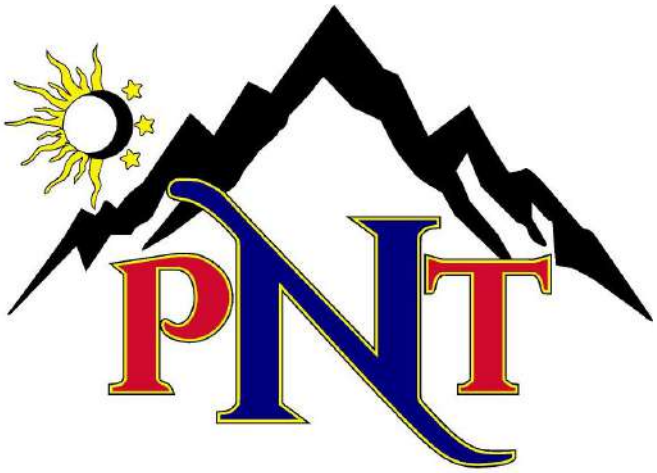

CONSULTING, LLC

Corporate HEALTH SAFETY & ENVIRONMENTAL Manual

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Section 1: Safety Policy

A. Company Policy

PNT Consulting is dedicated to providing a safe and healthy work environment for all of our employees, subcontractors, and customers. PNT shall follow operating practices that will safeguard employees, the public and PNT operations. **PNT believes all accident/incidents are preventable.** We will make every effort to prevent accident/incidents and comply with all established safety and health laws and regulations.

All subcontractors will be given a site specific or general safety orientation prior to beginning work.

B. Management Commitment to Safety

PNT is concerned about employee safety. Accident/incidents, unsafe working conditions, and unsafe acts jeopardize both employees and PNT resources. Injuries and illness result in discomfort, inconvenience, and possible reduced income for the employee. Costs to PNT include direct expenses (workers' compensation premiums, damaged equipment or materials, and medical care) and indirect expenses (loss of production, reduced efficiency, poor employee morale). These indirect costs are reported to cost 4-10 times more than the insured direct costs of an accident/incident. PNT will provide sufficient staffing, funds, time, and equipment so that employees can work safely and efficiently.

C. Assignment of Responsibilities

Safety is everyone's responsibility. Everyone will have a safety conscious attitude and practice safe behavior at all times. Unsafe behavior will **NOT** be tolerated. To best administer and monitor our safety policies, the following responsibilities are delegated. This list will not be considered all-inclusive and is subject to change as needed.

1. Management:
    a. Provide sufficient staffing, funds, time, training and equipment so that employees can work in a safe and efficient manner.
    b. Demand safe performance from each employee and express this demand regularly and whenever the opportunity presents itself.
    c. Delegate the responsibility for a safety performance to the PNT Safety Director, Superintendents, and employees as appropriate/needed.
    d. Hold every employee accountable for safety and evaluate performance accordingly.
    e. Periodically review the effectiveness and results of PNT's Safety Program.

2. Corporate Safety Director & Regional Safety Manager (for Satellite offices):
    a. Provide resources, direction, and audits to integrate safety into the management system.
    b. Assist pre-project planning tasks at the start of all new projects or jobs to help ensure safety is built into the job.
    c. Establish and maintain a safety education and training program.
    d. Continually conduct safety surveys, meetings, and jobsite inspections.

e. Advise all personnel on safety policies and procedures.
f. Assure that all newly hired employees have been given a thorough orientation concerning PNT's Safety Program.
g. Coordinate with Human Resources and maintain the company's drug-testing program.
h. Prepare and maintain safety records, analysis, evaluations, and reports to improve PNT's safety performance and comply with all government agencies, insurance carriers, and internal procedures.
i. Work with management, Superintendents, and employees to maintain and implement new and ongoing safety programs and comply with recommendations provided by outside consultants, OSHA inspectors, and insurance companies.
j. Make available all necessary personal protective equipment, job safety material, and first-aid equipment.
k. Review all accident/incidents with management, Superintendents and/or employees and ensure that corrective action is taken immediately.
l. File all workers' compensation claims immediately and work with the workers' compensation carrier to ensure proper medical treatment is provided to injured workers and they are returned to work as quickly as medically possible. Coordinate with the Director of Insurance to accomplish this task.

Note – all Safety Director Operations noted throughout the Safety Manual will be completed by the Regional Safety Manager for satellite offices.

