drilling Practices	68
Rotary Drilling	68
Auger Drilling	69
JSA Direct Push Rigs	70
JSA Decontamination	72
JSA Drill Rig Demobilization	74
Manage of Change (MOC) Form	75
Air Knifing and Vacuum Extraction	76
Warning: Boots	79
Well Development	80
Compressor Safety	80
Auger Safety	81
Appendixes	82

GENERAL FIELD PRACTICES AND SITE COMMUNICATIONS

When noise on a site limits voice communication, crew members shall establish eye contact and give a nod, or some other means of communicating approval before beginning any step in a procedure which is potentially hazardous.

At all times during operations, crew members shall know each other's' location and activity.

In the event of an emergency in the Exclusion Zone during operations and oral communication is difficult if not impossible due to noise or personal protective equipment, the following visual signals or those specified by a client's health and safety plan shall be used:

Situation	Signal
Out of air; Can't breathe ……..	Hand clutching throat
Need assistance ……	Hands on top of head
Okay; I'm all right; I understand …….	Thumbs up
No; Negative ……	Thumbs down
Leave area immediately……	Grip partner's wrist or both hands around partner's waist

WORK AREAS

When it is necessary to work within a building or other enclosed area, engine exhaust gases shall be vented to the outside.

Work areas, platforms, walkways, and other access ways shall be inspected for cracks or breaks and will be kept free of any material, debris, obstructions, or substances such as ice, grease, or oil that could cause the surface to become slippery, cause tripping, or be otherwise hazardous.

Mud and grease shall be cleaned from boots before mounting a platform, truck or trailer, and hand holds and railings will be used.

There will be no jumping from vehicles or equipment.

Where available, steps or ladders will be used to dismount.

There will be no running in any work area.

Where equipped, all safety rails and chains shall be used and kept secure and in place.

All control linkages, warning and operation lights and lenses will be kept in good operating condition and free of oil, grease and/or ice.

During freezing weather, personnel should wear gloves and not touch any metal part of the rig with exposed skin. Moist exposed skin can freeze to metal almost instantly.

All air, water lines and pumps shall be drained when not in use if freezing temperatures are expected.
Equipment shall be operated slowly after start up to allow engine, gear and hydraulic system oils to warm up before operation.

All unattended open holes will be covered or otherwise protected and marked with caution tape.

All tools shall be stored where they can be conveniently and safely handled without falling or creating a tripping hazard.

Tools, materials and supplies will not be stored or transported within or on the derrick.

Drill rods or casing will not be tailed into racks or other devices by taking hold of a moving hoist line or traveling block.

SITE HOUSEKEEPING

Good site housekeeping is an indication of the quality of our work and our concern for personnel and environmental safety.

Prior to set-up, the crew will spot equipment in a location which is most conducive to safety and efficiency of operation.

All fluid systems will be checked for leaks and any necessary repairs performed before drilling operations begin.

When excessive mud accumulates, work will stop and the mud will be containerized and disposed of in accordance with site requirements.

In the event of any field repairs to any fluid system, residual fluid in hose will be drained into a suitable container and open hose ends placed in a container or capped.

All tools and hoses shall be laid out in such a manner as to prevent tripping hazards.

Hand tools, slings, chokers, etc., will be kept picked up from work area and stored in their proper place.

Keep site clear of all trash and dispose of trash as soon as possible in accordance with site requirements.

All personal protective equipment will be kept clean and stored in a clean location until needed.

All well materials will be stored in an orderly and safe manner until needed.

MANAGEMENT OF CHANGE (MOC)

The purpose of this procedure is to protect personnel from hazards caused by changes in the work environment. In any operation, situations may arise that were not foreseen or accounted for when the operating procedures or plans were developed. A change in the way the operations are conducted will be needed so that the work can be performed safely. The changes may be temporary or permanent. When managing change, the following must be considered:

- The reason for the change, i.e., technical, environmental, organizational or personal.
- Impact of the change on health and safety risks.
- Modifications required to operating procedures or plans.
- Time period required to safely implement the change.
- Authorizations required for the change.

The health, safety, security, environmental, technical, and other impacts of temporary and permanent changes are to be assessed, managed, documented, and approved. Employee participation in the process is critical, as regular observations on the part of PeneCore Drilling employees drive the identification of work environment changes.

Temporary Changes

Temporary changes are deviations from normal practice. They do not change the regular operating procedures. Examples of temporary changes are:

- Changing construction materials.
- Using alternate or replacement equipment or machinery different from that specified in the work plan.
- Working in changing weather or daylight conditions.
- Changing in site layout or characteristics.
- Temporarily removing equipment alarms and safety systems.
- Changing work scope daily.
- Using temporary electrical equipment and connections.
- Unexpectedly using subcontractors.
- Working without a full team or with substitute team members.
- Changing drilling or excavation locations.

Temporary changes will be addressed in the following manner:

- Identify the change.
- Risk analysis review.
- Obtain change authorization.
- Implement the change.

Permanent Changes

Permanent changes modify normal practices and may require revisions in standard operating procedures. Examples of permanent changes are:

- Major changes to the project scope.
- Changes to regulatory requirements affecting the project.
- Changes in company structure.

- Changes in work team/departments.
- Changes in client requirements.
- Changes to company standards or requirements.

Permanent Changes will be addressed in the following manner:
- Identify the change.
- Risk analysis review.
- Obtain change authorization.
- Implement the change.

FALL PROTECTION
(See Appendix for *Fall Protection Plan.*)

Free climbing a derrick is strictly forbidden.

When it is necessary to perform any repairs or make adjustments on equipment six feet or more above ground level, an ANSI A10.14 approved full-body harness shall be donned and securely attached before climbing.

If the equipment is not equipped with an anti-fall device, the derrick shall be laid down and the device installed.

Body harnesses shall not be used as personnel hoists.

Anti-fall devices will be inspected prior to raising the derrick, and visually before each use.

Cable will be inspected for kinks, broken strands, corrosion or other signs of wear and damage, and for smooth retraction back into the unit.

Device's retraction capability will not be interfered with by knotting or taping the cable to keep it from retracting back into the unit.

When extracting the cable for use, the tag line will be pulled gently and slowly.

Once the eye of the snap hook is within reach, the locking operation of the anti-fall device will be tested by pulling sharply on the cable to activate the lock, and unlocked by relieving tension on the cable.

WARNING: Under no circumstances will the cable be jerked hard from the anti-fall unit. This could cause the "RED" warning button to pop and make the unit unusable, which then must be removed and returned to the manufacturer for inspection.

Under no circumstances will the cable be allowed free uncontrolled retraction back into the unit.

The cable will be returned slowly to the unit by control of the tag line.

The device housing will be inspected for distortion, cracks or other visible signs of damage.

The device housing anchor point and safety cable will be inspected for security before the derrick is raised.

The anti-fall snap hook should close and lock completely, and be free of dents, cracks, burrs or distortion.

WORK IN DERRICK OR HIGH PLACES

All tools used for work in a derrick shall be carefully passed by hand between personnel, or a hoist line and tool bucket shall be used.

Throwing tools to a worker or dropping tools is not permitted.

Loose tools or similar items shall not be left on the derrick or other structural members of the derrick.

Both hands shall be free for climbing the ladder.

When using a derrick ladder, face the ladder and grasp either the side rails or the rungs with both hands.

Crew personnel will not slide down the derrick ladder.

Work directly under derrick shall stop when a worker is using hand tools in the derrick.

HOISTING SAFETY

Only employees trained in the proper and safe use of hoisting equipment shall operate hoisting equipment.

When not in use, rigging equipment shall be removed from the immediate work area and stored in a manner to maintain it in good condition and not create any hazards.

Gloves shall be worn at all times when handling wire rope.

Body parts shall not be placed between any winch line, chains or slings and their loads.

All employees shall stand clear when a winch line is being used, and will never step over or pass under a winch line which could become slack or taut without warning.

When drill tools or similar loads become stuck in the hole and cannot be raised with the main hoist, the tool shall be connected to the drill feed mechanism and raised.

Drill tool hoists will not be used to pull out mired vehicles.

If drill rods slip back into the borehole, no attempt will be made to brake the falling drill rods with hands or by tensing the slips.

No more than one foot of drill rod will be hoisted above the top of the derrick.

While hoisting equipment is in operation, the operator shall not perform other work or leave the controls until the load has been safely landed.

If power is lost, all hoist controls shall be moved to the "OFF" position until power is restored.

Rated capacity of hooks, rings, links, swivels, shackles, slings, and other lifting aids shall not be exceeded.

Hooks and shackles without a clearly marked safe Working Load Limit ("WLL") on their shank shall not be used.

Lifting blocks or hooks shall be centered over the load before lifting.

Rigging shall not be subjected to sudden loading or jerking.

Drill strings with loose tool joints will not be lifted.

Tool handling hoists will not be used to pull on objects that are located away from the drill rig; however, they may be used to raise and position drill rods and casing in the derrick by tailing from the support truck to the rig.

HOISTING EQUIPMENT

All hoisting machinery and equipment shall be visually inspected prior to each use, and during use to ensure safe operating conditions.

Defective parts shall be repaired or replaced before continued use.

After approval by WDH management, only the maintenance and repairs that can be done by replacing parts shall be made in the field.

Only after approval of WDH management can field welding be performed on stress bearing surfaces of heat-treated equipment or any part of hoisting equipment subject to direct loads.

All structural welding on derricks, hoists, hoist arms, or other critical items shall be performed by certified welders using approved welding procedures.

Brakes, linkage and drums on winches equipped with mechanical brakes shall be inspected daily, and adjusted as necessary.

Where applicable, all ball-bearing hoisting swivels shall be inspected and lubricated daily to ensure free rotation under load.

A hoisting line dead man anchor shall be constructed, installed and maintained such that its strength shall be at least equal to or exceed the working strength of the hoisting line.

On single sheave rigs without traveling blocks, the hook is considered the dead man anchor and shall be inspected for proper wire rope clamping.

A minimum of three wire wraps will be used on dead man anchors.

During any replacement, adjustments or repairs, traveling blocks shall be secured in the derrick or placed on the ground to prevent accidental unspooling of the hoist line.

If the rig is equipped with a traveling block, the dead man anchor shall be inspected daily for weld failure or metal fatigue, or other signs of possible failure.

All hoisting equipment bolts shall be in place and properly torqued.

Safety retainers shall remain in place over the drum pocket and hoisting line end where provided by the drum manufacturer.

Drum guards shall remain in place except when making repairs or adjustments.

Hooks, shackles, rings, pad eyes, and other fittings that show excessive wear or that have been bent, twisted, or otherwise damaged shall be removed from service.

Suspended Loads

Loads shall be properly balanced at all times and not allowed to be swung against anyone or any object.

Tag and restraint lines will be used for controlling movement of suspended loads.

A suspended load will not be left unattended.

If work stops, any suspended load shall be lowered to the ground or laid down on the support vehicle.

When moving a load, make sure it will safely clear any obstacles.

A spotter shall be used when moving suspended loads.

An emergency “STOP” signal given by anyone shall be obeyed.

Carrier hydraulic leveling jacks will not be used to add pull to the hoist line or drill feed mechanism to free the stuck tool.

Winch Lines

When under load, the winch line shall never be allowed to come in contact with any part of the derrick, material in the derrick, or stationary equipment.

Tail chains on winch lines shall be attached in an approved manner: minimum of three wire rope clamps, swaged socket, spliced eye and thimble, or a combination clamp and thimble.

When a winch line is not in use, the hook shall be secured with the line pulled snug and the brake set.

Winch lines shall be properly spooled on the drum to avoid flattening or kinking wire rope.

Bullet weights may be placed on winch lines to assist in maintaining a properly weighted and safely spooled line.

Frozen wire rope lines shall never be used.

Wire rope lines shall be protected from coming in contact with sharp corners or edges.

All hooks and shackles shall be inspected daily for deformation (hook throat spread, shackle elongation are signs of overload) and defective equipment will be replaced immediately before use.

When hoisting loads, a positive latching device shall be used to secure the load and rigging.

Main line swivel hooks with broken or missing safety latches shall be repaired or replaced before use of winch.

Only approved positive locking latch hooks will be used on auxiliary winch lines.

Chains and slings shall be kept clean.

Before using chains, they shall be inspected for bent or cracked links, cracked or broken welds, transverse nicks and gouges, corrosion, pits, and elongation caused by stretching, and will be replaced if found defective.

Any wire rope sling shall be removed from service when broken wires (“wickers”) appear.

Any nylon sling exposed wear indicators (e.g., red thread), shall be removed from service.

Chains or slings shall not be shortened with knots, bolts or other makeshift devices.

Crushed or kinked chains or slings shall be taken out of service and disposed of.

Slings and their fittings and fastenings shall be inspected prior to use on each shift and as necessary during use.

Protection shall be provided between the sling and any sharp unyielding surfaces on a load.

Wire Rope

All wire rope lines and fittings shall be visually inspected daily prior to use, and thoroughly inspected at least once a week.

Any wire rope line that has not been used for a month or more shall be thoroughly inspected before use.

Wire rope line shall be replaced if on inspection there is any evidence of:

- Distortion of rope such as kinking, crushing, unstranding, birdcaging, main strand displacement, or core protrusion.
- General corrosion.
- Broken or cut strands.
- Reduction in diameter.

Any wire rope removed from service due to defects as described above shall be cut up to prevent their reuse.

When terminating wire rope, wire rope clips shall be installed properly (See Appendix for proper wire rope clip installation procedure).

Malleable (shinny) rope clips shall not be used for wire rope terminations.

A minimum of three, either U-bolt (Crosby type) or fist type (Laughlin), wire rope clamps attached in the approved manner shall be used for wire rope attachments. On larger diameter rope, manufacturer's specifications may require more clamps.

After installing wire rope clips, a light load will be applied and the wire rope clip bolts re-tightened.

End fittings and connections consisting of spliced eyes and various manufactured devices shall be installed and loaded following manufacturer's specifications.

Worn sheaves or sheave bearings shall be repaired or replaced before continued use.

The number of line parts shall not be increased without consulting the rig manufacturer's specifications.

Winch line diameter must be properly matched with its sheave.

HOIST LINE INSTALLATION AND REPLACEMENT

Only the operator shall operate the rig during removal or installation of a hoisting line. Replacement wire rope shall conform to the rig and winch manufacturer's specifications and be approved by PENECORE management.

After installing new winch line, a light load shall be lifted to allow the rope to adjust; torque of clamps and dead man anchor bolts will then be checked.

When uncoiling wire rope, the coil will be rolled like a hoop.

Never lay the coil down and throw the rope into loops. This may cause kinks to form and the rope becomes "twisty" and hard to handle.

When transferring rope from a storage reel to a winch drum, the rope will travel from the top of the storage reel to the top of the drum; or from the bottom of the reel to the bottom of the drum. This prevents a reverse bend causing a "twisty" rope which is difficult to handle and spool smoothly on a drum.

A braking action shall be applied to the storage reel at all times – use a block or timber against the reel flange – in order to get a good smooth wrap on the drum.

Eye protection shall be worn when cutting wire rope.

A guillotine-type wire rope cutter shall be used when cutting wire rope.

The cut ends shall be seized with wire or similar material (See Appendix for proper wire rope seizing procedure).

CATHEAD

Before use, all personnel shall be properly trained in the use of spinning ropes and catheads.

Cathead operator shall stand on a firm level surface with good footing, and without distraction or disturbance.

All other hoist lines shall be positioned to prevent contact with the operating cathead or rope.

Fiber spinning ropes shall be of adequate capacity for the lifting task to be performed, and shall be protected from contact with chemicals or petroleum products.

Only clean, dry, sound rope shall be used. Wet or oily rope may grab the cathead and cause drill tools or other items to be rapidly hoisted to the crown.

Should the spinning rope "grab", the rope shall be released and all personnel alerted to back away rapidly and stand clear until the danger is clear.

Cathead ropes shall never be wrapped around a hand, wrist, arm, leg, ankle, foot, or any other body part.

A rope no longer than necessary for the task shall be used.

No more than the wraps necessary to hoist a load shall be used.

Eighteen (18) inches minimum clearance shall be maintained between the operator's hand and the cathead drum when driving samplers, casing, or other tools using the cathead method.

A cathead with a wrapped rope shall never be left unattended.

When using the cathead and rope for driving or back-driving, all threaded connections shall be tight, and the rope kept as far away as possible from the hammer impact point.

The cathead drum shall be inspected periodically for rope wear grooves, and shall be replaced when rope grooves become deeper than 1/8 inch.

Cathead drums will be kept clean of rust, oil, grease and pipe dope.

Rust shall be removed from the drum only with the use of a long handled wire brush.

GENERAL DRILLING PRACTICE (including pump setting rig)

The following are general field practices that apply to all drilling operations regardless of the method.

Before Visqueen is laid down, the site will be cleared of trip hazards, obstacles or debris such as rocks, sticks, ruts, and holes.

When possible, carrier tires shall be in contact with the ground for better support.

No drill rig shall be operated on unstable terrain or on a slope that exceeds the leveling jacks.

If ground is uneven, rig shall be set so the weight is on the front instead of the back.

Soil condition under leveling jacks shall be inspected for stability before lowering the jacks and leveling the rig.

In loose soil conditions, blocking shall be stacked at right angles to each other to cover more area and prevent blocks from flipping in wet conditions.

Blocking shall be placed under jacks before leveling the rig.

Before placement under leveling jacks, the physical condition of blocking will be inspected and replaced if cracked or wet.

Water discharge hoses shall be directed away from leveling blocks.

The drill rig shall be re-leveled if it settles after initial set up and operation.

Raising Derrick

All personnel not necessary to raise the derrick shall be told to stand clear and act as spotters.

Before raising the derrick, all loose objects shall be removed from the derrick.

If derrick is so equipped, the anti-fall device shall be inspected for security and safe operating condition before derrick is raised.

Top head chains shall be inspected daily and at start-up, and replaced when wear is beyond recommended wear elongation.

When raising the derrick, traveling blocks and cables shall not become lodged or tangled in the derrick.

When applicable, derrick travel locking pins shall be removed from their clevises.

To ensure proper derrick alignment during operation, derrick locking pins shall be installed and secured according to manufacturer's recommendation before drilling operations begin.

No derrick shall be raised nor rig operated during electrical storms.

When rigging-down, leveling jacks shall only be raised after derrick is completely down and secured in its traveling position.

UTILITIES

The use of a drill rig or other field equipment on a site or project within the vicinity of overhead or underground utilities requires the operator to take special precautions.

Prior to drilling a hole, the driller will determine beyond any doubt that there are no unknown hazards which may be struck during the drilling process.

This may be accomplished by the following procedure:

- Consult client's job specifications;
- Consultation with client representative for final authorization to proceed.

Only once the driller is completely satisfied that the site is clear and client authorization has been obtained, may drilling proceed.

There will be no deviation from the bore hole location without client authorization.

It is the client's responsibility to survey all project drilling sites to determine the location of all underground utilities and mark their location on the drilling site using the following Underground Service Alert (USA) color codes:

Color	**Indicates**
White	Work Location
Red	Electrical
Yellow	Gas or Oil
Blue	Water
Green	Sewer
Orange	Communications

If there is any reason to question the location or reason to expect an unmarked underground utility, the driller will:

- Notify the client of a questionable utility location;
- Hand auger to a minimum depth of seven feet on the outside perimeter of the circumference of the intended bore hole as many times as necessary to cover the bore hole area.

Watch for changes in hand auger returns. Most underground utilities are covered with fill that is not native.

OVERHEAD UTILITIES

UNDER NO CIRCUMSTANCES OR BY ANYONE'S DIRECTIONS WILL A DERRICK BE RAISED OR WORK ACTIVITY COMMENCE ADJACENT TO OVERHEAD UTILITY LINES UNTIL A SURVEY HAS BEEN MADE TO ASCERTAIN THE SAFE CLEARANCE FROM ENERGIZED UTILITY LINES (See Appendix for chart of Minimum Clearance from Energized Overhead Power Lines).

Any overhead utility line shall be considered to be energized unless and until the client assures that the line is not energized and it has been visibly grounded.

Any operations adjacent to overhead utility lines are prohibited unless at least one of the following conditions are met:

- Absolute assurance that power has been shut off and positive means has been taken to prevent the utility lines from being energized, or the line has been rerouted;
- Drilling equipment, or any part including hoisting lines or tooling, under any circumstances (i.e., wind whip, vibration), will not come within the minimum clearance from energized overhead utility lines as specified in the clearance table.

For a rig in transit with derrick lowered, the same minimum clearances will be observed.

START-UP SAFETY

Before start-up, all brakes shall be set, gear boxes shall be in neutral, all hoist levers shall be disengaged, all hydraulic levers or air controls shall be in the correct "neutral" position, and all cathead ropes shall be removed from the drum.

All drilling personnel and visitors shall be instructed to "STAND CLEAR" of the rig immediately prior to and during start-up of drilling rig engine.

Positioning Pipe/Casing

When positioning drill pipe and/or casing in the derrick, a system shall be used that will hold the drill pipe securely until attached to the quill, and casing is in drilling position or attached to the casing string in the hole.

If work stops during positioning of drill pipe and/or casing into the derrick, any suspended load shall be lowered to the ground or laid down on the support vehicle.

The rig engine shall be shut down to make repairs or adjustments to the rig or to lubricate fittings, except those repairs or adjustments that can only be made with the equipment running.

When shut down for maintenance, the electrical system shall be disabled by removal of one of the battery terminals to prevent accidental starting of the engine.

Pressurized

No repair or maintenance shall be performed on any pressurized system unless all pressure has been relieved from the system.

All pressurized mud, air, or hydraulic hose connections shall be equipped with whip checks of not less than 3/8" diameter wire rope; chain shall be Grade 7 or better, and not be less than 5/16" diameter to prevent damage or injuries in the event of a connection failure.

Extreme caution shall be used when opening any valve.

No shut off valve will be placed between a relief valve and any air, mud, or hydraulic pump.

All relief valves will be installed so that any discharge will be directed away from workers and equipment.

Any extensions necessary for proper venting of relief valves will be secured against whipping.

Shear pin type relief valves shall be suitably guarded to prevent crew members from being struck by flying shear pin parts or valve piston action should the valve relieve.

Only approved shear pins shall be used on pressure relief valves.

Grout Pumps (M-15)

Supply air pressure regulator setting will never exceed 125 psi.

Air supply line shall be blown out for 10 to 20 seconds to remove any line debris before attaching to pump.

Before any maintenance or repair is attempted, the compressed air supply line will be bled before it is disconnected from the pump.

The engine will not be started and brought up to speed with any auxiliary electrical equipment plugged into receptacles and on.

Welder-Generator

The generator engine will not be stopped with Set auxiliary electrical equipment running. Auxiliary equipment will be turned off or auxiliary electrical equipment unplugged before shutting down.

As the generator is turning to come up to speed or slowed down to stop, it is producing low voltage and frequency which can damage electrical equipment or cause shock.

AC/DC Polarity Switch will not be switched under load.
Engine is equipped with a low-oil pressure shutdown device. Oil problems will be repaired before attempting to restart.

Maximum auxiliary power is available when engine is running at WELD/POWER speed (3700 rpm) with the Fine Amperage control setting at 100.

Only refuel generator with gasoline while engine is shut down.

DECONTAMINATION SUPPORT EQUIPMENT

High Pressure Washer

Safety glasses, a face shield, and rubber gloves are required when operating the wand. Tyvek® is necessary when chemical contamination is present.

Washer will not be started if cleaning wand is on. High pressure water could cause wand to ship causing bodily injury or hot water burns.

The wand will not be pointed at anyone or any part of the body.

Only 15 or 45 degree fan nozzles will be used.

Water will not be sprayed near electrical components.

Do not turn pump on if hose connections are loose or leaking.

Do not disconnect discharge hose from hot water outlet before cooling unit to 100^0 F and turning off pump motor and bleeding off pressure in the hose.

Make sure there is sufficient water supply.

Only refuel with diesel and after burner has been turned off.

Adjustments will not be made to machine while running, unless told to do so by qualified service technician.

SAFE DRILLING PRACTICES
The following are safe practices for specific drilling methods.

ROTARY DRILLING
Rotary drilling tools shall be safety-checked daily prior to drilling:

Water swivels and hoisting plugs shall be lubricated and checked for "frozen" bearings.

Drill rod chuck jaws will be inspected, cleaned, and replaced when necessary.

Special precautions will be taken for a safe rotary or core drilling procedure which involves chucking, joint breaking, hoisting, and lowering of drill rods.

Only the operator of the drill rig will brake or set a manual chuck so that it will not rotate before removing the wrench.

Employees will stay clear of wrenches when breaking collars or subs.

Drilling or rotation will not be done through slip-forks when in place.

Drill rods shall not be stopped, held, or lowered into the hole with wrenches.

If a string of drill rods accidentally falls into the hole, hands or wrenches will not be used to grab the falling rods.

In the event of a plugged bit or other circulation blockage, the high pressure in the piping and hose between the pump and the obstruction shall be relieved or bled down before breaking the first tool joint.

When drill rods are hoisted from the hole, bare or gloved hands will not be used to clean drilling fluids from drill rods. They shall be cleaned for safe handling with a rubber or other suitable rod wiper.

If work must be done over a mud pit, employees will not stand on narrow sides or cross members.

The mud pit shall be equipped with rough-surfaced, fitted cover panels of strength adequate to hold personnel.

When mixing caustic or chemically treating a well, safety glasses and face shield, protective clothing, and respirator shall be worn.

When caustic is mixed for mud treatment, the caustic shall ALWAYS be added TO water, never water to caustic ("C" comes before "W").

AUGER DRILLING

The driller and helper shall establish a system of responsibility for the series of various activities required for auger drilling, such as connecting and disconnecting auger sections, inserting and removing the auger fork.

All crew members will know the location and use of safety shutdown devices.

Hands, fingers or feet shall not be placed under the bottom of an auger section when hoisting the auger over the top of the auger section in the ground or other hard surfaces such as the drill rig platform.

Only the manufacturer's recommended method of securing the augers to the power coupling will be used (Consult operator's manual).

The auger fork handle shall be no longer than 18".

The driller will assure that the drilling crew is well away from the auger column, and that the auger fork is removed before starting rotation.

The coupling or the auger will not be touched with hands, wrench, or any other tools during rotation.

Personnel shall never walk behind or around a rotating auger for any reason whatsoever.

When lifting augers from the ground or setting on the ground, auger hooks shall be installed from outside of the auger to the inside so the bale of the hook is outside of the auger.

When pulling augers and the winch is nearing capacity, the operator shall use a clevis bolt rather than an auger hook.

When the operator cannot see the cable spooling on or off the winch, the helper shall notify the driller of kinked or tangled cables.

Whenever possible, tool hoists shall be used to handle auger sections.

A long-handled shovel shall be used to move auger cuttings away from the auger. Hands or feet shall not be used.

Augers shall only be cleaned when the drill rig is in neutral and the augers are not rotating.

Job Safety Analysis

JSA Type: ☒ SAR Operations ☐ Transport ☐ Office ☐ Construction		☐ New ☒ Revised	Date: 3/10/2015
PeneCore Client: General Loc: Various			
Work Type: Environmental	Work Activity: **Direct Push Operations**		

Personal Protective Equipment (PPE):

Minimum PPE is Level D including: safety glasses or goggles, hard hat, traffic vest, steel-toed boots, hearing protection, and gloves (type dependent on job-specific requirements). **Additional PPE may be required in the Health & Safety Plan (HASP). Also refer to the HASP for required traffic control, air monitoring, and emergency procedures.**

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Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). Additionally, a tailgate safety meeting must be performed and documented at the beginning of each work day. Safe Performance Self Assessment (SPSA) procedures must be used during field activities. Also consider weather conditions (heat, cold, rain, and lightning).

PROJECT MANAGER: HEALTH & SAFETY DIRECTOR:

Job Steps	Potential Hazard	Critical Actions
Site Walk and Set-up	• Vehicle traffic (these hazards will be present in all phases of the job and all precautions will apply for the entire job)	• Perform SPSA before each step. • Follow all critical action established on the JSA form. • "Site Walk and Set-up" including wearing all PPE upon arrival.
Mast-up Drill Rig	• Overhead Obstructions and Power lines • Uneven surfaces	• Double check area for obstructions beforehand. • Have a lookout watch while driller moves vehicle or raises mast. • Do not move drill rig with mast raised. • Keep mast a minimum of 15 feet from overhead power lines . • (20 ft. if 230, 285 kv / 25 ft. if 345 kv / 35 ft if 500 kv). • Check with utility company if in doubt. • Level truck using hydraulic jacks and jack pads if needed.
Remove Asphalt or Concrete Surface	• Flying debris • Sharp objects such as concrete reinforcement materials	• Communicate with co-workers and make sure nobody is in the way. • Be careful and wear gloves. • Visual inspection.
Hand Clear Soil to 5 feet if Required by Client	• Hitting someone with hand auger	• Refer to JSA for Pre-Ground Disturbance & Saw Cut. • Make sure work area is clear.
	• Back strain	• Use proper lifting techniques – stand close to object, bend knees, position one foot to the side of the object if possible, lift head to straighten and arch your back. • Stretch before lifting. • Get assistance with heavy (>50 lbs.) or awkward objects. • Use appropriate tools such as hand trucks, booms, lift trucks, etc.
Push Rod and Collect Samples	• Pinch points	• Be aware of hand placement. Avoid pinch points. • Stay away from moving parts.
	• High Noise levels	• Hearing protection must be worn (plugs or muffs or both).
	• Chemical or Hydrocarbon exposure	• Wear nitrile rubber gloves if there is a skin exposure potential. • Upgrade to OSHA Level C if necessary (organic vapor respirator). • Steam clean augers between boreholes. • Wash hands before you eat or drink.

	• Cuts from sharp sampling tools	• Wear work gloves. • Use correct tools for opening sleeves (hooked safety blade). • When opening sleeves, cut away from body. • Place soil core on sturdy surface prior to cutting.
	• Wire rope clips releasing	• Drill rig safety inspection completed to include inspection of wire ropes and clips attached per manufacturer's specifications.
	• Tools or equipment falling off of stowage	• Proper PPE to include hard hat, steel toed shoes, and safety glasses. • Do not stow tools or equipment in unsecured locations. • Stow hack saw and other tools on hooks.
Backfill and Resurface	• Creating a tripping hazard by Inadequate sealing of hole	• Pour granular bentonite and hydrate. • When mixing grout, mix to specification and completely fill the hole.
	• Cement dust exposure	• Avoid skin contact with cement. If skin contact is made, wash it off asap. • Avoid breathing cement dust – position yourself upwind or use mechanical ventilation or if you choose, a paper dust mask can be worn. • Wear proper PPE to include work gloves, safety glasses, and other PPE as required.
	• Moving parts	• Keep hands clear of moving parts.
	• Back Strain from removing Whirlybird mixer	• Do not lift and twist at the same time. Lift the mixer all the way out. Point your toes in the direction you are turning. • If you are not tall enough to lift it all the way out before twisting, use the buddy system.
Decon Tooling	• High pressure water or steam	• Follow all Critical Actions as Described on the JSA for Decontamination Operations. • Keep two hands on wand during operation.
	• Pinch points	• Secure rod in decon unit. • Be aware of hand placement. Avoid pinch points. • Be aware of all moving parts.
Site Cleanup	• Back strain	• Continue to use correct lifting techniques. • Use the buddy system for awkward or heavy objects over 50 lbs.
	• Slips, trips and falls	• Make careful visual sweep of site. • Check for tools, debris, or dirt left on-site. • Watch your step.
Preparation for Return to Office	• Materials falling off truck	• Perform a pre-trip walk around to make sure everything is secure. • Make sure all safety pins and other securing devices are in place. • Put all tools away where they will not fall off of truck. • See JSA for Drill Rig Demobilization.

Job Safety Analysis

JSA Type: ☒ SAR Operations ☐ Transport ☐ Office ☐ Construction	☐ New ☒ Revised	Date: 3/10/2015
PeneCore Client: General Loc: Various		
Work Type: Environmental	Work Activity: **Decontamination Operation**	

Personal Protective Equipment (PPE):

Minimum PPE is Level D including: safety glasses or goggles, hard hat, traffic vest, steel-toed boots, hearing protection, and gloves (type dependent on job-specific requirements). **Additional PPE may be required in the Health & Safety Plan (HASP). Also refer to the HASP for required traffic control, air monitoring, and emergency procedures.**

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Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). Additionally, a tailgate safety meeting must be performed and documented at the beginning of each work day. Safe Performance Self Assessment (SPSA) procedures must be used during field activities. Also consider weather conditions (heat, cold, rain, and lightning).

PROJECT MANAGER: HEALTH & SAFETY DIRECTOR:

Job Steps	Potential Hazard	Critical Actions
Decon Set-up	• Exposure to site traffic	• Perform SPSA before each step. • Set up exclusion zone to include decon unit if possible. • If necessary set up separate exclusion zone for decon but consider traffic flow.
	• Pedestrian traffic	• Position decon unit close to drill rig inside exclusion zone (if possible). • If unable to include in drill rig exclusion zone, set up large enough separate decon unit exclusion zone.
	• Decon unit shifting while disconnecting from drill rig	• Chalk tire to prevent unit from moving.
	• Moving decon unit	• Never use forklift to move decon unless you have a proper hitch attachment.
Decon Operations	• Noise up to 100 dB	• Hearing Protection must be worn.
	• High pressure water or steam (cuts and water injection)	• Proper PPE to include safety glasses and gloves. • Keep water temperature below 180 degrees F. • Keep two hands on wand at all times during operation. • Do not aim wand at any part of your body. • Do not aim wand at anybody else.
	• Pinch points	• Avoid setting augers down on fingers, role augers off hand into decon unit.
	• falling objects	• Make sure grading is secure. • Do not toss augers into decon (they can and have bounced out).
	• Slipping hazard due to wet surface	• Lay down plywood or sand. • Drain water periodically to avoid overflow spills.
	• Back Strain	• Raise tongue of decon unit to lower the back of unit and make it easier to get augers in and out. • Use proper lifting techniques. • Use the buddy system for augers over 10 inches. • When steaming large diameter augers place one end of auger on the grating and with help pick up and roll the opposite end into decon.
	• Shoulder injury	• Restrict decon to one layer of augers at a time.
	• Electrical shock	• Use caution while turning on and off. • Do not get on switch wet. • Have a GFIC installed if possible or needed.
Clean-up	• Slips, trips and falls	• Make careful visual sweep of site. • Check for tools, debris, or dirt left on-site.

		• Watch your step.
Preparation for Return to Office	• Materials falling off truck	• Perform a pre-trip walk around to make sure everything is secure. • Put all tools away where they will not fall off of truck. • Make sure all safety pins and other securing devices are in place. • Double check safety pin that hold cart on decon unit. See JSA for Decon Unit Demobilization.

Job Safety Analysis

JSA Type: ☒ SAR Operations ☐ Transport ☐ Office ☐ Construction		☐ New ☒ Revised	Date: **3/10/2015**
PeneCore International Client: General Loc: Various			
Work Type: Environmental	Work Activity: **Drilling Rig Demobilizations**		

Personal Protective Equipment (PPE):

Minimum PPE is Level D including: safety glasses or goggles, hard hat, traffic vest, steel-toed boots, hearing protection, and gloves (type dependent on job-specific requirements). **Additional PPE may be required in the Health & Safety Plan (HASP). Also refer to the HASP for required traffic control, air monitoring, and emergency procedures.**

Health and Safety Officer				**Date**
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Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). Additionally, a tailgate safety meeting must be performed and documented at the beginning of each work day. Safe Performance Self Assessment (SPSA) procedures must be used during field activities. Also consider weather conditions (heat, cold, rain, and lightning).

PROJECT MANAGER: HEALTH & SAFETY DIRECTOR:

Job Steps	Potential Hazard	Critical Actions
Site Clean-up	• Back strain	• Perform SPSA before each step. • Continue to use correct lifting techniques. • Use the buddy system for awkward or heavy objects over 50 lbs.
	• Slips, trips and falls	• Make careful visual sweep of site. • Check for tools, debris, or dirt left on-site. • Watch your step.
Prepare Rig and Trailer for Return to Shop	• Equipment falling off rig and/or trailer • Creating road hazards	• Down hole hammer must be stored on deck, not in the spindle. • Secure all samplers, bolt bucket, air gun & hoses, hammers & wrenches, and hoist plug in side tool boxes. • Secure spindle extensions with bungee cords on deck. • Check conditions of bungee cords to make sure they are in good condition. • Secure misc. tools or any other equipment in side boxes. • Discard all trash from bed of rig. • Check ground under and around truck for trash, tools, and equipment. • Remove all spoils from jack pads by using your foot (not your hand). • Remove all spoils from rod holder and wiggle tail area of rig by hand. • Secure augers in auger racks, use safety pins on vertical bars if there is a pin hole for it. • Perform walk around and check tires and lug nuts.
Return to Office	• Materials falling off truck	• Perform a pre-trip walk around to make sure everything is secure. • Make sure all safety pins and other securing devices are in place.
	• Vehicle accident	• Check tail lights during walk around during pre-trip walk around. • Drive safely and defensively using the Smith System. • Maximum speed limit of 55 mph. • Do not talk on cell phone while driving.

MANAGEMENT OF CHANGE (MOC) AUTHORIZATION

MSA Type: ☐ On Site ☐ Off Site		☐ New ☐ Revised	Date:
Client:	Location:		
Description of the Change (include the scope of the change and affected employees)**:**			
Risks Identified:		**Mitigation Measures:**	
MOC Coordinator:			
Date	Print Name	Signature	
Evaluation Team:			
Date	Print Name	Signature	
Reviewers:			
Date	Print Name	Signature	
Timeline for Implementation:			
Comments and/or Conditions:			
Authorizer Approval:			
Date	Print Name	Signature	

The following table addresses the concerns of conducting Air/Hydro Knifing/Vacuum Extraction activities.

Job:	Air Knifing and Vacuum Extraction.
Detail:	PENECORE will use the air knife to clear boreholes for soil samples and temporary monitoring well installation.
Prep:	Equipment will be inspected by PENECORE TSA.
Tools and **Equip:**	Air knife rig and support truck and 55-gallon drums.
PPE:	Hard Hat, Safety Glasses w/Side Shields, Gloves–Leather (or Work Gloves), and Nitrile, Safety Boots: Steel-Toe, Hearing Protection, Reflective Safety Vest, Long-sleeve shirt, and Photoionization detector (PID).
	Optional *(depending on job)*:Goggles with face shield, Tyvek, Respirator, and Nitrile gloves.

Item	Task	Hazard	Control
1	Clear air/hydro knifing and Vacuum Extraction Locations	• Traffic hazards • Overhead and underground installations • Product releases • Property damage and dealer inconvenience	• Reference Subsurface Clearance Review form if applicable. • Coordinate with Site Manger (or designee) to minimize potential conflicts. • Review proposed locations against available construction drawings and known utilities, tanks, product lines, etc. • Client mark out the proposed air knifing/vacuum extraction locations. • Client to Call underground utility locating service for public line location clearance and get list of utilities being contacted. If necessary, coordinate private line locator for private property. • Client to Develop a traffic guidance and control plan with the client and local agencies as applicable. Plan may include use of delineators, barrier tape, jersey barriers, snow fence, etc. • Client is responsible to annotate the Site Plan with the Traffic Guidance and Control configuration if a formally developed Traffic Guidance and Control Plan is not available.
2	Obtain Sub-contractor Equipment Maintenance Records Prior to Commencing Work	• Improper equipment maintenance (which can cause equipment failure and possible personal injury)	• Verify records in possession are for equipment brought on-site. • Verify maintenance is current.
3	Obtain Sub-contractor Training Records (40-hour, 8-hour, Physical, Fit Test, Air Hydroknife Vacuum Extraction Training Certificate)	• Lack of or expired due date creates a regulatory violation • Personal injury or equipment damage during operation.	• Verify certifications are current and applicable for the type of equipment being used. • Verify records are for the personnel on site.
4	Mobilize with Proper Equipment Supplies for Air Hydro knifing Vacuum Extraction	• Vehicle accident • Lifting hazards • Delay or improper performance of work due to improper equipment onsite	• Start project with Production Safety Meeting. • Follow safe driving procedures. • Employ safe lifting procedures. • PENECORE DRILLING and client review permit conditions.
5	Visually Clear Proposed Air Hydro Knife Vacuum Extraction Locations	• Underground and overhead installations	• Again, check the Subsurface Clearance Review form (supplied by client) Air/hydro-excavation locations as necessary. • Also, you must complete the checklist in the Air/Hydro Knifing/Vacuum Extraction SOP.
6	Set-up Necessary Traffic Guidance and Control Equipment (see Attachment 2)	• Struck by vehicle during placement • Vehicle accident as a result of improper traffic control equipment placement	• Use buddy system for placing traffic guidance and control equipment. • Implement Traffic Guidance and Control Plan such as setting out delineators, snow fence and caution tape defining safety area. • Adhere to approved Traffic Guidance and Control Plans when working in roadways.

			• It is the responsibility of the SHSO to annotate the Site Plan with the Traffic Guidance and Control configuration if a formally developed Traffic Guidance and Control Plan is not available.
7	Assist with Set-up of Air Hydro Knife Vacuum Extraction Equipment	• Vehicle accident during rig movement • Damage caused by equipment while accessing set-up location • Contact with overhead installations • Soft terrain. Air knife movement	• All staff should know where the kill switch is for the air/hydro knifing/vacuum extraction equipment. • Verify clear pathway to air/hydro knifing/ vacuum extraction location and clearance of any overhead obstructions. • Provide as-needed hand signals and guidance to driver to place equipment. • Visually inspect equipment (fire extinguisher on board, no oil or other fluid leaks, cabling and associated equipment in good condition, pressurized hoses secured with whip-checks or adequate substitute). • If necessary, chock wheels.
8	Set-up Exclusion Zone(s) and Workstations	• Struck by vehicle during set up • Slip, trip and fall hazards	• Implement exclusion zone set-up. • It is the responsibility of the SHSO to annotate the Site Plan with the Exclusion Zone set up. • Set up workstations with clear walking paths to and from equipment. • Use caution tape, orange construction/snow fence and/or delineators. • Designate safe position of all SECOR SHSO. • Ensure all unnecessary personnel are out of the exclusion zone. • Set up deflection shields or over borehole shield device.
9	Clear Upper 8-feet of Air Hydro Knife Vacuum Extraction Location Using Compressed Air/Water	• Back strain • Exposure to chemical hazards • Hitting an underground utility • Repetitive motion • Eye injury from airborne debris • Personal injury from compressed air	• Initiate air quality monitoring – client. • Have appropriate respirator with combination organic vapor/P-100 cartridges within 3-5 feet of work area, readily available. • Stand upwind to avoid exposure whenever possible. • Use the organic vapor monitor aggressively to track the airborne concentration of contaminants close to potential sources such as the debris as it is being raised from the hole, etc. • Keep air knife pointed away from personnel and objects. • Use proper lifting techniques and tools. • Check to be sure you have not missed anything on the Subsurface Clearance Review form. • Unnecessary personnel are positioned out of the exclusion zone far enough away to avoid flying debris. • Client SHSO is positioned approximately 20 – 30 feet away from air knife/hydro-excavation location. • Avoid twisting back during the operation; Decontaminate equipment after use. Decontamination will be accomplished by an Alconox wash with tap water rinse followed by a de-ionized or distilled water rinse. Collect rinse water in 5 gallon buckets and transfer to 55-gallon drums and stage drums as needed.
10	Cuttings Will be Picked Up by a Post-hole Digger or Suction Line Vac Truck	• Exposure to public • Traffic hazard or obstruction inconvenience to station operation • Improper storage or disposal • Back strain • Eye injury from airborne debris	• Have proper storage containment and labeling available onsite. Place materials in isolated location away from traffic and other site functions with assistance from client. • Do not attempt to lift, push or move drums without the proper tools and equipment. • Conduct air monitoring as outlined – client. • Have appropriate respirator with combination organic vapor/P-100 cartridges within 3-5 feet of work area, readily available.
11	Supervisor/HSC Must Confirm All Air Hydro Knife Vacuum Extraction Locations are Closed, Filled In and/or Capped	• Possible injuries and damage to property due to stepping into or driving over the well	• Visually inspect each and every air/hydro knifed/ vacuum extraction location with client.
12	Clean Site and Demobilize	• Traffic • Safety hazard left on site • Lifting hazards	• Use buddy system as necessary to remove traffic guidance and control equipment. • Leave site clean of refuse and debris. • Clearly mark/barricade any borings that need later topping off or curing.

			• Notify site personnel of departure, final well locations and any cuttings left onsite. • Use proper lifting techniques.
Initial Development, Review and Approval:			
Revision and Approval:			

Post Job Review: Please note tasks/hazards that were encountered on this job which were not addressed in the current JSA. Forward these items to the OE Coordinator for including revisions to the JSA.
Signature Page

Print Name	**Company**	**Signature**

WARNING: BOOTS

Reduced or no cutting returns in any 5' interval, and increasing air pressure are signs of cuttings plugging off annulus and creating a "boot".

Stop operation and inject water into the air line until "boot" is cleared.

Under no circumstances shall air pressure be increased to clear the "boot". Using this method, when the "boot" is freed, the sudden release of increased annular air pressure could blow the 4,000 to 6,000 pound hammer off the casing or cause air hose failure.

Hammer cables shall be inspected frequently for inner rot, and kept lubricated to prevent rust rot.

To prevent inner rot, cable will not be steam cleaned.

Cable shall be replaced at the recommended intervals or when unsafe.

Swing arm and all components of hammer suspension (winch, directional sheaves, etc.) will be inspected twice a month.

Except when making adjustments, hammer doors shall be kept in place to protect internal parts from dust and damage by hoisting lines.

When it is necessary to work on or repair the hammer, and the hammer can be safely removed from the guides, the hammer will be laid down to make repairs.

If it is unsafe to remove the hammer from the guides, the hammer shall be made secure with a tool line attached to the hammer's hoisting eyes by means of a short cable sling and shackles or proper lifting capacity, in addition to the normal hoisting line, before repairs are attempted.

When unloading or moving a hammer on a forklift, the hammer will be balanced properly. Most of the weight is on the bottom or casing flange end.

Total hammer weight shall not exceed forklift-rated capacity.

Threads of each section of casing shall be inspected for cracks.

A tailing rope shall be used and of sufficient size and secured in such a way as to allow for slow and controlled movement of drive casing off and on support vehicle.

When positioning drill pipe and casing in the derrick, a system shall be used that will hold the drill pipe securely until attached to the quill, and casing is in drilling position or attached to the casing string in the hole.

If work stops during positioning of drill pipe and/or casing into the derrick, any suspended load shall be lowered to the ground or laid down on the support vehicle.

Personnel not needed when pulling or lifting casing shall stand clear of the work area.