3. Superintendent/Assistant Superintendent – ***SUPERINTENDENTS HAVE THE FIRST LINE OF SAFETY RESPONSIBILITY FOR ANY PROJECT.***

a. Implement all rules and regulations outlined in this manual.
b. Comply with all PNT Consulting Safety Rules.
c. Make certain that each employee, agent, invitee, and contractor is trained and follow
all applicable OSHA standards, codes, laws, and ordinances.
d. Control contract personnel and vehicles, and provide orientation materials as needed.
e. Conduct job site safety audits on a regular basis to ensure safety protocols are being implemented.

f Establish and maintain safe working conditions, practices, and processes through:

- Pre-Project Planning
- Job Inspections
- Safety Meetings
- Safety Training

g. Observe work activities to detect and correct unsafe actions.
h. Ensure that all injuries are reported promptly and cared for properly.
i. Make available first aid treatment.
j. Investigate all accident/incidents promptly. Complete an accident/incident report and provide it to PNT's Safety Director the day the accident/incident occurs. Review all accident/incidents with the contractors and employees and correct the causes

immediately.
k. In the event that an employee of PNT or a subcontractor is transported via EMS personnel to a hospital or there is a major incident at the job, PNT's Safety Director/Deputy Safety Director **MUST** be contacted immediately.
l. Seek out alternative work so injured employees can return to work in a modified job.
m. Consistently enforce safety rules/regulations, programs, and protective measures (i.e. use of personal protective equipment, machine guarding, proper clothing, etc.)
n. Post signs, notices, and instructions as needed or required.
o. Brief employees of any new hazards before they start work and host weekly safety meetings to discuss safety practices related to job specific hazards and general safe work behavior.
p. Work with management, the Safety Director, and employees to maintain & implement new and ongoing safety programs and comply with recommendations provided by outside consultants, OSHA inspectors, and insurance companies.
q. Supplying all required personal safety protective devices and clothing, e.g. goggles, face shields, gloves, masks, etc.

5. Employees

Each employee is responsible for his/her own safety, and for the safe work habits of those nearby. No task will be completed unless it can be completed safely. Employees will:

a. Comply with all of PNT's safety programs, rules, regulations, procedures, and instructions that are applicable to his/her own actions and conduct.
b. Comply with all local, state and government safety regulations.
c. Refrain from any unsafe act that might endanger his/her or fellow workers.
d. Use all safety devices and personal protective equipment provided for his/her protection.
e. Report all hazards, incidents, and near-miss occurrences to their immediate Superintendent or onsite Superintendent regardless of whether or not injury or property damaged was involved.
f. Promptly report all injuries and suspected work related illnesses to his/her immediate Superintendent or onsite PNT Superintendent.
b. Participate in safety meetings, training sessions, and surveys as requested and provide input into improving safety.
c. Notify PNT Superintendents, Safety Director or Superintendent immediately of any change in physical or mental conditions or use of prescription drugs that would affect the job performance or the safety of him/herself or others.
d. Notify PNT Safety Director within five days of any serious driving, drug/alcohol, or criminal convictions.
e. Be a safe worker on (and off) the job. Help coworkers do their job safely. Come to work every day with a safe attitude.

6. Subcontractors and Their Employees

All Subcontractors and their employees must:

a. Maintain a safe and health hazard free work environment.

b. Adhere to all minimum safety requirements on all job sites, inclusive of all local, state and federal government safety regulations as well as the PNT Safety Program.
c. Sign in every day at those job sites that require such action to take place.
d. Stay in only their assigned work areas.
e. Use only authorized machines, tools, shop equipment, and vehicles. These items must be authorized by the onsite PNT Superintendent.
f. DO NOT bring any explosives, firearms, alcoholic beverages, or drugs onto any job site.
g. Wear appropriate clothing at all times. Short pants and shirtless attire are prohibited. Sturdy leather work boots approved by ANSI must be worn at all times. Safety glasses/eye protection must be worn as specified by OSHA Standards. **Hard-hats and safety glasses must also be worn at all times while on any job site**.
h. Failure of any Subcontractor complying with these rules is a breach of contract and could result in either withheld payments or contract termination. Specific Subcontractor employees could also be banned from any job site for failing to abide by these rules. PNT Disciplinary Action forms will be used for documentation.

D. Accountability for Safety

Everyone is accountable for safety. PNT Management and the Corporate Safety Director will establish safety objectives and develop and direct accident/incident/incident prevention activities. All employees will strive to reach those objectives and will be evaluated accordingly. All managers' and Superintendent's annual performance appraisals will include safety (results to objectives in their area and company-wide) as well as an audit of their performance of their safety responsibilities. All employee salary reviews will be affected by PNT safety performance record. Performance appraisals, which include safety records, will also be performed on all employees seeking a promotion.

Section 2: General Safety

A. Emergencies & Evacuation

1. Emergency Procedures

Our goal is to provide prompt and immediate action in any emergency to protect life, property, and equipment. In case of an emergency, the employee nearest the stricken person will call 911 (or the emergency phone number posted in your area) and direct a fellow employee to:

a. Notify the nearest Superintendent to come to the scene
b. Simultaneously dispatch available employees to quickly retrieve the first aid kit
c. An individual trained in first-aid will apply emergency rescue procedures until medical assistance arrives
d. DO NOT MOVE THE VICTIM UNLESS ABSOLUTELY NECESSARY

The on-site PNT Superintendent will be notified. The Superintendent or PNT Consulting Safety Director (in that order) or their designees will decide whether or not to evacuate, inspect, or shut down a facility.

The Subcontractor is responsible for establishing procedures for their personnel to receive treatment for any injury, whether it is minor or major. Subcontractors are required by OSHA to have at least one employee at each job site that is trained in first aid. After an ambulance has been dispatched, all major injuries must be reported to the job site Superintendent and PNT Safety Director.

2. Evacuation Procedures

a. Evacuation areas will be established by the project superintendent, and posted on job-site bulletin boards and in any other area necessary for effective communication. Superintendents are responsible for the effective evacuation of all persons on the job-site
b. When alerted by alarm or by the on-site PNT Superintendent to evacuate, employees will:
    1. Properly secure all classified materials in your possession and assure all classified containers and areas are properly locked.
    2. **Proceed to the nearest exit and assemble in the designated area**.
    3. Remain in the designated area until instructions are provided.

3. Safe Operating Procedures

All employees are responsible for safety. The following applies to all employees:

1. Rules

a. Comply with all established safety rules, regulations, procedures, and instructions which are applicable to your own actions and conduct.
b. Promptly report all accident/incidents, hazards, incidents, and near-miss

occurrences to your immediate Superintendent, regardless of whether or not injury or property damage was involved.

c. Do not visit, talk to, or distract another employee who is operating a machine, or who is engaged in a work activity where the possibility of injury exists.
d. Do not participate in horseplay, scuffling, pushing, fighting, throwing things, or practical jokes.
e. Observe all no-smoking signs and regulations
f. Do not run on company/job site premises.
g. Use handrails on steps, elevated platforms, scaffolds, or other elevations.
h. Assist others and ask for assistance in lifting and carrying heavy or awkward objects.
i. Firearms, ammunition, and explosives are prohibited at PNT workplaces.
j. NO radios are permitted on PNT construction sites. Personal stereos with headphones, e.g. IPODS, MP3 players, are NOT permitted to be worn in the workplace or construction sites.
k. Alcohol, drug use, and/or possession at any PNT workplace are prohibited.

2. Housekeeping

a. Unless otherwise specified, waste material and scrap must be put in the proper containers and removed from the job.
b. Work areas, passageways and stairs, in and around buildings and structures must be kept clear of debris. Construction materials will be stored in an orderly manner. Jobsite storage areas and walkways must be maintained free of dangerous depressions, obstructions, and debris.
c. The entire job site will be cleaned daily and debris must be disposed of in dumpsters, or off site, in accordance with PNT and/or EPA regulations.
d. Failure to maintain adequate housekeeping and clean-up will result in contractual action by PNT.

3. Machine Guarding

a. It is the responsibility of the contractor to see that guards are installed on machines where needed.
b. Employees will report any malfunctions of the guards to their on-site Superintendent or Foreman immediately.
c. The on-site Superintendent or Foreman will ensure the machine will be locked and tagged-out until the guard can be fixed or replaced.
d. The guards increase safety on the machine. Machinery with the guards removed or disabled shall not be used by any employee, and must be removed from the job-site immediately.

4. Material Handling & Back Safety

a. Know the approximate weight of your load and make certain your equipment is rated to handle it. (All powered equipment and rigging is rated as to safe working load. This rating is posted on the equipment. Never exceed the manufacturer's recommended safe working load).
b. Lift heavy objects as instructed, with the leg muscles and not with the back. On

average, do not manually lift over 50 pounds.

c. Call for assistance as needed for handling heavy or bulky objects or materials.
d. Use an appropriate, approved lifting device (i.e. special trucks, racks, hoists, and other devices) for lifting very heavy, bulky, large or unyielding objects.
e. All ropes, chains, cables, slings, and other hoisting equipment must be inspected and have tags on each time before use.
f. A tag line will be used with every load
g. A load will never be lifted and left unattended.
h. Wear safety gloves when handling materials.
i. Properly stack and secure all materials prior to lifting or moving to prevent sliding, falling, or collapse.
j. Avoid moving or lifting loads by hand whenever possible.