Casing shall not be lifted out of the hole with a lifting bail that is rated less than the maximum pulling capacity of rig.

When pulling casing, only slings that are rated to maximum capacity will be used.

When casing jacks are used, slips shall be level and even all the way around the casing. If set unevenly, slips can be damaged or wedged in the bowls.

When rig is leaning back and puller is set up, ONLY the puller shall be used to pull the casing, and the rig used to lay casing down.

All working air and mud hoses shall be secured with safety chains or cables.

All hoses shall be rated and applicable to their use.
Rams shall be bled down before disconnecting hydraulic hoses.

Discharge coupling assembly – flange, bolts, and coupling – must be inspected daily for safe operating condition.

On rigs equipped with electronic air controls, when not in use, the hammer control switch will be in the "OFF" position, and the air pressure regulator shall be screwed out.

WELL DEVELOPMENT

When swabbing or bailing, no one shall stand near the swabbing line as it might throw slack and cause injury.

Sand or high lines shall not be used to pull heavy drill strings or to fish drill strings.

Swab lines will not be hand spooled.

COMPRESSOR SAFETY

Compressor operation shall be checked daily by observing discharge pressure gauge and lube oil temperature to assure automatic compressor control system is functional, and lube oil temperatures are within recommended limits.

No compressor shall be operated with any portion or component of the safety shutdown system bypassed or removed.

No service work shall be done while compressor is in operation.

Wheels of trailer-mounted compressors shall be blocked and secure.

Compressor intake lines shall not be located or operated where flammable or toxic fumes may be drawn into the air intake.

Ether or starting fluids shall not be injected into intake system.

Flammable solvents shall not be used to clean compressor.

Compressors shall not be operated at speeds or pressures in excess of manufacturer's recommendations (Consult operator's manual).

Compressed air shall not be used for breathing air.

Air pressure relief valves (pop-off valves) shall not be adjusted over recommended operating pressure (Consult operator's manual).

If an auxiliary air compressor of lesser air pressure capacity than the rig compressor is used, a one-way check valve shall be installed between them to protect the smaller compressor.

AUGER SAFETY

Start an auger boring with the drill rig level, the clutch or hydraulic rotation control disengaged, the transmission in low gear, and the engine running at low RPM.

Apply an adequate amount of down pressure prior to rotation to seat the auger head below the ground surface.

Look at the auger head while slowly engaging the clutch or rotation control and starting rotation. Stay clear of the auger.

Slowly rotate the auger and auger head while continuing to apply down pressure. Keep one hand on the clutch or on the rotation control at all times until the auger has penetrated about one foot or more below ground surface.

If the auger head slides out of alignment, disengage the clutch or hydraulic rotation control and repeat the hole starting process.

An auger guide can facilitate the starting of a straight hole through hard ground or a pavement.

Operator should establish a system of responsibility for themselves and the tool handler to follow during the series of various activities required for auger drilling, such as connecting and disconnecting auger sections, and inserting and removing the auger fork. The operator must ensure that the tool handler is well away from the auger column and that the auger fork is removed before starting rotation.

When rotating the augers, stay clear of the rotating auger and other rotating components of the drill rig. Never reach behind or around a rotating auger for any reason whatsoever.

When securing the auger or drive adapter to the power coupling: Do not use an over length pin or bolt. Do not touch the coupling or the auger with hands, a wrench, or any other tools during rotation.

Whenever possible, use tool hoists to handle auger sections.

Never place hands or fingers under the bottom of an auger section when hoisting the auger over the top of the auger section in the ground or other hard surfaces such as the drill rig platform.

Never allow feet to get under the auger section that is being hoisted.

Use a long-handled shovel to move auger cuttings away from the auger.

Do not attempt to remove earth from rotating augers. Clean augers only when the drill rig is in neutral and the augers are stopped from rotating.

APPENDIXES

- Wire Rope Seizing Procedure.
- Wire Clip Installation Procedure.
- Minimum Clearance from Energized Overhead Power Lines.

TABLE OF CONTENTS

Introduction	85
Inspection	89
Driving Conditions	90
Disabled Vehicles	91
Off-Road Travel	92
Support Vehicles	93
Forklift Operation	94
Forklift Movement	95
General Operating Safety Rules	96
Accident Reporting	96
Vehicle/Equipment Accident Report Form	98
Journey Management Planning (JMP) and Safety Practices	99

INTRODUCTION

All individuals in the employment of PENECORE Drilling, who represent PENECORE Drilling, and operate PENECORE Drilling vehicles, shall be trained in the safe operating practices of the vehicle and related equipment. In addition, all individuals, representatives, and operators in the employment of PENECORE Drilling will also be subject to additional testing as follows: Pre-employment Post-Offer Drug/Alcohol Testing, Reasonable Suspicion Drug/Alcohol Testing, Return to Work, Transfer to Safety Sensitive Position, Post-Accident Testing and Random Testing.

These limits are set forth in the **Blood Alcohol Concentration Limits** and **Medication** portion of the PENECORE CODE OF SAFE PRACTICES – Section 3: Vehicle Operations portion of this Health and Safety Manual.

Refusal to submit to an Alcohol or Controlled Substances test will be grounds for immediate termination.

Company Driver Qualifications

To operate a PENECORE vehicle, all employees must:

- Possess a valid operator's license of the appropriate class.
- Not operate PENECORE vehicles without a valid driver's license of the appropriate classification or without specific instructions from their immediate supervisor;
- Know and obey all local, county, and state traffic laws;
- Not abuse vehicle(s);
- Be insurable;
- Shall possess a current and valid medical examiners certificate for commercial class vehicles per DOT specifications;
- Under no circumstances exceed the DOT Hours of Service limits (DOT 395);
- Notify their supervisor within two days of conviction, or action tantamount to conviction, for any moving violation of a driver's license.
- Inspect assigned vehicle for safety defects before, during and after every trip.
- Keep vehicle under constant control.
- Do not drive after drinking or taking medications that might affect the ability to drive safely.

DOT Driver Requirements

Class A Commercial Driver's License

Operation of most of PENECORE equipment requires the driver to possess a valid California, Class A, commercial driver's license (CDL) with Endorsement "T" (Tanker).

When directed by PENECORE TSA, it is the responsibility of each new field employee to acquire a Class A license within 30 days of the request.

Required Driver Documentation

Drivers must have a copy of their *Medical Examiner's Certificate*, valid CDL license and current, up-to-date log book in their possession when operating a Class A vehicle.

The driving test evaluation along with copies of the green card, driver's license and physical are placed in an employee driver file, which is available at all times for DOT inspections.

DOT Regulations
Since PENECORE equipment may travel across state lines, the company is classified by the Federal Department of Transportation as an Interstate hauler. This means that PENECORE drivers fall under a comprehensive set of rules mandated by the federal DOT *Motor Carrier, Safety Regulations, Title 49 Code of Federal Regulations*.

These rules are reviewed during new hire orientation/training, as well as during annular training/re-certification. All drivers are expected to follow them.

By accepting employment, drivers agree to be responsible for following all DOT rules and to pay any fines assessed if drivers do not follow the DOT/PENECORE DRILLING rules.

Pursuant to the DOT regulations, random drug testing will be administered for affected employees. See: "Random Substance Abuse Testing Policy."

Subcontractors Expectations
Sub-contractors under the direction of PENECORE DRILLING are expected to comply with the all of the requirements and qualifications located within the **PENECORE DRILLING CODE OF SAFE PRACTICES - Section 3: Vehicle Operations**.

Speed Limits
Supervisors shall not schedule nor permit nor require the operation of any motor vehicle between destinations in such a time frame as will require violation speed limits.

Regardless of posted speed limits, PENECORE DRILLING maximum allowable speed is the following:

Interstate state highways ……	55 MPH
County hardtop highways ……..	Posted, or as conditions allow
Gravel or dirt roads ……	25 MPH
Yard or Staging Areas ……	5 MPH

Hitchhikers
Only company employees or persons authorized by a supervisor shall be permitted to ride in a PeneCore vehicle. Under no circumstances will hitchhikers be picked up by PeneCore vehicles.

Radar Detectors & Seat belts
Radar detectors will not be allowed.

Seat belts shall be worn at all times by drivers and passengers. The driver is responsible for the use and condition of seat belts.

Alcohol, Drugs and Firearms
Drivers will not drive while under the influence of alcohol or drugs, which may affect their driving ability. Alcohol, illegal drugs, firearms or other contraband items are not permitted in company vehicles.

If a driver is involved in an accident, our policy is to follow the California Department of Motor Vehicles guidelines regarding suspected DUI/DWI:

Blood Alcohol Concentration Limits
Based on a breath, blood, or urine test requested by the arresting officer, your BAC is used to determine whether you are in violation of the law. The illegal blood alcohol limits are:

- 0.08% and above for most drivers.
- 0.04% for commercial driver license (CDL) holders.
- 0.01% and above for those under 21.

If you are arrested for suspicion of DUI and drugs are suspected rather than alcohol, the officer may require you to take a blood or urine test, rather than a breath test, to determine the presence of drugs in your system.
(Information obtained from California DUI & DWI Laws and Enforcement – DMV.ORG)

Medication
California law does not distinguish between prescription, over-the-counter (OTC), and illegal drugs in DUI cases. You can face DUI charges if you drive under the influence of OTC allergy medicine if it has impaired your ability to operate a motor vehicle

Medications and Driving
When taking medication of any kind, the driver shall be aware of the possible side effects to judgment, alertness, and coordination. If these faculties are affected, the driver shall inform their supervisor and refrain from driving while taking such medications.

Clearance Limits
Drivers will know the traveling height, width, length, forward overhang, and weight of the vehicle. All trucks with loads will be weighed before traveling to ensure load weight does not exceed vehicle safe design limits of brakes and tires.

Highway and bridge load, width and overhead limits shall not be exceeded.

Carriers shall NEVER be moved with the derrick raised or partially raised.

Drivers will allow for derrick front overhang when cornering or approaching other vehicles or structures.

Caution will be used when approaching guy lines or other low slung lines on drilling locations, low hanging electrical wires, and canopies of service stations, motels, restaurants, or other commercial sites.

Weight and Load of Vehicle & Trailer
Drivers will be the "Person Responsible" for WEIGHT and for LOADING of the vehicle and conveyance they are operating. If a fine is levied for violation of the California Vehicle Code pertaining to: WEIGHT and for LOADING of the vehicle and conveyance (trailer) they are operating, the Drivers will be responsible for paying this fine.

PENECORE DRILLING will be the Person Responsible for any MECHANICAL OR REGISTRATION issues for the vehicle and conveyance being operated. PENECORE DRILLING will be responsible for any fine that is levied for violation of the California Vehicle Code pertaining to: MECHANICAL OR REGISTRATION issues for the vehicle and conveyance (trailer) being operated.

It is strongly recommended to utilize the truck scales located at:
The Big Rig Scale Company
1464 Churchill Downs Ave.
Woodland, CA 95776
(530) 668-4537

M-F 5:00 a.m. – 9:00 p.m.
Sat. 5:00 a.m. – 3:00 p.m.

If you have any doubts on the weight of your vehicle or conveyance (trailer) prior to entering a CHP truck scale.

Vehicle & Trailer Safety
All ignition keys shall be removed when vehicle is left unattended.

All vehicles shall be kept clean and free of debris.

Nothing carried in the vehicle shall interfere with the free movement of arms legs, or prevent free and ready access to emergency accessories, or prevent free and ready exit of any person from the cab or driver's compartment.

When dismounting from the drill rig cab, drivers shall look at the ground for tripping hazards before exiting, and using a 3-point grip, step down facing the cab.

Trailers will be wired with pigtail connectors or a waterproof plug/receptacle for tail, brake and turn signals.

Trailers will be safety chained to their towing vehicle in accordance with state regulations. Supervisor shall be permitted to ride in PeneCore vehicles.

INSPECTION

Pre-Trip & Post-Trip Inspections

All drivers are required by DOT and PENECORE DRILLING to perform accurate pre-trip inspections, and complete the inspection checklist on the back of the white driver's log sheet.

Under no circumstances are PENECORE DRILLING vehicles requiring pre-trip inspections to be driven if they are not ready to pass a PENECORE DRILLING or DOT safety inspection.

Failure to perform and complete pre-trip inspections may result in citations. Payment for any citations for equipment violations due to the driver's failure to do the required pre-trip inspections will be the personal responsibility of the driver.

All DOT vehicles and trailers shall be thoroughly inspected for safety and maintenance status annually.

All non-DOT vehicles will be inspected annually using the vehicle inspection form.

On all trips beyond 50 miles from the main office, DOT regulations (§396) require that an inspection report (form on the back of daily log) shall be completed by drivers at the beginning and completion of the workday, and turned in along with the daily log sheet.

Logs will be turned in or faxed to the office each Monday.

During all inspections particular attention will be paid to:

- Parking and service brakes.
- Fifth-wheel, and trailer hitches and balls.
- Emergency equipment: first-aid kit, fire extinguisher, reflectors, flares.
- Exhaust system for leaks, broken pipes.
- Fuel system for leaks, broken pipes.
- Frame condition for bends, twists or cracks.
- Suspension.
- Condition and cleanliness of window glass and mirrors.
- Head and clearance lights/reflectors, horn.
- Engine and drive train.
- Seat Belts.

Vehicle Maintenance
All vehicles will be subject to periodic inspection per set forth in DOT (§396) requiring an inspection "in accordance with the terms of this section at least once during the preceding 12 months and documentation of such inspection is on the vehicle", or as needed depending on the vehicle/conveyance usage.

Items to be inspected will include, but not be limited to:
- Brake system.
- Coupling Devices.
- Exhaust System.
- Fuel System.
- Lighting devices.
- Safe loading.
- Steering Mechanism.
- Suspension.
- Frame.
- Tires.
- Wheels and Rims.
- Windshield Glazing.
- Windshield Wipers.

All necessary repairs will be performed before the vehicle is used. Copies of repair records will be maintained onsite.

DRIVING CONDITIONS
Some vehicles such as drill rig carriers are top heavy and will tip over if a wheel on one side drops 10 inches below the opposite side.

Drivers shall avoid sharp or soft shoulders which may cause rig overturn.

When limited visibility exists due to weather conditions or creates unsafe road surface conditions, equipment shall only be driven in compliance with the state regulatory agencies.

Permitted vehicles cannot be chained-up.

Allowances in speed will be made for unsafe road conditions such as "S" curves, hills, poorly marked or rough bumpy roads, and alternating patches of dry and slick pavement.

Because of fatigue and limited visibility, night driving requires extra care and attention.

Driving after sundown shall only be done when authorized by supervisor.

A spotter will be used when backing up any vehicle, with or without mirrors, on any drill site, in staging yards, or in the WDH yard.

Brakes will be checked for adjustment and adjusted if necessary before descending any steep grade.

Descend steep grades in the same gear or lower than used for ascent.

DISABLED VEHICLES

Disabled vehicles shall not be left unattended along public roadways, unless one must leave to obtain assistance. Secure vehicle and contents if this is the case.

Arrangements shall be made immediately to have disabled equipment removed to a location suitable for repair or temporary parking.

Appropriate emergency equipment such as flags, flares and reflectors shall be carried in each vehicle, and properly deployed in the event of a breakdown or accident.

All loose equipment, such as blocks, mud hoses, jacks and matting boards, shall be properly secured before vehicle movement.

No unsecured tie down pins will be in sockets on any vehicle or trailer while traveling.

Loading and unloading should be done at ground level where possible.

A spotter will be used to assist loading and unloading of trucks and trailers.

Pipe and/or casing create heavy loads:

Pipe Size	lbs./ft.	Wt. / 10' or 20' Length
6 5/8"	34#	340# / 680#
9 5/8"	53#	530# / 1060#
11 3/4"	60#	600# / 1200#
13 3/8"	72#	720# / 1440#
16"	109#	1090# / 2180#

Pipe and Casing Loads

Pipe shall be unloaded layer by layer, with the bottom layer pinned or blocked securely at all four corners of the load.

Pipe and casing shall be rolled from ends of casing or pipe because drill pipe is often carried inside casing.

Securing Load

When hauling drill pipe or casing, the load shall be secured with load binders as tightly as possible before stating the haul; then after traveling a short distance, the chain shall be checked and retightened if necessary. Loads will frequently settle after movement causing the chains to loosen.

Never get between the pipe rack and the truck during loading, unloading, or transferring of pipe.

All loads shall be positioned and secured properly to the truck/trailer with ties, chains and/or loads binders of adequate capacity.

Approved grade 7 chain binders will be placed on the curb side with the handle securely tied locked in position.

Do not stand in front or over binders when tightening or releasing them.

Cargo or any other object shall not be located so as to obscure driver's vision.

Loads that extend over the rear of the truck deck or over the front the radiator shall be suitably flagged with red flag not less than 16" square.

Straps will be positioned so they will not come in contact with any sharp edges of a load.

Trailer manufacturer's weight distribution recommendations and position shall be slightly forward of center to transfer weight to the hitch of the tow vehicle.

OFF-ROAD TRAVEL

Walk the route of travel inspecting for depressions, stumps, gullies, ruts and similar hazards before moving a drill rig.

Try to cross obstacles such as small logs and small erosions, channels or ditches squarely, not at an angel.

Check bridges, overhead wires and soil conditions before driving over unfamiliar roads.

Before approaching steep inclines, stop. Place the carrier in the lowest gear and remain in that gear until the climb is completed and the rig is on level ground.

Under inflated tires are not as stable on firm ground as properly inflated tires are not as stable on firm ground as properly inflated tires. If tires are deflated to reduce ground pressure for movement on soft ground, they shall be inflated to manufacturer's recommended pressure before movement on firm hilly ground, or roadways.

A spotter will be used when side or overhead clearance is close.

Drive directly uphill or downhill when possible.

Caution will be used drilling on a hillside; the slope of the hill may lower the wheels on the downhill side of the carrier lower than 10" which can cause the carrier to tip over.

After spotting rig, brakes will be set and wheels chocked.

Driller shall check the winch and gears to be sure they are disengaged before a carrier is changed into road gear.

When attempting to extract a mired vehicle or carrier only the winch on the front or rear of the vehicle shall be used.

During extraction, personnel will stay as far away as possible from winch lines.

SUPPORT VEHICLES

ABSOLUTELY OBEY OVERHEAD POWER LINE WARNING DEVICES AND PLACARDS.

All overhead electrical clearances shall be followed. (See Code in section two appendix)

Pump Setting Rigs

The operator shall inspect the pump rig, and have all necessary done prior to use.

The derrick shall be in its rack and the leveling jacks fully retracted before travel.

Prior to use, the operator shall refer to the pump rig load limit chart to ensure the maximum capacity of the winch and derrick are not exceeded.

Only the assigned operator of a pump rig shall operate the hoist.

Controls shall be smoothly and slowly to avoid personnel injury, and damage to the derrick or load.

Pump rigs shall only be operated on solid level surfaces.

Boom Trucks

To avoid damage to winch line and boom, the line shall be extended before the boom is extended.

Boom tip must be positioned directly over the load.

Only pull loads that are centered between the derrick legs.

The operator shall make sure that no one walks or stands under a suspended load.

Spotting Support Equipment

Hoses shall ever be run under vehicles or equipment in traffic ways unless it is absolutely necessary, and it can be ensured that the vehicles or equipment will not be moved.

Under no circumstances will hoses containing flammable liquids be run under vehicles equipment or over traffic ways.

FORKLIFT OPERATION

In addition to the OSHA operating rules and procedures covered I the forklift training unit are some key rules for safe forklift operation.

Only drivers who have successfully completed forklift training are authorized to operate PeneCore forklifts.

Daily Inspection

Forklifts shall be inspected at the beginning operation and any deficiency reported, or corrected before use.

Particular attention will be paid to tires, horn, safety belts, lights, battery, hydraulics, brakes, steering mechanism, and lifting mechanism - forks, chains, cables, and back up alarms.

No forklifts posted, rated capacity shall be exceeded.

Where provided, seat belts will be worn.

No riders on the trucks unless seats and seat belts are provided.

No one shall ride on the forks, for any reason.

Elevated Work Platform Use

When necessary to perform work 6 feet above the ground, only an ANSI approved elevated work platform securely attached to the forklift will be used to raise another employee for elevated work.

Employee on the work platform shall be secure to the platform with an approved safety belt and lanyard.

If in having positioned the forklift, the platform is not close enough for the work to be done from inside the platform and the employee must be outside the belt with a lanyard secured to the platform or the rig will be used.

Forklift will not be moved with employee on platform other than to make minor adjustments for final positing of the platform.

The mast shall be kept vertical, and shall not be tilted forward or backward while an employee is on the platform.

Forklift will be in neutral with parking brake set before raising platform and employee.

The platform and employee will be raised and lowered smoothly and with caution.

The driver shall remain at the controls while an employee is on the elevated in use.

FORKLIFT MOVEMENT

Keep speeds down: 5 MPH in yards or staging areas, or slower where there are blind corners.

Never exceed posted or reasonable speeds.

Lift loads with mast vertical or tilted slightly back, never forward.

Keep loads low and tilted back slightly.

Never move an unsecured load.

Never tilt a load forward except when stacking or off-loading.

Both forks will be used when picking up a casing puller.

Be particularly careful when carrying pipe or other loads that might roll.

Always lift or lower a load while stopped, never while traveling.

When loaded, start and stop slowly.

Be sure the weight of pallet loads are distributed evenly and not top heavy.

Approach and pick up loads at a right angle.

Loads will not be left suspended.

Never cross RR tracks except at crossing or with the approval of the railroad.

Cross railroad tracks slowly and diagonally. The forks shall be lowered and tips flush with the ground when a forklift is stopped or parked with a load or empty, forks will be carried as low as possible. Five inches (5") is a height for travel on most level surfaces.

Drivers shall always look in the direction of travel, and be certain that all persons are in the clear before moving the truck forward or rearward.

When moving a forklift on a job site, it should be driven with the steering axle forward.

Ascend or descend slopes or berms slowly. Drive with the load up grade regardless of direction of travel.

Forks are pointed down grade when empty.

Drive up or down grade on slopes or berms, never across.

Avoid turning on an incline, if it is at all possible.

When moving a casting hammer be sure the weight of the hammer (the discharge end) is centered between the forks.

GENERAL OPERATING SAFETY RULES

A forklift is considered unattended when the driver is 25 feet or more feet the vehicle with it in his view, or at any time the truck is out of his view.

When a forklift is to be unattended, shut off the engine, set brakes, bring mast vertical, and the forks left in the down position, wheels blocked if stopped on an incline.

When dismounted and the forklift will be in within view, lower the forks, place all controls in neutral and set the brakes.

Maintain the any part of your body outside the running lines of any dock, platform, truck or trailer.

Never place of any part of your body outside the running lines of a forklift or between mast uprights or other parts of the truck where shear or crushing hazards exist.

Never pass, stand or work under the elevated portion of a forklift, loaded or empty.

Never drive a forklift 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.

Loaded or unloaded, forks will be kept as low as possible when traveling.

All operators will be familiar with and periodically review the OSHA operating rules

ACCIDENT REPORTING

All accidents/incidents involving PENECORE DRILLING vehicles shall be reported to PENECORE DRILLING Management immediately, not to exceed 24 hours. Accidents/incidents involving vehicles belonging to PENECORE DRILLING representatives, such as sales representatives or other PENECORE DRILLING personnel, should also be reported to PENECORE DRILLING Management immediately, not to exceed 24 hours. Below is a list of PENECORE DRILLING Management individuals that you can contact:

Tuan Nguyen: President/CEO/Health & Safety Manager
530-661-3600 Office
530-681-3198 Cell
tuan@penecore.com

Accidents/incidents occurring on a roadway (highway, interstate, freeway, county road, city street, etc.) will have to have the following steps:

1. If you have an accident or if there is bodily injury, contact emergency personnel or the police immediately.
2. Write down the names, addresses, telephone numbers and license numbers of persons involved and of witnesses. Also write down the license plate number and state of each vehicle.
3. Exchange insurance information (make sure that the other parties policy is current!!).
4. Do not admit fault. Do not discuss the accident with anyone except police, your management team or our insurance representative.

If this happens at a jobsite in which the accident/incident did not occur on a roadway (such as private property, at a naval base or airbase), please take the following steps.

1. If you have an accident or if there is bodily injury, contact emergency personnel or the police immediately.
2. Write down the names, addresses, telephone numbers and license numbers of persons involved and of witnesses. Also write down the license plate number and state of each vehicle.
3. Exchange insurance information (make sure that the other parties policy is current!!).
4. Do not admit fault. Do not discuss the accident with anyone except police, your management team or our insurance representative.

In addition to required reports by law enforcement agencies, the driver of the PENECORE DRILLING vehicle shall complete the Vehicle/Equipment Accident Report (see Appendix) and submit to PENECORE DRILLING Management within 24 hours of the accident.

In the event of an accident, detailed instructions to follow are located in the glove box or drivers registration packet in each PENECORE DRILLING vehicle.

PENECORE DRILLING VEHICLE/EQUIPMENT ACCIDENT REPORT

Name _____Rig or Equipment Number _____

Accident Location _____

Date of Accident _____ Date of Report _____

PENECORE DRILLING Personnel Involved

_____

Non - PENECORE DRILLING Personnel Involved

_____

Explain The Order Of Events As They Occurred:

_____

_____

_____

_____

_____

_____

_____

_____

Explain the Cause of Accident:

_____

_____

_____

_____

_____

_____

_____

Safety Manager _____ Date _____

JOURNEY MANAGEMENT PLANNING (JMP) AND SAFETY PRACTICES

A Journey Management Plan (JMP) is typically a set process that you follow for planning and undertaking road transport journeys in compliance with HSSE requirements, with the goal of arriving safely. Every company will operate different standards but as a general rule, it is wise to put in place a JMP for trips of more than 4.5 hours.

Overview

A JMP is simple to put in place, and should quickly become part of your everyday routine. The more often you do it, the easier it will be to follow. We automatically follow many of the journey planning steps, without even thinking about it.

- Schedule your journey carefully to avoid night driving and those times of day when falling asleep is most likely (2:00AM-6:00AM).
- Take into account road hazards and weather conditions.
- Adhere to the legal restrictions on driving times and distances.
- Plan when and where to take rests.
- Allow for unexpected delays.
- Take plenty of drinks with you so that you stay hydrated.
- Know what to do in case of an emergency.

Fatigue is one of the most obvious consequences of poor journey planning and is a major contributing factor in road traffic incidents. A good JMP will take into account all the factors that will minimize your chances of feeling sleepy while driving.

Safety

Consider each element of your journey:

- Define your route.
- Make sure you can stay in communication.
- Plan your rest periods and locations.
- Think about the timing of your journey and how busy roads will be.
- Identify black spots/route hazardous spots.
- Consider the route options–different types of roads.
- Check the road and weather conditions.
- Identify high risk locations such as schools.
- Personal welfare–keep hydrated with non-caffeine drinks.
- Time your journey and allow extra time to account of unexpected delays.

Steps Before Taking to the Road

Particularly if you are a professional driver, it is your responsibility to stay safe:

- If your trip is more than 4.5 hours, you should have a Journey Management Plan.
- Create a Journey Management Plan in conjunction with your Manager.
- Check the roadworthiness of your vehicle, follow a simple daily vehicle check.
- Follow the route set out in your Journey Management Plan.
- Always take breaks in the authorized rest areas.
- If you have to divert from the route in any way, notify your Manager.
- Have you got your mobile phone with you? Is it fully charged?

Fatigue Warning Signs

Drivers suffering from fatigue may begin to exhibit a number of symptoms:

- Poor verbal communication.
- Yawning and eye-rubbing.
- Irritability.
- Low concentration.
- Inattention.
- Taking shortcuts.
- Staring.
- Head nodding.
- Blinking eyes.
- Micro sleeps.

Manage Fatigue

There is no shortcut to managing fatigue–rolling down your window and turning up your radio will not keep you focused if you are suffering from fatigue. The only long-term solution is to plan for sufficient sleep. It is recommended to aim for around 7-8 hours of uninterrupted sleep per night for most people.

Besides ensuring you get a good night's sleep before a long journey, you can reduce the risk of developing fatigue by taking the following precautions:

- Never operating your vehicle when tired, ill, or when any other condition reduces your driving ability.
- Creating and following a journey management plan for every journey.
- Taking frequent breaks-stop driving every couple of hours, leave your vehicle and walk around.
- Never driving more than 2 hours without a 15 minute break.
- Avoiding heavy meals during a long journey.

If you do experience fatigue while driving, you should follow these simple rules:

1. **Stop**: Pullover to a safe location and call your supervisor.
2. **Revive**: Have a 15-20 minute nap.
3. **Survive**: Continue driving only until you reach a place where you can have a proper sleep at an approved rest area.

Critical Equipment List

Example of the types of items that are considered critical and every element must meet the standard regulations, otherwise the vehicle is not roadworthy:

- Brakes.
- Coupling devices (fifth wheel and kingpin).
- Lights.
- Horn and mirrors.
- Seatbelts.
- Steering mechanism.
- Tires and windshield wipers.

Regular Inspections

A more thorough inspection can be carried out at regular intervals, for example weekly or monthly. The checks could include:

- Fluid levels–engine oil, brakes, clutch, power steering, and auto transmission fluids (if relevant).
- Windshield washer.
- Battery–look for signs of corrosion.
- Ensure all lights are working headlights, brake lights and indicators.
- Tire check–pressure, tread, wear and tear such as cuts or bulges.

What Every Vehicle Should Carry

- Flashlight.
- First aid kit.
- Spare fuses.
- Jack.
- Warning triangles.
- Spare tire.
- High visibility clothing.

TABLE OF CONTENTS

Introduction 103
Management 103
Supervisory and Employee Responsibilities 103
Health and Safety Communication and Incentives 104
Ensuring Compliance and Employee Recognition 104
Hazardous Assessment and Control ……..106
Inspections ……106
Record Keeping and Documentation ……107
Accident and Injury/Illness Investigation ……..107
Employee Safety Suggestion and Unsafe Practice Report 108
Safety Audit Report 109
Injury Investigation Report 110
Drilling Equipment Inspection and Safety Meeting Report 111
Health and Safety Certification 112
Facility Inspection Reports 113

INTRODUCTION

The following Injury and Illness Prevention Program has been developed and implemented pursuant to occupational safety and health regulations to promote a safe healthy work environment for:
PeneCore

With corporation offices and field support facilities located at:
220 N. East Street
Woodland, CA 95776

Whose main activity is:
Environmental drilling and services.

The following persons will be considered responsible for the PENECORE DRILLING Corporation IIPP:
Tuan Nguyen: President & CEO
All Project Managers
All Operators

All the above named will have the authority to enforce all company safety polices in their respective areas.

PENECORE DRILLING MANAGEMENT

PENECORE DRILLING management has overall responsibility and authority for implementation and administration of the IIPP, and authority to assure managers and supervisors are trained in workplace safety and are familiar with the health and safety hazards to which employees under their immediate direction or control may be exposed, as well as applicable laws, regulations, and corporate safety rules and policies:

1. Assure all employees are trained in accordance with this program.
2. Inspect, recognize and evaluate work place hazards on a regular and continuing basis.
3. Delegate such authority as necessary to project managers and operators for inspection, identification and control (mitigation) of hazards in field operations.
4. Develop and authority as necessary to workplace hazards.
5. Assure all safety related infractions are brought into compliance in a timely manner.
6. Conduct and review accident and incident investigations.
7. Assure communication of safety related matters on a company-wide basis.
8. Perform other duties as necessary to accomplish and promote a safe and healthful workplace.

SUPERVISORY AND EMPLOYEE RESPONSIBILITIES

It is the responsibility of supervisors, project managers, managers, operators and crewmembers for ensuring compliance with polices and safe practices.

HEALTH AND SAFETY COMMUNICATION and INCENTIVES

PeneCore code of safe practices represents rules of safe practices and forms a nucleus for all health and safety training. 100% participation and involvement is expected from all employees, not only with day to day activities and work performance, but with ongoing training and staff meetings as well.

Communication by Training

- Communication of safe working conditions, safe working practices, and required personal protective equipment is provided initially, and all subsequent training which includes general safe practices and specific hazards.
- Each employee will have access to a copy of this Plan and the Code of Safe Practices, and each field operation will maintain copies.
- Training will be provided for employees effected by new or previously unrecognized work place hazard, or the introduction of a new hazard or hazards.
- All new field employees will be provided OSHA 40-Hour Hazardous Waste Worker Training, and company health and safety training prior to assignment, as applicable (See Training Syllabus).
- Annual Hazardous Waste Worker refresher training will be provided for all field personnel in an eight hour update.
- Tailgate safety meetings will be held in the shop and field at least bi-weekly, or more frequent if there are changes in work tasks.
- Supervisors will be trained on the hazards and safe practices in their areas of responsibility.

Communication Via Employee Information

PeneCore method to solicit safety related information from employees includes direct communication with their supervisor or any manager, or anonymously through use of an Employee Safety Suggestion and Unsafe Practice Report (See Appendix) and a suggestion box located in the shop break room.

- Employees are advised there will be no reprisals or other job discrimination for expressing any concern, comment, suggestion or complaint about a safety related matter.
- In addition to training and providing employees with a copy of PeneCore Code of Safe Practices, other forms of topics include OSHA safety decals on equipment, posters, “tailgate” Safety Meetings, paycheck memos, and other written and verbal forms.

ENSURING COMPLIANCE and EMPLOYEE RECOGNITION

During health and safety orientation and subsequent training, employees have been advised that safe work conditions, safe work practices, and required personal protective equipment are mandatory, will be enforced and are contingent of employment.

Recognition for compliance/good safety record will be acknowledged by a monthly safety premium program.

Incentive rewards will be issued company-wide by the 30th of the following month when various goals and benchmarks discussed and outlined during meetings are met.

To qualify:

- Every rig will turn in to the personnel office by the 15th and 30th of each month their bi-monthly Equipment Safety Inspection properly completed.
- Rigs which fail to turn in required paper work will not be eligible for the safety premium.
- No Workers Compensation Lost Time Accident (LTA) claims for the entire company for the qualifying month.

Progressive Discipline for Non-Compliance

Violations fall onto three categories: general, serious, and willful.

A general violation is where failure to comply with established policy and procedure is specifically determined not to be of a serious nature, but is related to occupational health and safety of employees.

A serious violation is where failure to comply with established policy and procedure results in a substantial probability that death or serious physical harm could result from one or more practices, means, methods, operations or processes which have been adopted or are in use.

A willful violation is where failure to comply with established policy and procedure is committed with knowledge and intent, as compared with a violation as a result of carelessness.

- If a general violation is repeated, or failure to comply with a first warning is observed, the general violation will be elevated to serious.
- Serious violation results in a written warning and disciplinary action.
- Third violation for the same non-compliance will be considered willful and result in termination.
- The "Employee Incident Report" will describe the nature of the infraction and any training necessary as corrective action.
- A copy of the Incident Report is given to the employee, and a copy is placed in the employee's personnel file.

Supervisory Personnel Discipline

Employees designated as safety supervisors (managers, project managers, supervisors, and operators) will be subject to disciplinary action as above, for the following:

- Repeated safety rule violations by their subordinates.
- Failure to confirm a subordinate's ability to perform any new task assignment for which previous training may not have been provided.
- Failure to report accidents in a timely manner or provide medical attention for subordinates injured on the job.
- Failure to control unsafe working conditions or work practices.
- Failure to maintain good housekeeping standards as described in the company Code of Safe Practices for their areas of responsibility.
- Failure to maintain high standards of safety as described in the company Code of Safe Practices for their areas of responsibility.

HAZARDOUS ASSESMENT AND CONTROL

Identification and evaluation of general and specific hazards, and methods to eliminate, reduce, and control hazards are accomplished by the following means:

General Hazards

Where applicable, review of: WAC 296-155; "Safety Standards for Construction Work", OSHA 29 CFR 1926 "Safety and Health Regulations for Construction", and OSHA 29 CFR 1910.120.

- Review of general drilling industry-wide safety procedures; equipment manufacturer's safe operating guidelines; and general information, including SDS's, for potential occupational safety and health hazards.
- Review of accidents, injuries, illnesses, and unusual events.
- Review of periodic and scheduled inspections of work areas.
- Evaluation of information provided by employees.
- "Tailgate" safety meetings will be held in the shop and field at least bi-weekly, or more frequent if there are changes in work tasks.

Specific Hazards

A corporate Code of Safe Practices has been developed which presents PeneCore identification of specific hazards and safe practices which will alert employees to those hazards and means to avoid accidents.

PeneCore Code of Safe Practices sets forth the safe practices, and current occupational health and safety policies and procedures for PENECORE DRILLING. Its primary purpose is to provide management and field personnel with policies to occupational health and safety.

The development and maintenance of the Code of Safe Practices is the responsibility of PENECORE DRILLING Management. Revisions to safety policies (i.e., substitutions, deletions, additions) will be made as necessary to promote occupational health and safety of employees and to comply within government regulations.

Employees will be informed of, and provided with, any revisions.

- All new machinery or equipment introduced into the workplace will be inspected for new hazards, and any training necessary for safe operation will be provided.
- Operations and maintenance manuals will be maintained in equipment and vehicles.
- Upon receiving new materials, SDSs will be reviewed and maintained in the SDS log.

INSPECTIONS

Frequency of, and responsibility for, Inspections (See Appendix for various forms):

- Operators and/or project managers will conduct and document weekly field inspections of all drilling an support equipment.
- Inspection forms will indicate corrective action necessary for compliance and date of corrective action.
- Upon completion, all inspection forms will be verified and maintained by PENECORE DRILLING Management.

RECORD KEEPING AND DOCUMENTATION

All inspection records will be maintained for three (3) years.

- Documentation of employee initial 40-Hour Hazardous Waste Worker and annual eight hour Refresher Training will be maintained in employee training records.
- All site-specific training will be documented and maintained in employee health and safety records.
- Training records for employees who were employed less than one (1) year will not be maintained if the former employee receives a copy of such records (29 CFR 1910.120).
- "Tailgate" meetings will be held at least weekly and when any changes in work, work methods, new machinery, or new hazards are introduced into the work site. Meetings will be documented as to topic and attendees on the Weekly Safety Inspection form (See Appendix) that will be verified by the safety manager and maintained at the work site.
- The company will maintain personnel medical records for the duration of employment plus seven (7) years.

ACCIDENT AND INJURY/ILLNESS INVESTIGATION

Investigations will be conducted immediately after a report of any accident, occupational injury or illness, or unusual hazardous occurrence (See "Accident Investigations and Reporting Procedures").

Recording and reporting of work related injuries and illnesses shall be in compliance with the Occupational Safety and Health Act of 1970 and OSHA 29 CFR 1904.

PENECORE DRILLING EMPLOYEE SAFETY SUGGESTION and UNSAFE PRACTICE REPORT

Description of Unsafe Condition or Practice:

_____
_____
_____

Causes or Contributing Factors:

_____
_____
_____

Employee Suggestion for Improving Safety:

_____
_____
_____

Has this matter been reported to a supervisor? Yes ☐ No ☐

Employee Name: (optional)_____

Date:_____

Rig No: (optional)_____

IMPORTANT NOTE: Employees are advised that reporting of unsafe conditions or practices are protected by law. It is illegal for an employer to take any action against employees in reprisal for exercising their rights to participate in communications involving safety.

PeneCore will investigate any report or question as required by the Injury and Illness Prevention Program Standard and advise the employee who provided the information of the Company response.

Date Received: _____ Action: _____

PENECORE DRILLING - SAFETY AUDIT REPORT

INJURY AND ILLNESS PREVENTION PROGRAM

DATE: _____/_____/_____

DEPARTMENT: _____ FIELD: _____ SHOP: _____

LOCATION: _____

EMPLOYEE: _____

OBSERVATIONS:

_____
_____
_____
_____
_____
_____
_____
_____
_____

CORRECTIVE ACTION / TRAINING:

_____
_____
_____
_____
_____
_____
_____
_____
_____

Employee Signature: _____ Date: _____

Auditor: _____

PENECORE DRILLING - INJURY/INCIDENT INVESTIGATION REPORT

Injured Employee: _____ **Rig/Job:** _____

Employee Job Title: _____ **Supervisor:** _____

Accident/Incident Information:
Date: _____ Time: _____
Location: _____
Client: _____
Well Site: _____
Photos/Videos: _____

Witness(s): _____
_____
_____

Rig Operator: _____

Crew Members:
_____
_____
_____
_____
_____
_____

Employee Activities at Time of Injury/Incident:
_____
_____
_____
_____
_____
_____

How Did the Injury/Incident Occur (Use back of form to record notes, measurements, sketches, etc.):
_____
_____
_____
_____
_____
_____

Describe Injury/Incident in Detail (Including weather and site conditions):
_____
_____
_____
_____
_____
_____

Employee Seen by Doctor? □ Yes □ No
First Aid Injury □ Yes □ No

Escorted by Company Personnel? □ Yes □ No
Escort Name: _____

First Aider/Treatment Center_____
(Name, address, phone no.) _____

Was Supervisor present at Treatment Center? □ Yes □ No

Lost Time Injury? □ Yes □ No

Supervisor Signature: _____ **Date:** _____

Report Completed By: _____ **Date:** _____

PENECORE DRILLING - DRILLING EQUIPMENT INSPECTION AND SAFETY MEETING REPORT

INJURY AND ILLNESS PREVENTION PROGRAM

Equipment Inspection:

Rig No. _____ Hr. Meter _____
Rig No. _____ Hr. Meter _____
Equip. No. _____ Hr. Meter _____
Equip. No. _____ Hr. Meter _____

Date: _____
Inspector: _____
_____

INSTRUCTIONS:

- Assess each piece of equipment.
- If there is something wrong, then under CORRECTIVE ACTION REQUESTED OR RECOMMENDATIONS, put down the Equipment No. and list the item(s).
- Briefly describe what is wrong and corrective action required.

Date of Previous Inspection: _____

EQUIPMENT NUMBER	CORRRECTIVE ACTION REQUESTED OR RECOMMENDATIONS	DATE REPAIRED

Date: _____ Signature: _____

SAFETY MEETING REPORT

Location: _____
Project Managers: _____
Drillers: _____
Crew: _____
Crew: _____
Crew: _____

DOCUMENTATION OF SAFETY TOPCS DISCUSSED:
Please list:

- Accidents or near accidents on this or other rigs.
- Preventative measures taken.
- Alerts / case studies.
- Any unsafe practices and procedures.
- Safety meeting topics (note specific subjects discussed).

Documentation:

Date: _____ Signature: _____

PENECORE DRILLING - HEALTH AND SAFETY CERTIFICATION

Company Orientation
- Personnel policies and procedures.
- Company history.

Health & Safety Plan
- Injury & Illness Prevention Program.
- Fall Protection Plan.
- Hearing Protection.
- General Field and Safety Plan.
- Respiratory Protection.

Safety Program
- Code of Safe Practices: Section One: General work practices, shop safety, lifting and carrying, and use of back supports; material storage and handling; hand tools; gas and arc welding safety; and electrical safety.

General and Specific Field Operations
- Code of Safe Practices: Section Two**:** General and specific drilling methods; and hazards and safe practices.

Vehicle Operations
- Code of Safe Practices: Section Three: Vehicle maintenance safety; company vehicle rules; DOT regulations; driver alcohol and drug abuse training; and safe driving practices.

Forklift Training
- OSHA operating regulations and company rules; theory of safe operation; hands–on driving evaluation.

Hazard Communication Program
- Hydrogeology –what we do and why; the need for work zones and levels of protection; monitoring instructions: OVM, flame and ionization detection devices.
- Levels of personal protective equipment heat stress: causes/signs/ symptoms; basic toxicology and chemistry of HazMat: SDS section contents, interpretation, glossary; field use of NIOSH Guidebook.
- Drilling chemical hazards: particulate. OV releases from annulus, returns, cuttings, water and core samples; drilling fluids; decontamination: minimum levels Band C decon protocol.

Respiratory Protection

Respiratory Protection Program (RPP): need for and limitations of respirators; respirator types-APR and SAR, half and full-face use and maintenances, donning/ doffing Protection Factors; fit testing.

Fire Prevention and Protection
- Fire theory: fire extinguisher use and hands–on training.

PENECORE DRILLING FACILITY INSPECTION REPORTS
OFFICE BI-MONTHLY INSPECTION

A. GENERAL OFFICE AREAS

	YES	NO	
1.	☐	☐	Ventilation system operating properly; filters clean (check once a month).
2.	☐	☐	Fire extinguisher location clearly marked, in place and changed.
3.	☐	☐	Electrical outlets not overloaded.
4.	☐	☐	Electrical cords covered or out of walkways.
5.	☐	☐	Electrical switch and outlet covers in place.
6.	☐	☐	All general and exit sign lighting functioning.
7.	☐	☐	File cabinets: unused drawers closed; no heavy objects on top.
8.	☐	☐	Keyboards positioned to maintain forearms, wrists and hands approximately parallel to floor.
9.	☐	☐	Five leg, adjustable chairs properly adjusted and in good repair.
10.	☐	☐	Desk drawers closed; no uncovered sharp objects in drawers.
11.	☐	☐	Portable heaters properly plugged in and positioned away from flammable surfaces.

B. REST ROOMS

1.	☐	☐	Lighting functional.
2.	☐	☐	Floors, commodes, and sinks clean.
3.	☐	☐	Toweling supply adequate.
4.	☐	☐	Toilet paper supply.

C. STORAGE ROOM

1.	☐	☐	All materials stored securely.
2.	☐	☐	No heavy objects stored over head height.

D. COFFEE ROOM

1.	☐	☐	Sink clean.
2.	☐	☐	Trash and combustible/flammable material removed.

CORRECTIVE ACTION(S): (Indicate Section Letter and Number; Date of Corrective Action)

_____

_____

Inspector: _____ Date: _____

Management Review: _____ Date: _____

PENECORE DRILLING FACILITY INSPECTION REPORTS
SHOP/YARD BI-MONTHLY INSPECTION

E. SPARE PARTS STORAGE

	YES	NO	
1.	☐	☐	Parts stored securely on shelves, no parts hanging over edge of shelves.
2.	☐	☐	Aisles clear of debris.

F. COMPRESSOR

1.	☐	☐	Proper oil level, guard secure/in place, automatic operation sign clear/in place.
2.	☐	☐	Receiver drained of moisture and oil.

G. YARD AREA

1.	☐	☐	Truck loading/unloading area free of debris.
2.	☐	☐	Wash rack clean, free of mud, dirt, etc.
3.	☐	☐	Pressure washer hoses and cords stored properly when not in use.
4.	☐	☐	Pipe inspection racks secure; no broken welds, stop pegs in place.
5.	☐	☐	General yard grounds free of debris, loose drilling equipment.
6.	☐	☐	Waste oil storage area clean of spills or absorbent is in place.
7.	☐	☐	All tooling tiered/stacked properly and securely.
8.	☐	☐	Speed limit signs in place and being observed.
9.	☐	☐	Oil/fuel leaks under parked equipment.
10.	☐	☐	Hard hats being worn when necessary.
11.	☐	☐	Spent battery storage area.

H. FORKLIFTS

1.	☐	☐	Daily inspection sheets turned in and filled out properly.
2.	☐	☐	Properly marked in safe area.

CORRECTIVE ACTION(S): (Indicate Section Letter and Number; Date of Corrective Action)

_____

_____

Inspector: _____ Date: _____

Management Review: _____ Date: _____

TABLE OF CONTENTS

Purpose	116
Scope	116
Responsibilities	116
Hazardous Substances Identification	116
Hazardous Substances Inventory	116
Safety Data Sheets	118
Trade Secrets	119
Labels and Other Forms of Warning	119
Training	119
Approval	121
Sample SDS Request Letter	121
Hazard Communication Training Acknowledgement	123
PeneCore Drilling SDS File	124
Glossary of Common SDS Terms	124
Hazard Communication Program	120

PURPOSE

To establish PeneCore guidelines for safe work practices and procedures to reduce the incidence of chemically-related occupational illnesses and injuries in compliance with California Administrative Code, Health & Safety Code 11836-11838.11, 250404-25404.8.

SCOPE

This Hazard Communication Program (HCP) applies to all PENECORE DRILLING operations regardless of location. PENECORE DRILLING establishes and maintains a written, comprehensive HCP which includes preparing and maintaining a workplace inventory of chemicals, labeling of hazardous chemicals, availability of material safety data sheets (SDS) for all hazardous materials, and employee training consistent with this policy and State and Federal Hazard Communication, Health & Safety Code 11836-11838.11, 250404-25404.8 & 29 CFR 1910.1200.

RESPONSIBILITIES

PENECORE DRILLING Management shall be administrator of the Hazard Communication Program and shall be responsible to:

- Ensure that a written HCP is in effect, meets all state and federal standards, and that it is followed by all employees.
- Ensure that employees are properly trained in Hazard Communication and that training is documented.
- Deliver training pursuant to the State and Federal Hazard Communication standards at initial employee training and annual refresher training.
- Maintain employee HCP training documentation.
- Review all materials and substances introduced into the workplace and distribute new SDS's to update field SDS files.
- Ensure all hazardous materials have been identified and inventoried and Material Safety Data Sheets have been and are obtained for each hazardous material, and that any containers of hazardous substances are properly labeled.
- Maintain the Hazardous Material Inventory.

HAZARDOUS SUBSTANCE IDENTIFICATION

In order to be effective, employees need to be able to identify hazardous materials.

Definition

Governmental rules define a hazardous substance as, "any chemical which is a physical hazard or health hazard." The scope of this definition does not readily identify which materials or substances are hazardous.

Characteristics

All hazardous materials or substances present one or more of the following characteristics:

- Toxic oxidizer or corrosive.
- Flammable or explosive.
- Compressed gas.
- Reactive.
- Carcinogenic.

- Sensitizer.
- Target chemicals.

(See Appendix for Glossary of terms)

Hazardous Materials Information Sources

PENECORE DRILLING relies on the information contained in the SDS's as permitted by the Hazard Communication Standard (HCS), and does not perform any independent hazard determinations. Under law the manufacturer or importer must provide this information for any material or substance previously designated as hazardous. In 2012, OSHA revised the Hazard Communication Stand (HCS) to align with the Globally Harmonized System of classification and Labeling of Chemicals (GHS).

NIOSH Pocket Guide

For potential exposure to hazardous materials while performing investigative drilling operations, during health and safety orientation employees are made aware of and use of the NIOSH Pocket Guide to Chemical Hazard, June 1990 edition.

Each material or substance that requires an SDS is reviewed by PENECORE DRILLING Management to determine whether the product has any hazardous characteristics either in its original state or when mixed with other products.

Employees must be aware that hazardous chemicals or substances may be released during a work process. In its normal state, a material or substance may not be hazardous, but when mixed with other chemicals or when its physical state/properties are changed, the product or mixture could release hazardous gases, vapors, fumes, etc:

- For Example, welding rods in their normal solid state are inert. However, during welding or brazing they release hazardous gases and metal fumes.
- Likewise, certain combinations of drilling fluids or well servicing fluids may contain chemicals that become hazardous when mixed with other ingredients.

HAZARDOUS SUBSTANCE INVENTORY

The compilation of a SDS Master File was done following an inventory of all hazardous materials in the workplace, and is kept with the Master File in PENECORE DRILLING's Main office.

Bi-annually, PENECORE DRILLING Management reviews products and makes appropriate updates to the SDS inventory manuals.

The hazardous substance inventory must include all hazardous materials or substances furnished by PENECORE DRILLING in the workplace to which company employees or other personnel may be exposed.

Customers and other contractors who use hazardous materials or substances in the workplace to which PENECORE DRILLING employees are exposed, or who bring, purchase, or supply hazardous materials or substances that will be used by PENECORE DRILLING employees, shall provide a material inventory and have SDS's readily available for review prior to introduction into the workplace.

The HCS defines the workplace as "any establishment, job site, or project at one geographical location containing one or more work area" (29CFR 1910.1200©). By definition, each rig, staging area, and the corporate shop/yard and office, etc., are workplaces and as such each must maintain an inventory list of hazardous materials or substances.

Common consumer products such as household supplies, dish washing soaps, bathroom cleaners, etc. that are used occasionally by PENECORE DRILLING employees and not as part of their normal job function do not need to be included in the workplace inventory.

Information on the hazardous material inventory includes:

- Trade name of product.
- Generic name or chemical family of product.
- Manufacturer's or supplier's name and address.

Manufacturers and importers of hazardous materials or substances are required by the HCS to determine the physical or health hazard potential for each chemical or substance they produce and to develop an SDS for chemicals or substances found to present a hazard which will provide users with the information necessary for safe use and personal protection.

SAFETY DATA SHEETS (SDS)

PENECORE DRILLING Management is responsible for obtaining, reviewing, maintaining, and distributing SDS's for each hazardous material or substance used in the workplace.

Multiple Workplaces

CFR 1910.1200 (g) (xii) (9) states, "Where employees must travel between workplaces during a work shift (i.e., their work is carried out at more than one geographical location), the material safety data sheet may be kept at a central location, at the primary workplace facility."

Master Copy

The SDS Master Copy is kept in the Safety Manager's office at the main office and available for review during normal working hours.

Field Copies

Copies of SDSs are kept alphabetically by trade name, in generic sections, in binders, located on each field vehicle (well development rigs, field mechanic trucks, and drill rigs), as well as field offices.

Employee Access/Communication

SDSs for any hazardous material or substance furnished by a client, contractor, or subcontractor for use by PENECORE DRILLING employees, shall be made readily available to employees.

If an employee requests to review an SDS for a given product which is not on file, the SDS will be requested by letter from the manufacturer or supplier within seven days (See Appendix).

Any new hazards will be reported to a supervisor who will then report it to the PENECORE DRILLING Management; any employees who may have been affected will be notified within thirty (30) days.

An SDS can take any form so long as it contains all of the essential information required by the HCS. If information is not available, "N/A" or some other similar designation will be entered.

SDS information must be in English. Other languages can be used as long as the information is also present in English.

Identity on any labeling of the material should correspond with the SDS.

SDS Maintenance

Safety Manager annually reviews and updates the hazardous chemical inventory and SDS file as necessary.

TRADE SECRETS

The HCS allows manufacturers, importers, and distributor's protection from disclosure of propriety information to protect a confidential formula, pattern, process, device, information or compilation of information, or specific ingredients which might compromise their competitive advantage.

- If a hazardous material contains trade secret ingredients, the formula section of SDS Section I shall indicate that the specific chemical identity is being withheld as a trade secret.

When this occurs, the HCS requires that the specific chemical identity will be furnished when:

- A medical emergency exists.
- When any non-emergency situation arises that would require information for adequate medical or other occupational health services to an employee who has been exposed to a substance.

A physician or health professional in accordance with guidelines established by the HCS can only request this information.

LABELS AND OTHER FORMS OF WARNING

Management (or designee) reviews all materials coming into PENECORE DRILLING for proper labeling, and products are relabeled if original label is lost.

Hazardous chemicals such as methanol or hexane often used for decontamination of sample tubes which are transferred from their original labeled containers to portable containers do not require labels if the chemicals are for immediate use by the same employee who made the transfer.

TRAINING

The HCS requires employers to provide employees with information and training on hazardous substances at the time of their initial assignment and whenever a new hazard is introduced into their workplace.

Information and training may relate to general classes of hazardous substances to the extent appropriate and related to foreseeable exposures of the job, and at a minimum shall consist of:

- Information about the requirements of the HCS.
- Information about any operation or location where hazardous substances are present.
- Information about the location and availability of the written communication program, inventory of the hazardous substances, and SDS's.
- Training in methods and observations used to detect the presence or release of a hazardous substance in their work area, such as monitoring devices, visual appearance, odor, or other warning characteristics of substances.
- Training in the physical and health hazards of substances in their work area and the measures they can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous substances, such as procedures and personal protective equipment to be used.
- Training in the details of PENECORE DRILLING's Hazard Communication Program, including an explanation of the labeling system and SDS's, and how employees can obtain and use the appropriate hazard information.
- When required to perform any non-routine task for which training has not already been provided, employees will be trained prior to beginning the task.

Employee's Rights

Training also shall include information on employees' right to:

- Personally receive information regarding hazardous substances to which they might be exposed.
- Their physician to receive information regarding hazardous substances to which the employee might have been exposed according to provisions of HCS.
- Protection against discharge or other discrimination due to employee's exercise of rights afforded pursuant to the provisions of the Hazardous Substances Information and Training Act.
- Whenever the employer receives a new or revised SDS, such information shall be provided on a timely basis not to exceed 30 days after receipt, if the new information indicates significantly increased risk to, or requires measures necessary to protect employee health as compared to those stated in the original SDS provided.
- At initial training new employees are informed of drilling project HCP and how to use the information about possible hazardous materials anticipated for a given project, levels of protection that may be required, and monitoring that will be provided by the client.

Training Documentation

An employee sign-in form acknowledging attendance and topics covered documents all training (See Appendix).

- Copies of Health and Safety Orientation Hazard Communication Training Test administered to each employee are kept in the employee's Health and Safety File maintained by the Safety Manager.
- Documented refresher training on the HCS is provided annually which reviews SDS's and use of their information.

HAZARD COMMUNICATION PROGRAM

Purpose

The purpose of this plan is to establish a program and procedures for the safe use of hazardous chemical substances at PeneCore Drilling, Inc. The Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (HCS) 29 CFR 1910.1200 (General Industry) and 29 CFR 1926.59 (Construction Industry) call for the development of a hazard communication program when employees may be exposed to any chemical in the workplace under normal conditions of use or in a foreseeable emergency. In 2012, OSHA revised the HCS to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). As a result, this program has been revised to comply with the requirements of the OSHA HCS 2012. The written hazard communication program will include and address the following criteria in order to satisfy the minimum requirements of the OSHA HCS 2012:

- List of all hazardous chemicals known to be present in the workplace or individual work area Methods used to ensure that all containers, including pipes and holding tanks, are labeled, tagged or marked properly.
- Methods used to obtain and maintain safety data sheets (SDSs).
- Methods used to provide employees with information and training on hazardous chemicals in their work areas.
- Methods used to inform employees of the hazards of nonroutine work practices.
- Methods used to provide the employees of other employers (e.g., consultants, construction contractors and temporary employees) on-site access to SDSs for each hazardous chemical that the other employer's employees may be exposed to while working in the workplace.
- Methods used to inform the employees of other employers of precautionary measures that need to be taken to protect themselves during the workplace's normal operating conditions and in foreseeable emergencies.
- Methods used to inform the employees of other employers of the labeling system used in the workplace.

The Hazard Communication Program ldentifies the Following

- Key personnel responsible for the program.
- Location of chemical inventory list and SDSs.
- Workplace labeling system.
- Good work practices and procedures to minimize exposures.
- How training will be performed.
- Procedures to maintain the program and update the required information.
- How records will be maintained.

Responsibilities

The Safety Coordinator is responsible for administering the hazard communication program.

This person is also responsible for:

- Reviewing the potential hazards and safe use of chemicals.
- Maintaining a list of all hazardous chemicals and a master file of SDSs.
- Ensuring that all containers are labeled, tagged or marked properly.
- Providing new-hire and annual training for employees.

- Maintaining training records.
- Monitoring the air concentrations of hazardous chemicals in the work environment.
- Properly selecting and caring for personal protective equipment.
- Directing the cleanup and disposal operations of the spill control team.
- Identifying hazardous chemicals used in nonroutine tasks and assessing their risks.
- Informing outside contractors who are performing work on company property about potential hazards.
- Reviewing the effectiveness of the hazard communication program and making sure that the program satisfies the requirements of all applicable federal, state or local hazard communication requirements.

The purchasing agent is responsible for contacting chemical manufacturers and/or distributors to obtain SDSs and secondary labels for hazardous chemicals used or stored in the workplace

The receiving department is responsible for reviewing incoming hazardous chemicals to verify correct labeling: Holding hazardous chemicals in the receiving area until receipt of the SDS for the product

Employees are responsible for the following aspects of the hazard communication program:
- Identifying hazards before starting a job.
- Reading container labels and SDSs.
- Notifying the supervisor of torn, damaged or illegible labels or of unlabeled containers.
- Using controls and/or personal protective equipment provided by the company to minimize exposure.
- Following company instructions and warnings pertaining to chemical handling and usage
- Properly caring for personal protective equipment, including proper use, routine care and cleaning, storage, and replacement.
- Knowing and understanding the consequences associated with not following company policy concerning the safe handling and use of chemicals.
- Participating in training.

LABELS AND OTHER FORMS OF WARNING

Each container of hazardous chemicals received from the chemical manufacturer, importer or distributor will be labeled with the following information:
- Product identifier.
- Signal word.
- Hazard statement(s).
- Pictogram(s).
- Precautionary statement(s).
- Name, address and telephone number of the chemical manufacturer, importer or other responsible party.

PeneCore Drilling, Inc. will use the GHS labeling system for secondary containers. When a chemical is transferred from the original container to a portable or secondary container, the container will be labeled, tagged or marked with a GHS label containing the following information:
- Product identifier.

- Signal word.
- Hazard statement(s).
- Pictogram(s).
- Precautionary statement(s).

Portable containers into which hazardous chemicals are transferred from labeled containers and that are intended for the immediate use of the employee who performs the transfer do not require a label. If the portable container will be used by more than one employee or used over the course of more than one shift, the container must be labeled. Food and beverage containers should never be used for chemical storage.

Signs, placards, process sheets, batch tickets, operating procedures or other such written materials may be used 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 for workplace labeling.

Where an area may have a hazardous chemical in the atmosphere (e.g., where extensive welding occurs), the entire area will be labeled with a warning placard.

Pipes that contain hazardous chemicals should be labeled in accordance with ANSI/ASME A13.1 and indicate the direction of flow. (Please note that this not a requirement of the OSHA HCS but a best practice or requirement of local jurisdiction.)

Workplace labels or other forms of warning will be legible, in English and prominently displayed on the container or readily available in the work area throughout each work shift. If employees speak languages other than English, the information in the other language(s) may be added to the material presented as long as the information is presented in English as well.

Note: After Dec. 1, 2015, distributors may not ship containers labeled by the chemical manufacturer or importer unless the label on the container meets GHS labeling requirements.

SAFETY DATA SHEETS

An SDS will be obtained and maintained for each hazardous chemical in the workplace. SDSs for each hazardous chemical will be readily accessible during each work shift to employees when they are in their work areas.

SDSs will be obtained from the chemical manufacturer, importer or distributor. The name on the SDS will be the same as that listed on the chemical inventory list. SDSs for chemicals or process streams produced by the company will be developed and provided by the Safety Coordinator.

The Safety Coordinator will maintain the master file of all original SDSs. SDSs for new products or updated SDSs for existing products will be obtained by the purchasing agent and forwarded to the safety coordinator. The (Safety Coordinator OR APPROPRIATE TITLE) will then update the master file with new and/or updated SDSs.

If problems arise in obtaining an SDS from the chemical manufacturer, importer or distributor, a phone call will be made to request an SDS and to verify that the SDS has been sent. The phone call will be logged and a letter will be sent the same day. The company will maintain a written record of all efforts to obtain SDSs. If these efforts fail to produce an SDS, the local OSHA office will be contacted for assistance.

EMPLOYEE INFORMATION AND TRAINING

Employees included in the hazard communication program will receive the following information and training prior to exposure to hazardous chemicals and when new chemical hazards are introduced to their work area:

- Requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 (General Industry) or 29 CFR 1926.59 (Construction Industry).
- Operations in the work area where hazardous chemicals are present.
- Location and availability of the hazard communication program, chemical inventory list and SDSs.
- Methods and observations used to detect the presence or release of a hazardous chemical in the work area, such as monitoring devices, visual appearance or odor of hazardous chemicals when being released.
- Physical, health, simple asphyxiation, combustible dust and pyrophoric gas hazards, as well as hazards not otherwise classified of the chemicals in the work area.

Measures employees can take to protect themselves from hazards, such as appropriate controls, work practices, emergency and spill cleanup procedures, and personal protective equipment to be used

- Explanation of the labels received on shipped containers.
- Explanation of the workplace labeling system.
- Explanation of the SDS, including order of information and how employees can obtain and use the appropriate hazard information.

Note: To facilitate understanding of the new GHS system, the OSHA HCS requires that employees be trained regarding the new label elements and SDS format by Dec. 1, 2013. Employers are required to update the hazard communication program and to provide any additional training for newly identified physical or health hazards no later than June 1, 2016.

NONROUTINE TASKS

The Safety Coordinator and the immediate supervisor of an employee performing a nonroutine task, such as cleaning machinery and other process equipment, is responsible for ensuring that adequate training has been provided to the employee on any hazards associated with the nonroutine task. Employees share in this responsibility by ensuring that their immediate supervisor knows that the nonroutine task will be performed.

Special work permits are required for the performance of certain nonroutine tasks, such as entry to confined spaces, breaking and opening piping systems, and welding and burning. For some special tasks, employees are required to follow special lockout/tagout procedures to ensure that all machinery motion has stopped and energy sources are isolated prior to and during the performance of such tasks.

Prior to beginning work, the Safety Coordinator will inform contractors with employees working on company property of any hazardous chemicals that the contractors' employees may be exposed to while performing their work. The Safety Coordinator will also inform contractors of engineering or work practice control measures to be employed by the contractor, personal protective equipment to be worn by the contractors' employees, and any other precautionary measures that need to be taken to protect their employees during the workplace's normal operating conditions and in foreseeable emergencies.

Furthermore, the Safety Coordinator will advise contractors that they must comply with all OSHA standards while working on company property. Appropriate controls will be established with the contractor to ensure that company employees are not exposed to safety and health hazards from work being performed by the contractor and that company operations do not expose contractors' employees to hazards.

The Safety Coordinator will inform contractors of the workplace labeling system and the availability and location of SDSs for any chemical to which contractors' employees may be exposed while performing their work.

RECORDKEEPING

Records pertaining to the hazard communication program will be maintained by the Safety Coordinator. The Safety Coordinator will keep the following records:

- Chemical inventory list
- Hazardous material reviews
- Copies of phone call logs and letters requesting SDSs
- Employee training records
- Warnings issued to employees for not following the hazard communication program

APPROVAL

PENECORE DRILLING Hazard Communication Program has been reviewed and approved:

_____ _____

Tuan Nguyen Date
President

PENECORE DRILLING SAMPLE SDS REQUEST LETTER

(Date)

(Manufacturer/Supplier Address)

Attn: Material Safety Data Sheet Request

Dear Sir or Madam:

The Federal OSHA Hazard Communication Standards require employers to have in their possession the most up-to-date Material Safety Data Sheets (SDS) relevant to all hazardous substances in use in their workplaces[1]. Additionally, the standard requires manufactures of hazardous substances to prepare and provide SDS's to their purchasers, either directly or through their suppliers.

Accordingly, we are requesting SDS(s) for potentially hazardous products that we purchase (or 'a request has been made by one of our employees for an SDS'), and request your assistance in providing current health and safety information on these products.

Enclosed is a list of your products for which we require SDS's. A timely reply will be very much appreciated.

Sincerely,

(Sign Name)

[1] 29 CFR 1910.1200.

PENECORE DRILLING HAZARD COMMUNICATION TRAINING ACKNOWLEDGEMENT

This is to acknowledge that the WAC and the Federal Hazard Communication Standard have been explained to me and all my questions have been answered.

Training included:

- An explanation of the state and federal standards.
- A discussion of the work areas where hazardous materials are or may be present.
- A discussion of the physical and health hazards associated with the hazardous materials in the workplace.
- An explanation of the Material Safety Data Sheets (SDS) and PeneCore written Hazard Communication Program.
- A discussion of how and where to access SDS's.
- An explanation of the labeling system used for hazardous materials.
- A discussion of methods/observations used to detect the presence or release of hazardous substances in the workplace.
- A discussion of the protective measures to take when dealing with hazardous substances.
- A discussion of a project Health and Safety Plan (HSP) as a source of information about potential hazardous substances.

I hereby acknowledge receiving training and understand PeneCore Hazard Communication Program, and the state and federal Hazard Communication Standards.

I will abide by the rules, policies, and procedures established through this Program.

_____ _____

Employee Date

_____ _____

Tuan Nguyen, President, CEO Date
PeneCore

PENECORE DRILLING SDS FILE

PENECORE DRILLING SDS INVENTORY BOOK

Material Safety Data Sheets are found in the SDS Master Log Book, which is located in PENECORE DRILLING's main office. Complete copies of this log book are maintained with each field operation.

ACUTE EFFECT

An adverse effect on human or animal body, with severe symptoms developing rapidly and coming quickly to a crisis.

ACUTE TOXICITY

Acute effects resulting from a single dose of, or exposure to a substance. Ordinarily used to denote effects in experimental animals.

ACGIH

American Congress of Governmental Industrial Hygienists, an organization of professional personnel in governmental agencies or educational intuitions engaged in occupational safety and health programs. ACGIH develops and publishes recommended occupational exposure limits (see TLV) for hundreds of chemical substances and physical agents.

ANSI

American National Standards Institute, a privately funded, voluntary organization that identifies industrial and public needs for national consensus standards, and co-ordinates development of such standards. Many ANSI standards relate to safe design/performance of equipment such as safety shoes, safety glasses, smoke detectors, and household appliances; and safe practices or procedures such as noise measurement, testing fire extinguishers, industrial lighting, and use of abrasive wheels.

API

American Petroleum Institute is a voluntary membership organization of the petroleum industry. Among its services, API assists member committees in developing, by consensus, and publishing recommended practices for drilling and well servicing, storage tank installation, tank cleaning, piping and pipe fittings, and other industry related design, installation, and operating practices. API also funds and publishes basic reference books and manuals (e.g., Industrial Hygiene Monitoring manual for Petroleum Refineries and Selected Petrochemical Operations).

APPEARANCE AND COLOR

A brief description of the product as it might be detected by the senses under normal room temperatures and atmospheric conditions, such as: colorless, odorless liquid; opaque, solid with a vinegar like odor.

ASPHYXIANT

Is a vapor or gas that can cause unconsciousness or death by suffocation (lack of oxygen). Most simple asphyxiates are harmful to the body only when they become so concentrated that they reduce oxygen in the air (normally about 21%) to dangerous levels (18% or lower). Asphyxiation is one of the principal potential hazards of working in confined and enclosed spaces.

ASTM
American Society for Testing and Materials is a voluntary membership organization with members from a broad spectrum of individuals, agencies, and industries concerned with materials. The world's largest source of voluntary consensus standards for materials, products, systems, and services, ASTM is a resource for sampling and testing methods, health and safety aspects of materials, safe performance guidelines, and effects of physical and biological agents and chemicals.

BOILING POINT
The temperature at which a liquid changes to a vapor at a given pressure usually expressed in degrees Fahrenheit at sea level pressure (760 mm, Hg = 14.7 psi, or one atmosphere). For mixtures, the initial boiling point or the boiling range may be given. Flammable materials with low boiling points (< 100°F) generally present special fire hazards.

Some approximate boiling points are:
Propane -44°F, Gasoline 100°F, Anhydrous Ammonia -28°F, Allyl Chloride 113°F, Butane 31°F, Ethylene Glycol 387°F

BOM, or BUREAU OF MINES
Bureau of Mines of the U.S. Dept. of Interior began approving air-breathing apparatus in 1918, and later added all types of respirators. BOM's respirator testing/approval activities have expired or been replaced by NIOSH (see NIOSH).

°C
Celsius is a scientific temperature scale also known as centigrade.

CAA
Clean Air Act is a federal law enacted to regulate/reduce air pollution enforced by EPA.

CARCINOGEN
A substance or agent capable of causing or producing cancer in mammals. The OSHA Hazard Communication Standard (see Hazard Communication Standard) defines a carcinogen as a substance evaluated and found to be a carcinogen or potential carcinogen, by the International Agency for Research on Cancer (IARC) or by the National Toxicology Program (NTP) and reported in the Annual Report on Carcinogens, and is regulated by OSHA as a carcinogen.

CAS
Chemical Abstracts Service is a Columbus, Ohio organization affiliated with the American Chemical Society (ACS). CAS abstracts and indexes chemical literature from all over the world in Chemical Abstracts. CAS numbers identify specific chemicals or mixtures and can be used to gain information about particular substances located in Abstracts when needed.

This registry number is listed as a key to definitive identification of the material without regard to any government regulation. Most single chemical substance will have a number mixtures will not. The Washington State and the Federal standard does not require the CAS number to be listed. For example:

- Automotive antifreeze contains ethylene glycol whose CAS Number would be listed as 75-21-8.

cc
Cubic centimeter is a metric system measure of volume equal in capacity to one milliliter (ml) or one thousandth of a liter. One US quart is about 946 ml or cc's.

CEILING
Refers to the maximum allowable human exposure limit for an airborne substance with is NOT to be exceeded even momentarily. (See also PEL and TLV)

CERCLA
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund) is a federal environmental legislation, administrated by EPA for regulating cleanup and liability for hazardous waste sites. It also establishes reporting requirements for releases of designated substances into the environment.

CHEMICAL FAMILY
A group of single elements or compounds with a common general name. For example acetone, methylethyl ketone and methyl isobutyl ketone are all members of the "ketone" family.

This indicated the general class compounds to which a material belongs – ethers, acids, ketones.
- Drilling muds, Pure Gel for example, do not belong to a chemical family.

CHEMICAL NAME-Chemical Name and Any Synonyms:
Refers to any other generic names or chemical synonyms of a single element or compounds may have – O_2 (Oxygen) or MEK (methylehyl ketone), for example. This will not include mixtures.

CHEMTREC
Chemical Transportation Emergency Center is a national center established by the Chemical Manufacturers Association (CMA) in Washington, DC, in 1970 to relay pertinent emergency information concerning specific chemicals on request. CHEMTREC has a 24 hour, toll free hotline (800-424-9300) intended primarily for use by responders to chemical transportation emergencies.

CHRONIC EFFECT
An adverse effect on a human or animal body with symptoms which develop slowly over a long period of time, or which recur frequently. (See also ACUTE)

CHRONIC TOXICITY
Adverse (chronic) effects resulting from repeated doses of or exposures to a substance over a prolonged period of time. Ordinarily used to denote effects in experimental animals.

CNS
Central Nervous System. Early to moderate CNS depression may be evidenced by giddiness, headache, and nausea.

CWA
Clean Water Act is a federal law enacted to regulate/reduce water pollution and is administered by EPA

CO
Carbon monoxide is a colorless, odorless, flammable, and very toxic gas produced by the incomplete combustion of carbon based fuels (wood, gasoline, oil), and can also be a by-product of many chemical processes or reactions.

CO_2
Carbon dioxide is a heavier than air, colorless gas produced by the combustion and decomposition of organic substances, and as a by-product of many chemical processes and reactions. CO_2 will not burn and is relatively non-toxic, although it will displace air and in high concentrations especially in confined spaces can create hazardous oxygen deficient atmospheres.

COC
Cleveland Open Cup is a particular flashpoint test method.

COMBUSTIBLE
A term used by NFPA, DOT, OSHA, and others, on the basis of flash point to classify certain liquids that will burn. NFPA, DOT and OSHA generally define combustible liquids as those having a flashpoint of 100° F (37.8° C) or higher. NFPA also classifies non-liquid substances such as wood and paper as ordinary combustibles. (Also see Flammable)

CONCENTRATION
The relative amount of a substance when combined or mixed with another substance: 2 ppm hydrogen sulfide in air; or 50% caustic solution.

CORROSIVE
As defined by DOT, a corrosive material is a liquid or solid that causes visible destruction or alterations to human skin tissue at the site of contact, or a liquid that has a severe corrosion rate on steel or some other material. A solid or liquid waste which exhibits a corrosive characteristics, as defined by RCRA, may be regulated (by EPA) as a hazardous waste. As defined by OSHA a corrosive does not refer to action on inanimate surfaces, such as steel.

CPSC
Consumer Products Safety Commission is a federal agency with responsibility for regulating hazardous materials when they appear in consumer goods. For CPSC purposes, hazards are defined in the Hazardous Substances Act and the Poison Prevention Packaging Act of 1970.

CUTANEOUS TOXICITY
See Dermal Toxicity.

DECOMPOSITION
Breakdown of a material or substance by heat, chemical reaction, electrolysis, decay, or other processes into parts, elements or simpler compounds.

DERMAL
Used on or applied to or used in reference to the skin.

DERMAL TOXICITY
Adverse effects resulting from skin exposure to a substance Ordinarily used to denote effects in experimental animals.

DHHS
US Department of Health and Human Services created in 1980 to replace the Dept. of Health, Education and Welfare as "parent" for NIOSH, the Public Health Service, and other agencies related to health and safety.

DOL
US Department of Labor includes OSHA (Occupational Safety and Health Administration) and MSHA (Mine Safety and Health Administration).

DOT
US Department of Transportation regulates transportation of chemicals and other substances to aid in the protection of the public as well as fire, law enforcement, and other emergency response personnel, particularly when transportation incidents occur involving hazardous materials. Detailed DOT classification lists specify appropriate warnings such as oxidizing agent or flammable liquid which must be used for various substances. DOT requires labeling of hazardous materials in transit.

EPA
US Environmental Protection Agency is a federal agency with environmental protection, regulatory and enforcement authority. Administers Clean Water Act (CWA), CAA, FIFRA, RCRA, TSCA, CERCLA, and other federal environmental laws.

EPIDEMIOLOGY
The science that deals with the study of diseases in a general population. Determination of the incidence (rate of occurrence) and distribution of a particular disease (as by age, sex, or occupation) may provide information about the cause of the disease.

EVAPORATION RATE
The rate at which a material vaporizes (evaporates) compared to the rate of vaporization of a known material, usually normal-butyl acetate (NBUAC or n-BuAc), with an evaporation rate designated as 1.0.

This is similar to specific gravity, except this refers to a gas or vapor. It is a relative comparison of the weight of a pure vapor or gas, with no air with an equal volume of air equal to 1. Anything greater than 1 is heavier, and vice versa.

A heavy vapor will seek low spots along floors, in floor drains, sewers, etc. This can be a problem with flammable materials which can flow along the floor to an ignition source then flash back to the source causing an explosion.

°F
Fahrenheit temperature scale. Freezing point of water at 32°F, and boiling point of 212°F.

FDA
The US Food and Drug Administration who under the provisions of the Federal Food, Drug and Cosmetic Act, the FDA establishes requirements for the labeling of foods and drugs. FDA also regulates materials for food contact service and the conditions under which materials are approved.

FIFRA
Federal Insecticide, Fungicide and Rodenticide Act are regulations administered by EPA requires that certain useful poisons such as chemical pesticides sold to the public contain labels that carry health hazard warnings to protect users.

FLASHPOINT
The temperature at which a liquid will give off enough flammable vapor to ignite. There are several flashpoint test methods, so flashpoints may vary for the same material depending on the method used. The test method used is indicated when the flashpoint is given: 150 PMCC; 2000 TCC, etc.

FLAMMABLE LIQUID
A "flammable liquid" is defined by NFPA, OSHA, and DOT as a liquid with flashpoint below 100° F (37.8° C). Solids that will ignite readily or are liable to cause fires under ordinary conditions of transportation through friction or retained heat from manufacturing or processing and which burn so vigorously and as to create a serious transportation hazard are classified by DOT and OSHA as "flammable solids." (Also see Combustible)

FLAMMABLE LIQUID, % VOLATILE IN AIR
When flammable vapors are mixed with air in the proper proportions cover a range, LEL and UEL, over and under which generally the mixture is not ignitable. (See LEL and UEL)

FORMULA
The conventional scientific designation for a material: H_20 for water; H_2SO_4 for sulfuric acid; SO_2 for sulfur dioxide.

Refers to only the formula of single elements or compounds not to mixtures – O_2 (oxygen, $C_2H_5COCH_3$ (methyl ethyl ketone).

Pure Gel is $Al_2O_3 \bullet {}_4SiO_2 \bullet H_2O$

The standard allows a manufacturer protection from disclosure of the formula of any proprietary product if it can be proven that the formula is a "Trade Secret."

GENERAL EXHAUST
A system for exhausting air which contains contaminants from a general work area. Also see local exhaust.

g
Gram is a metric unit of weight. Once ounce US (avoirdupois) is about 28.4 grams.

g/kg
Grams per kilogram is an expression of dose used in oral and dermal toxicology testing to indicate the grams of substances dosed per kilogram of animal body weight. (Also see "kg" (kilogram))

HAZARD COMMUNICATION STANDARD
The federal standard, HCS, administered by OSHA regulating transmittal to employees of information on substance hazards.

HAZARDOUS CHEMICAL
As defined in the OSHA Hazard Communication Standard, any chemical which is a physical or health hazard. Hazardous chemicals require certain specific action under the OSHA standard.

HARZARDOUS MATERIAL
In a broad sense, a hazardous material is any substance or mixture of substances having properties capable of producing adverse effects on the health or safety of a human being. In 1971 OSHA adopted the following definition in regulations affecting employers in operations subject to the federal Longshoremen's and Harbor Workers' Compensation Act:
"The term hazardous material means a material which has one or more of the following characteristics:

- Has a flashpoint below 10° F, closed cup, or is subject to spontaneous heating.
- Has threshold limit value below 500 ppm for gases and vapors; below 500 mg/m3 for fumes and below 25ppmpcf for dusts.
- A single dose oral LD50 below 500 mg/kg.
- Is subject to polymerization with the release of large amounts of energy.
- Is a strong oxidizing or reducing agent.
- Causes first degree burns to the skin in short time exposure, or is systemically toxic by skin contact.
- In the course of normal operations may product dusts, gases, fumes, vapors, mists, or smokes which have one or more of the above characteristics."

IGNITABLE
As defined by RCRA, a solid, liquid, or compressed gas waste which exhibits a "characteristic of ignitability" (having a flashpoint less than 140° F). It may be regulated by EPA as a hazardous waste.

INCOMPATIBLE
Materials which could cause dangerous reactions from direct contact with one another are described as incompatible.

INGESTION
The taking in of a substance through the mouth.

INHALATION
The breathing in of a substance in the form of a gas, vapor, fume, mist, or dust.

INHIBITOR
A chemical which is added to another substance to prevent unwanted chemical change from occurring.

INTERNAL STANDARD
A Shell Oil company term for an exposure standard established by the company.

IRRITANT
A substance that by contact, insufficient concentration for a sufficient period of time will cause an inflammatory response or reaction of the eye, skin, or respiratory system. The contact may be a signal exposure or multiple exposures. Some primary irritation are; Chronic acid, nitric acid sodium hydroxide, calcium chloride, amines, Metallic salts, chlorinated hydrocarbons, ketones alcohols. OSHA defines an irritant as a chemical which is not corrosive, but which causes a inflammatory effect on living tissue by chemical action at the site of contact.

IRRITATING MATERIAL
As defined by DOT, a liquid or solid substance that upon contact with fire when exposed to air gives dangerous materials. (See Position, Class A and B)

Kg
Kilogram (kilo) a unit of weight, about 2.2 US pounds. (Also see “g/kg”, ”g”, and “mg.”)

L
Liter is a metric unit capacity. A US quart is about 9/10 of a liter.

LC
When tested a substance in concentrate that will kill test animals.

LC50
Lethal Concentration 50is the concentration of a material in air that on the basis of laboratory teat is expected to kill 50% of a group of test animals when administered as a single exposure (usually 1 or 4 hours). The LC50 expressed as parts of materials per million of pair of air by volume (PPM) for gasses and vapors, or as microns of materials per liter of air (ug/l) for dusts and mists as well as for gases and vapors.

LD
Lethal dose is a concentration of a substance being tested that will kill a test animal. (See LD50)

LD_{50}
Lethal $Dose_{50}$ is a single dose of a material that based on the results of laboratory tests is expected to kill 50% of a group of test animals The LD_{50} dose is usually expressed as milligrams or grams of material per kilogram of animal body weight (mg/kg or g/kg). The material may be administered by mouth (oral) or applied to the skin (dermal or coetaneous).

LEL or LFL
Lower Explosive Limit, or Lower Flammable limit of a vapor gas is the lowest concentration (Lowest percentage of the substance in Air) that will produce a flash of fire when an ignition source (heat, or flame) is present. At concentrations lower than the LEL the mixture is too "lean" to burn. (See UEL)

LOCAL EXHAUST
A system for capturing and exhausting contaminated air at the point where contaminates are produced such as welding grinding, sanding or other processes or operations. (Also see General Exhaust)

M_3
Cubic meter is a metric measure of volume of about 35.3 cubic feet or 1.3 cubic yards.

MELTING POINT
A solid substance changes into a liquid substance at this temperature. For mixtures the melting point range may be given.

Some approximate melting points are:

Water	32°F	Benzene	60°F
Vinyl Chloride	-247°F	Phenol	188°F

LOCAL EXHAUST
A powered device such as a motor driven fan or air/steam tube for exhausting contaminants from a workplace, vessel, or enclosure.

mg
Milligram is a metric unit of weight. There are 1,000 milligram in one gram. A milligram is one thousandth of a gram.

mg/kg Milligrams per kilogram.
There are one thousand grams in a kilo, thus there are one million milligrams in a kilo. Mg/Kg is used in expressing a toxicological dose.

mg/m^3
A unit for measuring concentrations of dusts, gases, or mists in air is Milligrams per cubic.

ml
Milliliters is a metric measure of volume equal to one cubic centimeter (cc), or about 1/16 of an inch. There are 1,000 milliliters in one liter (1).

mm Hg
Millimeters (mm) of Mercury (HG) is a unit of measurement for low pressures or partial vacuums. One atmosphere of pressure is 760 mm Hg at sea and 20°C .

mppcf
Million particles per cubic foot is unit for measuring particles of a substance suspended in air. Exposure limits for mineral dusts such as silica, graphite, Portland cement, nuisance dust and others, formerly expressed, as mppcf are now more commonly quoted in mg/ m3.

MSHA
The Mine safety and health Administration of the US Dept. of Labor is a federal agency with safety and health regulatory and enforcement authorities for the mining industry. (Also see OSHA)

MUTAGEN
Is a substances or agent capable of altering the genetic material in a cell.

N_2
Nitrogen is a colorless, odorless, and tasteless gas that will not burn and will not support combustion. The earth's atmosphere (air) is about 78% nitrogen. At higher concentrations nitrogen can displace oxygen and become a lethal asphyxiate. (See Asphyxiates)

NaOH
Is Sodium hydroxide or caustic soda ("caustic"), a prime constituent of commercial drain cleaners such as Drano.

NECROSIS
Is tissue death at the site of contact or injection.

NRC
National Response Center is a notification center in the Coast Guard Building in Washington, DC, with a toll free number (1-800-424-8802) which must be called when significant oil or chemical spills or other environmentally related accidents occur.

NBUAC or n-BuAC
Is Normal-butyl acetate. (See Evaporation Rate)

NFPA
National Fire Protection Association is an international membership organization to improve / promote fire protection and prevention and establish to improve/ promote fire protection and prevention and establish safeguards against loss of life and property by fire. Best known on the industrial scene for the National Fire Codes, 16 volumes of codes, standards, recommended practices and manuals developed and periodically updated by NFPA technical committees. Among these is NFPA 704, the code for showing hazards conditions, using the familiar diamond-shaped label or placard with appropriate numbers or symbols.

The "Diamond"
The familiar color coded diamond-shaped label seen on buildings, containers, or placards with appropriate colors, numbers or symbols to identify four areas of hazard, health: flammability, reactivity, and other; and classifies the level of hazard on a scale of 0-4 (low to high).

The diamond is divided into four smaller color-coded diamonds each signifying a specific type of hazard:

HEALTH, FIRE, REACTIVITY or OTHER

Health Hazard Area is BLUE: Indicates that a material may, directly or indirectly, cause permanent or temporary injury due to acute exposure by physical contact, inhalation or ingestion.

- 0= no more than ordinary material.
- 1= slightly hazardous.
- 2=hazardous –use breathing apparatus.
- 3=extreme danger –use full protective clothing.
- 4= deadly.

Fire Hazard Area is RED: Assesses the relative susceptibility of materials to fire burst, based on the form or condition of the material and its surrounding environment.

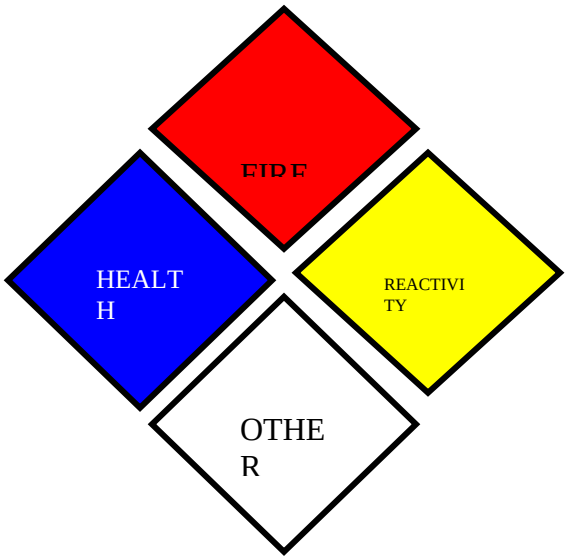
- 0= will not burn.
- 1= must be preheated to burn.
- 2= will ignite if moderately heated.
- 3= ignites at normal temperatures.
- 4= extremely flammable.

Reactivity Hazard Area is YELLOW: Advisees that the material may be susceptible to explosion, whether through self-reaction or polymerization or by exposure to certain conditions or substances.

- 0= normally stable and not reactive with water.
- 1= unstable if heated – use normal precautions.
- 2= violent chemical change possible.
- 3= strong shock and heat may detonate.
- 4= may detonate if exposed to heat.

Other Specific Hazard Area is WHITE: Covers special properties and other hazards associate with a particular material. Especially useful for emergency response or fire fighting teams.

- OXY = oxidizer.
- ACID = acid.
- ALK = alkali (base/caustic).
- COR= corrosive.
- W = use no water.
- R = radiation hazard.



NIOSH
National institute for Occupational Safety of the Public Health Service, US Dept. of Health and Human Services (DHHS) is a federal agency which tests and certifies respiratory protective devices and air sampling detector tubes, recommends occupational exposure limits for various substances, and OSHA and MSHA in occupational safety and health investigations and research.

NO_x
Oxides of nitrogen; undesirable air pollutants. NO_x emissions are regulated by EPA under the Clean Air Act.

OLFACTORY
Regulating to the sense of smell. The olfactory organ in the nasal cavity is the sensing element that detects odors and transmits information to the brain through the olfactory nerves.

ORAL
Used in or taken into the body through the mouth.

ORAL TOXICITY
Adverse effects resulting from taking a substance into the body via the mouth. Ordinarily used to denote experimental animals.

OSHA
Occupational Health and Safety Administration of the U.S. Dept. of Labor, a federal agency with safety health regulatory and enforcement authorities for most industry and business. (Also see MSHA)

OXIDATION
A reaction in which a substance combines with oxygen provided by an oxidizer or oxidizing agent (see definitions below). In a broader sense, based on modern atomic theory, science today defines oxidation as a reaction brought on by an oxidizing agent in which atoms, molecules, or icons lose electrons. In this sense an oxidation reaction may occur even when oxygen is not present. However it may (balancing) reduction reaction in which (1) oxygen is removed from a compound, (2) atoms, molecules, or ions gain electrons.

OXIDIZER
DOT defines an oxidizer or oxidizing material as a substance that yields oxygen readily to stimulate the combination of organic matter. Compounds containing chlorate (CIO), permanganate (MnO), and nitrate (NO_3) are of oxidizers. Note that all contain oxygen.

OXIDIZING AGENT
A chemical or substance which brings about an oxidation reaction. The agent may: (1) provide the oxygen to the substance being oxidized, in which case the agent has to be oxygen or contain oxygen; or (2) it may receive electrons being transferred from the substance undergoing oxidation. Chlorine is a good oxidizing agent for electron transfer purpose even though it contains no oxygen.

PEL
Permissible Exposure Limit is an exposure limit established by OSHA regulatory authority. It may be a time-weighted average (TWA) limit, or a maximum concentration exposure limit. (Also see Skin)

% VOLATILE
Percent volatile by volume of a liquid or solid that will evaporate at an ambient temperature of 70°F, unless some other temperature is stated. For example, butane, gasoline, and paint thinner are 100% volatile. Their evaporation rates vary, but over a period of time each will evaporate completely. Solutions with less volatiles, 10% or 60% for example, the volatile solvent evaporates leaving the resin as a non-volatile residue.

PMCC
Pensky-Martnes Closed Cup is a flashpoint test method.

POISON, CLASS A
A DOT term for extremely dangerous poisons of a gas or liquid of such a nature that a very small amount is dangerous to life: phosgene, Cyanogens, hydrocyanic acid, nitrogen peroxide.

POISON, CLASS B
A DOT term for liquid, solid, paste, or semisolid substance (other than Class A poisons or irritating materials) which are known, or presumed on the basis of animal tests, to be toxic to people as to afford a hazard to health during transportation.

POLYMERIZATION
A chemical reaction in which one or more small molecules combine to form larger molecules. A hazardous polymerization is one which takes place at a rate which releases large amounts of energy, often in the form of heat. If a hazardous polymerization can occur with a given material, the SDS usually will list conditions which could start the reaction and, since the material usually contains a polymerization inhibitor, the expected time period before the inhibitor is used up.

ppm
Parts per million is a unit of measuring the concentration of gas or vapor in air. It can be by volume of the gas or vapor in a million parts of air, or concentration of a particular substance in a liquid or solid.

ppb
Parts per billion is a unit for measuring the concentration, by volume, of a gas or vapor in a billion parts of air. Usually used to express measurements of extremely low concentrations of unusually toxic gases or vapors. Also used to indicate the concentration of a particular substance in a liquid or solid.

psi, psig, psia
Pounds per square inch, a unit for measuring the pressure a material exerts on the walls of a confining vessel or enclosure. For technical accuracy, pressure must be expressed as psig (pounds per square inch gauge), or psia (pounds per square inch absolute). Psia is gauge pressure plus sea level atmospheric pressure, or psig plus about 14.7 pounds per square inch. (Also see mmHg)

REACTION
A chemical transformation or change; the interaction of two or more substances to form new substances.

REACTIVITY
A description of the tendency of a substance to undergo chemical reaction with the release of energy. Undesirable effects, such as pressure buildup, temperature increase, formation of noxious, toxic, or corrosive by-products may occur because of the reactivity of a substance to heating, burning, direct contact with other materials, or other conditions in use or in storage. A solid waste which exhibits a "characteristic of reactivity," as defined by RCRA, may be regulated by EPA as a hazardous waste.

REDUCING AGENT
In a reduction reaction, which always occurs simultaneously with an oxidation reaction, the reducing agent is the chemical or substance which: (1) combines with oxygen, or (2) loses electrons in the reaction. (See Oxidation)

RESPIRATORY SYSTEM
The breathing system which includes the lungs and the air passages (trachea or "windpipe," larynx, mouth, and nose), plus the associated nervous and circulatory systems.

RCRA
Resource Conservation and Recovery Act is a federal environmental legislation administration by EPA, aimed at controlling the generation, treatment, storage, transportation, and disposal of hazardous wastes.

SENSITIZER
As defined by OSHA, a chemical that causes a substantial proportion of people or animals exposed to develop an allergic reaction in normal tissue after repeated exposure to the chemical. Skin sensitization is the most common form of sensitization in the industrial setting, although respiratory sensitization to a few chemicals is also known to occur.

SETA
Setaflash Closed Tester is a flashpoint test method.

"SKIN"
Is a notation sometimes used with PEL or TLV exposure data which indicates that a stated substance may be absorbed through the skin, mucous membranes, or eyes by direct contact or airborne exposure, and that this additional exposure must be considered part of the total exposure when comparing exposures to the PEL or TLV for that substance.

SKIN SENSITIZER
(See Sensitizer)

SKIN TOXICITY
(See Dermal Toxicity)

SOLUBILITY IN WATER
A term expressing the percentage of a material (by weight) that will dissolve in water at ambient temperature of 70°F. Solubility information can be useful in determining spill cleanup methods and fire extinguishing agents and methods**.**

There are some terms which are used to express the range of solubility: negligible, less than 0.1%; slight, 0.1-1.0%; moderate, 1-1-%; appreciable, 10%+; complete, all proportions soluble.

SO_x
Various oxides of all of which are undesirable air pollutants. SO_x emissions are regulated by EPA under the Clean Air Act.

SPECIES
A biological type which on SDS's refers to the test animals, usually rats, mice, or rabbits, which were used to obtain the toxicity test data reported.

SPECIFIC GRAVITY
The weight of a liquid material compared to the weight of an equal volume of water, which is an expression of the density (or heaviness) of the material. For example, if a gallon of a liquid weighs 8 pounds, and a gallon of water weighs 10 pounds, the liquid in question has a specific gravity of 0.8: 8lbs/10lbs = 0.8/

Insoluble materials with specific gravity of less than 1.0 will float in or on water. Conversely, insoluble materials with specific gravity of greater than 1.0 will sink in water. Most, but not all, flammable liquids have a specific gravity of less than 1.0 and, if not soluble, will float on water - an important consideration for fire suppression.

STABILITY
An expression of the ability of a material to remain unchanged. For SDS purposes, a material is stable if it remains in the same form under expected and reasonable conditions of storage or use. Conditions which may cause instability (dangerous change) are stated, i.e., temperatures above 150°F, or shock from dropping.

STEL
Short Term Exposure Limit is an ACGIH term. (See TLV/STEL)

SUPERFUND
(See CERCLA)

SYNONYM
Another name or names by which a material is know. Methyl Alcohol, for example, is also known as methanol, or wood alcohol.

TCC
Tag (Tagliabue) Closed Cup flashpoint test method.

TERATOGEN
A substance or agent to which exposure of a pregnant female can result in malformation in the fetus.

TLV
Threshold Limit Value which the ACGIH defines as three categories.

- **TLV/TWA**: Time-Weighted: a concentration for a normal 8 hour workday and 40 hour workweek to which nearly all persons may be exposed day after day without adverse effects.
- **TLV/STEL:** Short Term Exposure Limit: a 15 minute, time-weighted average exposure which should not be exceeded at any time during a work day, even if the 8 hour TWA is not exceeded. The short term exposure should not be longer than 15 minutes nor repeated more than four times per day, with at least 60 minutes between successive exposures at the STEL.
- **TLV/C:** Ceiling: Exposure limit whose concentration should NOT be exceeded during any part of the working exposure.

VAPOR DENSITY
Propane, hydrogen sulfide, ethane, butane, chlorine, and sulfur dioxide have vapor densities greater than 1.0. All vapors and gases will mix with air, but the lighter materials will tend to rise and dissipate unless confined. A heavy vapor will seek low spots along floors, in floor drains, sewers, etc. This can be a problem with flammable materials which can flow along an ignition source then flash back to the source causing an explosion.

VAPOR PRESSURE
The pressure exerted by a saturated vapor above its own liquid in a closed container. When quality control tests are performed on products, the test temperature is usually 100°F, and the vapor pressure is expressed as pounds per square inch (psig or psia). Vapor pressures reported on SDS's are in millimeters of mercury (mm Hg) at 68°F (20°C), unless stated otherwise.

There are three important facts to remember about vapor pressure:

- Vapor pressure of a substance at 100°F will always be higher than the vapor pressure of the substance at 68°F (20°C).
- Vapor pressures reported on SDS in mmHg are usually very low pressures; 760 mm Hg is equivalent to 14.7 pounds per square inch.
- The lower the boiling point of a substance, the higher its vapor pressure.

This is a material's volatility, an indication of the tendency of a liquid to evaporate. The higher the vapor pressure the faster it will evaporate and become a vapor.

There is a correlation between boiling point and vapor pressure – generally, the lower the boiling point, the higher the vapor pressure.

VENTILATION
(See General Exhaust, Local Exhaust, and Mechanical Exhaust)

TABLE OF CONTENTS

Purpose	142
Scope	142
Responsibilities	142
Procedures	143
Maintenance	146
Records	147
Medical Surveillance	147
References	148

PURPOSE

The purpose of the following practices and procedures is to establish a PeneCore Respiratory Protection Program (RPP) for the proper selection, use, and care of respiratory protection equipment by PENECORE DRILLING employees working at hazardous waste remediation sites in compliance with 29 CFR 1910.134 and WAC 296-155-17317.

SCOPE

This program applies to PENECORE DRILLING Field, Health and Safety Programs for remedial projects under Comprehensive Environmental Response Conservation and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA); federal DOE, DOD, DOI, and state, and Private Corporation programs. Equivalent client-provided Respiratory Protection Programs might also be used.

RESPONSIBILITIES

PENECORE DRILLING Management will oversee the Respiratory Protection Program and is responsible for:

- Selection and provision of appropriate respirators.
- Ensuring all field personnel receive training and fit testing prior to performing hazardous waste site work.
- Implementation of instruction and educational materials to be used in employee training;
- Administration of overall program.
- Annual evaluation of effectiveness of respirator program and implementation of necessary revisions to the program.
- Delivery of training to field personnel of the need for respiratory protection, and proper care and use of respiratory protection equipment.
- Performing initial annual fit testing in accordance with 29 CFR 1910.134, Appendix D, and 1910.1025; WAC 296-155-17353, Appendix E-1-a.
- Maintain training and fit-testing records for all field personnel.

Supervisory Personnel

Operations managers, project managers, and operators are considered supervisory personnel and are responsible to:

- Ensure appropriate respirators are available as needed.
- Ensure employees wear respirators as required.
- Ensure inspection and documentation of daily inspections.
- Ensure daily maintenance of respirators in use.

Field Personnel

Field personnel will receive training and fit-testing according to this procedure prior to performing hazardous waste site work. Further, they are responsible for:

- Using respirator supplied in accordance with instruction and training.
- Inspecting, cleaning, disinfecting, and storing respirator once trained to do so.
- Reporting respirator malfunction or required maintenance to supervisor.

Client Health and Safety Personnel

Client health and safety personnel are responsible for:

- Ensuring that the general health and safety requirements include the conditions when respirator use would be necessary.
- Providing technical assistance in determining the need for and the selection of appropriate types of respirators.
- Providing surveillance and monitoring of drill site ambient air quality.

PROCEDURES

The following procedures meet the requirements of 29 CFU 1910.134 and WAC 296-62.

Often the nature of the work PENECORE DRILLING performs precludes the use of corrective engineering or administrative controls of hazardous atmospheric environments to reduce exposure to acceptable levels, and may require the use of respiratory protection equipment.

Approved Respiratory Equipment

All respiratory equipment purchased and used by PENECORE DRILLING personnel shall be approved by National Institute for Occupational Safety, and Health/Mine Safety and Health Administration (NIOSH/MSHA).

Respirators approved for use by PENECORE DRILLING field personnel and which they trained to use are:

Half-face Respirators:

- Scott Model 66 with HEPA/OV cartridges: TC-23C-779.
- Willson 2000 Series with HEPA/OV cartridges: TC-23C-1045.
- Scott-O-Vista HEPA/OV cartridges: TC-23C-524.

Supplied Air:

- Scott SKA—PAK Type C, SAR: TC-13F-68.

Air for supplied air respirators shall be Grade D quality and supplied from an approved cascade system equipped with a low air pressure warning device.

Employee Supplied Equipment

Selection of specific respiratory equipment is based upon anticipated hazards as described in project-specific health and safety plans (HSP) provided by the client.

The HSP provides information concerning the hazards of specific project sites and defines the type of respiratory protection necessary for personnel.

A PENECORE DRILLING management/supervisor reviews the project sites and defines the type of respiratory equipment is available if required for PENECORE DRILLING crews.

Selection of appropriate respiratory protection for a given project site is determined by the following criteria:

- Whether contaminant is known.
- Contaminant has adequate warning characteristics.

Supplied Air Respirators

Full-face, positive pressure airline-supplied respirators shall be used when any of the following conditions exist:

- Contaminant identified and requires the highest level of protection based on the measured or potential for high concentration of atmospheric vapors, gases, or particulates.
- Site operations involve a high potential for splash, or exposure to unexpected vapors, gases, or particulates.
- Operations are being conducted in confined, poorly ventilated areas that may contain hazardous concentrations of atmospheric vapors, gases, or particulates, and /or oxygen deficient (less than 19.5 percent).
- Maximum expected concentrations are or could potentially be immediately dangerous to life and health (Immediate Danger to Life and Health: IDLH).
- Duration of exposure beyond the PEL established for a particular contaminant.
- Contaminant exhibits poor warning properties.

Air Purifying Respirators

Full-faced negative air purifying respirators equipped with filter cartridges appropriate for the expected contaminant will only be used when the atmospheric contaminant(s) has been identified, and measured concentrations are within limits that can be effectively removed by respirator cartridges.

Half-face respirators will only be used if specifically approved by the client's HSO for a particular job site/task.

Distribution and Use

Supplied air or full-face air purifying respirators are issued for individual use whenever either is required for respiratory protection for Exclusion Zone activity.

Each respirator individually assigned is identified in such a way as to not interfere with its performance.

Disposable half-face respirators and/or cartridges for full-face respirators are issued daily or as required due to load-up or break through.

When authorized for use, new disposable respirators will be issued daily to field personnel.

Employees will be clean shaven at all times during Exclusion Zone activities or times when respirator use is required.

If corrective eyeglasses are required, the employee shall be provided with a suitable lens holder or a second pair of lenses for use with the employee's respirator.

Contact lenses will not be worn during respirator use.

All PENECORE DRILLING field personnel required to use or have reasonable expectation to use respirators are trained in the use and maintenance of the approved equipment pursuant to 29 CFR 1910.134 (I) and WAC 296-62.

Training includes:

- Need for respiratory protection.
- Description of respirators available.
- Capabilities and limitations of respirators.
- Hands-on proper donning, adjustment, and positive and negative pressure check procedures for proper mask-to-face seal.
- Daily cleaning, disinfecting, and storage procedures.
- Field pre-use inspection and general maintenance procedures.
- Qualitative fit-testing of half- and full-face piece respirators.

The program is evaluated at least annually by management to determine and document its effectiveness.

Fit-Testing

A qualitative fit-test is conducted for each new employee during the initial 40 hour health and safety training, and on the anniversary of their annual physical examination.

A fit-test may also be performed when a condition exists that may affect the proper face-to-mask seal such as weight gain or loss, dental work, or facial surgery or deformity.

Employees will be clean shaven during all fit-testing.

Fit-Test Procedure

Qualitative fit-test procedures (QLFT) are carried out in accordance with 29 CFR 1910.134, Appendix D, and 1910.1025 and WAC 296-155-17353, Appendix E-1-a:

- High efficiency particulate, organic vapor (HEPA/OV) cartridges will be used for the fit-test.
- The employee will properly don and wear the respirator for at least 10 minutes while taking part in normal physical activities to establish comfort.
- After initial donning, the employee will perform positive and negative pressure checks to determine whether a proper face-to mask seal has been formed. If the pressure test fails, the respirator is removed and refitted; if another test fails, a different respirator will be tested until a proper fit is obtained.
- The employee will enter a test chamber into which amyl acetate has been released to verify a proper face-to-mask seal.
- The employee reads the “Rainbow” passage out loud.
- No detection of amyl acetate is indication that a proper respirator size and face-to- mask seal was obtained.

Reusable Air Purifying Respirators Inspection

All full-face air purifying respirators are inspected routinely by the user before and after each use, and after cleaning to check the condition of the face head straps, valves, and cartridge-to-mask seal. (See Appendix)

Employee will check:

- All rubber for damage or wear, pliability, or signs of deterioration.
- Lens for cracks, gouges, or scratches which might impair vision or operation of the face piece.

- Lens frame and head harness retainers are installed correctly and securely in place.
- Condition of head harness and straps.
- Condition of face piece adaptor and cartridge-to-adapter gasket.

Supplied Air Respirators Inspection

All supplied air respirators (SAR) are inspected routinely by the user before and after each use, and after cleaning to check condition of face piece, head straps, valves, hoses, and escape bottle. (See Appendix)

SAR will be inspected, disinfected, and any necessary repairs will be made before placing in storage until the next need. The date of inspection, any repairs, and the inspector's name are placed in a log, which is kept in the storage box with the respirator.

Supplied air respirators will be re-inspected before distribution.

Any supplied air respirators requiring other than routine user maintenance will be sent to an authorized technician for servicing.

Employee will check:

- Harness for frayed webbing or damaged buckles.
- Escape bottle for dents, gouges in the metal, any evidence of exposure to heat, discolored hoses, blistered paint, etc..
- Escape bottle gauge reads "FULL."
- Coupling gasket between the pressure-reducer and escape bottle valve.
- Escape bottle pressure-reducer for damage.
- Hose from the pressure-reducer regulator to the mask demand-regulator for cuts, cracked rubber, contamination, etc., and secure connection to the pressure reducer-regulator and demand-regulator.
- Respirator supply hose segment for cuts and dirt, and male hose fitting for cleanliness.
- Hose assembly between pressure-reducer and demand-regulators undamaged and connected tightly to the pressure-reducer.
- Demand-breathing regulator purge valve is closed, red knob on regulator is fully turned clockwise with the tip on the knob pointing up.
- Demand-breathing regulator for exterior damage, and proper installation on face piece.

MAINTENANCE

Respirators, which do not pass any inspection, are removed from service and replaced or repaired immediately.

Any modifications to any type of respirator or repairs to SAR regulators will only be done by a qualified technician.

Individually assigned reusable respirators are cleaned and disinfected by the user after each day's use or as frequently as necessary.

Cartridges are removed before washing the respirator and discarded as required.

Full-face masks assigned for individual use may be cleaned during the work period with the commercial respirator wipes provided.

Respirators may also be washed in a warm, mild detergent solution, rinsed in clean water, and allowed to air dry in a clean area. A soft brush is used to remove any clinging dirt.

Cleaning and Disinfecting

Daily and at end of use, reusable and SAR respirators will be disinfected as follows:

- Respirators are disinfected following the manufacturer's suggested procedure of two (2) tablespoons hypochlorite solution (household bleach) per gallon of warm water (max. temperature 110°F). Immerse for two (2) minutes and rinse thoroughly with clean water to remove all traces of detergent, cleaner, or disinfectant, and hang upside down to air dry.
- Or, use commercial disinfectant following manufacturer's directions.

Storage

Clean and dry respirators are placed in sealable plastic bags and stored in a clean safe location with the face piece and exhalation valve in a more or less normal position to prevent the rubber and plastic from making a permanent distorted "set."

When no longer required, clean disinfected SARS are returned to the regional office where they are inspected and cleaned before being placed in storage and inspected before being re-issued for use.

The SAR units are stored in a clean dry place out of direct heat, sunlight, and cold, excessive moisture, or damaging chemicals.

RECORDS

The following records are maintained by the SO:

- Number and types of respirators in use.
- Medical certification that employees are capable of wearing respirators under the conditions of their jobs are kept in the employee's Health and Safety Certificate. (See Appendix)
- Record of individual employee training and fit testing are recorded and certified on employee's Health and Safety Certificate. (See Appendix)

MEDICAL SURVEILLANCE

Field personnel shall be examined by a PENECORE DRILLING company Occupational Medicine physician to determine fitness for respirator use prior to assignment to any work which potentially requires respirator use. (See Appendix)

In addition, all personnel are re-examined annually for continued pulmonary fitness and respirator use. (See Appendix)

The examination will be conducted and certified by the doctor in accordance with OSHA 29CFR 1910120,1910.134(b) (10).

REFERENCES

Occupational Safety and Health Guidance Manual for Hazardous Waste-site Activities; National Institute for Occupational Safety and Health (NIOSH); U.S. COAST GUARD (USCG); and, U.S. Environmental Protection Agency (EPA). DHH's (NIOSH) Publication No. 90-117. 1990 ed.

Safety Standards for Construction Work, Chapter 296-62 and 296-155, Washington Administrative Code. August,1994.

U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response.

U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), 29 CFR 1910.134 Respirator Use Training.

TABLE OF CONTENTS

Purpose	150
Scope	150
Investigating	151
Conducting an Investigation	151
The Interview	151
The Investigation	152
The Report	152
Summaries and Reviews	153
Injury Investigation Report	154
Org Chart	155
Duty Statements	156
Cement and Dust (Silica) Exposure Control Policy, Program and Procedure	158
Drug and Alcohol Testing Program/Policy	172
Hazardous Waste Operations (HAZWOPER)	177
Respiratory Protection Program	195
Electrical Safety	216
Fall Protection	233
Forklift Operation	248
Hazard Communication	249
Hearing Conservation	253
Coronavirus (COVID-19)	266

PURPOSE

Supervisors and operators will assist in investigation of accidents resulting in lost-work days or major property damage.

Supervisory personnel are also responsible to complete an Injury Investigation Report (See Appendix) for all accidents that occur in their area of responsibility and promptly submit the report to the PENECORE DRILLING management.

SCOPE

The primary goal of an accident investigation is the prevention of future, similar accidents through knowledge derived from investigations. Additionally, they will be used to prepare reports required by federal and state law, as well as Workers' Compensation. These reports are also critical in establishing company and supervisor liability under law.

Beyond legal implications, accident investigations serve three important purposes:

Prevention

- Accident investigation identifies what action can be taken and what improvements can be made to prevent recurrence of similar accidents.

Promotes Safety

- In addition to legal issues, accident investigations also reap psychological benefits. They project PENECORE DRILLING's concerns for and interest in promoting a safe and healthy work environment. Management and labor, which are often seen as adversaries, are brought together in a common cause.
- Accident investigation is a monitoring function that occurs after the fact; no amount of investigation will reverse the accident. Nevertheless, investigation does demonstrate that past mistakes are being used to improve future operations.

Determines Sources of Accidents

There are three primary sources of accidents: human, situational, and environmental. As a fact-finding, not fault-finding process, accident investigation concentrates on gathering all the information about the factors which lead to an accident, which often reveals indirect or hidden hazards of a process or piece of equipment:

1. Were rules and/or regulations violated?
2. Did defective equipment or factors in the work environment contribute?
3. Did poor equipment layout, process design, operation, or task contribute?

The investigation is likely to uncover problems that directly contributed to the accident. Such information benefits accident reduction efforts.

Most accidents are the result of human error. However, if an incident is simply explained as human error without any further investigation, the hazard which may have actually caused the accident will go unobserved and uncontrolled.

INVESTIGATING

The intent of an investigation is to pinpoint to the extent that it is possible, the cause of error and/or defect so that similar accidents can be prevented.

While the management is primarily responsible for conducting investigations and analyzing results, all supervisors should be familiar with the investigation procedure to enable them to complete the initial Injury Investigation Report, or others as may be required.

Also, familiarity with the procedure will provide supervisors with some background as to what they should look for on a day-to-day basis to detect possible hazards before an accident occurs.

CONDUCTING AN INVESTIGATION

Conducting an accident investigation is not simple. It can be difficult to look beyond the superficial appearance of things to uncover the not so obvious causal factors, to determine the true loss potential of the occurrence, and to develop practical recommendations to prevent a recurrence.

Accident investigations are to establish and to consider all human factors that may have, in any way contributed to the accident. What at first may appear to be a simple accident can, in fact, have numerous contributing factors which become more complex as analyses are completed. An immediate on-the-scene investigation provides the most accurate and useful information.

When To Investigate

The longer the delay in examining the accident scene, interviewing the injured and witnesses, the greater the possibility of obtaining erroneous or incomplete information: the accident scene physically changes; memories get fuzzy; people talk to one another and facts get confused or distorted.

Consciously or not, witnesses may alter their initial impressions to agree with someone else's observation or interpretation. Prompt accident investigation also demonstrates concern for the safety and well-being of our employees.

Safety During Investigations

Everyone (management, Safety Committee, supervisors and employees) must be aware that serious accidents arise from the same hazards as minor incidents.

In many cases, the accident scene is a dangerous place. The safety of investigators and other employees must be ensured in order to prevent other injuries.

THE INTERVIEW

Interviewing accident or injury victims and witnesses can be a difficult task which can result in false or inaccurate information if not handled properly. Interviewees are often fearful of incrimination or placing blame on a friend, fellow worker, or supervisor.

The investigator need not specifically ask the injured or witnesses the following questions, but they should be considered and answered to the satisfaction of the investigator during the interview(s) and further investigation:

- What was the injured person doing at the time of the accident: his assigned task, maintenance, assisting another crew member, etc.?
- Was the task authorized; was he qualified to perform the task and familiar with task, process, equipment, and/or machinery?
- What were the other employees doing at the time of the accident?
- Was proper protective clothing and other equipment being used?
- Were approved procedures being followed?
- Was the process, operation, or task new to the work area?
- Was there proper supervision; what was the proximity and adequacy of supervision?
- Was Hazard Recognition Training given prior to the accident?
- What was the location and physical condition of the area prior to the accident?
- What immediate or temporary action could have prevented the accident or minimized its effects?
- What long-term or permanent action could have prevented the accident or minimized its effects?
- Had corrective action been recommended in the past but not adopted?

THE INVESTIGATION

To obtain the necessary accurate, objective facts during an interview, the interviewer must eliminate or reduce fear and anxiety by establishing a rapport with interviewees. It is essential that the steps below be done to clear the air, create a feeling of trust, and open lines of communication. Once rapport has been established, follow the steps outlined below:

- If not on the scene, go at once. Being on-scene makes it easier to relate statements and facts that might otherwise be difficult to explain.
- Clearly establish that the purpose of the investigation and interview is fact, NOT fault finding. As stated in the policy, we need to know objectively what occurred in order to prevent reoccurrences of the same or similar accidents.
- If a supervisor was present when the accident occurred, he may know or have a good sense of what happened. Do not lead the interview. Be a good listener and let interviewees relate the complete PeneCore Drilling of the accident in their own words with minimal interruptions. If practical, have the victim or eyewitness(s) describe the sequence of events up to the time of the accident.
- Make no judgmental comments. Ask only open-ended questions for clarification or to fill in any gaps in facts or events. Do not ask questions that require only a ‘yes’ or ‘no’ answer.
- Write the Injury Investigation Report giving a complete, objective, and accurate summary of the incident.

THE REPORT

In order for the report to be effective, it should contain, as a minimum, detailed answers to the following questions:

- Explain in detail what the employee was doing at the time of the accident.
- Describe in detail the accident: type of injury; body part(s) affected; was proper personal protective equipment being worn at the time of the accident.

- Explain in detail the condition, act, malfunction, etc., that caused the accident (Remember that it is possible to have more than one reason or cause for an accident).
- What can be done to prevent a similar accident; indicate the corrective action that should be taken to prevent a recurrence.

Report Comment

Since there may be liability implications, this step is very important. Be sure details and comments are accurate. Review and read back to interviewees recorded statements and descriptions. This will provide the opportunity to clarify any misunderstandings that may have occurred in recording the incident.

The report should include mention of methods of preventing a recurrence. Ask interviewees for suggestions that could eliminate or reduce the hazards which caused or contributed to the accident. Asking for input not only shows a sincere concern, it also places emphasis on and reinforces the fact-finding intent of the investigation.

After the investigation, corrective action should be followed-up to be sure conditions which caused or contributed to the accident are corrected. If they cannot be corrected immediately, this should be reported to management.

SUMMARIES AND REVIEWS

The Safety Committee reviews all reports and investigations, and publishes summaries which will be distributed to supervisors who will pass on the information to their subordinates through "tailgate" safety meetings or other means so other employees may benefit from the experience.

These summaries will include information on causes and recommend action for prevention of similar accidents.

PENECORE DRILLING - INJURY/INCIDENT INVESTIGATION REPORT

Injured Employee: _____

Employee Job Title: _____

Accident/Incident Information:
Date: _____ Time: _____
Location: _____
Client: _____
Well Site: _____
Photos/Videos: _____

Witness(s): _____
_____
_____

Rig/Job: _____

Supervisor: _____

Rig Operator: _____

Crew Members:
_____
_____
_____
_____
_____
_____

Employee Activities at Time of Injury/Incident:
_____
_____
_____
_____
_____
_____

How Did the Injury/Incident Occur (Use back of form to record notes, measurements, sketches, etc.):
_____
_____
_____
_____
_____
_____

Describe Injury/Incident in Detail (Including weather and site conditions):
_____
_____
_____
_____
_____
_____

Employee Seen by Doctor? □ Yes □ No
First Aid Injury □ Yes □ No

Escorted by Company Personnel? □ Yes □ No
Escort Name: _____

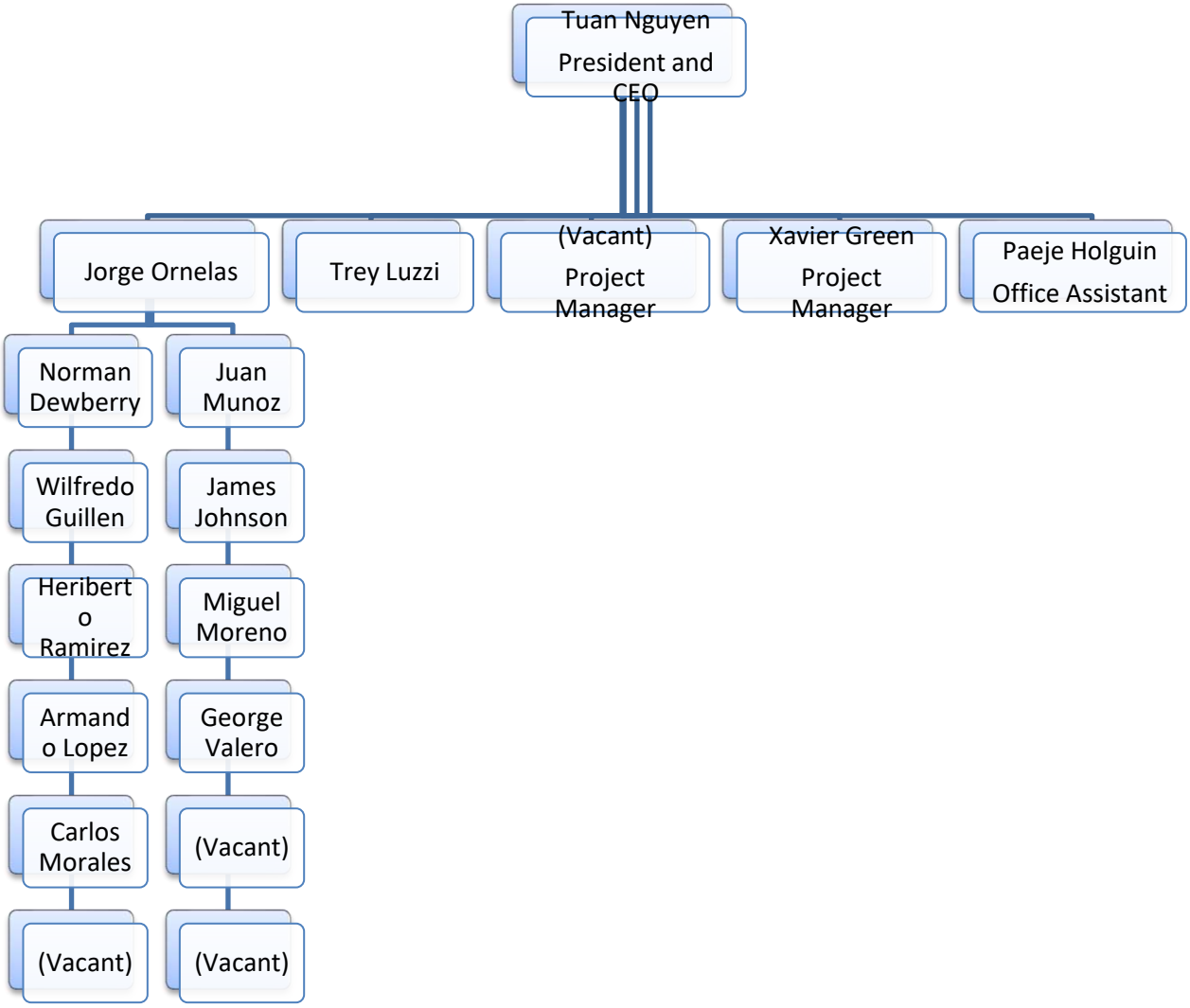
First Aider/Treatment Center_____
(Name, address, phone no.) _____

Was Supervisor present at Treatment Center? □ Yes □ No

Lost Time Injury? □ Yes □ No

Supervisor Signature: _____ **Date:** _____

Report Completed By: _____ **Date:** _____


Tuan Nguyen
President and CEO
Jorge Ornelas
Trey Luzzi
(Vacant)
Project Manager
Xavier Green
Project Manager
Paeje Holguin
Office Assistant
Norman Dewberry
Juan Munoz
Wilfredo Guillen
James Johnson
Heriberto Ramirez
Miguel Moreno
Armando Lopez
George Valero
Carlos Morales
(Vacant)
(Vacant)
(Vacant)

DUTY STATEMENT

Title	Salary Range
Field Technician I ($10.00 to $15.00)	20,880 to $31,320
Unit	
PeneCore Drilling, Inc. (Headquarters)	

This position assists with drilling operations in accordance with the drilling plan from implementation, completion and abandonment of drill sites. The Assistant Driller works with the crew in preparing the equipment and site for the drilling operation. Travel to, setup and breakdown of drilling sites, which includes repetitive bending, lifting and climbing, may be done on a daily basis. This individual promotes safety, reports safety problems, incidents, accidents, or irregularities.

Job Summary

PeneCore services include full sized track and truck mounted sonic, mini-sonic, air and mud rotary, reverse circulation, auger, rock coring, direct push drilling and vacuum hole clearing. PeneCore drills environmental and geotechnical borings and installs all types of wells and instrumentation for site characterization studies, installation of remediation systems, geotechnical investigations and for construction site dewatering. PeneCore Drilling's core beliefs are safety, customer service and quality.

Minimum Required Qualifications

High School Diploma or GED
1 year of experience as an assistant driller
Ability to lift up to 50 pounds throughout the day
HAZWOPER certified (optional)
1-3 years experience in the drilling industry
Safety policies, regulations and work habits
California Drivers License-Class A (optional)
Equipment maintenance

Responsibilities (assists with the following)

Well drilling and installation
Physically complete projects assigned by Foreman
Air-Knife vacuum truck services
Instrumentation Installation
Maintain clean and organized environment/jobsite
Complete paperwork, logs and daily's
Monitor equipment performance and document
Direct push soil and water sampling
Well development
Core drilling
Health and safety training
Travel and work demanding hours

Essential Functions

- Ability and knowledge to assist in the operation of drilling equipment.
- Strong drilling skills from actual experience over a diverse amount of equipment.
- Knowledge of Geoprobe system and equipment.
- Ability to physically implement work duties assigned in various weather elements.
- Ability to stand for long periods of time.
- Ability to work independently as well as part of a team.
- Ability to maneuver in small areas.
- Assure safety training is current and logged.
- Maintain daily drilling reports.
- Check and maintain equipment in good and safe repair.
- Perform preventative maintenance tasks as assigned by supervisors and prepares documentation.
- Perform miscellaneous maintenance duties in field or shop as directed by supervisors.
- Complete well logs, logbook, repair orders, DVIR inspection sheet, and tailgates.
- Maintain positive relationship with client.
- Continuous study of SDS, CEUs and JSAs.
- Maintain all certifications.
- Required to have cell communication 27/7.
- Complete other duties and projects as assigned.

DUTY STATEMENT

Title	Salary Range
Field Technician II ($16.00 to $21.00)	33,408 to $43,848
Unit	
PeneCore Drilling, Inc. (Headquarters)	

This position oversees drilling operations are in accordance with the drilling plan from implementation, completion and abandonment of drill sites. The Driller works with the crew in preparing the equipment and site for the drilling operation. Travel to, setup and breakdown of drilling sites, which includes repetitive bending, lifting and climbing, may be done on a daily basis. This individual promotes safety, reports safety problems, incidents, accidents, or irregularities. Acts as a team leader for drilling crews.

Job Summary

PeneCore services include full sized track and truck mounted sonic, mini-sonic, air and mud rotary, reverse circulation, auger, rock coring, direct push drilling and vacuum hole clearing. PeneCore drills environmental and geotechnical borings and installs all types of wells and instrumentation for site characterization studies, installation of remediation systems, geotechnical investigations and for construction site dewatering. PeneCore Drilling's core beliefs are safety, customer service and quality.

Minimum Required Qualifications

High School Diploma or GED
1 year of experience as a driller with a variety of rigs
Ability to lift up to 50 pounds throughout the day
HAZWOPER certified (optional)
3-5 years experience in the drilling industry
Driller license as required in California
California Drivers License-Class A
Safety policies, regulations and work habits

Responsibilities

Well drilling and installation
Geoconstruction
Air-Knife vacuum truck services
Instrumentation Installation
Investigation derived waste service
Technical training
Geotechnical testing
Direct push soil and water sampling
Well development
Core drilling
Health and safety training

Essential Functions

- Ability and knowledge to operate drill rig and drilling equipment.
- Knowledge of Geoprobe system and equipment.
- Ability to stand for long periods of time.
- Ability to maneuver in small areas.
- Assure safety training is current and logged.
- Maintain daily drilling reports.
- Check and maintain equipment in good and safe repair.
- Perform preventative maintenance tasks as assigned by supervisors and prepares documentation.
- Perform miscellaneous maintenance duties in field or shop as directed by supervisors.
- Complete well logs, logbook, repair orders, DVIR inspection sheet, and tailgates.
- Maintain positive relationship with client.
- Manage the work site activity.
- Continuous study of SDS, CEUs and JSAs.
- Maintain all certifications.
- Complete other duties and projects as assigned.
- Train crew members as needed.

CEMENT AND DUST (SILICA) EXPOSURE SAFETY PLAN

PURPOSE

It is the policy of PeneCore Drilling, Inc. is to take precautions to eliminate potential hazards in the workplace. The purpose of this Cement and Dust (Silica) Exposure Safety Plan (CDESP) is to provide the hazards associated with dust and outline the steps to take to ensure employees who work with, or around cement and dust (silica) are not exposed to hazardous levels of silica dust; and to provide procedures for common silica related work duties to minimize exposure in accordance with the OSHA Air Contaminants standard.

Crystalline silica is a basic component of soil, sand, granite and many other minerals. Quartz is the most common form of crystalline silica. All materials containing silica can result in the presence of respirable silica particles when chipping, cutting, drilling or grinding takes place. Silica exposure occurs through inhalation of silica containing particles and occurs through many construction and general industry methods. The most severe exposures generally occur during abrasive blasting with sand to remove paint and rust from bridges, tanks, concrete structures and other surfaces, which are **not** duties PeneCore employees perform. Other activities that may result in sever silica exposure include jack hammering, rock/well drilling, concrete mixing, concrete drilling, and brick and concrete cutting/sawing, which are duties PeneCore performs on a small scale. Plan is evaluated and submitted to employees annually.

RESPOSIBILITIES

Environmental Health & Safety

Conduct building/material assessments for silica containing materials and perform employee silica hazard assessments/monitoring upon request. Facility Operations is responsible for maintaining the office building, equipment yard, filed work site, and warehouse/shop with potential exposure to silica, and therefore, should:

1. Ensure the applicable components of the safety program are available to all affected employees.
2. Provide applicable training to employees expected to work in, or with, building materials where there is a potential risk for exposure.
3. Employees who supervise personnel with responsibilities to work in areas where there is a risk of exposure, must ensure employees are properly trained on the applicable contents of the safety program and are provided appropriate personal protective equipment (PPE) when conducting such work.
4. Employees working in areas where there is an identified risk of exposure must be properly trained on all applicable elements of the safety program; and be provided and utilize the appropriate PPE for the task being performed.:

DEFINITIONS

The following definitions are provided to allow for a better understanding of the OSU Silica Dust Safety Program.

Authorized Person: An employee who has received proper training and exposure monitoring to safely work with silica containing materials.

Crystalline Silica: Naturally occurring component in earth soils, sand, granite and many other minerals resulting in many building materials containing silica.

Exposure Assessment: The initial determination to find if any employee may be exposed to lead at or above the permissible exposure level. Until the assessment is completed, employees shall take all precautions necessary to maintain exposures below the PEL.
HEPA: High Efficiency Particulate Air. A filtering system capable of trapping and retaining at least 99.97% of all particles of 0.3 micron in diameter and larger.
Permissible Exposure Limit: (PEL) the OSHA limit for silica dust exposure. It is set at 50µg/m3, averaged over an 8-hour workday, as a TWA.
Silica Containing Material: Any material, which has the potential to contain silica at levels, which may pose a hazard to employees when the material is manipulated to create airborne particles
Silicosis: A lung disease caused by inhalation of silica dust. Silica dust can cause fluid buildup and scar tissue in the lungs that cuts down the ability for the lungs to fully function. The disease is not curable, but can be prevented through the use of protective systems

MATERIAL ASSESSMENT

Any time there is a potential for silica containing materials to be involved in a project, sources of silica must be assessed prior to disturbing. An authorized contractor can perform building material assessments to determine silica content in materials. Crystalline silica occurs naturally in the earth's crust and is a basic component of sand, concrete, brick, asphalt, granite, some blasting grit and wall spackling materials. Employees can be exposed to silica when conducting activities such as:
Abrasive blasting, jack hammering, concrete crushing, hoe ramming, rock drilling, mixing of concrete or grout, concrete drilling, sawing concrete or bricks, chipping or scarifying concrete, rock crushing, moving or dumping piles of concrete, rock or sand, demolition of concrete or brick, using coatings containing silica, or removing coatings containing silica.

If airborne silica is expected to be generated during the project, PeneCore shall be contacted to conduct exposure monitoring and ensure all safety precautions are followed to minimize exposure to airborne silica dust

EXPOSURE MONITORING

Initial Exposure Monitoring

- PeneCore employees expected to come in contact/work with silica containing materials where there is a risk of exposure through inhalation of dust should develop an exposure monitoring program.
- Initial exposure monitoring should be conducted by PeneCore to quantitatively evaluate the exposure to airborne silica.
- Exposure monitoring should be conducted on any employee exposed to airborne silica dust as levels may vary based on job duty within a project. For example, the employee performing concrete cutting vs an employee providing supervision during the work.

Periodic Exposure Monitoring

Whenever silica exposure levels are greater than, or equal to the Permissible Exposure Level (50μg/m3), periodic exposure monitoring is required. It is the responsibility of the affected department to work with health and safety and develop a periodic exposure monitoring schedule. The frequency of exposure monitoring should be as follows:

Measured Concentration: Permissible Exposure Level – 50 μg/m3

Monitoring Frequency: Annual

Exposure monitoring is not required by every employee at risk of airborne lead exposure. Enough sampling must be done to enable the employee's exposure level to be reasonably represented.

Termination of Exposure Monitoring

Periodic exposure monitoring may be discontinued if results from two consecutive sampling periods taken at least 7 days apart show that employee exposure is below the PEL.

Sampling Methods

Personal exposure monitoring will be conducted using an approved NIOSH method. Monitoring records shall include the following.

- The date, number, duration, location and results of each of the samples taken, including a description of the sampling procedure used to determine representative employee exposure where applicable.
- A description of the sampling and analytical methods used.
- The type of respiratory protective devices, if any.
- Name and job classification of the employee monitored.
- Any environmental variables that could affect the measurement of the employee exposure.

Reporting of Exposure Monitoring Results

Health and safety/employees will notify PeneCore management of exposure monitoring results within as soon as the final laboratory analysis is completed. PeneCore must provide this information to the affected employee(s) within 5 working days. If levels are measured during the exposure monitoring exceeding the PEL, the health and safety report will include steps and controls to reduce exposure to below the PEL. Follow up exposure monitoring may be necessary if engineering or administrative controls are put in place to reduce hazardous exposures.

EXPOSURE CONTROL

Pre-project Planning

- Prior to field projects taking place, PeneCore reviews planning documents to account for potential exposures to hazardous materials, including silica.
- PeneCore can conduct building/field material assessments to make determinations if there are any silica containing materials, which may be impacted by the project.
- During the planning process, any silica containing materials are addressed and methods for exposure control are provided prior to work beginning.
- If silica containing materials are to be disturbed during the project, the appropriate exposure control methods will be recommended.

Administrative/Engineering Controls

Where silica exposures at or above the Permissible Exposure Limit have been documented, or are expected, the appropriate engineering or administrative controls will be implemented, where feasible. Follow-up exposure monitoring may be necessary when administrative or engineering exposure controls are utilized. Typical controls may involve:

- Substituting non-silica containing materials for use while abrasive blasting.
- Alternative methods such as pre ordering grout already mixed instead of on-site mixing in bulk.
- Local exhaust ventilation.
- General ventilation.
- Vacuum methods with HEPA filters.
- Distance.
- Dust control products.
- Containment.
- Use of water to keep dust down.
- General work practices such as good housekeeping, worker rotation, development of specific SOPs to minimize exposure.

Personal Protective Equipment (PPE)

In addition to administrative/engineering controls, employees may be required to wear specific PPE during the disturbance of silica containing materials and/or when airborne silica is present. The level of protection will depend on the task being conducted and the tools being utilized to complete the task. Recommended PPE will typically include:

- Respiratory Protection.
- Disposable or reusable work clothing to keep from spreading the dust or bringing the dust home.
- Leather gloves.
- Safety glasses or goggles.
- Face shield.
- Boot covers or rubber boots.

The following table provides recommended respiratory protection levels based on the measured or anticipated exposure levels:

Respirator	Protection Factor	Typical Silica Activity
N95	Less than 50 µg/m3	Used on voluntary basis to control low exposures
Half-face with HEPA filters	50 – 500 µg/m3	Housekeeping (wet method) Saw cutting (wet method) Drilling concrete (wet method) Power tools with dust collection Equipment operating with open cab

Respirator	Protection Factor	Typical Silica Activity
Full-face with HEPA filters	500 – 5,000 µg/m3	Chipping concrete Jack Hammering Power tools without dust collection Mixing grout in bulk Vacuum abrasive blasting
SCBA	Above 5,000 µg/m3	Abrasive blasting

HOUSEKEEPING AND HYGIENE FACILITIES

In areas where silica containing dust may be present, all surfaces must be maintained free from accumulations of dust to minimize potential silica exposure. Dust and other silica containing debris must be removed from the work area as soon as possible. acceptable method of silica dust removal includes the use of HEPA vacuum or wet methods such as wet mopping. Unacceptable methods of silica dust removal include dry sweeping, vacuum cleaners, shop vacuums, and compressed air. Follow all recommended procedures and utilize recommended PPE during silica containing debris cleanup activities.

Where silica containing materials are used, impacted, or being removed; the following requirements must be met.

- PPE should be removed upon work completion and disposed of after each use.
- Employees must wash hands and are recommended to shower prior to leaving work.
- Ensure contaminated PPE, including footwear is not worn outside the work areas

MEDICAL SURVEILLANCE

Employees exposed to silica levels above the Permissible Exposure Limit (50 µg/m3), or any employee working with silica who develops signs/symptoms of excessive exposure, should be referred to a Medical Surveillance Program. All medical surveillance will be performed by a contracted company and results must be provided the affected employee and their supervisor within 15 days of the assessment. Employees enrolled in the medical surveillance program should be examined annually to track any changes as a result to exposure to silica dust.

TRAINING AND RECORDKEEPING

Hazard Communication training is required by all PeneCore employees and should be conducted initially upon hiring. Training is available and must be offered to affected employees prior to working with silica and annually thereafter. Silica awareness training should include the following:

- Information about the potential health effects and symptoms of exposure to respirable silica.
- Safety data sheets for silica, quartz, and applicable products containing silica.
- The purpose and set up of regulated areas to mark the boundaries of work areas containing silica dust.
- The use of engineering controls, work practices, good housekeeping and PPE to control exposure to silica.
- Use and care of PPE.
- Expected exposures to silica dust.
- Exposure monitoring process and medical surveillance process.

Respiratory protection training, medical clearance, and quantitative fit testing is required under and is referenced within this document. The supervisor is required to maintain all training, medical surveillance, and exposure monitoring results.

SIGNAGE

In areas where exposure to silica dust may exceed the PEL the following type of signage must be in place to warn employee of hazards.

HEALTH HAZARDS ASSOCIATED WITH SILICA EXPOSURE

The health hazards of silica come from breathing in the dust. If crystalline silica becomes airborne through industrial activities, exposures to fine crystalline silica dust *(specifically exposure to the size fraction that is considered to be respirable)* can lead to a disabling, sometimes fatal disease called silicosis. The fine particles are deposited in the lungs, causing thickening and scarring of the lung tissue. The scar tissue restricts the lungs' ability to extract oxygen from the air. This damage is permanent, but the symptoms of the diseases may not appear for many years. As noted in the following Figure, (respirable) silica dust is very small, and is not visible to the human eye.

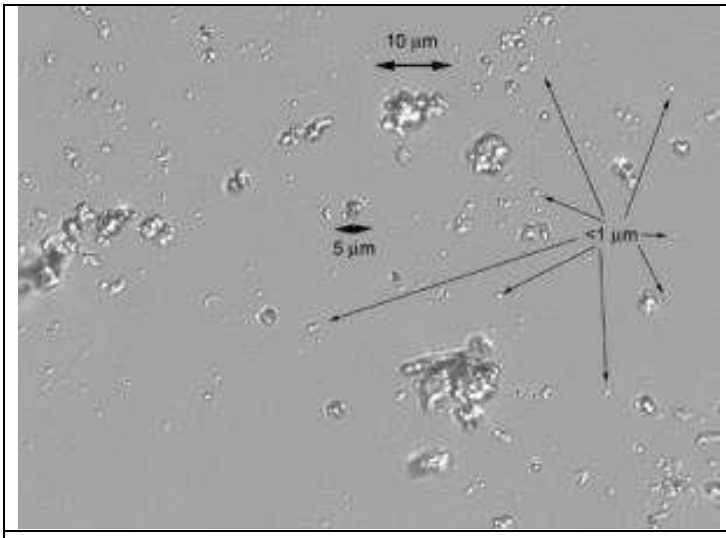


Figure 1: Crystalline silica up close. 1000 times magnification of sand dust. These particles are small enough to be trapped in lung tissue.

A worker may develop any of three types of silicosis, depending on the concentration of silica dust and the duration of the exposure:

- Chronic Silicosis: Develops after 10 or more years of exposure to crystalline silica and relatively low concentrations.
- Accelerated Silicosis: Develops 5 to 10 years after initial exposure to crystalline silica at high concentrations.
- Acute Silicosis: Develops within weeks, or 4 to 5 years, after exposure to very high concentrations of crystalline silica.

Initially, workers with silicosis may have no symptoms; however, as the disease progresses, workers may experience:

- Shortness of Breath.
- Severe Cough.
- Weakness.

These symptoms can worsen over time and lead to death. Exposure to silica has also been linked to other diseases, including bronchitis, tuberculosis, and lung cancer.

SILICA EXPOSURES

Many of the activities performed on PeneCore Projects result in the creation/release of silica dust, thus exposing our employees. These activities include, but are not necessarily limited to:

- Sweeping
- Jack-hammering
- Saw-cutting
- Drilling (of concrete)
- Excavating and Truck Loading activities.

Due to the risk posed by respirable silica, it is critical that all personnel involved in activities that could potentially create silica dust take specific actions to ensure that, as much as practicable, a hazard is not created. In recognition of this, the following (Silica related) responsibilities have been established and must be adhered to:

- Regularly evaluating new equipment and technologies that become available, as able/appropriate, purchasing the "best available" equipment/technologies. Equipment/technologies with (silica) dust suppression and/or capture technologies will generally be given preference over equipment/technologies that lack such.
- Implementing a suitable respirable silica exposure monitoring program, or otherwise ensuring representative exposure monitoring results are available. The purpose of the program will ensure that *(over time)* PeneCore has quantifiable silica exposure data available for all regularly occurring, as well as reasonably foreseeable, work activities.
- Ensuring project and/or task specific Exposure Control Plans (ECPs) are developed communicated and effectively implemented as appropriate.
- Ensuring that all employees *(i.e. Managers, Supervisors and Workers)* receive the necessary education and training related to this Policy, as well as project/task specific ECPs.
- Maintaining applicable records *(i.e. exposure sampling, inspections, respirator fit tests, training records, etc.)* in accordance with PeneCore's record retention procedures/practices.

SUPERINTENDENTS/FOREMAN ARE RESPONSIBLE FOR

- Obtaining a copy of the project/task specific ECPs *(and/or other similar such information)*, and ensuring such are made available at each work site.
- Ensuring that all the tools, equipment, PPE and materials *(including water)* necessary to implement the ECP is available *(and in good working order)* prior to allowing work activities to commence.
- Ensuring that all workers *(under the supervisor's direction and control)* have received the necessary education and training. As appropriate, each supervisor must ensure that workers are available to "demonstrate competency" for identified tasks.
- Ensuring that workers adhere to the project/task specific ECP, including PPE and personal hygiene *(i.e. including be clean shaven where the respirator seals to the user's face)* requirements.
- Coordinating work activities with the Owner/Prime Contractor as required, and/or otherwise implementing the controls necessary to protect others *(i.e. erecting of barricades and signage)* who could be adversely effected by *[Insert Company Name Here]'s* acts *(or omissions).*

EMPLOYEES (AND SUBCONTRACTED EMPLOYEES) ARE RESPONSIBLE FOR

- Knowing the hazards of silica dust exposure.
- Using the assigned protective equipment in an effective and safe manner.
- Working in accordance with the project/task specific ECP.

Reporting *(immediately)* to their supervisor, any hazards *(i.e. unsafe conditions, unsafe acts, improperly operating equipment, etc.).*

EXPOSURE LIMITS/CONSIDERATIONS

The Occupational Health & Safety Regulation (OHSR) lists an occupational exposure limit (OEL) for respirable crystalline silica (including quartz) of 0.025 milligrams per cubic meter (mg/m^3). This is a concentration to which nearly all workers could be exposed for eight hours a day, five days a week, without adverse health effects. However, as a suspected carcinogen, crystalline silica is also an ALARA substance, and exposures must be reduced to levels **A**s **L**ow **A**s **R**easonably **A**chievable below the OEL.

RISK IDENTIFICATION

The health hazards of silica come from breathing in the dust. In addition to identifying the specific activities/areas where personnel could be exposed to silica dust, the "amount" of exposure and "duration" of exposure must also be considered. With consideration to these three factors, activities performed by PeneCore *(or that are otherwise occurring in proximity to* PeneCore's *activities)* that expose our employees *(as well as members of the public and other workers)* to the dust include, but are not necessarily limited to:

- Surface preparation activities such as: (1) the use of Blow-Packs, (2) the use of Bobcats with "sweeper" attachments, (3) the use of Sweeper trucks and (4) hand sweeping.
- Jack-hammering *(of both asphalt and concrete).*
- Saw-cutting *(of both asphalt and concrete).*
- Drilling *(of concrete).*
- Granular Surface Preparation activities *(i.e. grading and rolling),* and Operation and use of milling equipment/machinery *(i.e. milling and conveyance/discharge of milled materials on conveyor).*

RISK ASSESSMENT

PeneCore will use a variety of methods to assist with the "assessment" of *(possible and actual)* silica exposures. These methods will include, but may not necessarily be limited to:

- Reviewing data/reports available in the public domain (i.e. Information available through regulatory agencies (including WorkSafeBC) and industry associations (including the BC Construction Safety Alliance).
- Regularly consulting with the Safety Resources/Safety Managers from firms who perform similar work (i.e. through ATAC (Asphalt Technical Advisory Committee).

Implementing a suitable respirable silica exposure monitoring program. This program will ensure that *(over time)* PeneCore has quantifiable silica exposure data available that is representative of all regularly occurring, as well as reasonably foreseeable work activities. Exposure monitoring will generally be conducted "in-house", although assistance *(i.e. actual monitoring and/or interpretation of results)* may be obtained through outside consultants/hygienists.

CONTROL METHODS

When determining measures to reduce or eliminate worker exposure to silica dust, PeneCore will generally select a combination of controls, listed in order of preference:

- Elimination and Substitution.
- Engineering.
- Administrative.
- Personnel Protection Equipment (PPE).

SUBSTITUTION AND ELIMINATION

Whenever possible, PeneCore will substitute products containing silica with products that do not contain *(or contain a lower percentage of)* crystalline silica. While there have historically been few "substitution" options available, PeneCore recognizes the importance of planning work in order to minimize the amount of silica dust generated. During the planning phases of a project, PeneCore will advocate for the use of methods that reduce the need for cutting, grinding, or drilling of concrete surfaces.

ENGINEERING CONTROLS

Engineering controls are those controls which aim to control or otherwise minimize the release of crystalline silica. Two "common" engineering control options are available to [*Insert Company Name Here]* in many circumstances. These include the Local Exhaust Ventilation (LEV) and Wet Dust Suppression (WDS) systems.

LEV SYSTEMS

Tools/appliance specific LEV systems are available on some tools/appliances. Such LEV systems are generally comprised of a shroud assembly, a hose attachment, and a vacuum system. Dust-laden air is collected within the shroud, drawn into the hose attachment, and conveyed to the vacuum, where it is filtered and discharged. "Large scale" LEV systems, such those available on some Vacuum Trucks and Mobile Sweepers, may also be employed (at times) on PeneCore projects.

When/if LEV systems are used, PeneCore will employ the following systems and safe work practices:

- Vacuum attachment systems that capture and control dust at its source whenever possible.
- Dust control systems will be maintained in optimal working condition.
- Grinding wheels will be operated at the manufacturer's recommended RPM *(operating in excess of this can generate significantly higher airborne dust levels)*.
- HEPA or good quality, multi-stage vacuum units *(approved for use with silica dust)* will be used in accordance with the manufacturer's instructions.
- Whenever possible, concrete grinding will be completed when the concrete is wet *(thus dust release will be significantly reduced).*

WDS SYSTEMS

Unlike LEV systems, many tools/appliances at PeneCore are equipped with WDS systems (i.e. on the Milling equipment, sweeper equipped Bobcats, as well as attachments on various hand held/portable, abrasive/cutting equipment). When WDS Systems are not available, (as a standard or retrofitted part of a tool/appliance), similar effects can also be achieved by manually wetting the surface (i.e. with a mister or with a hose). When WDS systems are used, PeneCore will employ the following systems and safe work practices:

- If water is not readily available on the specific PeneCore project, the project supervisor will arrange to have a water tank delivered to the site for use.
- Pneumatic or fuel *(i.e. gasoline)* powered equipment will generally be used instead of electrically powered equipment if water is the method of dust control, unless the electrical equipment is specifically designed to be used in such circumstances.
- Pressure and flow rate will be controlled in accordance with the tool manufacturer's specifications.
- When sawing concrete, tools that provide water directly to the blade will be used if possible.
- Wet slurry will be cleaned from work surfaces when the work is complete, if/when necessary.

ADMINISTRATIVE CONTROLS

Administrative controls are those that aim to control or otherwise minimize the release of silica through the use of work procedure and work methods, rather than by affecting the actual physical work. Common examples of administrative controls include, but are not limited to:

- Posting of warning signs.
- Rescheduling of work as to avoid the activities of others.
- Relocating unprotected workers away from dusty areas.

When administrative controls are used, PeneCore will employ the following systems and safe work practices:

- In conjunction with the Owner/Prime Contractor, suitable exposure control strategies (both within and outside PeneCore's capabilities/responsibilities) will be discussed and determined. As necessary/appropriate, supplemental (to this policy/procedure) project and task specific Exposure Control Plans will be developed.
- Suitable housekeeping, restricted work area, hygiene practices, training and supervision procedures/standards will be determined and implemented on PeneCore projects.
- As appropriate, barriers will be erected around known silica dust generating activities, and/or warning signs will be posted.
- As able, work activities will be scheduled to minimize the silica related effect on, and from, others.

PERSONAL PROTECTIVE EQUIPMENT CONTROLS

When used in conjunction with the other *(i.e. Engineering and Administrative)* controls elsewhere identified, personal protective equipment and clothing can help further reduce our employee's exposure to silica dust.

An air purifying respirator fitted with HEPA cartridges is the most common piece of PPE that would be used by PeneCore to minimize exposure to silica dust. Dependent on the effectiveness of the other (i.e. engineering) control measures employed, either a "full face piece" or "1/2 face piece" respirator would be used by personnel (In the majority of situations a ½ face respirator will be used. When working indoors or in other areas with poor ventilation, a full face respirator may be required). Both of these respirators are "seal dependent", and thus the users must be "fit tested" and clean shaven where the respirator seals to the face.

In addition to respiratory PPE, protective clothing (i.e. disposable/washable coveralls) may be used and/or required to help prevent the contamination of the worker's personnel clothing.

EDUCATION AND TRAINING

Prior to performing activities, or working on project sites where personnel could be exposed to silica dust, PeneCore will ensure that personnel receive suitable education and training. As necessary, personnel will be trained to a level of "demonstrated competency". While not necessarily an exhaustive list, education and training may include:

- The hazards and risks associated with exposure to silica dust.
- The signs and symptoms of silica related diseases.
- General and specific silica exposure reduction methods/strategies (i.e. as detailed in the general/specific exposure control plans).
- The use of specific pieces of equipment and control systems (i.e. LEV and WDS systems).
- The use and care of respiratory (and other) personal protective equipment.
- How to seek first aid (i.e. for respiratory related concerns, including those that may be caused/associated with silica dust exposure), and
- How to report items of the concern (i.e. those related to silica dust).

The education and training detailed will be delivered to PeneCore employees through a variety of forums, including but not necessarily limited to:

- New Employee Orientations.
- Project/Site Orientations.
- Equipment/task specific training (in accordance with [Insert Company Name Here]'s Policy, all personnel must be trained to a level of "demonstrated competency" prior to using required tools, equipment and appliances).
- Start of shift "tool box talks".
- Regularly scheduled crew "Tailgate Meetings".

INSERT COMPANY SPECIFIC WRITTEN INSTRUCTIONS:

EXAMPLE

Division/Task		**Control Methods**	**Personal Protection Equipment**	**Comments**
				The use of a flusher truck to remove debris/sediment from a surface to prepare it for driving in operations desirable/preferred, as the activity will generally generate little/no silica dust, and will improve drive aisles within the operations.
"Company Operations"	1.Use of flusher truck	No specific engineering/administrative controls required.	No specific PPE controls required	The use of a flusher truck is not always practical/possible for reasons including: (1) increased costs and (2) the availability of such equipment, scheduling of staff at exact moments when the flusher truck required. The service will be included in general operator daily duties. Use of recycled water, availability is preferred.

Record Type	**Location(s)**	**Retention Requirement**
Silica Policy, Program and Procedure	• (i.e. Head Office)	• Current Revision •
Project/Task Specific Silica ECPs	•	• LOP •
Exposure Monitoring Results	•	• LOP • LOP +___ years
Workplace Inspections	•	•
First Aid Records/Reports of Exposure	•	•
Incident Investigation Reports	•	•
WorkSafeBC/Regulator Reports and Correspondence	•	•
Respirator Fit Tests	•	• LOE +___years
Equipment Maintenance and Repair Logs	•	• LOS +___ years
New Employee Orientation Records	•	• LOE +___ years
Site/Project Orientation Records	•	• LOE +___ years
Tool Box Talk Records	•	•
Crew Safety Meeting Records	•	•
Job/Task Specific Training Records	•	• LOE +___ years

*LOP – Length of Project
*LOE – Length of Employment
*LOS – Length of Service

ALCOHOL AND CONTROLLED SUBSTANCES TESTING POLICY

STATEMENT OF POLICY

The safety and well being of our drivers, employees and the general public requires that our drivers perform their duties free from the effects of alcohol and/or drugs. A drug-free workplace is especially important to the transportation industry. A driver who uses or abuses alcohol and/or drugs is a hazard to this company, the general public, other employees and him/herself.

In order to ensure safe transportation and provide for an efficient and drug-free workplace while complying with the Federal Motor Carrier Safety Regulations PENECORE has adopted this policy.

PROGRAM ADMINISTRATOR

Tuan Nguyen has been designated by this company as the Alcohol/Drug Testing Program Administrator. In this function Tuan will be responsible to answer any questions from the drivers, administrators or the public in general.

The Program Administrator will handle information on all tests of covered drivers confidentially. The Program Administrator may provide such information as necessary to the supervisor to enable him/her to take proper disciplinary action as warranted. The Program Administrator may also release test information to this company's Substance Abuse Professional to use to evaluate and recommend appropriate follow-up.

DRIVERS SUBJECT TO TESTING

All drivers who must have a commercial driver's license to perform their duties, which are considered as safety-sensitive, will be subject to the alcohol and/or drug testing as outlined in this policy and required by Title 49 Code of Federal Regulations Part 382.

DRIVER COMPLIANCE WITH REGULATION

All drivers subject to alcohol and drug testing must be in compliance with the regulations and this policy at all times while in a working status for this company. This will include all time spent driving a commercial vehicle as well as time spent performing safety-sensitive functions or just before or just after performing safety-sensitive functions.

Safety-Sensitive Function means all time from the time a driver begins to work or is required to be in readiness to work until the time he/she is relieved from work and all responsibility for performing work. Safety-sensitive functions shall include:

1. All time at an employer or shipper plant, terminal, facility, or other property, or on any public property, waiting to be dispatched, unless the driver has been relieved from duty by the employer;
2. All time inspecting equipment as required by Part 392.7 and 392.8 of 49 C.F.R., and otherwise inspecting, servicing, or conditioning any commercial motor vehicle at any time;
3. All time spent at the driving controls of a commercial motor vehicle in operation;
4. All time, other than driving time, in or upon any commercial motor vehicle except time resting in a sleeper berth (a berth conforming to the requirements of Part 393.76 of 49 C.F.R.);

5. All time loading or unloading a commercial motor vehicle, supervising, or assisting in the loading or unloading, attending a commercial motor vehicle being loaded or unloaded, remaining in readiness to operate the commercial motor vehicle, or in giving or receiving receipts for shipments loaded or unloaded;
6. All time repairing, obtaining assistance, or remaining in attendance upon a disabled commercial motor vehicle.

SUBSTANCES TESTED FOR

The following substances will be tested for to determine their presence:

1. Alcohol
2. Marijuana
3. Cocaine
4. Amphetamines
5. Phencyclidine (PCP)
6. Opiates
7. MDMA (Ecstasy)
8. 6 Mono-Acetyl Morphine (Heroin)

PROHIBITED CONDUCT

During the time that drivers are performing safety-sensitive functions, they shall not:

1. Report to and/or remain on duty with an alcohol concentration of 0.04 or greater;
2. Possess any alcohol;
3. Use any alcohol;
4. Use any alcohol within four hours of going on duty;
5. Use any alcohol for eight hours after an accident which will require the driver to be tested for alcohol or until tested;
6. Refuse to submit to a required alcohol and/or controlled substances test;
7. Report to or remain on duty when using any controlled substance, except when under a physician's orders **AND** the physician has informed the driver that the use will not effect the safe operations of a commercial vehicle;
8. Report to or remain on duty if he/she has tested positive for controlled substance.

TESTS REQUIRED

All drivers who are required to be tested for alcohol and/or controlled substance use or mis-use will be tested under the following circumstances:

1. **Pre-employment or pre-use.** All applicants for jobs requiring a commercial driver's license and/or current employees transferring to a job which requires a commercial driver's license will be required to be tested for the use of controlled substances.
2. **Random.** All drivers are subject to random testing for alcohol and controlled substance at rates determined by the Federal Motor Carrier Safety Administrator. These random tests will be unannounced and will be spread throughout the calendar year. Except as provided in paragraphs (c) through (e) of Part 382.305, the minimum alcohol testing shall be ten (10) percent of the average number of driver positions. Except as provided in paragraphs (f) through (h) of Part 382.305, the minimum average percentage rate for random controlled substance testing shall be fifty (50) percent of the average number of driver positions.

If the company has entered into a consortium pool the 10 and 50 percent levels will apply to the entire pool of drivers in the consortium.

3. **Post-accident.** Drivers will be alcohol and controlled substance tested in **all** accidents involving a fatality. If the accident is one where one or more vehicles were towed from the scene of the accident, or involves somebody being injured to the degree that the injury must be treated immediately away from the scene of the accident, the driver must also be post accident tested if the commercial vehicle driver receives a summons for a "moving traffic violation" as a result of the accident.
4. **Reasonable suspicion.** All drivers that exhibit signs and/or symptoms of alcohol and/or controlled substance use or mis-use, which are observed by a trained company supervisor, while performing safety sensitive functions or just before or just after performing safety sensitive functions will be required to submit to an alcohol and/or controlled substance test.
5. **Return to duty.** A driver, who previously tested positive for alcohol and/or controlled substance, must submit to a return to duty alcohol and/or controlled substance test. The results of the test must be obtained by the motor carrier and be negative before the driver may be allowed to perform a safety sensitive function.
6. **Follow-up**. A driver who previously tested positive and has returned to duty must submit to at least six (6) alcohol and/or controlled substance tests during the first 12 months after returning to work. Follow-up tests will be unannounced and may continue for up to sixty (60) months after returning to work. Any follow-up tests will be at the direction of the Substance Abuse Professional.

TESTING PROCEDURES

This company has contracted with **DATCO and ASAP DRUG SOLUTIONS** as our drug and alcohol program provider and Certified Third Party Administrator. The collection site will be chosen by the Program Administrator.

Once a driver has been directed to submit to an alcohol and/or controlled substance test, he/she will proceed immediately to the testing area directed by the program administrator named in this policy. Drivers must comply with the lawful requests of the technician doing the alcohol and/or controlled substance test.

The selected driver will be required to provide a urine specimen for controlled substance testing and/or a breath or saliva sample for analysis of alcohol concentration.

The driver will be required to provide photo identification prior to testing. Privacy will be ensured at the facility by means of voiding in a private enclosure. A split sample will be procured and both samples will be sent to the lab.

Proper chain of custody procedures will be followed to ensure that the specimen submitted is indeed the specimen that belongs to the selected driver. The specimen will be sealed to prevent tampering during transport to the laboratory. Federal certified laboratories will be utilized for testing (drugs) and two separate methodologies will be performed to verify all specimens as positive prior to controlled substances reporting to the medical review office (MRO).

The MRO is a licensed physician that reviews all test results prior to reporting to the company. Should the specimen test positive, the MRO will contact the driver to discuss the test findings and afford the driver an opportunity to discuss his/her test results and any factors that could have attributed to the positive test. Should the driver question the test findings, the driver can request that the split sample be forwarded to another certified laboratory for re-analysis.

All test results are treated confidentially and no results will be released to outside parties without the drivers express consent or when required by law, rule or regulation or expressly authorized.

All testing for alcohol use or mis-use will be conducted only by devices which have been approved by the National Highway Traffic Administration and conducted by trained Breath Alcohol Technicians (BATs) or trained Screening Test Technicians.

REQUIREMENT THAT DRIVERS MUST SUBMIT TO TESTS

All drivers who are required by Federal Motor Carrier Safety Regulations and this policy to be subjected to alcohol and/or controlled substances testing must fulfill that requirement when so directed by the Alcohol/Drug Testing Program Administrator or a trained supervisor. Failure to comply with the regulations or this policy will be grounds for disciplinary action up to and including dismissal.

REFUSAL TO TEST

No driver shall refuse to submit to a post-accident alcohol or controlled substances test required under §382.303, a random alcohol or controlled substances test required under §382.305, a reasonable suspicion alcohol or controlled substances test required under §382.307, or a follow-up alcohol or controlled substances test required under §382.311. No employer shall permit a driver who refuses to submit to such tests to perform or continue to perform safety-sensitive functions.

Refuse to submit (to an alcohol or controlled substances test) means that a driver:

1. Fails to appear for any test (except a pre-employment test) within a reasonable time, as determined by the employer, consistent with applicable DOT agency regulations, after being directed to do so by the employer. This includes the failure of an employee (including an owner-operator) to appear for a test when called by a C/TPA (see §40.61(a) of this title);

2. Fails to remain at the testing site until the testing process is complete. Provided, that an employee who leaves the testing site before the testing process commences (see §40.63(c) of this title) for a pre- employment test is not deemed to have refused to test;

3. Fails to provide a urine specimen for any drug test required by this part or DOT agency regulations. An employee who does not provide a urine specimen because he or she has left the testing site before the testing process commences (see §40.63(c) of this title) for a pre-employment test is not deemed to have refused to test;

4. In the case of a directly observed or monitored collection in a drug test, fails to permit the observation or monitoring of the driver's provision of a specimen (see §§40.67(l) and 40.69(g) of this title);

5. Fails to provide a sufficient amount of urine when directed, and it has been determined, through a required medical evaluation, that there was no adequate medical explanation for the failure (see §40.193(d)(2) of this title);

6. Fails or declines to take a second test the employer or collector has directed the driver to take;

7. Fail to undergo a medical examination or evaluation, as directed by the MRO as part of the verification process, or as directed by the DER under §40.193(d) of this title. In the case of a pre- employment drug test, the employee is deemed to have refused to test on this basis only if the pre-employment test is conducted following a contingent offer of employment;

8. Fails to cooperate with any part of the testing process (e.g., refuse to empty pockets when so directed by the collector, behave in a confrontational way that disrupts the collection process); or

9. Is reported by the MRO as having a verified adulterated or substituted test result.

DISCIPLINARY ACTION

Any driver who violates either the Federal Motor Carrier Safety Regulations or this policy may be subject to disciplinary action up to and including dismissal.

Any driver who has tested positive for either drugs or alcohol, has performed a prohibited act, or has refused to submit to a drug or alcohol test, will be removed from the safety sensitive position immediately and directed to a substance abuse professional. The substance abuse professional will:

- provide a comprehensive face-to-face assessment and clinical evaluation of the driver; and
- recommend a course of education and/or treatment with which the employee must demonstrate successful compliance prior to returning to a DOT safety sensitive function

Drivers who are found to have an alcohol concentration of 0.02 or greater, but less than 0.04, will be taken out-of-duty for a minimum of 24 hours. It is this company's policy that such time out-of-duty will be **without** pay.

INFORMATION

This company will provide each driver subject to the Federal Motor Carrier Safety Regulations a copy of this policy. In addition, this company will provide printed material which describes the effects of alcohol and/or controlled substance use or abuse on the individual's health, work and personal life, as well as information on the signs and symptoms of an alcohol or controlled substances problem.

ACKNOWLEDGEMENT

I certify that I have received a copy of **PENECORE'S** policy, and written material concerning the effects of alcohol and controlled substance on an individual's work and personal life, signs and symptoms of a drug or alcohol problem including a co-workers, and the methods to deal with a substance abuse problem.

_____ _____

Driver's Signature Date

PENECORE DRILLING, INC. HAZARDOUS WASTE OPERATIONS - HAZWOPER

HAZWOPER program for the safety and health of employees. PeneCore Drilling, Inc. has developed and implemented this written safety and health program for their employees involved in hazardous waste operations. This program is established for the purposes of evaluation, identification, and control of safety and health hazards to employees when confronted with hazardous wastes, and to established procedures for emergency response to hazardous waste situations and operations.

The written safety and health program includes the organizational structure for response.
The plan also establishes requirements for:

- A site-specific comprehensive work plan
- Site-specific safety and health plan
- Confirmation that safety and health training program components are provided
- A medical surveillance program appropriate to the work situations and potential exposures
- The Company's standard operating procedures for safety and health and associations and coordination procedures as required between the Company's safety and health programs and site specific work and/or site situations.

EXCAVATION SAFETY

Excavations, trenches and ground digs performed during preparation of the job site or during hazardous waste operations shall be in accordance with the Company's written Excavation Safety Program. This shall ensure that proper shoring or sloping shall be performed as needed to protect employees and prevent accidental cave-in or collapse.
Safety Requirements for Contractors and Subcontractors. When the Company utilizes a contractor or subcontractor(s) to perform work at a hazardous waste job site or to perform hazardous waste operations, such non-Company personnel shall be told in advance of site emergency response procedures and any known hazards or potential hazards that could result in fire, explosion, health, safety or other such exposures. The Company's written safety and health program, and any site-specific programs, work plans or support information relating to the work, shall be made available to any such contractor or subcontractor. This information also shall be made available to employees or their designated representative(s), and to OSHA other government personnel with regulatory authority over the job site or work operations.

SITE PROGRAM ORGANIZATIONAL STRUCTURE

This program shall be administered in accordance with the following specific chain of command, as well as the following designation of the program responsibilities to supervisors and employees.

- The site superintendent has the responsibility and authority to direct all hazardous waste operations.
- The safety coordinator or designated site safety representative has the responsibility and authority to develop and implement the site safety and health plan and verify compliance.
- Other employees and non-company personnel shall be assigned specific responsibilities and tasks to be performed as part of hazardous waste site and emergency response operations.
- The site-specific organizational structure shall be reviewed and updated as required to ensure that waste site work and safety plans are kept current.

- This program's comprehensive work plan will explain tasks and objectives, as well as resources required to complete the project in accordance with the goals and objectives.
- The work plan will specifically list and explain planned clean-up activities and the Company's standard operating procedures for performance of this kind of work. This includes defining specific tasks and objectives, and how these tasks and objectives will be accomplished.
- The work plan will explain personnel needs as anticipated through project planning, and establish procedures and processes for training as required performing tasks safely and in accordance with regulatory requirements. This includes providing information programs as required for the work.
- The work plan also shall establish and implement a medical surveillance program as required for the work being performed.

SITE-SPECIFIC SAFETY AND HEALTH PLAN PART OF THE PROGRAM

The Company has developed and implemented a written safety and health program for employees involved in hazardous waste operations that shall be available for inspection by employees, their representatives and OSHA personnel.

- The program is designed to identify, evaluate and control safety and health hazards in their facilities for the purpose of employee protection, to provide for emergency response meeting Company and regulatory requirements and to address as appropriate site analysis, engineering controls, maximum exposure limits, hazardous waste handling procedures and uses of new technologies.
- The site safety and health plan shall be maintained on the job site. It shall identify and establish procedures for protecting employees from safety and health hazards identified at each phase of site operations.
- The Company's written Hazard Communication Program shall be utilized to meet the requirements of 29 CFR 1910.1200 as part of the Company's overall safety and health program implementation.

The Company's site-specific safety and health plan will include the following components, as well as others when required by the work:

- Hazard analysis for each site task and operation contained in the work plan.
- Employee training assignments in accordance with program and regulatory requirements.
- Designation of personal protective equipment required for use by employees based on job hazard analysis for specific tasks and operations.
- Requirements of the medical surveillance program.
- Information about frequency and types of air monitoring and personnel monitoring, as well as any environmental sampling techniques and instrumentation that will be utilized. This shall include methods of maintenance and protocols for the calibration of monitoring and sampling equipment.
- Site control measures as explained in the project's site control program.
- Requirements and procedures for decontamination.
- Emergency response plan and procedures, including specific personal protective equipment and other equipment anticipated to be needed for emergencies.

- Safety procedures for entering any confined spaces as authorized by the site superintendent. Any confined space entries shall be performed in accordance with the Company's Confined Space Entry Program.
- The site-specific plan and program components for spill containment at the job site.
- A pre-entry briefing shall be held prior to initiating any site activity, and at such other times as necessary to ensure that employees are kept informed about site safety and health plan components. This information shall be updated and communicated as needed to keep employees aware of current situations.
- Inspections shall be conducted by the safety coordinator or the designated site safety representative or site superintendent. The Company also may utilize qualified third parties to conduct these and/or confirmation inspections. Any hazards, unsafe situations or safety deficiencies discovered by inspection shall be reported to the site superintendent and corrected.

TRAINING

First responder awareness level. First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They would take no further action beyond notifying the authorities of the release. First responders at the awareness level shall have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas:

An understanding of what hazardous substances are, and the risks associated with them in an incident.

- An understanding of the potential outcomes associated with an emergency created when hazardous substances are present.
- The ability to recognize the presence of hazardous substances in an emergency.
- The ability to identify the hazardous substances, if possible.
- An understanding of the role of the first responder awareness individual in the Company's emergency response plan including site security and control and the U.S. Department of Transportation's Emergency Response Guidebook.
- The ability to realize the need for additional resources, and to make appropriate notifications to the communication center.

First responder operations level. First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures. First responders at the operational level shall have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in the following areas in addition to those listed for the awareness level and the Company shall so certify:

- Knowledge of the basic hazard and risk assessment techniques.
- Know how to select and use proper personal protective equipment provided to the first responder operational level.
- An understanding of basic hazardous materials terms.
- Know how to perform basic control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available with their unit.

- Know how to implement basic decontamination procedures.
- An understanding of the relevant standard operating procedures and termination procedures.

Hazardous materials technician. Hazardous materials technicians are individuals who respond to releases or potential releases for the purpose of stopping the release. They assume a more aggressive role than a first responder at the operations level in that they will approach the point of release in order to plug, patch or otherwise stop the release of a hazardous substance. Hazardous materials technicians shall have received at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the Company shall so certify:

- Know how to implement the Company's emergency response plan.
- Know the classification, identification and verification of known and unknown materials by using field survey instruments and equipment.
- Be able to function within an assigned role in the Incident Command System.
- Know how to select and use proper specialized chemical personal protective equipment provided to the hazardous materials technician.
- Understand hazard and risk assessment techniques.
- Be able to perform advance control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available with the unit.
- Understand and implement decontamination procedures.
- Understand termination procedures.
- Understand basic chemical and toxicological terminology and behavior.

Hazardous materials specialist. Hazardous materials specialists are individuals who respond with and provide support to hazardous materials technicians. Their duties parallel those of the hazardous materials technician, however, those duties require a more directed or specific knowledge of the various substances they may be called upon to contain. The hazardous materials specialist would also act as the site liaison with Federal, state, local and other government authorities in regards to site activities. Hazardous materials specialists shall have received at least 24 hours of training equal to the technician level and in addition have competency in the following areas and the Company shall so certify:

- Know how to implement the local emergency response plan.
- Understand classification, identification and verification of known and unknown materials by using advanced survey instruments and equipment.
- Know the state emergency response plan.
- Be able to select and use proper specialized chemical personal protective equipment provided to the hazardous materials specialist.
- Understand in-depth hazard and risk techniques.
- Be able to perform specialized control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available.
- Be able to determine and implement decontamination procedures.
- Have the ability to develop a site safety and control plan.
- Understand chemical, radiological and toxicological terminology and behavior.

On scene incident commander. Incident commanders, who will assume control of the incident scene beyond the first responder awareness level, shall receive at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the Company shall so certify:

- Know and be able to implement the Company's incident command system.
- Know how to implement the Company's emergency response plan.
- Know and understand the hazards and risks associated with employees working in chemical protective clothing.
- Know how to implement the local emergency response plan.
- Know of the state emergency response plan and of the Federal Regional Response Team.
- Know and understand the importance of decontamination procedures. Employees who are trained in accordance with the plan shall receive annual refresher on or before the initial training date of expiration. A record of methods used must be kept.

ENGINEERING CONTROLS

Engineering controls, work practices, personal protective equipment, or a combination of these shall be implemented as required to protect employees from exposure to hazardous substances and safety and health hazards.

- Engineering controls and work practices shall be instituted to reduce and maintain employee exposure to or below the permissible exposure limits for substances regulated by 29 CFR Part 1910, to the extent required by Subpart Z, except to the extent that such controls and practices are not feasible.
- Engineering controls which may be feasible include the use of pressurized cabs or control booths on equipment, and/or the use of remotely operated material handling equipment. Work practices which may be feasible are removing all non-essential employees from potential exposure during opening of drums, wetting down dusty operations and locating employees upwind of possible hazards.
- Whenever engineering controls and work practices are not feasible, or not required, any reasonable combination of engineering controls, work practices and PPE shall be used to reduce and maintain to or below the permissible exposure limits or dose limits for substances regulated by 29 CFR Part 1910, Subpart Z.
- The Company shall not implement a schedule of employee rotation as a means of compliance with permissible exposure limits or dose limits except when there is no other feasible way of complying with the airborne or dermal dose limits for ionizing radiation.

MONITORING REQUIREMENTS AND PROCEDURES

Monitoring shall be performed where there may be a question of employee exposure to hazardous concentrations of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment so that employees are not exposed to levels which exceed permissible exposure limits, or published exposure levels if there are no permissible exposure limits, for hazardous substances.

- Air monitoring shall be used to identify and quantify airborne levels of hazardous substances and safety and health hazards in order to determine the appropriate level of employee protection needed on site.

- Upon initial entry, representative air monitoring shall be conducted to identify any IDLH condition, exposure over permissible exposure limits or published exposure levels, exposure over a radioactive material's dose limits or other dangerous condition such as the presence of flammable.
- atmospheres, oxygen-deficient environments.

Periodic monitoring shall be conducted when the possibility of an IDLH condition or flammable atmosphere has developed or when there is indication that exposures may have risen over permissible exposure limits or published exposure levels since prior monitoring. Situations where it shall be considered whether the possibility that exposures have risen are as follows:

- When work begins on a different portion of the site.
- When contaminants other than those previously identified are being handled.
- When a different type of operation is initiated (e.g., drum opening as opposed to exploratory well drilling.)
- When employees are handling leaking drums or containers or working in areas with obvious liquid contamination (e.g., a spill or lagoon.)
- Following the start of the actual clean-up phase of any hazardous waste operation (for example, when soil, surface water or containers are moved or disturbed), the Company shall monitor employees who are likely to have the highest exposures to any hazardous substances and health hazards that may be present above permissible exposure limits, or published exposure levels.
- This monitoring shall be performed using personal sampling frequently enough to characterize employee exposures.
- The Company may utilize a representative sampling approach by documenting that the employees and chemicals chosen for monitoring are based on the criteria stated in Item v immediately above. If the employees likely to have the highest exposure are over permissible exposure limits or published exposure limits, then monitoring shall continue to determine all employees likely to be
- above those limits. The Company may utilize a representative sampling approach by documenting that the employees and chemicals chosen for monitoring are based on the criteria stated above.
- The Company shall develop and implement a program component to inform employees, contractors, and subcontractors (or their representative) actually engaged in hazardous waste operations of the nature, level and degree of exposure likely as a result of participation in such hazardous waste operations.
- Employees, contractors and subcontractors working outside of the
- operations part of a site are not covered by this program.

POLICIES AND PROCEDURES FOR DECONTAMINATION

Procedures for all phases of decontamination shall be developed and implemented by the Company for each hazardous waste work location.

- Decontamination procedures for the job site shall be communicated to employees and implemented before personnel or equipment enters areas where there is a potential for exposure to hazardous substances.
- Site-specific standard operating procedures shall be developed and utilized to minimize employee contact with hazardous substances, or with equipment that has contacted hazardous substances.
- All employees and personnel leaving a contaminated area shall be decontaminated in accordance with Company and regulatory safety and health requirements. All contaminated clothing and equipment leaving a contaminated area shall be appropriately disposed of or decontaminated.
- Decontamination procedures shall be monitored by the designated site safety representative and/or site superintendent, with ongoing review by the safety coordinator. This monitoring is intended to determine effectiveness of decontamination procedures and practices. When such procedures or
- practices are found to be ineffective, appropriate steps shall be taken to correct any deficiencies.
- Decontamination operations shall be performed in one or more areas that have been selected to minimize the exposure of uncontaminated employees or equipment to contaminated employees or equipment.
- All equipment and solvents used for decontamination shall be decontaminated or disposed of properly.
- Protective clothing and equipment shall be decontaminated, cleaned, laundered, maintained or replaced as needed to maintain their effectiveness.
- Employees whose non-impermeable clothing becomes wetted with hazardous substances shall immediately remove that clothing and proceed to shower. The clothing shall be disposed of or decontaminated before it is removed from the work zone.
- Unauthorized employees shall not remove protective clothing or equipment from change rooms.
- Commercial laundries or cleaning establishments that decontaminate protective clothing or equipment shall be informed of the potentially harmful effects of exposures to hazardous substances.

Where the decontamination procedure indicates a need for regular showers and change rooms outside of a contaminated area, they shall be provided and meet the requirements of 29 CFR 1910.141. If temperature conditions prevent the effective use of water, then other effective means for cleansing shall be provided and used.

SANITATION AT TEMPORARY WORKPLACE

An adequate supply of potable water shall be provided on the site.

- Portable containers used to dispense drinking water shall be capable of being tightly closed, and equipped with a tap. Water shall not be dipped from containers.
- Any container used to distribute drinking water shall be clearly marked as to the nature of its contents and not used for any other purpose.

- Where single service cups (to be used but once) are supplied, both a sanitary container for the unused cups and a receptacle for disposing of the used cups shall be provided.
- Outlets for nonpotable water, such as water for firefighting purposes shall be identified to indicate clearly that the water is unsafe and is not to be used for drinking, washing, or cooking purposes.
- There shall be no cross-connection, open or potential, between a system furnishing potable water and a system furnishing nonpotable water.
- Toilets shall be provided for employees according to Table H-120.2 in 1910.120(n)(3).
- Under temporary field conditions, provisions shall be made to assure not less than one toilet facility is available.
- These requirements for sanitation facilities shall not apply to mobile crews having transportation readily available to nearby toilet facilities.
- Doors entering toilet facilities shall be provided with entrance locks controlled from inside the facility.
- All food service facilities and operations for employees shall meet the applicable laws, ordinances, and regulations of the jurisdictions in which they are located.
- When temporary sleeping quarters are provided, they shall be heated, ventilated, and lighted.
- The Company shall provide adequate washing facilities for employees engaged in operations where hazardous substances may be harmful to employees. Such facilities shall be in near proximity to the worksite; in areas where exposures are below permissible exposure limits and which are under the controls of the Company; and shall be so equipped as to enable employees to remove hazardous substances from themselves.
- When hazardous waste clean-up or removal operations commence on a site and the duration of the work will require six months or greater time to complete, the Company shall provide showers and change rooms for all employees exposed to hazardous substances and health hazards involved in
- hazardous waste clean-up or removal operations.

Showers shall be provided and shall meet the requirements of 29 CFR 1910.141(d)(3).
Hazardous waste sites, not provided with a sanitary sewer, shall be provided with the following toilet facilities unless prohibited by local codes:

- Chemical toilets;
- Recirculation toilets;
- Combustion toilets; or
- Flush toilets.

RESPIRATORY PROTECTION PROGRAM

Purpose

Improper use of or failure to wear respiratory protection when required can have devastating effects on the life and/or health of workers. Lack of a respirator, early removal of a respirator and improperly fitting respirators has resulted in needless worker injury and death.

The purpose of this policy is to establish a respiratory protection program that ensures that workers are provided with the necessary information, training, and equipment to protect themselves from respiratory hazards in the workplace, and complies with applicable standards and regulations.

Policy

It is management's responsibility to implement this program at no cost to the employees and it is the employee's responsibility to comply with all aspects of this program. Any voluntary use of respiratory protection equipment by employees shall be governed by the provisions of this program, also at no expense to the employees.

Procedure and Responsibilities

Management - Has the responsibility of overseeing the implementation of this policy and assigning program administrators for each site location. These administrators must be suitably trained and have the appropriate accountability and responsibility to fully manage the site respiratory program. The program administrator will report, at least annually, on the effectiveness of the program to management, and be authorized to make appropriate changes to the site program. The administrators will be identified by name in the specific site program.

Supervisory - It is the responsibility of the supervisor to ensure that all personnel under their control are completely knowledgeable of the respiratory requirements of this program. Supervisors are to ensure that employees have been trained and are medically fit to use respiratory equipment safely. It is the supervisors' duty to monitor the employees' diligence in following procedure and take appropriate action when deficiencies are observed.

Employees - It is the responsibility of the employee to be aware of and practice the information presented in the training. Specifically, employee responsibilities are to report equipment malfunctions, seal check their respirator before every use, and to report medical or physical changes that could affect respirator use.

Hazard Assessment

Respiratory hazard determination starts at the planning stage of a job. The responsible party is to identify all known hazards as required by the hazard communication standard. Evaluation of the hazards consists of exposure duration, potential for contact, and known or potential concentrations. When the hazard is a federally controlled substance, that hazard shall be assessed and monitored as dictated by that specific standard. A respiratory hazard may not have an established permissible exposure limit documented; however, all provisions of this program will be enforced to protect the health of the employees.

Acceptable methods for estimating respiratory hazards include:

- Personal exposure monitoring is the most reliable and accurate method to determine exposure.

- Use of objective data – This is the use of data obtained from industry studies, trade associations or from tests conducted by chemical manufacturers. The objective data shall represent the highest contaminant exposures likely to occur under reasonably foreseeable conditions of processing, use or handling. If objective data is used for assessment, the data must be documented as part of the written program.
- Mathematical Approach – The use of physical and chemical properties of air contaminates, combined with information on room dimensions, air exchange rates, contaminant release rates, and other pertinent data including exposure patterns and work practices to estimate maximum exposure levels in the work place.
- Where employee exposure cannot be identified or reasonably estimated, the atmosphere will be considered immediately dangerous to life and health (IDLH). Also atmospheres that are oxygen deficient will be treated as IDLH conditions.
- Accidental release or emergency response must be a consideration when estimating hazard exposure.

Hazard Control

1. Engineering Controls: This should be the first consideration when evaluating hazard exposure.
    - Substitution of a less or non-toxic substance to replace a more harmful one. Example: Sandblasting with black grit instead of silica sand.
    - Isolation or encapsulation of the process. Example: To spray asbestos insulation with glue paste to lessen exposure levels.
    - Ventilation to remove contamination from the work area before exposure. Example: Mechanical dust collection system installed to capture contaminants and reduce buildup.

2. Administrative Controls:
    - Especially effective for repetitive stress and heat stress control, crew rotation could increase productivity in contaminated atmospheres.
    - Adjust the length of the work shift. Instead of two 12 hour shifts, it may be more effective to have three 8 hour shifts.
    - Change scheduled work to limit the number of employees exposed. The scheduling of other work near the exposure area could be limited until exposure is gone.

3. Personal protective devices for the control of respiratory hazards are to be used as a last resort, and only when other means of control are not practical or feasible. Respiratory protection may be required while implementing engineering controls, or in conjunction with other control methods. Engineering controls may only lessen the exposure, but required to be implemented along with personal protective devices.

Respirator Selection

Selecting the proper respirator can be very complex and is critical in having an effective respiratory program. The program administrator must solicit information from all available professional resources concerning exposure controls.

Factors that must be considered include:

- The nature of the hazardous operation or process.
- The type of respiratory hazard (including physical properties, oxygen deficiency, physiological effects on the body, concentration of toxic material or airborne radioactivity level, established exposure limits for the toxic materials, established permissible airborne concentration for radioactive material, and established immediately dangerous to life or health concentration for toxic material).
    - The location of the hazardous area in relation to the nearest area having respirable air.
    - The period of time for which respiratory protection must be worn.
    - The activities of workers in the hazardous area.
    - The physical characteristics and functional capabilities and limitations of the various types of respirators.
    - Respirator-assigned protection factors listed in Attachment I, Table 1.

Respirators for use under IDLH conditions:

The required respiratory protection for IDLH conditions caused by the presence of toxic materials, or a reduced percentage of oxygen, is a combination full face piece pressure demand supplied air respirator (SAR) with auxiliary self-contained air supply. For rescue applications, a full face piece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes is acceptable.

When respirators are worn under IDLH conditions, at least one standby person shall be present in a safe area. The standby person shall have the proper equipment available to assist the respirator wearer in case of difficulty. Communications (visual, voice, signal line, radio, or other suitable means) shall be maintained between the standby person and the wearer. While working in the IDLH atmosphere, the wearer shall be equipped with safety harness and safety lines to permit removal to a safe area, if necessary. Provisions for rescue other than safety harness and lines may be used, if equivalent.

Breathing Air Quality

Workers using supplied breathing air equipment shall be thoroughly trained in its use.

Breathing air is typically supplied from cylinders or via a compressor. Appropriate measures shall be taken to ensure that all compressed breathing air meets 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:

1. Oxygen content (v/v) of 19.5-23.5%;
2. Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less;
3. Carbon monoxide (CO) content of 10 ppm or less;
4. Carbon dioxide content of 1,000 ppm or less; and
5. Lack of noticeable odor.

Suppliers of breathing air cylinders shall provide the company with a certificate of analysis with each delivery certifying that the breathing air meets the requirements for Grade D breathing air; and that the moisture content in the cylinder does not exceed a dew point of -50 deg.F (-45.6 deg.C) at 1 atmosphere pressure. The certificate shall have the name of the breathing air supplier, the testing technician and date of test.

Breathing air cylinders shall be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178).

Breathing Air Compressors

Compressors used to supply breathing air to respirators shall be constructed and situated so as to:
1. Prevent entry of contaminated air into the air-supply system
2. Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (-5.56 deg.C) below the ambient temperature.
3. If required to ensure delivery of Grade D air to the user, provide suitable in-line air-purifying sorbent beds and filters. All filters, cartridges and canisters shall be labeled and color coded with the NIOSH approval label and the label shall remain legible. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions. A tag containing the most recent change date and the signature of the person authorized by the employer to perform the change shall be attached to the equipment.
4. For compressors that are not oil-lubricated, the company shall ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.
5. For oil-lubricated compressors, the company shall use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.
6. The air shall be routinely tested to ensure that it meets Grade D requirements.

In addition, a stand-by attendant shall be on watch anytime workers are using breathing air supplied directly by a compressor.

Breathing air couplings shall be incompatible with outlets for nonrespirable worksite air or other gas systems. No asphyxiating substance shall be introduced into breathing airlines.

Training

To protect employees from exposure to respiratory hazards using standards as minimum guidelines, all employees who will wear respiratory protection will be trained on this policy. Training will be provided prior to job assignment where respirator equipment is required, and annually thereafter. Additional training is required when there are deficiencies in the employee's knowledge/skills or when there is a change in the work place or respiratory equipment that renders previous training obsolete. The training will include the following:

- Responsibilities of employees and supervisors.
- How, why and for what jobs we use respirators.
- Hazard assessment including limitations of respirators.
- Hazard control.
- Respirator selection.
- Medical evaluation.

- Respirator fit test.
- Maintenance, care and storage.
- Medical surveillance.
- Program evaluation.

All training shall be conducted in a way that is understandable to the employee, and is documented.

1. Why use respiratory protection.
    - The nature, extent and effects of respiratory hazards.
    - Consequences of improper fit, usage and maintenance on respirator effectiveness.
2. Limitations and capabilities of the respirator.
    - Air purifying respirators that filter either particles, or absorbing vapors and gases.
    - Air supplying respirators that supply air from an uncontaminated source.
    - Limitations of respirators in IDLH atmospheres and for emergency use only.
3. How respirators are inspected, donned, removed, seal checked and worn.
    - What to do if respirators have defects.
    - Who to report problems to during use.
    - Proper technique for donning and removing the respirator, and how to store when not in use.
    - How to seal check using the positive and/or negative pressure method.
4. Methods of maintenance and storage.
    - Visual inspection of parts for worn or defective items.
    - How to keep the issued respirator clean and sanitary.
    - Requirement to disinfect and sanitize before reissue to other employees.
    - Proper storage in a cool, clean and dry location, placing them in a clean, sealed plastic bag after drying.
5. Medical signs and symptoms that may limit or prevent the effective use of respirators.
    - An awareness of physical conditions that may indicate warning signs.
    - An obligation to report signs and symptoms and the opportunity for medical reevaluation.
    - Changes in weight (gain or loss).
    - Physical changes in facial structure.
    - Changes in endurance, stability or general health.
    - Medication for illness.

Medical Evaluation

All employees whose job classification may require use of respiratory protection shall be evaluated and certified by a physician or a licensed health care professional (PLHCP) as being "medically fit" to wear a respirator. For new hires, the medical evaluation shall be made before any use of respiratory equipment. Thereafter, the evaluation shall occur at a minimum annually. The medical evaluation consists of, at a minimum, the administration of a health questionnaire meeting federal guidelines or provisions for a physical examination by a PLHCP that elicits the same information as the questionnaire. The PLHCP shall be provided with supplemental information by the employer on the description of the job classification, possible work conditions and any additional P.P.E. that may be required of the employee while using respiratory equipment. Also a copy of this program will be given to the PLHCP for reference along with the OSHA standard.

The administration of the health questionnaire will be done during work hours and at no cost to the employee. The information on the questionnaire shall remain confidential between the PLHCP and the employee. The employee must have access to the PLHCP for discussion and asking questions concerning their medical evaluation. The company will only receive a recommendation of the employee's ability to wear respiratory equipment.

If an employee is restricted by the PLHCP from wearing a negative pressure respirator, but otherwise physically able to perform duties with a powered air respirator, then reasonable accommodations will be made by the program administrator not to have this restriction limit the employee's ability to perform his job.

Respirator Fit Test

Respirator fit testing is required of all employees prior to using a positive or negative tight fitting respirator. The fit test will be specific for respirator manufacturer, model and size. This test is to be repeated annually, or if there is a change in the respiratory equipment. Some substance specific standards may call for more frequent testing and dictate a specific protocol, which would take precedence over this program. A change in the employee's physical appearance can affect the seal of a respirator and may require re-testing. If the respirator is unacceptable to the employee due to comfort, irritation, or inability to get a seal, the employee will be offered a reasonable selection for an alternate choice of respirators.

The employee will be asked to wear the proposed respirator for a period of time to become familiar with the feel and fit. No obstacles can be between their face and the sealing surface of the respirator, including facial hair of 24 hours or more growth, side burns that extend into the sealing surface or hair that is long enough to prevent proper function of the respirator. Jewelry, caps, hats, scarves and certain safety gear must be evaluated as part of the fit test if the employee is permitted or required to wear them during work. OSHA did not restrict the use of contact lens with respirators, but did mandate that the use of corrective lens shall not interfere with the seal of the respirator. Any adaptive devices for vision correction with respiratory equipment will be supplied at no cost to the employee. The employee will be instructed on how to field check respiratory equipment. The positive and negative seal check methods of verifying a good seal shall be required before each and every entry into a respiratory hazard area. These seal checks are not to be considered a fit test.

Positive Seal Check

A positive seal check is accomplished by effectively sealing the exhalation valve and slowly exhaling. This should create a slight, positive pressure inside the face piece for a short period of time. The participant must be careful not to exhale too fast or small leaks can be nullified and/or large leaks artificially created.

Negative Seal Check

A negative seal check is accomplished by effectively sealing the inhalation ports of the respirator and inhaling slowly. The participant should be able to create a negative pressure inside the respirator and hold it for a short period of time. Inhaling too fast may nullify small leaks and/or artificially create other leaks.

Fit Test (See Attachment V, Table 2 for "Acceptable Fit-Testing Methods")
Qualitative fit test – a pass/fail test that relies on the subject to detect a challenge agent and is predicated on an individual's sensory response. Quantitative fit test – uses an instrument to measure the challenge agent inside the respirator and gives a numerical value to the test data. If the qualitative testing is used, the employee should be informed of the exposure limitations. A limit of 10 times the permissible exposure level for an 8-hour duration is the maximum exposure for either a half mask, or full face piece negative pressure respirator.

For OSHA guidelines, refer to Attachment V, Table 2 for Acceptable Fit Test Methods.

Irritant Smoke Protocol

Irritant smoke protocol for qualitative fit testing is very effective, since it is the only challenge agent that does not rely on a voluntary response. This type of test requires that the tester be well trained in the correct and safe use of the irritant smoke tubes. The smoke tubes can be a health hazard if not used properly and in a well ventilated room. Specific step by step procedures are referenced in Attachment III.

Maintenance and Care
The company will provide for the cleaning and disinfecting, storage, inspection and repair of respirators that are issued to their employees. There are specific guidelines to follow in Attachment IV to ensure the respirators are clean and disinfected. Respirators designated for the exclusive use of an employee shall be the responsibility of that employee to maintain and keep in a sanitary condition. Respirators issued to more than one employee shall be cleaned and disinfected before being worn by different individuals. Respirators maintained for emergency, training, or fit testing use shall be cleaned and disinfected after every use.

Storage
Respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture and damaging chemicals. They shall be packed or stored to prevent deformation of the face piece. Emergency respirators shall, in addition, be kept accessible to the work area and stored in easily identifiable coverings. Reference manufacturer's instructions for other recommendations.

Inspection
Respirators are inspected on a regular basis and employees are instructed on how to inspect their respirator. All respirators used on a routine basis shall be inspected before each use and during cleaning. All emergency respirators shall also be inspected at least on a monthly basis. Respirator inspection shall include the tightness of connections and the condition of various parts including, but not limited to, the face piece, head straps, valves, gaskets, connecting tubes, cartridges, canisters and filters. Also, check all elastic parts for deterioration and pliability. Inspection of self-contained breathing apparatus shall be done only by trained technicians competent with that specific brand, make and model of respiratory equipment. The technician conducting the inspection shall certify the inspection by attaching a signed and dated tag or label to the equipment.

Repairs

Equipment that is defective, broken or otherwise in need of repair shall be identified immediately by attaching a red tag and stating the reason it is out of service. Repairs to respirator equipment shall be made by competent employees and only with the
manufacturers' recommended replacement parts. Absolutely no substitution of parts is allowed that is not authorized by the NIOSH approval.

Medical Surveillance

Employees should be aware of medical conditions that would prevent or limit their use of respiratory equipment. Supervisors shall be informed when employees experience medical difficulties that may affect or be a result of respirator use. Substance specific hazards may require a specific medical monitoring procedure that requires biological testing. Employees will be required to complete a medical questionnaire initially, and then further evaluation at the frequency determined by the medical evaluator.

Program Evaluation

The supervisor will monitor the work site for acceptance of and compliance with the written respiratory program. The supervisor will address issues where employees have had deficient respiratory issues, i.e. cartridge breakthrough and the respirator effectiveness. Employees will be asked questions about the effectiveness of the program and encouraged to offer suggestions for improvement including how the fit test protocol was performed, the maintenance procedures for care and storage of respirators and overall program. Periodic audits will be documented and reviewed by the program administrator. The program administrator will report, at lease annually, to the management on the effectiveness of the total program.

Attachment I Assigned Protection Factors

Attachment I
Table 1 – Assigned Protection Factors

Type of respirator	Respiratory inlet covering	
	Half Mask [1]	Full Facepiece
Air purifying	10	100
Atmosphere supplying		
SCBA (demand) [2]	10	100
Airline (demand)	10	100

Type of respirator	Respiratory inlet covering			
	Half mask	Full Face	Helmet/ hood	Loose-fitting facepiece
Powered air purifier	50	1000 [3]	1000 [3]	25
Atmosphere supplying airline				
Pressure demand	50	1000	-	-
Continuous flow	50	1000	1000	25
Self-contained breathing apparatus				
Pressure demand Open/closed circuit	-	[4]	-	-

1) Includes ¼ mask, disposable half masks, and half masks with elastomeric facepieces.
2) Demand SCBA shall not be used for emergency situations such as fire fighting.
3) Protection factors listed are for high-efficiency filters and sorbents (cartridges and canisters). With dust filters, an assigned protection factor of 100 is to be used due to the limitations of the filter.
4) Although positive-pressure respirators are currently regarded as providing the highest level of respiratory protection a limited number of recent simulated workplace studies concluded that all users may not achieve protection factors of 10,000. Based on this limited data, a definitive assigned protection factor could not be listed for positive-pressure SCBA's. For emergency planning purposes where hazardous concentrations can be estimated, an assigned protection factor of no higher that 10,000 should be used.

NOTE: Assigned protection factors are not applicable for escape respirators. For combination respirators, e.g., airline respirators equipped with an air-purifying filter, the mode of operation in use will dictate the assigned protection factor to be applied.

Attachment II Respirator Selection

Logic Guide: Reference ANSI 288.2 – 1992 7.2.2.

Respirator selection involves reviewing each operation to (a) determine what hazards may be present (hazard determination) and (b) select which type or class of respirators can offer adequate protection.

Hazard Determination Steps

The nature of the hazard shall be determined as follows:

- Determine what contaminant(s) may be present in the work place.
- Determine whether there is a published Threshold Limit Value, Permissible Exposure Limit, or any other available exposure limit or estimate of toxicity for the contaminant(s). Determine if the IDLH concentration for the contaminant is available.
- Determine if there is a comprehensive health standard (e.g., lead, asbestos) for the contaminant(s). If so, there may be specific respirators required that influence the selection process.
- If the potential for an oxygen-deficient environment exists, measure the oxygen content.
- Measure or estimate the concentration of the contaminant(s).
- Determine the physical state of the contaminant. If an aerosol, determine or estimate the particle size. Determine if vapor pressure of the aerosol is significant at the maximum expected temperature of the work environment.
- Determine whether the contaminant(s) present can be absorbed through the skin, produce skin sensitization, or be irritating or corrosive to the eyes or skin.
- Determine for a gas or vapor contaminant(s) if a known odor, taste, or irritation concentration exists.

Selection Steps

The proper respirator shall be selected as follows:

- If unable to determine what potentially hazardous contaminant may be present, the atmosphere shall be considered IDLH.
- If no exposure limit or guideline is available and estimates of the toxicity cannot be made, the atmosphere shall be considered IDLH.
- If a specific standard exists for the contaminant, follow those guidelines/requirements.
- If there is an oxygen-deficient atmosphere, the type of respirator selected depends on the partial pressure and concentration of oxygen and the concentration of the other contaminant(s) that may be present.
- If the measured or estimated concentration of the contaminant(s) is considered IDLH, reference “Respirators for use under IDLH conditions” at the end of this guide.
- Divide the measured or estimated concentration of each contaminant by the exposure limit or guideline to obtain a hazard ratio. When two or more substances are present, consideration needs to be given if there is a synergistic or combined effect of exposure rather than considering each substance individually. Select a respirator with an assigned protection factor greater than the value of the hazard ratio, as listed in Attachment I, Table 1.

- If the contaminant(s) is a gas or vapor only, select a device with an assigned protection factor that is greater than the hazard ratio. The concentration shall also be less than the maximum use concentration of the cartridge/canister.
- If the contaminant is a paint, lacquer, or enamel, select a respirator approved specifically for paint mists or an atmosphere-supplying respirator. (Approval label or regulatory provision may preclude use for some paints.)
- If the contaminant is a pesticide, select a respirator and filtration system specifically approved for pesticides or an atmosphere-supplying respirator. (Approval label may preclude use for some pesticides.)
- If the contaminant is an aerosol with an unknown particle size, or less than 2 um (MMAD), a high-efficiency filter shall be used.
- If the contaminant is a fume, use a filter approved for fumes or a high-efficiency filter.
- If the contaminant is an aerosol with a particle size greater than 2 um (MMAD), any filter type (dust, fumes, mist, or high efficiency) may be used.
- If the contaminant is a gas or vapor and has poor warning properties, the use of an atmosphere-supplying respirator is generally recommended.

When atmosphere-supplying respirators cannot be used because of the lack of a feasible air supply, or the need for worker mobility, air-purifying devices should be used only if:
1. The air-purifying respirator has a reliable end-of-service-life indicator that will warn the user prior to contaminant breakthrough or,
2. A cartridge change schedule is implemented based on cartridge service data including desorption studies (unless cartridges are changed daily), expected concentration, pattern of use, duration of exposure, and the chemical does not have a ceiling limit.

Respirators for use Under IDLH Atmospheres

- The required respiratory protection for IDLH conditions caused by the presence of toxic materials, or a reduced percentage of oxygen, is a combination full face piece pressure demand supplied air respirator (SAR) with auxiliary self-contained air supply. For rescue applications, a full face piece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes is acceptable.
- When respirators are worn under IDLH conditions, at least one standby person shall be present in a safe area. The standby person shall have the proper equipment available to assist the respirator wearer in case of difficulty. Communications (visual, voice, signal line, intercom, radio or other suitable means) shall be maintained between the standby person and the wearer. While working in the IDLH atmosphere, the wearer shall be equipped with a safety harness and lifeline to permit removal to a safe area, if necessary. Provisions for rescue other than harness and lifeline may be used, if equivalent.
- Special considerations for confined space entry into IDLH conditions are not addressed in this policy.

Use and Duration of Cartridges

Contaminant (1)	Maximum Concentration	Maximum Use Time (2) (Hours)
1,3 Butadiene	50	1
Ammonia	100	4
Benzene	10	8
Benzene	50	4
Chemicals not specified (3)	NA	1
Naphtha	100	4
Naphtha	500	2
Particulates (including dusts, mists, welding fumes)	NA	8
Sulfur Dioxide	50	8
Total Hydrocarbons (as n-hexane)	100	4
Total Hydrocarbons (as n-hexane)	500	1

1. If more than on contaminant is present, use the lowest maximum use time.
2. Cartridges should be changed out if the contaminant can be detected inside the respirator mask, regardless of the maximum use time.
3. Cartridges for chemicals not listed should be used for only 1 hour. This will err on the side of safety. If specific information is needed on a particular chemical, consult with the MSDS or your supervisor.

Attachment III Fit Testing

If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the face piece several times and to adjust the straps to become adept at setting the proper tension on the straps.

A. Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:
1. Position of the mask on the nose
2. Room for eye protection
3. Room to talk
4. Position of mask on face and cheeks

B. The following criteria shall be used to help determine the adequacy of the respirator fit:
1. Chin properly placed
2. Adequate strap tension, not overly tightened
3. Fit across nose bridge
4. Respirator of proper size to span distance from nose to chin
5. Tendency of respirator to slip
6. Self-observation in mirror to evaluate fit and respirator position

C. The test subject shall conduct a user seal check, utilizing the negative and positive pressure seal check methods. Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to side and up and down slowly while taking in a few slow deep breaths. Another face piece shall be selected and retested if the test subject fails the user seal check tests.

D. The test shall not be conducted if there is any hair growth between the skin and the face piece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel, which interferes with a satisfactory fit, shall be altered or removed.

E. If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.

F. Exercise regimen: Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercise that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test

G. The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use, which could interfere with respirator fit.

H. Test exercises: The following test exercises are to be performed for all fit testing methods. The test subject shall perform exercises, in the test environment, in the following manner:

1. Normal breathing: In a normal standing position, without talking, the subject shall breathe normally.
2. Deep breathing: In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
3. Turning head side to side: Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.
4. Moving head up and down: Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
5. Talking: The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a person looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

6. Bending over: The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments that do not permit bending over at the waist.
7. Normal breathing: Same as exercise (H,1).

Each test exercise shall be performed for one minute. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

Irritant Smoke Protocol

This qualitative fit test uses a person's response to the irritating chemicals released in the "smoke" produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.

A. General Requirements and Precautions
1. The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).
2. Only stannic chloride smoke tubes shall be used for this protocol.
3. No form of test enclosure or hood for the test subject shall be used.
4. The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care shall be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.
5. The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test, or the build-up of irritant smoke in the general atmosphere.

B. Sensitivity Screening Check
1. The test operator shall break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.
2. The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.
3. The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties, and to determine if he/she can detect the irritating properties of the smoke. The test operator shall carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.

C. Irritant Smoke Fit Test Procedure
1. The person being fit tested shall don the respirator without assistance, and perform the required user seal check(s).
2. The test subject shall be instructed to keep his/her eyes closed.

3. The test operator shall direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the face piece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.
4. If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.
5. The exercises identified in section H of this attachment shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.
6. If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.
7. Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.
8. If a response is produced during this second sensitivity check, then the fit test is passed.

Attachment IV Respirator Cleaning Procedures

These procedures are provided as a guideline when cleaning respirators. They are general in nature, and the administrator 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. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth (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).

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 water (110° F maximum), with mild detergent or 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 (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 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/100cc of 45% alcohol) to one liter of water at 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 (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.

Attachment V Table 2 Acceptable Fit-Testing Methods

	QLFT	QNFT
Half-Face, Negative Pressure, APR (<100 fit factor)	Yes	Yes
Full-Face, Negative Pressure, APR (<10 fit factor) Used in atmospheres up to 10 times the PEL	Yes	Yes
Full-Face, Negative Pressure, APR (>100 fit factor)	No	Yes
PAPR	Yes	Yes
Supplied-Air Respirators (SAR), or SCBA used in Negative Pressure (Demand Mode) (>100 fit factor)	No	Yes
Supplied-Air Respirators (SAR), or SCBA used in Positive Pressure (Pressure Demand Mode)	Yes	Yes

Attachment VI Site Specific Respiratory Protection Plan
Purpose
Because site facilities, equipment and procedures are not standard, OSHA requires that each worksite develop and maintain a Site Specific Respiratory Protection Plan. The Site Respiratory Protection Program Administrator will utilize the Respiratory Protection Program and this attachment to develop site specific procedures governing the administration, selection, use, and care of respirators.

Scope and Application

This procedure applies to all sites or projects where employees are required to wear respirators during normal work operations and during certain non-routine or emergency operations.

Administrators are responsible for ensuring that the respiratory protection program is implemented at their site. In addition all site supervisors shall be knowledgeable about the program requirements for their own protection, supervisors must ensure that the program is understood and followed by the employees under they supervise. Duties include:

Administrator/Supervisor
- Ensuring that employees under their supervision (including new hires) have received appropriate and current training, fit testing, and medical evaluation.
- Ensuring the availability of appropriate respirators and accessories.
- Being aware of tasks requiring the use of respiratory protection.
- Enforcing the proper use of respiratory protection when necessary.
- Ensuring that respirators are properly cleaned, maintained, and stored according to the site respiratory protection plan.
- Ensuring that respirators fit well and do not cause discomfort.
- Identifying work areas, processes or tasks that require workers to wear respirators, and evaluating hazards.

- Monitoring respirator use to ensure that respirators are used in accordance with their certifications.
- Ensuring proper storage and maintenance of site respiratory protection equipment.
- Conducting qualitative/quantitative fit testing.
- Updating the Site Program as necessary to reflect workplace changes that affect respirator use.
- Coordinating with management on how to address respiratory hazards or other concerns regarding the Site Program.

Employees

Each employee has the responsibility to wear his or her respirator when and where required and in the manner in which they were trained. Employees must also:

- Care for and maintain their respirators as instructed and store them in a clean and sanitary location.
- Inform their supervisor if the respirator no longer fits well and request a new one that fits properly.
- Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding the program.
- Notify their supervisor or the Program Administrator of any other problems associated with using their respirator.

Hazard Determination/Respirator Selection

The Administrator shall utilize Attachment II – Respirator Selection to ensure that the respirator selected will be adequate to effectively reduce exposure to the respirator user under all conditions of use including reasonably foreseeable emergency situations.

- The results of the hazard evaluation are summarized in Table 1.

TABLE 1: HAZARD EVALUATION SUMMARY

Work Activity	Contaminants	Exposure Monitoring	Permissible Exposures	Controls
Asbestos Insulation Work	Asbestos	Sample prior to start of work	0.1 f/cc TWA	Not in excess of 1 f/cc - ½ mask APR w/ high efficiency filters Not in excess of 5 f/cc – FF APR w/high efficiency filters Not in excess of 10 f/cc – PAPR w/high efficiency filters
Opening equipment containing Benzene	Benzene	Prior to opening	1 ppm	< 1 ppm – No respirator. Less than or 10 ppm ½ mask APR w/ organic vapor cartridge Less than or 50 ppm FF APR w/organic vapor cartridge Less than or 100 ppm FF PAPR w/ organic vapor cartridge Less than or 1000 ppm supplied air FF respirator > 1000 ppm SCBA
Opening equipment containing Butadiene	Butadiene	Prior to opening	1ppm (TWA)	Same a Benzene
Lead paint work Activities covered: • Dry abrasive blasting • Burning, flame-torch cutting & welding • Grinding, sanding or buffing with power tools	Lead	Sample prior to start of work	50 Ug/M3 (TWA)	Airborne concentration of Lead Not in excess of 0.5 mg/M3 – ½ APR w/high efficiency filters Not in excess of 2.5 mg/M3 – FF APR w/high efficiency filters Not in excess of 50 mg/M3 PAPR w/high efficiency filters
Opening equipment containing H2S	H2S	Sample prior to start of work	10 ppm	< 10 ppm No respirator

Site Hazard Evaluation Update
The Administrator is responsible to revise and update the hazard evaluation as needed (i.e., any time work process changes may potentially affect employee exposure). If an employee feels that respiratory protection is needed during a particular activity, she/he is to notify their immediate supervisor.

Assigned Protection Factors
The Administrator will use Attachment I to determine the type of respirator to be selected for non-routine or reasonably foreseeable emergency situations.

Medical Evaluation
The Administrator will insure that section F, Medical Evaluation, of this policy is followed.

Fit Testing
Refers to section G, Respirator Fit Test, of the Respiratory Protection Program.

Procedures for Immediately Dangerous to Life and Health (IDLH) Situations
All employees are prohibited from entering and working in known IDLH areas, unless they are specifically trained and certified for such work i.e. inert entry. Whenever workers are assigned to work in potentially IDLH areas, task specific procedures including training requirements shall be developed and strictly adhered to.

The Administrator has identified the following areas or job duties as presenting the potential for IDLH conditions: _____

_____

_____

(List areas/job duties/non-routine activities)

Cleaning and Disinfecting
Respirators will be cleaned and disinfected by, the Administrator insure the procedures in Attachment IV: Respirator Cleaning Procedures are strictly adhered to.

Storage
Respirators will be stored so that they are protected against damage, contamination, dust, sunlight, temperature extremes, excessive moisture, and damaging chemicals. When respirators are packed or stored, the facepiece and exhalation valve will be stored in a manner that prevents deformation. Each respirator should be positioned so that it retains its natural configuration.

The Administrator will ensure that an adequate number and type of respirators are provided each work area where they are needed.

Inspection
Respirators used in routine situations will be inspected during cleaning, prior to issue and prior to use.
Inspection information for respirators will be maintained at until it is replaced following subsequent certification.

Repair

Only approved manufacturer's replacement parts designed for that respirator will be used. Repairs will be made in accordance with the manufacturer's recommendations and specifications regarding the type and extent of repairs to be performed.

Because components such as reducing and admission valves, regulators, and alarms are complex and essential to the safe functioning of SCBAs, they are required to be adjusted and repaired only by the manufacturer or a technician trained by the manufacturer.

SCBA's air and oxygen cylinders will be maintained in a fully charged state and recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. Cylinders will be recharged by sending them out to or recharged on site

SCBA air and oxygen cylinders will be hydrostatically tested according the manufacturers recommended frequency. Hydrostatic testing will be conducted.

Composite-wrapped aluminum cylinders will be taken out of service after 15 years regardless of the last hydrostatic test date.

Breathing Air Quality

The Administrator will ensure that breathing air for atmosphere-supplying respirators will be of high purity, meets quality levels for content, and does not exceed contaminant levels and moisture requirements.

For supplied-air respirators (SARs), only Grade D breathing air shall be used in cylinders. The Program Administrator or designee will coordinate deliveries of compressed air with and require certification that the air in the
cylinders meet the specifications of Grade D breathing air.

Compressors

Compressors used for supplying breathing air must be constructed and situated so contaminated air cannot enter the air-supply system. Compressors must meet the requirements of Section E of this policy.

Only non-oil-lubricated compressors will be used at The Administrator shall ensure that the compressor intake will not allow the introduction of carbon monoxide greater than 10 parts per million (ppm) into the system. Note: This could be from sources other than the compressor such as forklifts/vehicles or other gas powered equipment. Where this is not possible or feasible, it may be necessary to combine the use of a carbon monoxide alarm with a carbon monoxide sorbent bed when conditions are such that a reliable carbon monoxide-free area for air intake cannot be found.

Training and Information

PeneCore Drilling, Inc. will provide training to respirator users, supervisors, and any person issuing respirators on the contents of the Respiratory Protection Program the proper care and use of site specific equipment and their responsibilities. All training records will include the manufacturer, type and model of respiratory protection equipment.

Recordkeeping

The Administrator shall retain copies of all respiratory protection program documents, including fit test and training records.

SUPPLIED AIR PRE-JOB CHECKLIST

Date: Location:
Unit: Equipment:
Supervisor: Crew:
Bottle watch: Safety standby:

Cylinders & Associated Equipment	**Yes**	**No**	**Hoses and Fittings**	**Yes**	**No**
Pressure: All bottles, i.e. 6 paks must be changed at 500 psi (SCBAs will be full for rescue or standby work 2000 psi)			Serviceable condition		
			Connected properly		
			No leaks		
Gauges					
Valve and check valve			**Facepiece and Regulator**	**Yes**	**No**
Cylinder Valve Cover(s)			Lens is clean		
Alarm			Tearoff Lens Present		
Regulator-coupling secured			Face seal (fit check)		
SCBA Frame and Harness Assembly	**Yes**	**No**	Head straps		
			Purge valve		
Waist belt			Exhalation valve & diaphragm		
Shoulder straps			Adequate air flow		
Snaps, buckles, clips					

Task Related Checklist	✓
Proper permits at location and displayed	
Hazard analysis completed and displayed	
Safe work and emergency plans understood by all crew members	
Personnel certified to perform supplied air work	
Standby attendant trained and procedures reviewed	
Bottle watch trained and procedures reviewed	
Area barricaded with red tape and tagged “supplied air being used”	
Emergency bypass off	
Damaged equipment tagged and removed from service	
Backup cylinder determined	

Note:

- Cylinders which show evidence of exposure to high heat or impact damage shall be removed from service and retested prior to recharging.
- Do not use tools to open or close the purge valve (finger-tight only).
- Route hose lines in a manner that does not restrict access/egress.
- Make sure your work does not endanger others in your immediate area or downwind.
- Do not remove the facepiece if product exposure obstructs your vision. Use tearoff lens or wipe it off and move safely out of the hazardous environment.

INDIVIDUAL RESPIRATORY FIT TEST RECORD

Location:		Date:	
Instructor(s):		Test Type:	Qualitative / Quantitative
Respirator Information:		Test Method:	
Make: Model: Style: Size:			
Print Employee's Name		Social Security Number	
Employee's Signature		Date Entered	

COMPREHENSIVE ELECTRICAL SAFETY PROGRAM

Policy

Work activities involving electrical hazards shall be conducted safely.

This policy covers minimum performance standards applicable to all company associates employees and locations. Local practices requiring more detailed or stringent rules, client standards or local, state or other federal requirements regarding this subject can and should be added as an addendum to this procedure as applicable.

Purpose

To establish the procedures that shall be followed in the safe performance of work activities involving general electrical hazards.

Scope

Applies to all company work sites; i.e., company offices, client job sites, etc.

Definitions

Approved means acceptable to the authorities.

Authorized Person means a person approved or assigned by the company Associates to perform a specific duty or duties or to be at a specific location or locations at the jobsite.

Cabinet means an enclosure designed either for surface or flush mounting.

Competent Person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

Conductor (bare) means a conductor having no covering or electrical insulation whatsoever.

Conductor (insulated) means a conductor encased within material of composition and thickness that is recognized as electrical insulation.

Defect means any characteristic or condition that tends to weaken or reduce the strength of the tool, object, or structure of which it is a part.

Disconnect means a device, or group of devices, or other means by which the conductors of a circuit can be disconnected from their source of supply.

Enclosed means surrounded by a case, housing, fence or walls which shall prevent persons from accidentally contacting energized parts.

Enclosure means the case or housing of apparatus, or the fence or walls surrounding an installation to prevent personnel from accidentally contacting energized parts, or to protect the equipment from physical damage.

Exposed (as applied to live parts) means capable of being inadvertently touched or approached nearer than a safe distance by a person. It is applied to parts not suitably guarded, isolated, or insulated.

Guarded means covered, shielded, fenced, enclosed, or otherwise protected by means of suitable covers, casings, barriers, rails, screens, mats, or platforms to remove the likelihood of approach to a point of danger or contact by persons or objects.

Isolated means not readily accessible to persons unless special means for access are used.

Labeled means equipment or materials to which has been attached a label, symbol or other identifying mark of a qualified testing laboratory which indicates compliance with appropriate standards or performance in a specified manner.

NEC stands for National Electric Code.

Qualified means persons who are capable of working safely on equipment and are familiar with electrical properties, the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.

Receptacle means a contact device installed at the outlet for the connection of a single attachment plug. A single receptacle is a single contact device with no other contact device on the same yoke. A multiple receptacle is a single device containing two or more receptacles.

General Requirements

Feasible engineering and administrative controls shall be applied to mitigate or minimize the risk of injury and illness from exposure to electrical hazards. Where such hazards
still exist after application of these controls, local 'hot work' procedures procedures (see local addendum to this section) shall apply and personal protective equipment shall be utilized. Such addenda shall comply with NFPA 70E.

Where feasible, employees shall not perform live electrical work. Branches that engage in live work are required to provide applicable safe work procedures, PPE, and equipment in Addendum to this manual section.

In existing installations, no changes in circuit protection shall be made to increase the load in excess of the load rating of the circuit wiring.

Worn or frayed electric cords or cables shall be removed from work areas for repair or disposal. Plugs equipped with a grounding prong must have the prong in place.
Damaged plugs must be repaired. Repairing cords shall be limited to being completed by an authorized qualified person . as determined by the Branch Safety Officer.

Working spaces, walkways, and similar locations must be kept clear of cords to eliminate hazards.

Extension cords shall not be fastened with staples, hung from nails, or suspended by wire. Control equipment, utilization equipment, and busways approved for use in dry locations only shall be protected against damage from the weather during building construction.

Metal raceways, cable armor, boxes, cable sheathing, cabinets, elbows, couplings, fittings, supports, and support hardware shall be of materials appropriate for the environment in which they are to be installed.

Electrical switches shall be labeled to indicate the system, equipment, service, or tool they control. This includes switch boxes, cabinets, motor control cabinets, stationary equipment, control panels, and other such switches or disconnects.

Persons who perform electrical work shall wear hard hats that are proof tested to 20,000 volts and shall not wear clothing with or without PPE that could increase injury (100% cotton is better than blended materials).

In work areas where the exact location of underground electric power lines is unknown, employees using jackhammers, bars, or other hand tools that may contact a line shall be provided with insulated protective gloves. Gloves must be rated to (or exceed) the

voltage for which they may be exposed. The gloves shall be inspected before use and replaced as per the manufacturer's specifications.

Wiring components and equipment in hazardous environments shall be maintained in a condition consistent with NEC requirements (i.e. no loose or missing screws, gaskets, threaded connections, seals, or other impairments to a tight condition).

Hazardous locations are those locations where flammable vapors, liquids or gases, or combustible dusts or fibers may be present. There are six "classifications" for these types of locations, as follows:
Class I Division 1 and Division 2
Class II Division 1 and Division 2
Class III Division 1 and Division 2

Equipment, wiring methods, and installations of electrical equipment in hazardous (classified) locations must be designated as "intrinsically safe" or be approved for the classification location.

Energized Electrical Parts and Systems

This section does not apply to power distribution or transmission lines. Refer to CFR Subpart "R" 1910.269 (servicing) and/or CFR Subpart "V" 1926.950 (Construction) for overhead power transmission and distribution line requirements.

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 which are or may be energized. The specific safety-related work practices shall be consistent with the nature and extent of the associated electrical hazards.

Live parts to which an employee may be exposed shall be de-energized before the employee works on or near them, unless it can be demonstrated that de-energizing introduces additional or increased hazards or is infeasible due to equipment design or operational limitations. 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.

If the exposed live parts are not de-energized (i.e., for reasons of increased or additional hazards or infeasibility), other safety-related work practices shall be used to protect employees who may be exposed to the electrical hazards involved. Such work practices shall protect employees against contact with energized circuit parts directly with any part of their body or indirectly through some other conductive object. 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. These work practices will be covered in the Addendum.

Working on or Near Exposed De-Energized Parts

This section applies to work on exposed de-energized parts near enough to expose employee/s to an electrical hazard.

While an employee is exposed to contact with fixed electrical equipment or circuits which have been de-energized, the circuits energizing the parts shall be locked out in accordance with the Energy Control (lockout) section of this manual.

The circuits and equipment to be worked on shall be disconnected from electrical energy sources (and locked out). Control circuit devices, such as push buttons, selector switches, and interlocks, shall not be used as the sole means for de-energizing circuits or equipment.

Procedures for the release of stored electric energy shall be covered in the Addendum to this policy section (as hot work).

When capacitors or associated equipment are handled, they shall be treated as energized. Stored non-electrical energy in devices that could reenergize electrical parts shall be blocked or relieved to the extent that the parts could not be accidentally energized by the device.

Working on or Near Exposed Energized Parts

Every effort shall be made to preclude work on energized electrical parts. When this is not possible, the requirements of this section shall apply. Potential contact with live energized parts includes work performed on exposed live parts (involving either direct contact or contact by means of tools or materials) or near enough to them for employees to be exposed to any hazard they present.

Only qualified persons shall work on electrical equipment that has not been de-energized. If work is to be performed near overhead lines, the lines shall be de-energized and grounded, or other protective measures shall be provided before work is started.

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

Overhead Electrical Lines

While conducting site activities near overhead lines, field personnel need to be aware of the location of the lines so as not to use conductive equipment (e.g., metal equipment to include: drill rigs; hand auger extensions; geoprobe units; excavators, etc.) in close proximity to power lines.

OSHA 29 CFR 1926.550 requires that any vehicle or mechanical equipment (i.e., drill rigs) capable of having parts of its structure elevated near energized overhead lines shall be operated so that a clearance distance of at least 10 feet is maintained.

When calculating clearance distances for a drill rig, consider both the length of the derrick and the length of the rods. Position the rig such that if rods are ever fully extended from the top of the derrick, the rods will still be at least 10 feet away from the power lines. Note that rods can lean or sway when elevated so it may be necessary to maintain more than a 10- foot distance on the ground to ensure that there is a 10-foot horizontal distance between the rods and the power line.

Higher voltages require greater clearance distances. Contact the electrical utility company to verify line voltage. If the voltage is higher than 50kV, the clearance shall be increased 4 in. for every 10kV over that voltage.

Table 12-1

Voltage	Required Clearance
0-50 kV	10 feet
50-200 kV	15 feet
200-350 kV	20 feet
350-500 kV	25 feet
500-750 kV	35 feet
750-1000 kV	45 feet

Under any of the following conditions, OSHA allows the required clearance to be reduced:

- If a vehicle is in transit with its structure lowered, the clearance shall be reduced to 4 ft. If the voltage is higher than 50kV, the clearance shall be increased 4 in. for every 10kV over that voltage
- If insulating barriers (boots) are installed to prevent contact with the lines, and if the the line being guarded and are not a part of or an attachmentto the vehicle or its raised structure, OSHA allows the clearance to be reduced to a distance within the designed working dimensions of the insulating barrier. However, while this is permissible according to OSHA, some utility companies are recommending that safe distances, as described previously, be maintained in addition to the insulating barrier.
- 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

When an unqualified person is working in an elevated position near overhead lines, or working on the ground in the vicinity of overhead lines, the location shall be such that the person and the longest conductive object he or she may contact cannot come closer to any unguarded, energized overhead line than the clearance distances indicated in Table 12-1.

For voltages normally encountered with overhead power lines, objects which do not have an insulating rating for the voltage involved shall be considered to be conductive.

When a qualified person is working in the vicinity of overhead lines, whether in an elevated position or on the ground, the person shall not approach or take any conductive object without an approved insulating handle closer to exposed energized parts than the clearance distances indicated in Table 12-2, unless:

- 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), or
- The energized part is insulated both from other conductive objects at a different potential and from the person, or
- The person is insulated from conductive objects at a potential different from that of the energized part.

Table 12-2

Approach Distances for Qualified Employees – Alternating Current

Voltage range (phase to phase)	**Minimum approach distance**
300V and less	Avoid contact
Over 300V, not over 750V	1 ft. 0 in. Over
750V, not over 2kV	l ft. 6 in. Over
2kV, not over 15kV	2 ft. 0 in. Over
15kV, not over 37kV	3 ft. 0 in. Over
37kV, not over 87.5kV	3 ft. 6 in.
Over 87.5kV, not over 121kV	4 ft. 0 in.

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 indicated in Table 12-2. However, employees standing on the ground shall not contact the vehicle or mechanical equipment or any of its attachments, unless:

- The employee is using protective equipment rated for the voltage or 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 this section.
- 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. 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, which can develop within the first few feet or more outward from the grounding point.

Illumination
Employees shall not enter spaces containing exposed energized parts, unless illumination is provided that enables the employees to perform the work safely. Where lack of illumination or an obstruction precludes observation of the work to be performed, employees shall not perform tasks near exposed energized parts. Employees shall not reach blindly into areas which may contain energized parts.

Confined Space or Enclosed Space Work
When an employee works in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, protective shields, protective barriers, or insulating materials shall be used as necessary to avoid inadvertent contact with these parts. Doors, hinged panels, and the like shall be secured to prevent swinging into an employee and causing the employee to contact exposed energized parts (reference the Confined Spaces section of this manual).

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

For instance, an employee should measure the length of a sledge hammer and the expected radius of his swing prior to using the hammer near an energized circuit. If such a circuit is present, a sign must be posted to warn the employees. The job supervisor must inform the employees of the location of the lines, the hazards involved, and the protective measures to be taken.

Portable Ladders
Portable ladders shall have nonconductive siderails if they are used where the employee or the ladder could contact exposed energized parts (reference Ladder section of this manual).

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

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

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

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

Grounding, GFCIs and Assured Grounding Procedures

Equipment, tools and cord sets shall be provided and utilized so as to protect employees from electrical shock and to prevent fire.

Equipment and Tools

Note: Portable equipment which is "double insulated" and endorsed by a nationally recognized testing facility need not have a grounding conductor, but is subject to the inspection requirements of this section.

Tools and equipment subject to inspection and testing include:

- Portable Electrical Tools such as grinders, drills and stapling guns.
- Stationary tools such as table saws, drill presses, and jig saws.
- Portable electrical extension cords.
- Portable and Temporary lighting systems and cords.

Receptacles shall be of the grounding type and their contacts shall be grounded by connection to the equipment grounding conductor of the circuit supplying that receptacle in accordance with the NEC.

Visual inspections

Visual inspection of tools and equipment are required prior to each use and shall include:

- General condition.
- Plugs and caps, and presence of ground prong.
- Electrical cord sets.
- External defects, and missing parts.

Defective tools shall be tagged, taken out of service and placed in a secured location until they are repaired or destroyed.

Testing

The following tests shall be performed on all applicable equipment:

- Equipment grounding conductors shall be tested for continuity and shall be electrically continuous.
- Receptacle and attachment cap or plug shall be tested for correct attachment of the equipment-grounding conductor. The equipment-grounding conductor shall be connected to its terminal.

Required tests should be performed as indicated below:

- Before first use.
- Before being returned to service following any repairs.
- Before being used, after any incident that can be reasonably suspected to have caused damage (for example, when a cord set is run over).
- At intervals not to exceed 3 months.

Test equipment must be evaluated for proper operation immediately before and after tests are conducted.

Removal From Service

Any equipment failing any test shall be taken out of service, shall be tagged with a "Danger, Do Not Use" tag, secured and repaired or destroyed.

Ground Fault Circuit Interrupters (GFCI's)

Ground Fault Circuit Interrupters (GFCI's) shall be used on receptacles >15 amps up to and including 30 amps for tool and equipment used in construction applications and potentially wet environments (either indoors or outdoors). Receptacles of temporary wiring systems and portable generators shall be protected with a GFCI.

The minimum requirements relative to the use of Ground Fault Circuit Interruptors are:

- Prior to use, and periodically thereafter, verify that the GFCI is in good working order. (e.g., Plug the GFCI in to an outlet, plug a power tool or light in to the GFCI, hit the "test" button and verify that it interrupts current flow). Periodically re-test the GFCI to ensure continued effectiveness.
- Remove from service any GFCI that has insufficient load capacity, is damaged or is ineffective for any reason. Affix a "Danger, Do Not Use" tag and store the GFCI in a secure location until it can be replaced or repaired. Destroy and discard any GFCI that cannot be repaired or re-used.

Train employees in the provisions of this section as related to safe us of GFCIs.
This training should include:

- Double insulated tools.
- Defective cords and plugs.
- Heavy moisture, and wet conditions.
- Operation, selection, and use of GFCI's.

Assured Grounding Program

When this is not possible (feasible) to use GFCI's, the Assured Grounding procedures in this section shall apply and the Branch Office shall include as the Addendum to this policy section an Assured Grounding Program. It is best to avoid situations where an Assured Grounding Program is required because it is very labor intensive to comply. If unavoidable, the elements of this program shall include as a minimum:

- Written description of program.
- Program coordinator.
- Inspections.
- Documented Testing.
- Availability of Equipment.
- Integrity of testing equipment (repairs/testing of test equipment).
- Handling of defective tools and equipment.
- Who will perform tests, and repairs.
- Recordkeeping.
- How receptacles will be provided with GFCI's.

Only qualified persons shall perform inspection and "color code" labeling of tools and equipment.

The color code scheme for labeling tools and equipment, as indicated in the following table, shall be used in the Addendum color scheme. This color code scheme is consistent with guidance from the Association of General Contractors. Tools and equipment shall be color coded on a quarterly basis when inspected and marked according to the
Quarterly Code. If inspections are conducted monthly, the Monthly Code should be used.

For example "Red & Blue" means the inspection was conducted in the first quarter during February.

Month	**Monthly Color Code**	**Quarterly Code**
January	Red	Red
February	Red & Blue	
March	Red & White	
April	Blue	Blue
May	Blue & White	
June	Blue & Green	
July	White	White
August	White & Green	
September	White & Red	
October	Green	Green
November	Green & Red	
December	Green & Blue	

Temporary Wiring

This section applies to temporary electrical power and lighting wiring methods that may be of a class less than would be required for a permanent installation.

Temporary wiring shall be removed immediately upon completion of work and when the purpose for which the wiring was installed no longer applies.

General Requirements for Temporary Wiring

Feeders shall originate in a distribution center. The conductors shall be run as multi- conductor cord or cable assemblies or within raceways.

Branch circuits shall originate in a power outlet or panel board. Conductors shall be run as multi-conductor cord or cable assemblies or open conductors, or shall be run in raceways. Conductors shall be protected by over current devices at their ampacity.

Receptacles shall be of the grounding type. Unless installed in a complete metallic raceway, each branch circuit shall contain a separate equipment-grounding conductor, and receptacles shall be connected to the grounding system. Receptacles shall not be
connected to the same ungrounded conductor of multi-wire circuits that supply temporary lighting.

Disconnecting switches or plug connectors shall be installed to permit the disconnection of ungrounded conductors of each temporary circuit.

Lamps for general illumination shall be protected from accidental contact or breakage. Metal-case sockets shall be grounded.

The electric cords shall not be used to suspend temporary lights unless cords and lights are designed for this means of suspension. Temporary lighting shall be properly supported.

Portable electric lighting used in wet and/or other conductive locations, as for example, drums, tanks, and vessels, shall be operated at 12 volts or less. However, 120-volt lights may be used if protected by a ground-fault circuit interrupter.

A mounted box (with a cover) shall be used wherever a change is made to a raceway system or a cable system that is metal clad or metal sheathed. Non-metallic wiring system joints below seven foot (7') shall have mounted boxes and be covered. Exposed temporary joints shall have the wire nuts or other mechanical devices taped with black (electrical) tape to prevent them from falling off. Temporary joints including the ground wire shall have a mechanical connection.

Flexible cords and cables shall be protected from damage. Sharp corners and projections shall be avoided. Flexible cords and cables may pass through doorways or other pinch points, if protection is provided to avoid damage. Cords and temporary wiring passing through walls shall be properly protected (e.g. sleeved).

Extension cord sets used with portable electric tools and appliances shall be of three-wire type and shall be designed for hard or extra-hard usage. Flexible cords used with temporary and portable lights shall be designed for hard or extra-hard usage. See the NEC, ANSI/NFPA 70, in Article 400, Table 400-4 that lists various types of flexible cords, some of which are noted as being designed for hard or extra-hard usage. Note: SEU, SER or other similar cables cannot be laid on the floor despite their rating.

For temporary wiring over 600 volts, nominal, fencing, barriers, or other effective means shall be provided to prevent access of other than authorized and qualified personnel.

Batteries General

Batteries of the unsealed type shall be located in enclosures with outside vents or in well ventilated rooms and shall be arranged so as to prevent the escape of fumes, gases, or electrolyte spray into other areas.

Ventilation shall be provided to ensure diffusion of the gases from the battery and to prevent the accumulation of an explosive mixture.

Appropriate face shields, aprons, goggles and rubber gloves shall be provided for workers handling acids or batteries. Contact lenses are prohibited while working with batteries, unless using a type of goggle that will not allow the transference of gases.

Facilities for quick drenching of the eyes and body shall be provided within 25 feet of battery handling areas. Facilities shall be provided for flushing and neutralizing spilled electrolyte and for fire protection in the areas of battery use.

Battery charging installations shall be located in areas designated for that purpose. When batteries are being charged, the vent caps shall be kept in place to avoid electrolyte spray. Vent caps shall be maintained in a functioning condition.

Battery manufacturer guideline specifics covering Handling and transporation through Disposal of this policy section shall be met.

Smoking, eating or drinking in areas where batteries are being stored, charged or worked with is prohibited.

Handling and Transportation

Packaging, markings and transportation of batteries shall be in accordance with Federal, State and local laws, regulations and standards.

After the packaging is removed, batteries shall be inspected for defect, including, but not limited to:

- Bulging
- Cracking
- Leaking

Batteries shall not be forced into equipment/locations.
Where feasible, old and new batteries shall not be intermixed.

Storage

Batteries shall be kept in their original packaging until they are ready to be used. New and used batteries shall be kept separate to distinguish them.
Batteries should be stored separate from combustibles and flammables and protected from being crushed, punctured or exposed to incompatible environmental conditions.

Used batteries, not intended for re-use, shall be properly disposed.

Disposal

Batteries being disposed of shall be done so in accordance with Federal, State and local laws, regulations and standards. When possible, batteries should be recycled.

Clearances in the Work Place

Employees shall not be permitted to work in such proximity to any part of an electric power circuit that the employee could contact the electric power circuit in the course of work, unless the employee is protected against electric shock by deenergizing the circuit and grounding it (if appropriate) or by guarding it effectively by insulation or other means.

Supervisors and/or Competent Person(s) shall ascertain by inquiry, direct observation, or by instruments, whether any part of an energized electric power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool, or machine into physical or electrical contact with the electric power circuit. The supervisor/Competent Person shall post and maintain proper warning signs where such a circuit exists. The supervisor/Competent Person shall advise employees of the location of such lines, the hazards involved, and the protective measures to be taken.

Barriers or other means of guarding shall be provided to ensure that workspace for electrical equipment will not be used as a passageway during periods when energized parts of electrical equipment are exposed.

Fuses

Installing or removing fuses shall be considered as work with live electrical energy and shall be covered in the Addendum to this policy section for operations conducting such activities.

Persons who perform work on high voltage fuses (over 600 volts) shall wear appropriate head, face, body flash suits, protective footwear and insulated gloves.

Insulating electrical gloves, sleeves, aprons, and other protective electrical clothing shall be tested for leaks and integrity prior to initial use and periodically.

Protector gloves shall be worn over insulating gloves, except as defined in the above referenced standard.

Only manufacturer-qualified personnel shall inspect and make repairs to electrical insulating protective clothing.

Work Space Clearances - 600 Volts, Nominal, or Less

Working Space About Electric Equipment

Sufficient access and working space shall be provided and maintained about electric equipment to permit ready and safe operation and maintenance of such equipment.

Working Clearances

Except as required or permitted elsewhere in this section, the dimension of the working space in the direction of access to live parts operating at 600 volts or less and likely to require examination, adjustment, servicing, or maintenance while live shall not be less than indicated in the table below.

In addition to the dimensions shown in the following table, workspace shall not be less than 30 inches wide in front of the electric equipment. Distances shall be measured from the live parts if they are exposed or from the enclosure front or opening if the live parts are enclosed. Walls constructed of concrete, brick, or tiles are considered to be grounded.

Working space is not required in back of assemblies such as dead-front switchboards or motor control centers where there are no renewable or adjustable parts such as fuses or switches on the back and where connections are accessible from locations other than the back.

Minimum Depth of Clear Working Space in Front of Electric Equipment (feet)

Nominal voltage to ground conditions*	(a)*	(b)*	(c)*
0-150	3	3	3
151-600	3	3 1/2	4

*Conditions (a), (b), and (c) are as follows: (a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by insulating material. Insulated wire or insulated bus bars operating at not over 300 volts are not considered live parts. (b) Exposed live parts on one side and grounded parts on the other side. (c) Exposed live parts on both sides of the workspace [not guarded as provided in Condition (a)] with the operator between.
Note: For International System of Units (SI): one foot=0.3048m.

Minimum Depth of Clear Working Space in Front of Electric Equipment
(feet)

Working space required by this in this section shall not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space shall be guarded.

At least one entrance shall be provided to give access to the working space about electric equipment.

Where there are live parts normally exposed on the front of switchboards or motor control centers, the working space in front of such equipment shall not be less than 3 feet.

The minimum headroom of working spaces about service equipment, switchboards, panel boards, or motor control centers shall be 6 feet 3 inches.

Guarding of Live Parts

Except as required or permitted live parts of electrical equipment operating at 50 volts or more shall be guarded against accidental contact by cabinets or other forms of enclosures, or by any of the following means:

- By location in a room, vault, or similar enclosure that is accessible only to qualified persons.
- By partitions or screens so arranged that only qualified persons will have access to the space within reach of the live parts. Any openings in such partitions or screens shall be so sized and located that persons are not likely to come into accidental contact with the live parts or to bring conducting objects into contact with them.
- By location on a balcony, gallery, or platform so elevated and arranged as to exclude unqualified persons.

In locations where electric equipment could be exposed to physical damage, enclosures or guards shall be so arranged and of such strength to prevent damage.

Entrances to rooms and other guarded locations containing exposed live parts shall be marked with conspicuous warning signs forbidding unqualified persons to enter.

Work Space Clearances - over 600 volts, nominal
Conductors and equipment used on circuits exceeding 600 volts, nominal, shall comply with all applicable provisions of this section and with the following provisions that supplement or modify those requirements. The provisions of paragraphs listed paragraphs of this section do not apply to equipment on the supply side of the service conductors.

- Installations accessible to qualified persons only.
- Installations accessible to unqualified person(s).
- Workspace about equipment.

Enclosure for Electrical Installations
Electrical installations in a vault, room, closet or in an area surrounded by a wall, screen, or fence, access to which is controlled by lock and key or other equivalent means, are considered to be accessible to qualified persons only.

A wall, screen, or fence less than 8 feet in height is not considered adequate to prevent access unless it has other features that provide a degree of isolation equivalent to an 8- foot fence. The entrances to buildings, rooms or enclosures containing exposed live parts or exposed conductors operating at over 600 volts, nominal, shall be kept locked or shall be under the observation of a qualified person at all times.

Installations Accessible to Qualified Persons Only
Electrical installations having exposed live parts shall be accessible to qualified persons only and shall comply with requirements of this standard and applicable regulatory standards.

Installations Accessible to Unqualified Person(s)
Electrical installations that are open to unqualified persons shall be made with metal- enclosed equipment or shall be enclosed in a vault or in an area, access to which is controlled by a lock. Metal-enclosed switchgear, unit substations, transformers, pull boxes, connection boxes, and other similar associated equipment shall be marked with appropriate caution signs. If equipment is exposed to physical damage from vehicular traffic, guards shall be provided to prevent such damage. Ventilating or similar openings in metal-enclosed equipment shall be designed so that foreign objects inserted through these openings will be deflected from energized parts.

Workspace About Equipment
Sufficient space shall be provided and maintained about electric equipment to permit ready and safe operation and maintenance of such equipment. Where energized parts are exposed, the minimum clear workspace shall not be less than 6 feet 6 inches high (measured vertically from the floor or platform), or less than 3 feet wide (measured parallel to the equipment). The depth shall be as required in the table below. The workspace shall be adequate to permit at least a 90-degree opening of doors or hinged panels.

The minimum clear working space in front of electric equipment such as switchboards, control panels, switches, circuit breakers, motor controllers, relays, and similar equipment shall not be less than specified in the following table, unless otherwise
specified. Distances shall be measured from the live parts if they are exposed, or from the enclosure front or opening if the live parts are enclosed.

However, working space is not required in back of equipment such as dead front switchboards or control assemblies where there are no renewable or adjustable parts (such as fuses or switches) on the back and where connections are accessible from
locations other than the back. Where rear access is required to work on de-energized parts on the back of enclosed equipment, a minimum working space of thirty (30) inches horizontally shall be provided.

Minimum Depth of Clear Working Space in Front of Electric Equipment (feet)			
Nominal voltage to ground conditions*	**(a)***	**(b)***	**(c)***
601 to 2,500	3	4	5
2,501 to 9,000	4	5	6
9,001 to 25,000	5	6	9
25,001 to 75 kV	6	8	10
Above 75kV	8	10	12
*Conditions (a), (b), and (c) are as follows: (a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by insulating materials. Insulated wire or insulated bus bars operating at not over 300 volts are not considered live parts. (b) Exposed live parts on one side and grounded parts on the other side. Walls constructed of concrete, brick, or tiles are considered to be grounded surfaces. (c) Exposed live parts on both sides of the workspace [not guarded as provided in Condition (a)] with the operator between.			
Note: For International System of Units (SI): one foot=0.3048m.			

Lighting Outlets and Points of Control

The lighting outlets shall be so arranged that persons changing lamps or making repairs on the lighting system will not be endangered by live parts or other equipment. The points of control shall be so located that persons are not likely to come in contact with any live part or moving part of the equipment while turning on the lights.

Elevation of Unguarded Live Parts

Unguarded live parts above working spaces shall be maintained at elevations not less than specified in the following table.

Elevation of Unguarded Energized Parts Above Working Space	
Nominal voltage between phases	**Minimum elevation**
601-7,500	8 feet 6 inches
7,501-35,000	9 feet.
Over 35kV	9 feet+0.37 inches per kV above 35kV
Note: For SI units: one inch=25.4 mm; one foot=0.3048 m.	

Entrance and Access to Workspace

At least one entrance not less than 24 inches wide and 6 feet 6 inches high shall be provided to give access to the working space about electric equipment. On switchboard and control panels exceeding 48 inches in width, there shall be one entrance at each end of such board where practicable. Where bare energized parts at any voltage or insulated energized parts above 600 volts are located adjacent to such entrance, they shall be guarded.

6.0 References

OSHA 29 CFR 1910 Subpart R
OSHA 29 CFR 1910 Subpart S
OSHA 29 CFR 1926 Subpart K
OSHA 29 CFR 1926 Subpart V
National Electric Code
American National Standards Institute, Z89.2-1971

FALL PROTECTION

Policy

Work activities where employees may be subject to falls and/or falling objects shall be conducted safely with associated hazards eliminated and/or controlled.

This policy covers minimum performance standards applicable to all PeneCore Drilling, Inc. associates employees and locations. Local practices requiring more detailed or stringent rules, or local, state or other federal requirements regarding this subject can and should be added as an addendum to this procedure as applicable.

Purpose

To ensure that employees are protected from the hazards associated falls and falling objects.

Scope

Applies to all Penecore Drilling, Inc. associates work sites, i.e., PeneCore Drilling, Inc. offices, client job sites, etc., where field construction related activities involve exposure to heights greater than or equal to six (6) feet and/or falling objects exist. In general industry (e.g. offices, shops, warehouses, etc.) exposure to heights greater than or equal to four (4) feet shall be in place of all references to the construction six (6) foot reference.

Definitions

Anchorage means a secure point of attachment for lifelines, lanyards, or deceleration devices that is capable of supporting 5,000 lbs. per employee or two times the intended impact load, whichever is greater, or for a positioning system, 3,000 lbs. without failure.

Approved means, for the purpose of this section, authorized by the Branch Safety Officer, tested and certified by the manufacturer or any recognized national testing laboratory to possess the strength requirements specified in this section.

Catenary Line – see Horizontal Lifeline.

Competent Person means an individual knowledgeable (through experience and/or training) of fall protection equipment, including the manufacturer's recommendations and instructions for the proper use, inspection, and maintenance; who is capable of identifying existing and potential fall hazards; who has the authority to take prompt corrective action to eliminate those hazards; and who is knowledgeable of the rules contained in this section regarding the erection, use, inspection, and maintenance of fall protection equipment and systems.

Controlled Access Zone means an area in which certain work may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled.

Deceleration Device means a device manufactured (fall) shock-absorbing device whereby the forces of the fall are rapidly reduced to meet acceptable levels.

Drop Line means a vertical lifeline secured to an upper anchorage for the purpose of attaching a lanyard or device.

Employee means every laborer regardless of title or contractual relationship.

Fall Arrest System (Personal) means the use of multiple, approved safety equipment components such as body harnesses, shock absorbing lanyards, deceleration devices, droplines, horizontal and/or vertical lifelines and anchorages, interconnected and rigged to ones body as to arrest a free fall.

Fall Protection Work Plan means a written planning document in which the employer identifies areas in the work area where a fall hazard of 6 feet or greater exists, whereby conventional Fall Restraint and Fall Arrest Systems cannot be utilized.

Fall Restraint System means an approved device and any necessary components that function together to restrain an employee in such a manner as to prevent that employee from falling to a lower level.

Fall Distance means the actual distance from the employee's work platform (area) to the level where a fall would stop (ground level or otherwise).

Full Body Harness means a configuration of connection straps to distribute a fall arresting force over at least the thighs, shoulders and pelvis, with provisions for attaching a lanyard, lifeline, positioning rings, or deceleration devices.

Full Body Harness System means a Class III full body harness and shock absorbing lanyard attached to an anchorage or attached to a horizontal or vertical lifeline which is properly secured to an anchorage(s) capable of withstanding the forces specified in the applicable sections.

Hardware means snap hooks, D-rings, buckles, carabiniers, and adjusters used to attach the components of a fall protection system together.

Holes (floor, roof or walking surface) means any opening in the floor greater than two inches whereby falling objects or an employee fall equal to, or greater than six foot is possible.
Holes (wall) – see Wall Opening.
Horizontal Lifeline means an approved rail, rope, or synthetic cable installed in a horizontal plane between two anchorages and used for attachment of a employee's lanyard or lifeline device while moving horizontally.
Lanyard means a flexible line of webbing, rope or cable (usually in two, four or six foot lengths) used to secure a harness to a lifeline or an anchorage point.
Leading Edge means the advancing edge of a floor or roof, where a fall of more than six foot is possible to the ground or to another level.
Lifeline (vertical or horizontal) means an approved vertical line from a fixed overhead anchorage or horizontal line between two horizontal anchorages, independent of walking or working surfaces, to which a lanyard or device is secured.
Restraint Line means a line from a fixed anchorage or between two anchorages to which an employee is secured in such a way as to restrict the employee from reaching a point where falling to a lower level is possible.
Safety Line – see Lifeline.
Shock Absorbing Lanyard means a flexible line of webbing or rope used to secure a harness to a lifeline or anchorage point that has an integral shock absorber of either a rip-stitch or retractable configuration.
Snaphook – means a 'locking' hook at the end of a lanyard or restraining/positioning line that has a double-action locking mechanism intended to eliminate unintentional unhooking from the D-ring of a body harness. Non-locking snaphooks are prohibited.
Standard Guardrail means a toprail at 42 inches high (plus or minus three inches), a midrail installed midway the top edge of the guardrail system and the surface.
Static Line – see Lifeline.
Toeboard means a barrier at the base of the guardrail system to prevent material and objects from falling off the surface. They are at least four (4) inches of nominal height with no less than one (1) inch clearance from the surface.
Unprotected Sides and Edges means any side or edge (except at entrances to points of access) of a floor, roof, ramp, or runway where there is no wall or guardrail system.
Walking/Working Surface means for the purpose of this section, any area whose dimensions are 45 inches or greater in all directions through which employees pass or conduct work, and can include scaffolding and aerial lifts regardless of surface dimensions.
Wall Opening means a gap in a wall where the outside bottom edge is 6 feet or more above lower levels, and the inside bottom edge (e.g. parapit wall) is less than 39 inches above the walking/working surface.
Work Area means that portion of a walking/working surface where work activities are being performed.

Requirements

Training

Fall Protection training requirements shall include:

- New employees with work responsibilities requiring the use of fall protection will be oriented to the PeneCore Drilling, Inc. associates Fall Protection Program (and any local addendums) as part of the 'new employee orientation program'.
- At new worksites, i.e. PeneCore Drilling, Inc. offices, client job sites, etc., during the pre-job meeting to describe specific fall protection requirements of the job.
- Thereafter, every foreseeably exposed employee will be trained at least annually, and include the following:
    - The nature of fall hazards in the typical work area.
    - The correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems.
    - The use and operation of conventional and non-conventional fall protection systems.
    - The role of each employee in the safety monitoring system when such a system is in use.
    - The limitations on the use of mechanical equipment during the performance of roof work on low-slope roofs.
    - The correct procedures for equipment and materials handling and storage, and the erection of overhead protection.
    - The correct fit, maintenance and use of (personal) fall arrest system components, as determined by the manufacturer(s).
    - Rescue procedures in the event an individual falls.
    - All other details in this section (and local addendums).

Toolbox talks for related issues of this manual section shall be covered periodically.
Retraining shall also occur whenever deficiencies in the training program are identified, standard requirements change or are modified or new fall protection systems are introduced.
Any employee who has not received orientation or annual training (as previously outlined) shall not be allowed to work at heights identified by this section.
Training provided shall be documented and maintained in a training file at the Branch Office. Training will include dates of training, instructor's name, topics / material covered and attendee names.

Conventional Fall Arrest and Fall Restraints Systems (shall be utilized where the exposure to falls greater than 6 foot and from falling objects as is reasonably foreseen. The following systems shall be utilized)

Guardrail System (fall restraint and potentially from falling objects)

Toprails and midrails of guardrail systems constructed of wood shall be at least ¼ inch diameter or thickness to prevent cuts and lacerations.
If wire rope is used for toprails, it shall be flagged at not more 6 feet intervals with high-visibility material. Steel and plastic banding are prohibited for use as toprails or midrails.
The top edge height of toprails, or (equivalent) guardrails shall be 42 inches, plus or minus 3 inches, above the walking/working level.

When employees are using ladders in distance proximity equivilent to the maximum use-length of the ladder, the top edge height of the top rail, or equivalent member, shall be increased an amount equal to the maximum use-length height of the ladder, or see Special Control Procedures (5.4.5) portion (for ladders) of this manual section for other options.

Screens, midrails, mesh, intermediate vertical members, or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking/working surface when there are no walls or parapet walls at least 21 inches high. When midrails are used, they shall be installed at a height midway between the top edge of the guardrail system and the walking/working level. When screens and mesh are used, they shall extend from the top rail to the walking/working level. Intermediate members, such as balusters, when used between posts, will not be more than 19 inches apart.

The guardrail system shall be capable of withstanding a force of at least 200 pounds of force applied within 2 inches of the top edge in any outward or downward direction. When the 200 pounds is applied in a down-ward direction, the top edge of the guardrail shall not deflect to a height less than 39 inches above the walking/working level.

Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members will be capable of withstanding a force of at least 150 pounds of force applied in any downward or outward direction at any point along the midrail or other member.

Guardrail systems shall be free of sharp edges and burrs to protect against punctures or lacerations and to prevent clothing from snagging.

The ends of top rails and midrails shall not overhang terminal posts, except where such an overhang does not constitute a projection hazard.

When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.

At uncovered holes, guardrail systems shall be set up on unprotected sides or edges. When holes are used for the passage of materials, the hole shall have not more than two sides with removable guardrail sections. When the hole is not in use, it shall be covered or provided with guardrails along unprotected sides/edges.

If guardrail systems are used around uncovered holes that are used as access points (such as ladderways), gates shall be used or the guardrail shall be offset at a 45 degree angle to prevent accidental walking into the hole. Toeboards shall be utilized around the edges not utilized as the actual access point.

If guardrails are used at unprotected sides or edges of ramps and runways, they shall be erected on each unprotected side/edge.

When guardrail systems, in combination with netting, is used to prevent materials from falling from one level to another, openings shall be small enough to prevent passage of potential falling objects.

Covers for Holes (fall restraint and from falling objects)

Covers (or a guardrail system with toe boards…see Guardrail Systems within this section) shall be installed over holes equal to or greater then 2" in floors, roofs and walkways that are more than 6 feet above lower levels.

Hole covering material shall support at least two times the potential weight that will cross over it. If plywood is chosen as the cover material, it shall be of at least ¾ inch in thickness.

Hole covers shall be secured in place in such a manner as to not easily be displaced. Examples of securing methods include, but are not limited to: nailing, attached cleats, wire, etc.

Such covers shall have the word 'HOLE' or 'COVER' predominately marked on the top surface. Where covers are too small for such marking, they shall be painted or significantly marked in the color orange.

Restraining/Positioning System (fall restraint)

Only full body harness systems with positioning rings are to be utilized with any restraining/positioning system.

Restraint line (rope) length shall not exceed the distance to fall exposure, and shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000 pounds, whichever is greater.

Requirements for body harness systems, snaphooks, D-rings, and other connectors used with positioning device systems shall meet the same criteria as those for fall arrest systems (5.2.4) of this section.

No makeshift fall protection equipment may be utilized.

Body belts are prohibited.

(Personal) Fall Arrest System (fall arrest)

(Personal) Fall Arrest Systems shall do all of the following:

- Limit maximum arresting force on an employee to 1,800 pounds. Note: total body weight including tools cannot exceed 310 lbs. to stay under arresting force limit.
- Be rigged so that an employee can neither free fall more than 6 feet nor contact any lower level
- Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet.
- Have sufficient strength to withstand 5000 lbs. (excluding horizontal lifelines which require a safety factor of at least two times the potential impact energy).
- All components of the (personal) fall arrest system (lanyards, body harness and attached hardware, and shock-absorbing devices) shall meet the design specifications of OSHA 1926.502 Subpart M.

The following items/actions are prohibited for use with (personal) fall arrest systems:

Body belts

- Non-locking snaphooks.
- Lanyards without shock absorbers.
- tying back to the lanyard (once around another object) for a means of an anchorage point, unless the lanyard was designed for this purpose by the manufacturer, the object tied around can support the anticipated fall force and the object does not have sharp edges or burrs.

(Personal) Fall Arrest Systems (shall be utilized in the following manner)

Pre-Use Inspection

All components shall be inspected prior to each use for wear damage, and other deterioration in accordance with manufacturer's requirements (see equipment inspection and maintenance procedures of this section).

General Proper Body Harness Fit Guidelines (two employees are usually required to completely fit each other)

The body harness type and size shall meet the physical needs of its user (male/female or small, medium, large, etc.).
Follow the manufacturer's guidelines on proper fit.
Shoulder, thigh, button and chest straps shall be fit snugly whereas it is slightly difficult to slide the hand underneath.
Loose straps ends shall be folded back under.
D-ring placement should be between the shoulder-blades.
Chest straps should be positioned across the mid-chest area.

Sufficient Anchorage Points Utilized

Anchorages shall be used under the supervision of a competent person, as part of a complete (personal) fall arrest system that maintains a safety factor of at least two (i.e., capable of supporting at least twice the weight expected to be imposed upon it).
Anchorages used to attach (personal) fall arrest systems will be independent of any anchorage being used to support or suspend platforms and shall be capable of supporting at least 5,000 pounds of force per person attached.
Anchorage points can include:

- Lifelines (horizontal and vertical).
- Designed anchorage points on aerial lifts.
- Eye-bolts listed for use by the manufacturer.
- Specially designed anchorage tools specifically designed to meet fall force requirements, including:
    - Wrap-around lanyards as approved by the manufacturer.
    - I-beam clamps designed specifically as an anchorage point.

Prohibited anchorage points include, but are not limited to:

- Standard guardrails and railing.
- Ladders/rungs.
- Scaffolding,unless approved by the manufacturer for with anchorage points.
- Light fixtures, ductwork, conduit, pipe vents, wiring/duct/piping harnesses, other roof stacks, vents or fans.
- C-clamps.
- Piping (unless capable of meeting the criteria of an anchorage point).
- To a lanyard (around a solid object), unless the lanyard and hardware is manufactured for that purpose.

Lifeline/Lanyard Applications

Lanyards shall only be attached to anchorage points sufficient to meet the fall force requirements. Shock-absorbing lanyards are required to limit the fall force to less than 1800 pounds.

Self-retracting lanyards (retractables) capable of withstanding the tensile load of 3,000 lbs. that limit the free fall distance to two (2) feet or less are always recommended and are required when the fall distance is less than ninteen and one-half (19.5) feet.

Lanyards that do not limit free fall distance to 2 feet or less, such as ripstitch lanyards and tearing/deforming lanyards will be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

Horizontal lifelines will be designed, installed, and used under the supervision of a Competent Person, as part of a complete (personal) fall arrest system. Lifelines shall be protected against being cut or abraded. Horizontal lifelines cannot exceed sixty feet in length.

Vertical lifelines shall be utilized with leading edge work, shall reach the ground, and the method of anchorage attachment shall be of proper design (i.e. no knots).

Safety Net System (fall arrest and potentially from falling objects)

When utilized, safety nets shall be installed as close as practicable under the walking/working surface on which employees are working and never more than 30 feet below such levels.

Safety nets will be inspected at least once a week for wear, damage, and other deterioration. The maximum size of each safety net mesh opening will not exceed 36 square inches nor be longer than 6 inches on any side, and the openings, measured center-to-center, of mesh ropes or webbing, will not exceed 6 inches.

Defective/unfit nets are not to be used and are to be taken from service and immediately destroyed by cutting into unuseful sizes and properly disposed.

Mesh crossings will be secured to prevent enlargement of the mesh opening. Each safety net or section will have a border rope for webbing with a minimum breaking strength of 5,000 pounds. Connections between safety net panels will be as strong as integral net components and be spaced no more than 6 inches apart.

Safety nets shall extend outward from the outermost projection of the work surface as follows:

Vertical distance from working level to horizontal plane of net surface.	Minimum required horizontal distance of outer edge of net from edge of working surface.
Up to 5 feet	8 feet
More than 5 feet up to10 feet	10 feet
More than 10 feet	13 feet

Safety nets shall be tested at the beginning of each workday and shall be capable of absorbing an impact force of a drop test consisting of a 400-pound bag of sand 30 inches in diameter dropped from the highest walking/working surface at which workers are exposed, but not from less than 42 inches above that level. Employees shall not be allowed in work areas controlled with safety nets until this test is complete.

If safety nets are utilized for the dual purpose of employee fall protection and the protection of other workers from fall objects, the net webbing opening shall be small enough to prevent passage of potential falling objects.

Items that have fallen into safety nets, such as materials, scrap, equipment, and tools, shall be removed as soon as possible and at least before the next work shift.

Where conventional fall restraint and fall arrest methods cannot be utilized (or utilized safely), the following non-conventional methods can be utilized

A written work plan shall be developed when a project or task possesses a fall exposure whereby these systems are utilized. A sample written plan format can be found in 29 CFR 1926 Subpart M Appendix E.

A Competent Person will develop and implement a written Fall Protection Work Plan including each area of the work place where the employees are assigned and where fall hazards of 6 feet or more will exist. The Risk Assessment for this project/task should be reviewed for this document. The written Fall Protection Work Plan shall include:

- Identification of fall hazards in the work area.
- Describe the non-conventional method (or in combination with conventional method) of fall protection to be provided.
- Describe the correct procedures for the assembly, maintenance, inspection, and disassembly of any fall protection system to be used.
- Describe the correct procedures for the handling, storage, and securing of tools and materials.
- Describe the method of providing overhead protection for workers who may be in or pass through the area below the work site.
- Describe the method for prompt, safe removal of injured workers.
- Describe the method for destruction of personal fall arrest system equipment subjected to the forces of any fall.
- Be available at all times on the jobsite.

Controlled Access Zone System

Controlled access zone systems shall be set up as follows:

- Zone shall be established no closer than six (6) feet or further than twenty-five (25) feet from any leading edge.
- Control line shall extend parallel along the entire length of the unprotected or leading edge.
- Only trained employees are allowed in the Zone.
- The Zone shall have signage marking it as a 'Controlled Access Zone'.

Warning Line System (pitches of <4:12 and flat surfaces only)

Warning line systems consist of ropes, wires, or chains, and supporting stanchions and are set up as follows:

- Flagged at not more than 6-foot intervals with high-visibility material.
- Rigged and supported so that the lowest point including sag is no less than 34 inches from the walking/working surface and its highest point is no more than 39 inches from the walking/working surface.
- Stanchions, after being rigged with warning lines, will be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the walking/working surface, perpendicular to the warning line and in the direction of the floor, roof, or platform edge.

- The rope, wire, or chain will have a minimum tensile strength of 500 pounds, and after being attached to the stanchions, shall support without breaking the load applied to the stanchions as prescribed above.
- Line will be attached to each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in the adjacent section before the stanchion tips over.
- Warning lines will be erected around all sides of roof work areas. When mechanical equipment is being used, the warning line will be erected not less than 6 feet from the roof edge parallel to the direction of mechanical equipment operation, and not less than 10 feet from the roof edge perpendicular to the direction of mechanical equipment operation
- When mechanical equipment is not being used, the warning line shall be erected not less than 6 feet from the roof edge.

The warning line system shall be used in conjuction with one of the following:

- Safety monitoring system (most common); or
- (personal) fall arrest system; or
- Safety net system; or
- Guardrails.

Safety Monitoring System

A competent person will appoint the 'safety monitor' and will ensure that the safety monitor:

- Is competent in the recognition of fall hazards.
- Is capable of warning workers of fall hazard dangers and in detecting unsafe work practices.
- Is operating on the same walking/working surfaces of the employees and can see them .
- Is close enough to work operations to communicate orally with the employees and has no other duties but the monitoring function.
- Has the authority to stop work.

Only employees engaged in roof/surface work and the safety monitor shall be allowed in an area where an employee is being protected by a safety monitoring system.

Specific Fall Hazard Procedures

Aerial Personnel Lifts

Employees utilizing aerial personnel lifts (e.g. scissor lifts, genie lifts, cherry-pickers, boom-lifts, etc.) shall use a restraint/positioning system or (personal) fall arrest system, even though a guardrail system is in place. Refer to Aerial Personnel Lifts section (8) for specific information on operating this equipment.

Attachment points for these systems shall be capable of withstanding 5,000 pounds and shall be maintained in the floor of the lift or where designed by the manufacturer.

Rails of such lifts shall not to be used as attachment points unless designed for that purpose by the manufacturer.

Excavations

Employees who work at the edge of an excavation 6 feet or more deep will be protected from falling into the excavation by guardrail systems or covers. Refer to Excavation & Trenching section (16) for specific information.

Where walk-ways are provided to permit employees to cross over excavations, guardrails are required on the walkway if the fall would be 6 feet or more to the lower level.

Hoist Areas

Each employee in a hoist area will be protected from falling 6 feet or more by guardrail, restraint/positioning or (personal) fall arrest systems. Refer to Equipment section (15) for specific information on utilizing this equipment.

If guardrail systems (or chain gate or guardrail), or portions thereof, must be removed to facilitate hoisting operations, as during the landing of materials, and a worker shall lean through the access opening or out over the edge of the access opening to receive or guide equipment and materials, that employee shall be protected by a (personal) fall arrest system.

Falling Objects (additional protection from)

Except for scaffolding and aerial lifts, no materials or equipment shall be stored within 6 feet of working edges.

When canopies are used as protection from falling objects, canopies shall be strong enough to prevent collapse and to prevent penetration by any objects that may fall onto them.

When toeboards are used as protection from falling objects, they shall be erected along the edges of the overhead walking or working surface for a distance sufficient to protect persons working below. Toeboards will be capable of withstanding a force of at least 50 pounds of force applied in any downward or outward direction at any point along the toeboard. Toeboards will be a minimum of four (4) inches tall from their top edge to the level of the walking/working surface, have no more than one (1) inch clearance between its bottom and the surface.

Ladders (where work height (due to leaning out) exposure is equal to, or exceeds six foot and/or the maximum ladder height is within the distance to a leading edge)

If work is performed outside the rails of a ladder equal to, or exceeding 6' ; or if three-point contact on the ladder cannot be maintained, a (Personal) Fall Arrest Systems shall be utilized if anchorage points are available.

If anchorage points are not available or other traditional fall control systems are not feasible, a non-conventional system can be utilized (see 5.3 of this manual section).

Leading Edge Work

Employees working near a leading edge 6 feet or more above lower levels shall be protected by guardrail, safety net, restraint/positioning, or (personal) fall arrest systems. If these systems are not feasible the systems under 5.3 of this manual section can be utilized.

Roadway/Vehicular Passage Covers

Covers located in roadways and vehicular aisles shall be able to support at least twice the maximum axle load of the largest vehicle to which the cover might be subjected, and secured/marked as indicated in 5.2.2 of this manual section.

Roofs (work from or on)

Low-sloped (<4:12 pitch)

Employees engaged in roof activities on low-slope roofs with unprotected sides and edges 6 feet or more above lower levels will be protected from falling by guardrail systems, safety net systems, (personal) fall arrest systems or a combination of a warning line system and guard-rail system, warning line system and safety net system, warning line system and (personal) fall arrest system, or warning line system and safety monitoring system.

Steep Roofs (>4:12 pitch)

Employees on a steep roof with unprotected sides and edges 6 feet or more above lower levels will be protected by either guardrail systems with toeboards, a safety net system, or a (personal) fall arrest systems.

Wall Openings

Employee working on, at, above, or near wall openings (including those with chutes attached) shall be protected from falling by the use of either a guardrail system, a safety net system, or a (personal) fall arrest system.

Equipment Inspection and Maintenance Procedures

Inspection, Replacement and Destruction

All equipment hereafter noted shall be visually inspected before each use, replaced immediately if any of the defective conditions are found, tagged 'out of service' and sent back to the Branch for destruction.

Body Harness Inspection

Beginning at one end, holding the body side of the harness toward you, grasp one area of the harness with your hands six to eight inches apart. Bend the strap in an inverted "U". Follow this procedure the entire length of the belt or harness. Watch for frayed edges, broken fibers, pulled stitches, cuts, burn marks or chemical damage. Special attention should be given to the attachment of buckles and D-rings to strap webbing. Inspect for frayed or broken strands. Broken webbing strands generally appear as tufts on the webbing surface.

Rivets should be tight and unmovable with fingers. Body-side rivet base and outside rivet burr should be flat against the material. Bent rivets will fail under stress. Especially note condition of D-ring rivets and D-ring metal wear pads (if applicable). Discolored, pitted, or cracked rivets indicate chemical corrosion.

The tongue or billet of bolts receives heavy wear from repeated buckling and unbuckling. Inspect for loose, distorted, or broken grommets. Harnesses using punched holes without grommets should be checked for torn or elongated holes causing slippage of the tongue buckle.

Hardware (Buckles, D-Rings, Snaps and Thimbles)
Buckle tongues should be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. Roller should turn freely on frame. Check for distortion or sharp edges.

Inspect the friction buckle for distortion. The outer bars and center bars must be straight. Pay special attention to corners and attachment points of the center bar.

Inspect the sliding bar buckle frame and sliding bar for cracks, distortion, or sharp edges. The sliding bar should move freely. Knurled edge will slip if worn smooth. Pay special attention to corners and ends of sliding bar.

Inspect the forged steel D-ring for cracks or other defects. Inspect the assembly of the D-ring to the body pad or D-saddle. If the D-ring can be moved vertically independent of the body pad or D-saddle, the harness should be replaced. Check D-Rings and D-Ring metal wear pad (if any) for distortion, cracks, breaks, and rough or sharp edges. The D-Ring bar should be at a 90 degree angle with the long axis of the belt and should pivot freely.

Inspect closely for hook and eye distortions, cracks, corrosion, or pitted surfaces. The keeper (latch) should seal into the nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to firmly close the keeper.
The thimble must be unmovable in the eyes of the splice, and the splice should have no loose or cut strands. The edges must be free of sharp edges, distortion, or cracks.

Lanyard (shock-absorbing)
Begin at one end and work to the opposite end. Slowly rotate the lanyard so the entire circumference is checked. Factory spliced ends require particular attention.

Lanyard (Webbing) Retractable
Bend the webbing over a non-lacerating edge, observe each side of the webbed lanyard. This will reveal any cuts or breaks. Swelling, discoloration, cracks, and charring are obvious signs of chemical or heat damage. Closely observe for any breaks in the stitching.

Rope
Rotation of the rope lanyard while inspecting from end to end will bring to light any fuzzy, worn, broken, or cut fibers. Areas weakened by extreme loads will appear as noticeable change in original diameter. The rope diameter should be uniform throughout, following a short break-in period. Strands should be separated and inspected since the rope may wear on the inside if grit or moisture becomes embedded.

Storage/Cleaning
Storage areas shall be maintained as clean, dry and free of exposure to fumes or corrosive elements. Cleaning methods established by the manufacturer shall be followed for all components. Generally, the following applies for body harnesses:

- Wipe off surface dirt with a sponge dampened in plain water. Squeeze the sponge dry. Dip the sponge in a mild solution of water and commercial soap or detergent. Work up a thick lather with a vigorous back and forth motion.

- Wipe the belt dry with a clean cloth. Hang freely to dry but away from excessive heat.
- Bolts and other equipment should dry thoroughly without close exposure to heat, steam, or long periods of sunlight.
- Mildly dirty cotton may be cleaned normally. For heavy dirt or grease, soak belts in a solution of one tablespoon of grease cutter to one gallon of water. DO NOT USE A STRONGER SOLUTION. After soaking, rinse again, then hang to dry.
- Fall protection, which is not in the original package, shall be stored in a clean, dry area.

Post-Fall or Near-Miss Incidents

Fall incidents and near-misses shall be thoroughly investigated to determine root causes and facilitate corrective measures to prevent reoccurences.

Employees involved in a fall equal to, or greater then 6' shall be required to receive an immediate medical evaluation.

All components of a (personal) fall arrest system involved in any fall with a fall distance of over six feet shall be immediately and completely replaced. Such equipment shall be tagged 'out of service' and sent back to the Branch for destruction.

FORKLIFT OPERATION

Policy

Forklifts (powered industrial trucks) shall be operated, maintained, and controlled in a safe manner.

This policy covers minimum performance standards applicable to all PeneCore Drilling, Inc. associates employees and locations. Local practices requiring more detailed or stringent rules, or local, state or other federal requirements regarding this subject can and should be added as an addendum to this procedure as applicable.

Purpose

To define the procedures and standards that apply to the care, control, maintenance, inspection, and operation of forklifts (powered industrial trucks).

Scope

PeneCore Drilling, Inc. associates work sites, i.e., Penecore drilling, Inc. offices, client job sites, etc. requiring the use of forklifts (powered industrial trucks).

Definition

Forklift means a mobile, power-propelled truck used to carry, push, pull, lift, stack, or tier materials. Powered industrial trucks (forklifts) are also commonly known as pallet trucks, rider trucks, fork trucks, or lift trucks.

Requirements

Training

Only trained and authorized persons are permitted to operate a forklift. No employees are allowed to operate a forklift without the proper training. The Branch Safety Officer or designee will administer the forklift operator certification program and maintain training records.

Training shall occur prior to employee operation of any INSERT COMPANY NAME forklift, and at least every three years thereafter unless observed performance by the operator dictates the need for more frequent retraining. The following requirements shall be met to become a "Qualified Forklift Operator":

- Perform the demonstrated capability requirement satisfactorily. Each trainee, who satisfactorily completes the qualifications as outlined above, shall be issued a written document as evidence of being a Qualified Forklift Operator.

Inspection and Maintenance

Prior to placing a forklift truck into service, the truck operator shall inspect their vehicle and document this inspection. This inspection is not necessary on days when the forklift will not be placed into service.

Forklifts that are defective, in need of repair or are unsafe shall be tagged "Danger Do Not Operate." and taken out of service until restored to safe operating condition.

A maintenance log shall be maintained for each forklift to determine when required maintenance is due. Only qualified personnel shall perform maintenance and repair. Maintenance records for each forklift shall be kept on file by the assigned department manager.

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General Safe Operating Rules

The following safe operating rules apply to PeneCore Drilling, Inc. Associates employees who operate a forklift. Violations of safe operating rules can and will result in retraining and/or disciplinary action.

1. Only PeneCore Drilling, Inc. employees trained as per the requirements of this manual section and authorized by the department manager shall be allowed to operate forklifts

2. PeneCore Drilling, Inc. forklifts shall not be loaned or rented to others for use.

3. Stunt driving and horseplay shall not be permitted.

4. Personnel are not permitted to ride on forklifts except in designated seats that are part of the equipment design.

5. Forklifts shall be equipped with a portable fire extinguisher.

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

7. Traffic regulations shall be observed, including authorized work site speed limits. A safe distance shall be maintained approximately three forklift lengths from the forklift truck ahead.

8. The driver shall be required to slow down and sound the horn at cross aisles and other areas where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing.

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

10. Copies of the manufacturer's operating instructions for each type of forklift shall be readily available for review by operators and supervisory personnel.

11. Lift trucks, stackers, etc., shall have the rated capacity clearly posted on the vehicle so as to be clearly visible to the operator. When the manufacturer provides auxiliary removable counterweights, corresponding alternate rated capacities also shall be clearly shown on the vehicle. These ratings shall not be exceeded.

12. No modifications or additions, which affect the capacity or safe operation of the equipment, shall be made without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced.

13. Steering or spinner knobs shall not be attached to the steering wheel unless the steering mechanism is of a type that prevents road reactions from causing the steering hand wheel to spin. The steering knob shall be mounted within the periphery of the wheel.

14Forklifts shall have the manufacturer's nameplate showing its weight with attachments, lifting capacity, lift height maximum and other pertinent data. Nameplates or markings shall be maintained in a legible condition and remain in place.

15. Railroad tracks shall be crossed diagonally wherever possible. Parking closer than 8 feet from the center of railroad tracks is prohibited.

16. Grades shall be ascended or descended slowly.

17. When ascending or descending grades in excess of 10 percent, loaded forklifts shall be driven with the load upgrade.

18. Unloaded forklifts should be operated on all grades with the load engaging means downgrade.

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

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

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

22. Arms or legs are prohibited from being placed between the uprights of the mast or outside the running lines of the forklift.

23. When a forklift is left unattended,. load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set.

24. Wheels shall be blocked if parked on an incline.

25. A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock, or platform, or freight car. Forklifts shall not be used for opening or closing freight doors.

26. Dock board or bridge plates shall be properly secured before they are driven over. Dock board or bridge plates shall be driven over carefully and slowly and their rated capacity never exceeded. Portable dock boards shall be secured in position, by being anchored or equipped with devices that will prevent their slipping.

27. An overhead guard shall be used as protection against falling objects. It should be noted that an overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material. etc. representative of the job application, but not to withstand the impact of a falling capacity load.

28. Additional counter weighting of forklifts shall not be allowed unless approved by the manufacturer.

29. Employees shall not jump off a forklift.

30. Forklift operators shall yield to pedestrians.

31. Loads carried shall be secured on the forks to prevent upset / overturn.

HAZARD COMMUNICATION PROGRAM

Purpose

The purpose of this plan is to establish a program and procedures for the safe use of hazardous chemical substances at PeneCore Drilling, Inc.

The Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (HCS) 29 CFR 1910.1200 (General Industry) and 29 CFR 1926.59 (Construction Industry) call for the development of a hazard communication program when employees may be exposed to any chemical in the workplace under normal conditions of use or in a foreseeable emergency. In 2012, OSHA revised the HCS to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). As a result, this program has been revised to comply with the requirements of the OSHA HCS 2012. The written hazard communication program will include and address the following criteria in order to satisfy the minimum requirements of the OSHA HCS 2012:

List of all hazardous chemicals known to be present in the workplace or individual work area:

- Methods used to ensure that all containers, including pipes and holding tanks, are labeled, tagged or marked properly.
- Methods used to obtain and maintain safety data sheets (SDSs).
- Methods used to provide employees with information and training on hazardous chemicals in their work areas.
- Methods used to inform employees of the hazards of nonroutine work practices.
- Methods used to provide the employees of other employers (e.g., consultants, construction contractors and temporary employees) on-site access to SDSs for each hazardous chemical that the other employer's employees may be exposed to while working in the workplace.
- Methods used to inform the employees of other employers of precautionary measures that need to be taken to protect themselves during the workplace's normal operating conditions and in foreseeable emergencies.
- Methods used to inform the employees of other employers of the labeling system used in the workplace.

The Hazard Communication Program Will Identify the Following

- Key personnel responsible for the program.
- Location of chemical inventory list and SDSs.
- Workplace labeling system.
- Good work practices and procedures to minimize exposures.
- How training will be performed.
- Procedures to maintain the program and update the required information.
- How records will be maintained.

Responsibilities

The Safety Coordinator is responsible for administering the hazard communication program.

This Person is Also Responsible for

- Reviewing the potential hazards and safe use of chemicals.
- Maintaining a list of all hazardous chemicals and a master file of SDSs.
- Ensuring that all containers are labeled, tagged or marked properly.

- Providing new-hire and annual training for employees.
- Maintaining training records.
- Monitoring the air concentrations of hazardous chemicals in the work environment.
- Properly selecting and caring for personal protective equipment.
- Directing the cleanup and disposal operations of the spill control team.
- Identifying hazardous chemicals used in nonroutine tasks and assessing their risks.
- Informing outside contractors who are performing work on company property about potential hazards.
- Reviewing the effectiveness of the hazard communication program and making sure that the program satisfies the requirements of all applicable federal, state or local hazard communication requirements.

The purchasing agent is responsible for:
• Contacting chemical manufacturers and/or distributors to obtain SDSs and secondary labels for hazardous chemicals used or stored in the workplace

The receiving department is responsible for:
• Reviewing incoming hazardous chemicals to verify correct labeling
• Holding hazardous chemicals in the receiving area until receipt of the SDS for the product

Employees are responsible for the following aspects of the hazard communication program:
• Identifying hazards before starting a job
• Reading container labels and SDSs
• Notifying the supervisor of torn, damaged or illegible labels or of unlabeled containers
• Using controls and/or personal protective equipment provided by the company to minimize exposure
• Following company instructions and warnings pertaining to chemical handling and usage
• Properly caring for personal protective equipment, including proper use, routine care and cleaning, storage, and replacement
• Knowing and understanding the consequences associated with not following company policy concerning the safe handling and use of chemicals
• Participating in training

Labels and Other Forms of Warning
Each container of hazardous chemicals received from the chemical manufacturer, importer or distributor will be labeled with the following information:

- Product identifier.
- Signal word.
- Hazard statement(s).
- Pictogram(s).
- Precautionary statement(s).
- Name, address and telephone number of the chemical manufacturer, importer or other responsible party.

PeneCore Drilling, Inc. will use the GHS labeling system for secondary containers. When a chemical is transferred from the original container to a portable or secondary container, the container will be labeled, tagged or marked with a GHS label containing the following information:

- Product identifier.
- Signal word.
- Hazard statement(s).
- Pictogram(s).
- Precautionary statement(s).

Portable containers into which hazardous chemicals are transferred from labeled containers and that are intended for the immediate use of the employee who performs the transfer do not require a label. If the portable container will be used by more than one employee or used over the course of more than one shift, the container must be labeled. Food and beverage containers should never be used for chemical storage.

Signs, placards, process sheets, batch tickets, operating procedures or other such written materials may be used 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 for workplace labeling.

Where an area may have a hazardous chemical in the atmosphere (e.g., where extensive welding occurs), the entire area will be labeled with a warning placard.

Pipes that contain hazardous chemicals should be labeled in accordance with ANSI/ASME A13.1 and indicate the direction of flow. (Please note that this not a requirement of the OSHA HCS but a best practice or requirement of local jurisdiction.)

Workplace labels or other forms of warning will be legible, in English and prominently displayed on the container or readily available in the work area throughout each work shift. If employees speak languages other than English, the information in the other language(s) may be added to the material presented as long as the information is presented in English as well.

Note: After Dec. 1, 2015, distributors may not ship containers labeled by the chemical manufacturer or importer unless the label on the container meets GHS labeling requirements.

Safety Data Sheets

An SDS will be obtained and maintained for each hazardous chemical in the workplace. SDSs for each hazardous chemical will be readily accessible during each work shift to employees when they are in their work areas.

SDSs will be obtained from the chemical manufacturer, importer or distributor. The name on the SDS will be the same as that listed on the chemical inventory list. SDSs for chemicals or process streams produced by the company will be developed and provided by the Safety Coordinator.

The Safety Coordinator will maintain the master file of all original SDSs.

SDSs for new products or updated SDSs for existing products will be obtained by the purchasing agent and forwarded to the safety coordinator. The (Safety Coordinator OR APPROPRIATE TITLE) will then update the master file with new and/or updated SDSs.

If problems arise in obtaining an SDS from the chemical manufacturer, importer or distributor, a phone call will be made to request an SDS and to verify that the SDS has been sent. The phone call will be logged and a letter will be sent the same day. The company will maintain a written record of all efforts to obtain SDSs. If these efforts fail to produce an SDS, the local OSHA office will be contacted for assistance.

Employee Information and Training

Employees included in the hazard communication program will receive the following information and training prior to exposure to hazardous chemicals and when new chemical hazards are introduced to their work area:

- Requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 (General Industry) or 29 CFR 1926.59 (Construction Industry).
- Operations in the work area where hazardous chemicals are present.
- Location and availability of the hazard communication program, chemical inventory list and SDSs
- Methods and observations used to detect the presence or release of a hazardous chemical in the work area, such as monitoring devices, visual appearance or odor of hazardous chemicals when being released.
- Physical, health, simple asphyxiation, combustible dust and pyrophoric gas hazards, as well as hazards not otherwise classified of the chemicals in the work area.
- Measures employees can take to protect themselves from hazards, such as appropriate controls, work practices, emergency and spill cleanup procedures, and personal protective equipment to be used.
- Explanation of the labels received on shipped containers.
- Explanation of the workplace labeling system.
- Explanation of the SDS, including order of information and how employees can obtain and use the appropriate hazard information.

Note: To facilitate understanding of the new GHS system, the OSHA HCS requires that employees be trained regarding the new label elements and SDS format by Dec. 1, 2013. Employers are required to update the hazard communication program and to provide any additional training for newly identified physical or health hazards no later than June 1, 2016.

Nonroutine Tasks

The Safety Coordinator and the immediate supervisor of an employee performing a nonroutine task, such as cleaning machinery and other process equipment, is responsible for ensuring that adequate training has been provided to the employee on any hazards associated with the nonroutine task. Employees share in this responsibility by ensuring that their immediate supervisor knows that the nonroutine task will be performed.

Special work permits are required for the performance of certain nonroutine tasks, such as entry to confined spaces, breaking and opening piping systems, and welding and burning. For some special tasks, employees are required to follow special lockout/tagout procedures to ensure that all machinery motion has stopped and energy sources are isolated prior to and during the performance of such tasks.

Contractors

Prior to beginning work, the Safety Coordinator will inform contractors with employees working on company property of any hazardous chemicals that the contractors' employees may be exposed to while performing their work. The Safety Coordinator will also inform contractors of engineering or work practice control measures to be employed by the contractor, personal protective equipment to be worn by the contractors' employees, and any other precautionary measures that need to be taken to protect their employees during the workplace's normal operating conditions and in foreseeable emergencies.

Furthermore, the Safety Coordinator will advise contractors that they must comply with all OSHA standards while working on company property. Appropriate controls will be established with the contractor to ensure that company employees are not exposed to safety and health hazards from work being performed by the contractor and that company operations do not expose contractors' employees to hazards.

The Safety Coordinator will inform contractors of the workplace labeling system and the availability and location of SDSs for any chemical to which contractors' employees may be exposed while performing their work.

Recordkeeping

Records pertaining to the hazard communication program will be maintained by the Safety Coordinator. The Safety Coordinator will keep the following records:

- Chemical inventory list.
- Hazardous material reviews.
- Copies of phone call logs and letters requesting SDSs.
- Employee training records.
- Warnings issued to employees for not following the hazard communication program.

HEARING CONSERVATION

Purpose

PeneCore Drilling, Inc. has established a Hearing conservation Program to protect worker from the hazards of noise on the job. It is not hard to exceed this level of noise on many of the jobs sites. Typically, noise levels exceeding 85 dB are experienced when working with any type of pneumatic chipper or hammer, metal saw, and grinders. See attachment I for list of some common noise levels.

Responsibility

The Manager of Operations is responsible for the developing a written Hearing Conservation Procedure and overseeing the training of all employees in the company. The Manager of Operations is also responsible for the monitoring and administering this procedure.

Procedures

Penecore Drilling, Inc. has taken a conservative approach to this noise hazard by establishing this program. The following elements establish the program:

- An Audiometric Testing Program when required.
- An Employee Education and Training Program.
- Monitoring and Analysis of Workplace Noise Levels.
- Providing Suitable Engineering Controls when appropriate.
- Providing Hearing Protectors when required.
- Maintain required records for the above.

Audiometric Testing

Each new employee whose work exposes them to noise levels above the "action level" will receive an Audiometric test as part of a pre-screening physical examination to establish a baseline audiogram against which subsequent audiograms can be compared as required by the Standard.

Annually, all employees who are exposed to noise levels exceeding the 85 dB standard will be given a follow-up Audiometric examination to monitor for any significant changes in their hearing ability.

Employees will be formally notified if there is any change in their hearing as the result of the testing. The Standard has defined this shift as a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 200, 3000 and 4000 hz in either ear. In determining whether a standard threshold shift has occurred, allowance may be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram according to the procedure described in Appendix F: "Calculation and Application of Age Correction to Audiograms."

When audiometric testing is required, each affected employee must not be exposed to any workplace noise for at least 14 hours prior to his/her test. This requirement may be met by wearing hearing protectors which will reduce the employee's exposure to a sound level of 80 db (A) or below.

Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or other physician, or by a technician who is certified by the Council of Accreditation in Occupational Hearing Conservation, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining and checking calibration and proper functioning of the audiometers being used. A technician who operates microprocessor audiometer does not need to be certified. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist or physician.

An audiologist, otolaryngologist or physician will review problem audiograms and shall determine whether there is a need for further evaluation. The company will provide to the person performing this evaluation the following information:

- The baseline audiogram and most recent audiogram of the employee to be evaluated.
- Measurement of background sound pressure in the audiometric test room.
- Records of audiometric calibrations as required.

If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift as defined the employee will be informed of this fact, in writing, by the company within 21 days of determination.

Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, the company will ensure that the following steps are tank when a standard threshold shift occurs:

- An employee not using hearing protectors will be fitted with hearing protectors, trained in their use and care, and required to use them; and
- An employee already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if
- necessary.
- Refer the employee for a clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary or if the company suspect that a medical pathology of the ear is caused or aggravated by the wearing of haring protectors.
- Inform the employee of the need for an otological examination if a medical pathology of the ear which is unrelated to the use of hearing protector is suspected.

If subsequent audiometric testing of an employee whose exposure to noise is less than an 8-hour TWA average of 90 decibels indicates that a standard threshold shift is not persistent the company:

- Will inform the employee of the new audiometric interpretations; and
- May stop the required use of hearing protectors for that employee.

See Attachment II

Employee Education and Training

PeneCore Drilling, Inc. employees must be trained on the use of personal hearing protection equipment. Also each employee must know how to clean and maintain the hearing protection equipment. The training will cover the following:

- Training will be for all employees who are exposed to noise at or above the 8-hour TWA
- of 85 dB.
- The training will be repeated annually for each employee included in the hearing conservation program.
- The effects of noise on hearing.
- The purpose of hearing protectors, the advantages, disadvantages, and the attenuation of
- various types and instruction on selection, fitting, use and care.
- The purpose of audiometric testing, and an explanation of the test procedures.
- Access to information and training materials.

Monitoring and Analysis of Workplace Noise Levels

PeneCore Drilling, Inc. will periodically or as necessary, conduct noise level surveys of the workplace. The results of these surveys will be made available to employees upon request.

Any job area or company location found to be in excess of the allowable designated noise levels that cannot be brought into compliance with the noise standard will be designated as an area where hearing protectors are to be worn. When signs are posted employees must wear hearing protection. The signs may read as follows:

NOTICE
EAR PROTECTION
REQUIRED
IN THIS AREA

Provide Suitable Engineering Controls

Where appropriate, PeneCore Drilling, Inc. will provide engineering controls to reduce noise exposure. Due to the complexity of most job sites, it is difficult if possible to institute effective engineering controls for most noise exposures. Should this be the case, then employees will be required to wear suitable hearing protection.

Provide Hearing Protectors Where Required

PeneCore Drilling, Inc. will provide and required employees with hearing protectors if his/her 8 hour TWA is above the 85dB (A). PeneCore Drilling, Inc. will also make hearing protectors available to all employees exposed to a TWA above 85dB (A) at no cost to the employee. Any employee who may have a significant threshold shift of hearing level will be required to wear hearing protection if they are exposed to noise TWA of 85dB.

Responsibilities

The client determines if a unit or work area is classified as a high noise area. After the determination is made, PeneCore Drilling, Inc. employees will be instructed to wear the appropriate hearing protection.

Recordkeeping

All record-keeping for this program will be maintained in the office. Records will include:

- Audiometric tests.
- Noise surveys.
- Employee training.
- Engineering controls implemented.
- Record of purchase of hearing protector.

Work Requiring Hearing Protectors

There are may jobs or types of work that generally produces noise level that intermittently or for short durations exceed the permissible TWA. It is the policy of PeneCore Drilling, Inc. to require all workers who are engaged in these jobs to wear hearing protectors. The attached list is some of those jobs. See Attachment

Hearing Protectors

Employees may choose the type of hearing protection that best suits their particular assignment and personal preference for among those listed below. Each employee required to wear hearing protection is responsible for carrying hearing protection on his/her person. Hearing protection is furnished at no cost to employees.

- Ear Plugs: Most ear plugs, when worn properly, have a noise reduction rating (NRR) on the package. Most ear plugs have NRR of about 30.
- Ear Muffs: Adjustable muffs can be worn in three positions:
- Position NRR:
    - Over the head 24 (this depends on the NRR of the Ear Muff)
    - Under the chin 20
    - Behind the head 20

Attachment 1

The following list represents some work activities and equipment which will require the use of hearing protection:

ACTIVITIES AND/OR EQUIPMENT ESTIMATED AVERAGE TYPICALLY RESULTING IN HIGH NOISE LEVEL NOISE LEVEL dB(A):

1. Air Arc Gouging 115
2. Air compressor 95
3. Chain saw 107
4. Electric Disc Grinder 100
5. Forklift inside a trailer 98
6. Heavy equipment working 100
7. Impact tools 108
8. Pneumatic chipping hammer 110
9. Abrasive blasting 100
10. Welding machines 95

Attachment II
HEARING CONSERVATION PROGRAM FOLLOW UP TRAINING RECORD

From: Manager or Supervisor

The employee listed below recently was found to have a confirmed significant shift in the hearing threshold (as defined by OSHA). An investigation and additional training is required. When this form is completed and reviewed with the employee, please file in the office.

Employee Name:
Social Security Number:
Reported Date:
Job Category:

The Potential for noise exposure and specific requirements for using hearing protection in their area should be reviewed with this employee within 2 weeks. If hearing protection requirements have not been established in this work area, it must be done as soon as possible.

The retraining for this employee should include:

- The temporary and permanent effects of noise on hearing.
- Established hearing protection requirements.
- Any questions the employee may have on the use of hearing protection.
- The proper use of hearing protection.
- Comments the employee has on potential off-the-job noise exposure.

Comments:
I have discussed the above items with this employee:
Manager or Supervisor Name:
Date of Discussion:
Signature:

PERSONAL PROTECTIVE EQUIPMENT (PPE) TRAINING

Employees expected to wear Personal Protective Equipment (PPE) will be trained as follows:

- Exposures and how to identify them.
- Types of PPE to wear as protection from each exposure.
- When to wear them.
- How to wear PPE properly.
- How to care for, clean and properly store PPE.

Employee owned PPE is not allowed.

Hazard Assesments

Hazard assessments of the workplace shall be made to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE).

PPE Use

Head Protection

Approved hard hats must be worn if employees could be struck by falling objects, are in danger of striking their heads on fixed objects, or there is a shock hazard from working near exposed electrical conductors.

Do not drill holes in the hard hat for ventilation; it destroys the integrity to protect you from blows to the head.

Hard hats shall comply with ANSI Z89.1-1986, Class A or B. Class B is required for exposure to high voltage shocks, above 600 volts.

Where there is risk of injury from hair entanglements in moving parts of machinery, combustibles, or toxic contaminants, employees shall confine their hair with nets, or other suitable restrictive devices to eliminate the hazard.

Eye and Face Protection

Employees working in locations where there is a risk of receiving eye injuries such as punctures, abrasions, contusions, or burns as a result of coming in contact with flying particles, hazardous substances, projections, or injurious light rays which are inherent to the work or environment shall be safeguarded by means of face or eye protection.

Suitable screens or shields isolating the hazardous exposure may be considered adequate safeguarding for nearby employees, i.e. welding screens.

Protection against light rays and radiant energy is spelled out in Title 8, GISO, 3382, Tables EP-1 and EP-2.

Where eye protection is required and the employee requires vision correction, the following eye protection shall be provided:

1. Safety glasses with suitable corrected lenses, or
2. Safety goggles designed to fit over glasses, or
3. Protective goggles with corrective lenses mounted behind the protective lenses.

The wearing of contact lenses is prohibited in working environments having harmful exposure to materials, or light flashes, except with medically approved devices.

Side shields shall be worn whenever the hazard of flying objects is angular as well as frontal.

Body Protection

Protection such as rubber aprons or sleeves may be necessary in certain environments where splashing of hazardous materials, or other common substances such as water would pose a risk to the employee. Flying metal particles or molten metal are examples of hazards that could penetrate normal clothing and injure the employee, requiring leather protective sleeves and/or vests.

In all cases, clothing appropriate for the work being done shall be worn. Loose sleeves, tails, ties, lapels, cuffs, or other loose clothing which can become entangled in moving machinery will not be worn.

Clothing containing flammable liquids, corrosive substances, pesticides, irritants, or oxidizing agents shall be removed and not worn until properly laundered.

Hand Protection

There are many types of gloves and made of many different types of materials, each with a specific application. Gloves will be worn as precaution from the following exposures:

- Chemicals - check the Material Safety Data Sheets (MSDS) for listed PPE required for safe handling.
- Cuts.
- Hot work.

No glove can protect against all hazards so select the appropriate glove for the job.

Where there is risk of injury from glove entanglement in moving parts of machinery, employees shall not wear gloves and use other methods to protect their hands from injury exposure.

Jewelry, such as rings has caused the loss of many fingers. Be aware that wrist watches, and other jewelry can be caught in moving machinery, or caught on a protruding hook or nail. Never wear metallic jewelry or other objects when working around electrically energized equipment.

Foot Protection

For work in areas where feet are in danger of:

- Being struck by falling, or heavy rolling objects and crushed or penetrated, steel-toed shoes, or steel covers are recommended.
- Working around boards with nails, or scrap metal, you need protection from punctures.

Hearing Protection

Hearing protection will be made available to all employees exposed to sources of noise 85 dB or greater, as measured by a sound level meter or identified by the contracting company. In general, anytime someone must elevate their voice to be heard, hearing protection will be worn.

Hearing protector equipment consists of ear plugs (various NRR) or muffs (industrial).

CORONAVIRUS (COVID-19) and PANDEMIC DISEASE PLAN/POLICY

According to the U.S. Department of Health and Human Services/Centers for Disease Control and Prevention (CDC), Chinese authorities identified an outbreak caused by a novel—or new—coronavirus. The virus can cause mild to severe respiratory illness. The outbreak began in Wuhan, Hubei Province, China, and has spread to a growing number of other countries—including the United States. The virus is different from six other, previously identified human coronaviruses, including the Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) coronaviruses that have caused previous respiratory disease outbreaks. This policy is developed, owned and overseen by PeneCore.

Many of the initial cases identified in Asia were likely the result of exposure in a large seafood and animal market, suggesting a possible zoonotic (i.e., animal) origin to the outbreak. Based on scientific analysis of the virus' genetic material, some scientists suspect snakes may be the source of the outbreak.

Not all cases are connected to the market, however. The novel coronavirus, COVID-19 has spread directly between people in several countries, including the United States. The Hazard Recognition page describes how COVID-19 is thought to spread.

Additional information on coronaviruses is available on the U.S. Centers for Disease Control and Prevention (CDC) coronavirus website and the CDC's COVID-19 guidance.

Standards

This section highlights OSHA standards and directives (instructions for compliance officers) and other related information that may apply to worker exposure to novel coronavirus, COVID-19.

There is no specific OSHA standard covering COVID-19. However, some OSHA requirements may apply to preventing occupational exposure to COVID-19. Among the most relevant are:

OSHA's Personal Protective Equipment (PPE) standards (in general industry, 29 CFR 1910 Subpart I), which require using gloves, eye and face protection, and respiratory protection.
When respirators are necessary to protect workers, employers must implement a comprehensive respiratory protection program in accordance with the Respiratory Protection standard (29 CFR 1910.134).
OSHA has issued temporary guidance related to enforcement of respirator annual fit-testing requirements for healthcare.
The General Duty Clause, Section 5(a)(1) of the Occupational Safety and Health (OSH) Act of 1970, 29 USC 654(a)(1), which requires employers to furnish to each worker "employment and a place of employment, which are free from recognized hazards that are causing or are likely to cause death or serious physical harm."
OSHA's Bloodborne Pathogens standard (29 CFR 1910.1030) applies to occupational exposure to human blood and other potentially infectious materials that typically do not include respiratory secretions that may transmit COVID-19. However, the provisions of the standard offer a framework that may help control some sources of the virus, including exposures to body fluids (e.g., respiratory secretions) not covered by the standard.

State Standards

There are twenty-eight OSHA-approved State Plans, operating state-wide occupational safety and health programs. State Plans are required to have standards and enforcement programs that are at least as effective as OSHA's and may have different or more stringent requirements.

The California Division of Occupational Safety and Health (Cal/OSHA) Aerosol Transmissible Diseases (ATD) standard is aimed at preventing worker illness from infectious diseases that can be transmitted by inhaling air that contains viruses (including COVID-19), bacteria or other disease-causing organisms. While the Cal/OSHA ATD standard is only mandatory for certain healthcare employers in California, it may provide useful guidance for protecting other workers exposed to COVID-19.

Employers must also protect their workers from exposure to hazardous chemicals used for cleaning and disinfection. Employers should be aware that common sanitizers and sterilizers could contain hazardous chemicals. Where workers are exposed to hazardous chemicals, employers must comply with OSHA's Hazard Communication standard (in general industry, 29 CFR 1910.1200), Personal Protective Equipment standards (in general industry 29 CFR 1910 Subpart I) and other applicable OSHA chemical standards. OSHA provides information about hazardous chemicals used in hospitals in the Housekeeping section of its Hospital eTool.

Enforcement Memorandum

In light of the Presidential Memorandum on making general use respirators available for healthcare workers during the COVID-19 outbreak, OSHA has issued temporary enforcement guidance for the Respiratory Protection standard (29 CFR 1910.134) regarding required annual fit-testing (paragraph (f)(2)), which is to take effect from the date of the memorandum (March 14, 2020) and remain in effect until further notice. See the memorandum for complete details.

Additional Directives

Note: The "Directives" bullets above link to directives related to each OSHA standard. The directives in this list provide additional information that is not necessarily connected to a specific OSHA standard highlighted on this Safety and Health Topics page.

Rules of agency practice and procedure concerning OSHA access to employee medical records. CPL 02-02-072, (August 22, 2007). Provides guidance to OSHA personnel concerning rule application and agency practice and procedure set forth at 29 CFR 1913.10 when accessing personally identifiable worker medical records. Guidance also covers authorization by the Assistant Secretary to conduct a limited worker medical information review when: 1) OSHA standards require such information; and 2) there is a need to gain access to determine compliance.

Workers' Rights and Employers' Responsibilities

Section 11(c) of the Occupational Safety and Health Act of 1970, 29 USC 660(c), prohibits employers from retaliating against workers for raising concerns about safety and health conditions. Additionally, OSHA's Whistleblower Protection Program enforces the provisions of more than 20 industry specific federal laws protecting employees from retaliation for raising or reporting concerns about hazards or violations of various airline, commercial motor carrier, consumer product, environmental, financial reform, food safety, health insurance reform, motor vehicle safety, nuclear, pipeline, public transportation agency, railroad, maritime, securities, and tax laws.

OSHA encourages workers who suffer such retaliation to submit a complaint to OSHA as soon as possible in order to file their complaint within the legal time limits, some of which may be as short as 30 days from the date they learned of or experienced retaliation. An employee can file a complaint with OSHA by visiting or calling his or her local OSHA office; sending a written complaint via fax, mail, or email to the closest OSHA office; or filing a complaint online. No particular form is required and complaints may be submitted in any language.
OSHA provides recommendations intended to assist employers in creating workplaces that are free of retaliation and guidance to employers on how to properly respond to workers who may complain about workplace hazards or potential violations of federal laws. OSHA urges employers to review its publication: Recommended Practices for Anti-Retaliation Programs (OSHA 3905 - 2017).

Hazard Recognition

The risk from COVID-19 to Americans depends on characteristics of the virus, including how well it spreads between people; the severity of resulting illness; and the medical or other measures available to control the impact of the virus and the relative success of these measures. The CDC provides detailed information about this topic.

How does COVID-19 Spread?

Although the ongoing outbreak likely resulted originally from people who were exposed to infected animals, COVID-19, like other coronaviruses, can spread between people. Infected people can spread COVID-19 through their respiratory secretions, especially when they cough or sneeze. According to the CDC, spread from person-to-person is most likely among close contacts (about 6 feet). Person-to-person spread is thought to occur mainly via respiratory droplets produced when an infected person coughs or sneezes, similar to how influenza and other respiratory pathogens spread. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs. It's currently unclear if a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes.

Given what has occurred previously with respiratory diseases such as MERS and SARS that are caused by other coronaviruses, it is likely that some person-to-person spread will continue to occur. There is much more to learn about the transmissibility, severity, and other features associated with COVID-19, and investigations are ongoing.

Workers Who May Have Exposure Risk

Despite the low risk of exposure in most job sectors, some workers in the United States may have exposure infectious people, including travelers who contracted COVID-19 abroad. Workers with increased exposure risk include those involved in:

Healthcare (including pre-hospital and medical transport workers, healthcare providers, clinical laboratory personnel, and support staff).

- Deathcare (including coroners, medical examiners, and funeral directors).
- Airline operations.
- Waste management.
- Travel to areas, including parts of China, where the virus is spreading.
- Identifying Potential Sources of Exposure

OSHA standards, including those for personal protective equipment (PPE, 29 CFR 1910.132) and respiratory protection (29 CFR 1910.134), require employers to assess the hazards to which their workers may be exposed.

In assessing potential hazards, employers should consider whether or not their workers may encounter someone infected with COVID-19 in the course of their duties. Employers should also determine if workers could be exposed to environments (e.g., worksites) or materials (e.g., laboratory samples, waste) contaminated with the virus.

Depending on the work setting, employers may also rely on identification of sick individuals who have signs, symptoms, and/or a history of travel to COVID-19-affected areas that indicate potential infection with the virus, in order to help identify exposure risks for workers and implement appropriate control measures.

Control and Prevention

Measures for protecting workers from exposure to, and infection with, the novel coronavirus, COVID-19 depend on the type of work being performed and exposure risk, including potential for interaction with infectious people and contamination of the work environment. Employers should adapt infection control strategies based on a thorough hazard assessment, using appropriate combinations of engineering and administrative controls, safe work practices, and personal protective equipment (PPE) to prevent worker exposures. Some OSHA standards that apply to preventing occupational exposure to COVID-19 also require employers to train workers on elements of infection prevention, including PPE.

For all workers, regardless of specific exposure risks, it is always a good practice to:

- Frequently wash your hands with soap and water for at least 20 seconds. When soap and running water are unavailable, use an alcohol-based hand rub with at least 60% alcohol. Always wash hands that are visibly soiled.
- Avoid touching your eyes, nose, or mouth with unwashed hands.
- Avoid close contact with people who are sick.

The U.S. Centers for Disease Control and Prevention has developed interim guidance for businesses and employers to plan for and respond to COVID-19. The interim guidance is intended to help prevent workplace exposures to acute respiratory illnesses, including COVID-19. The guidance also addresses considerations that may help employers prepare for more widespread, community outbreaks of COVID-19, in the event that this kind of transmission begins to occur. The guidance is intended for non-healthcare settings; healthcare workers and employers should consult guidance specific to them, below.

- Interim guidance for most U.S. workers and employers of workers unlikely to have occupational exposures to COVID-19
- For most types of workers, the risk of infection with COVID-19 is similar to that of the general American public.
- Employers and workers in operations where there is no specific exposure hazard should remain aware of the evolving outbreak situation. Changes in outbreak conditions may warrant additional precautions in some workplaces not currently highlighted in this guidance.

Workers and employers involved in healthcare, deathcare, laboratory, airline, border protection, and solid waste and wastewater management operations and travel to areas with ongoing, person-to-person transmission of COVID-19 should remain aware of the evolving outbreak situation.

As discussed on the Hazard Recognition page, employers should assess the hazards to which their workers may be exposed; evaluate the risk of exposure; and select, implement, and ensure workers use controls to prevent exposure. Control measures may include a combination of engineering and administrative controls, safe work practices, and PPE.

Identify and Isolate Suspected Cases

In all workplaces where exposure to the COVID-19 may occur, prompt identification and isolation of potentially infectious individuals is a critical first step in protecting workers, visitors, and others at the worksite.

Immediately isolate people suspected of having COVID-19. For example, move potentially infectious people to isolation rooms and close the doors. On an aircraft, move potentially infectious people to seats away from passengers and crew, if possible and without compromising aviation safety. In other worksites, move potentially infectious people to a location away from workers, customers, and other visitors. Take steps to limit spread of the person's infectious respiratory secretions, including by providing them a facemask and asking them to wear it, if they can tolerate doing so. Note: A surgical mask on a patient or other sick person should not be confused with PPE for a worker; the mask acts to contain potentially infectious respiratory secretions at the source (i.e., the person's nose and mouth).

If possible, isolate people suspected of having COVID-19 separately from those with confirmed cases of the virus to prevent further transmission, including in screening, triage, or healthcare facilities. Restrict the number of personnel entering isolation areas, including the room of a patient with suspected/confirmed COVID-19. Protect workers in close contact* with the sick person by using additional engineering and administrative control, safe work practices and PPE.

*CDC defines "close contact" as being about six (6) feet (approximately two (2) meters) from an infected person or within the room or care area of an infected patient for a prolonged period while not wearing recommended PPE. Close contact also includes instances where there is direct contact with infectious secretions while not wearing recommended PPE. Close contact generally does not include brief interactions, such as walking past a person.

Environmental Decontamination

When someone touches a surface or object contaminated with the virus that causes COVID-19, and then touches their own eyes, nose, or mouth, they may expose themselves to the virus.

Because the transmissibility of COVID-19 from contaminated environmental surfaces and objects is not fully understood, employers should carefully evaluate whether or not work areas occupied by people suspected to have virus may have been contaminated and whether or not they need to be decontaminated in response.

Outside of healthcare and deathcare facilities, there is typically no need to perform special cleaning or decontamination of work environments when a person suspected of having the virus has been present, unless those environments are visibly contaminated with blood or other body fluids. In limited cases where further cleaning and decontamination may be necessary, consult U.S. Centers for Disease Control and Prevention (CDC) guidance for cleaning and disinfecting environments, including those contaminated with other coronavirus.

Workers who conduct cleaning tasks must be protected from exposure to blood, certain body fluids, and other potentially infectious materials covered by OSHA's Bloodborne Pathogens standard (29 CFR 1910.1030) and from hazardous chemicals used in these tasks. In these cases, the PPE (29 CFR 1910 Subpart I) and Hazard Communication (29 CFR 1910.1200) standards may also apply. Do not use compressed air or water sprays to clean potentially contaminated surfaces, as these techniques may aerosolize infectious material.

Worker Training

Train all workers with reasonably anticipated occupational exposure to COVID-19 (as described in this document) about the sources of exposure to the virus, the hazards associated with that exposure, and appropriate workplace protocols in place to prevent or reduce the likelihood of exposure. Training should include information about how to isolate individuals with suspected or confirmed COVID-19 or other infectious diseases, and how to report possible cases. Training must be offered during scheduled work times and at no cost to the employee.

Workers required to use PPE must be trained. This training includes when to use PPE; what PPE is necessary; how to properly don (put on), use, and doff (take off) PPE; how to properly dispose of or disinfect, inspect for damage, and maintain PPE; and the limitations of PPE. Applicable standards include the PPE (29 CFR 1910.132), Eye and Face Protection (29 CFR 1910.133), Hand Protection (29 CFR 1910.138), and Respiratory Protection (29 CFR 1910.134) standards. The OSHA website offers a variety of training videos on respiratory protection.

When the potential exists for exposure to human blood, certain body fluids, or other potentially infectious materials, workers must receive training required by the Bloodborne Pathogens (BBP) standard (29 CFR 1910.1030), including information about how to recognize tasks that may involve exposure and the methods, such as engineering controls, work practices, and PPE, to reduce exposure. Further information on OSHA's BBP training regulations and policies is available for employers and workers on the OSHA Bloodborne Pathogens and Needlestick Prevention Safety and Health Topics page.

PANDEMIC DISEASE PLAN/POLICY

Purpose

PeneCore strives to provide a safe and healthy workplace for all employees. This pandemic policy outlines our overall response to a pandemic outbreak and our emergency-preparedness and business continuity plan. It outlines specific steps PeneCore takes to safeguard employees' health and well-being during a pandemic while ensuring PeneCore ability to maintain essential operations and continue providing essential services to our customers. In addition, it provides guidance on how we intend to respond to specific operational and human resource issues in the event of a pandemic. Pandemic policies are discussed, reviewed and tested during monthly mandatory meetings in which continued policies and lessons learned are applied. This is done with the lessons learned template all employees are familiar with.

Pandemic Defined

Pandemic can occur when mutating viruses become transmissible to humans, who generally lack any natural immunity to fight off the viruses' adverse health effects. Because infected humans are so contagious, they become the primary vehicle for pandemic 's spread. The more humans who become contagious, the more widespread the disease becomes and the more rapid the spread is. Generally, pandemic occurs in waves, with each new group of infected people in turn infecting others. Each such wave of infection can last as long as eight weeks, resulting in steadily increasing numbers of infections, and the disease itself can take 12 months to 18 months to run its course through the population. Subsequently, the viruses sparking pandemic "settle" and thereafter can cause a type of seasonal (also known as "human ") that produces the symptoms and illness many of us experience during annual " season." Pandemic poses the most serious global threats to public health and our economy. It conceivably can cost billions of dollars in productivity losses resulting from absenteeism, payouts of sick leave or workers' compensation, and lost sales; disrupt transportation and communication services on which we all depend; and impede delivery of necessary goods and services. Inability to predict when such a disease might strike and with what severity makes it incumbent on PeneCore to consider how our business might be affected and to articulate what needs to be done to respond to an outbreak.

Identification of Essential Personnel

PeneCore has identified and designated as essential personnel certain employees whose jobs are vitally important to our continued operation in emergencies. We expect only designated essential personnel to be available for work during an pandemic. We acknowledge, however, that even essential personnel might become ill and unavailable to work or not be able to reach our worksite because of conditions beyond their own or our control.

Consequently, PeneCore and its subsidiaries, affiliates, and industry partners have devised and agreed on back-up arrangements under which designated personnel in locations outside our respective areas are trained and equipped to fulfill the duties of unavailable essential employees. In addition, we have equipped
our most essential personnel with all the resources, including computers, cell phones, and back-up generators, that essential employees need to work remotely during emergencies.

Remote Work Locations

PeneCore acknowledges that during an pandemic, local, state, or federal authorities might prohibit or severely curtail individuals' access to and use of public services and public transportation; close or prevent access to buildings or public highways; isolate or quarantine buildings' occupants; and prevent inter- or intrastate delivery of goods and services. We cannot predict and have no control over such authorities' actions and acknowledge our legal duty to comply with outside authorities' directives.

We are prepared to continue key "bare bones" operations from a number of remote work locations, including essential employees' home offices. We have installed at all remote work locations all the equipment necessary for off-site telecommuting operations. In addition, we have designated a secure Web site through which essential personnel can communicate with each other and outside authorities.

Infection-Control Measures

PeneCore takes a number of steps to minimize to the extent practicable exposure to and spread of infection in the workplace, which is an ideal site for contagion because of workers' close proximity to one another. As appropriate, PeneCore recommends measures that employees can take to protect themselves outside the workplace and encourages all workers to discuss their specific needs with a family physician or other appropriate health or wellness professional. Current operating procedures for day to day drilling has always been to not drill with large gatherings. Rather only the lead driller, assistant driller and one scientist, which must stand a long distance away from the drill site due to debris.

Ill employees

PeneCore expects employees who contract the or have been exposed to infected family members or others with whom employees have been in contact to stay home and seek medical attention as necessary and appropriate. PeneCore expects such workers to notify us as soon as possible of exposure or illness, using our secure telephone hotline, which channels calls to our emergency-response call center.

At our discretion or the direction of outside authorities, we can require the isolation and quarantine in our on-site clinic of any infected employees who come to work despite exposure or need for medical attention.

Vaccinations

PeneCore requires all essential personnel to maintain up-to-date vaccinations and to obtain annual PeneCore -paid shots, if available and not medically contraindicated. We require essential personnel to certify that they have obtained the necessary inoculations and to maintain a copy of that certification, which must be provided at our request.

PeneCore is entitled under our state's Pandemic and Emergency Health Preparedness Act to receive from health care providers medical information created as a result of employment-related health care services, such as inoculations, provided to employees at PeneCore specific request and expense when such information is needed to process insurance claims. We maintain the confidentiality of all such employee medical information.

Mandatory Employee Training

All employees are at risk of exposure to viruses, both in and outside the workplace; therefore, PeneCore requires all employees to attend initial or refresher training bi-annually to become informed about what to do when a outbreak occurs.

Training, which is customized for our business and conducted by a panel of outside experts and representatives from our Training, Risk Management, and Plant and Facilities sections, addresses information summarized in this document and, more specifically, such issues as availability of shots; symptoms and health effects of , treatment, and sources to contact for appropriate medical care; steps to take if exposure is suspected; company representatives to whom to report known or suspected exposures, and procedures for reporting exposure to co-workers, family members, friends, or others who are ill with ; proper use of PeneCore -provided personal-protection equipment; proper hygiene in the workplace and at home; and communications. Training includes role-plays based on scenarios developed to test employees' understanding of PeneCore’s planned emergency response. Supervisors and HR are responsible for recording and maintaining documentation on every employee's participation in required training.

PPE (Personal Protection Equipment)

PeneCore maintains on site adequate supplies of recommended personal-protection equipment, such as face masks, eye protection, rubber gloves, and anti-bacterial hand gels and wipes, which PeneCore can require workers to use.

We urge all employees to speak with their personal physician about types and proper use of personal-protection equipment in the home.

Hygiene, Surface, Equipment and Hand Washing

PeneCore provides all rigs, equipment, warehouse, and office space with proper hand/surface solutions, paper towels, spray bottles, and gloves. Standard operating procedure has always been to decontaminate rigs and equipment before and after the drilling process. Washing your hands is easy, and it’s one of the most effective ways to prevent the spread of germs. Clean hands can stop germs from spreading from one person to another and throughout an entire community—from your home and workplace to childcare facilities and hospitals. Follow these five steps every time.

Wet your hands with clean, running water (warm or cold), turn off the tap, and apply soap.

Lather your hands by rubbing them together with the soap. Lather the backs of your hands, between your fingers, and under your nails.

Scrub your hands for at least 20 seconds. Need a timer? Hum the “Happy Birthday” song from beginning to end twice.

Rinse your hands well under clean, running water.

Dry your hands using a clean towel or air dry them.

Washing hands with soap and water is the best way to get rid of germs in most situations. If soap and water are not readily available, you can use an alcohol-based hand sanitizer that contains at least 60% alcohol. You can tell if the sanitizer contains at least 60% alcohol by looking at the product label. Sanitizers can quickly reduce the number of germs on hands in many situations. However, Sanitizers do not get rid of all types of germs. Hand sanitizers may not be as effective when hands are visibly dirty or greasy. Hand sanitizers might not remove harmful chemicals from hands like pesticides and heavy metals. Apply the gel product to the palm of one hand (read the label to learn the correct amount). Rub your hands together. Rub the gel over all the surfaces of your hands and fingers until your hands are dry. This should take around 20 seconds.

Facility Maintenance

PeneCore's Facilities manager regularly inspects the workplace for signs of heating, air conditioning, or other equipment in need of replacement or repair. PeneCore's Facilities staff coordinate closely with PeneCore's cleaning and waste-removal contractors to maintain our physical plant in top condition. PeneCore approves the installation or use wherever possible of improved equipment or cleaning methods to guard against the spread of infection in the workplace.

Employee Leave and Pay

In the event of pandemic , PeneCore grants all nonessential personnel immediate administrative leave. PeneCore pays workers on administrative leave a reduced salary, and continues such reduced salary for one-week periods up to a maximum of six weeks. PeneCore monitors emergency conditions daily to determine how long administrative leave must continue and, following consultation with outside authorities, advises employees when to expect to return to work.

PeneCore's established emergency-response fund to which PeneCore allocates a portion of annual revenues is one source on which PeneCore draws to pay employees on administrative leave. Each year, PeneCore's board of directors sets the portion of revenues to be allocated to the emergency-response fund.

Family and Medical Leave

If applicable, PeneCore places on family and medical leave any workers who fall ill with or must be absent from work to care for an infected family member. PeneCore requires such employees to notify PeneCore as soon as possible of need for family and medical leave. PeneCore allows employees to use accrued paid annual and sick leave in lieu of unpaid family and medical leave. PeneCore requires employees to take unpaid family and medical leave once all accrued paid leave is used. PeneCore requires all employees to certify that they have received, read, and fully understand PeneCore's family and medical leave policy and its use in a outbreak.

Emergency-Contact Information

Employees are required to notify their immediate supervisor and Human Resources of any change in emergency-contact information within two weeks of the change. When providing such information, employees, especially those who have children or care for elderly relatives, should identify individuals on whom they can depend if the employees themselves become sick at work and must be isolated and quarantined in PeneCore's on-site clinic.

Human Resources verifies employees' emergency contact information twice a year, in January and July. HR conducts this verification process electronically. Supervisors are required to maintain in the workplace and at home an up-to-date emergency-contact list for their unit or department.

Special Needs and Accommodations

PeneCore is required by law to notify first-responders about employees with medical conditions that could be compromised because of an pandemic. PeneCore urges such employees to confidentially self-identify to Human Resources so that we are aware of and can prepare for you to receive any special medical expertise you might require if you become severely ill on the job. Human Resources maintains the confidentiality of any information you provide, making it available solely on a need-to-know basis and only when needed by emergency-responders. In the event of a conflict between directives issued by PeneCore and directives issued by local, state, or federal authorities, such as the federal Department of Homeland Security, PeneCore directs all employees to obey all orders issued under local, state, or federal law.

Action Escalation and Communication

PeneCore's Emergency Operations Team, which is responsible for ensuring our company's ability to continue operating in emergencies, has devised a system under which essential personnel can be directed to take specific actions at a specific time based on a series of alerts ("Warning", for example, or "Full Shutdown") that take into account the seriousness of conditions at hand. PeneCore trains all essential personnel in the use and understanding of this communications system. Office employees are already set up to telework from home if necessary. Drillers will stay home and not report to physical job sites. PeneCore executives will communicate all health and safety procedures and risk assessments to clients. General safety protocols are always in place for every drilling job performed (Tailgate Safety Meetings). Penecore will identify customer segments. A vital first step is to identify the different segments of our customer base, then develop communication plans for each of them. These plans should be based on the way our customers interact with clients/public.

PeneCore will initiate emails and phone. Penecore will also post content on owned platforms, such as our company website and social media channels. And, where mass awareness is required, particularly in response to a specific outbreak, we may consider releasing a statement through the appropriate earned media outlets.

Social media allows our customers to share their thoughts and opinions 24/7, meaning the conversation surrounding PeneCore and pandemic can change in the blink of an eye. Daily monitoring of key social media platforms and news outlets will help us stay on top of what our customers, industry peers and the general public are saying. PeneCore will communicate regularly, openly and proactively with customers during a crisis and will emerge from it with trust and reputation intact.

Dedicated Web Site

PeneCore maintains a secure (password-protected) Web site, provide url, that is devoted to pandemic issues generally and to PeneCore's responses specifically. You will find on this easily navigable site a copy of this document; easy-to-understand descriptions of viruses and their health effects; hygiene factsheets; recommended infection-control protocols for home, workplace, and travel; copies of PeneCore's core travel, leave, pay, benefits continuation, health and safety, and workers' compensation insurance policies; our roster of essential personnel; contact information for PeneCore's Emergency Operations Team, as well as key company officials available to you in an emergency; and numerous links to local hospitals, first-responders, government emergency-response agencies (for example, Centers for Disease Control and Prevention), and local, state, and federal public health and safety organizations offering information that you and your family can use to protect yourselves. Along with PeneCore's secure emergency-information hotline, this site is your one-stop source of information on what to do, when, and how in the event of an pandemic in our area. In addition to being listed above, the url for our Web site is printed on all PeneCore communications related to pandemic , informational posters found throughout the workplace, and a laminated Pandemic Resources list that your supervisor is required to distribute to you. Printed in the form of a bookmark, the Resources list is intended to be posted at your workstation near your telephone. Feel free to ask your supervisor for additional copies to keep at home.

Pandemic Resources List

PeneCore maintains a list of the names, telephone numbers, and Web addresses of key PeneCore representatives and designated essential personnel who are available to answer your questions about Pandemic : PeneCore Guidance and Actions. Your immediate supervisor, who is required to attend regular information and training sessions on PeneCore's emergency-response and business-continuity planning and preparedness initiatives, as well as designated representatives of our subsidiaries, affiliates, suppliers, and industry partners, are directed to distribute up-to-date copies of this list, as well as any additional related information or guidance employees, suppliers, vendors, or customers might need.

The categorized list of key internal and external contacts and all appropriate media through which PeneCore communicates with employees also is available on our dedicated Web site. When updated, a new copy of the list is mailed to each employee's home.

Employee Assistance Program Services

PeneCore's employee assistance program (EAP) services remain available to you to the extent practicable and reasonable during an outbreak. PeneCore has contracted with our EAP provider to make available to you a team of crisis-management specialists with medical backgrounds. Our provider partners with PeneCore and local authorities as appropriate to ensure the reasonable availability and continued provision of critical information (such as where to go to obtain medical assistance for yourself or ill family members), respite care, use of personal-protection equipment, psychological and emotional support during a pandemic, including assistance and support following the death of an infected family member.

Contact information for our EAP is maintained on our dedicated Web site, published on posters throughout the workplace, and included in information packets mailed to every employee's home.