Tips for manual lifting:

a. Get a good footing.
b. Place feet shoulder width apart.
c. Bend at the knees to grasp the weight.
d. Keep back as straight as possible.
e. Get a firm hold.
f. Lift gradually by straightening the legs.
g. Do not twist your back to turn. Move your feet.
h. When the weight is too heavy or bulky for you to comfortably lift - **GET HELP**.
i. When putting the load down, reverse the above steps.

Note: If lifting stacked materials, materials will be carefully piled and stable. Piles will not be stacked as to impair your vision or unbalance the load. Materials will not be stacked on any object (i.e. floor, scaffold) until the strength of the supporting members have been checked.

5. Forklift & Heavy Equipment Safety

The following are the minimum safety practices for the operation of forklifts and heavy equipment (bulldozers, backhoes, etc.):

a. Only trained and authorized operators are permitted to operate a forklift or heavy equipment. All operators will be trained by a Certified Forklift / Heavy Equipment Trainer. Every forklift operator must participate in, at minimum, annual forklift training. All operators must have their license/certificate of training on their person at all times they are operating motorized equipment.
b. Prior to operating the forklift or equipment, the operator must conduct and document a daily inspection. This inspection will include, at a minimum: brakes, steering controls, warning light, clutch, horn, fluid levels, and other devices for safe and proper operation.
c. Never check the engine while it is running.
d. NEVER check for hydraulic leaks with your hand.
e. Document your inspection results and equipment defects using the attached Inspection Report Form. Report defects to your Superintendent immediately. No defective equipment shall be used. Adjustments and repairs will be made by authorized personnel only.
f. Wash the equipment whenever necessary. The equipment must be kept clean and free of oil and grease.
g. Employees will operate the equipment/forklift with safe speed and within rated load capacity. Drive to the right. Do not exceed 10 miles per hour, or posted authorized speeds, on project roads.
h. Passengers are not permitted on forklifts or heavy equipment except for training purposes.
i. Mobile equipment will never be left unattended without first shutting off power, neutralizing controls, setting brakes, and lowering forks or bucket. Do not park on an incline. Wheels will be chocked properly.
j. All mobile equipment must have a **functional** and tagged fire extinguisher on board.
k. Sound horn at exits, corners, cross aisles, intersections, and when approaching pedestrians. Do not use horn needlessly or at undue length.
l. Always look in the direction equipment is traveling, looking backward when backing up, even for a short distance. Keep a clear view of the path. When forward vision is obstructed, drive in reverse. When backing equipment in Virginia, the reverse signal operation regulation must be followed. If you are unfamiliar with this regulation, advise your Superintendent immediately so that the appropriate training can be given by the PNT Safety Department.
m. When traveling, with or without a load, keep forks or bucket as low as possible.
n. Avoid following pedestrians or other vehicles too closely, especially when operating on inclines or in noisy areas.
o. Ascend/descend all ramps and inclines slowly. Wait for passengers to exit the ramp before attempting to ascend/descend. When descending, always use low gear and the slowest speed control. Do not descend ramps with the load at the

front of the forklift. Never ascend in reverse. When ascending, loaded forklifts will be driven with the load upgrade.

p. If the forklift is equipped with a seatbelt, the belt must be worn at all times.

Forklift Inspection Check List

Date:_____ **Inspector:**_____ **Title:**_____

Grade: 1 = Satisfactory, 2 = Needs some attention, 3 = Needs immediate action

Item	*Grade*	*Comments*
Operator Training		
Personnel operating the forklift properly trained.		
Condition of Forklift		
Brakes		
Steering controls		
Warning lights		
Horn		
Clutch		
Warning Lights		
Engine		
Overhead guard		
Capacity Sign posted		
Fire Prevention		
Fire extinguisher on board & functional		
Fluids		
Levels Adequate		
Fueling done to avoid spilling		
If spillage occurs, is fuel washed away completely from forklift and area and measures taken to control vapors before restarting engine?		
Personal Protective Equipment		
Hard hats provided & worn where danger of falling objects exist		
General PPE rules on proper clothing & footwear followed		
Additional OSHA Requirements		
Are driving paths marked, in good condition, and clear?		
Repairs are conducted in designated areas		
Operating rules posted & enforced		
Batteries charged in properly vented rooms (no smoking)		
Are dust & fume exposures generated by the forklift through operation, fueling, or repair controlled?		
Seatbelt in forklift and worn while operating the forklift		
Other:		

Action Taken:

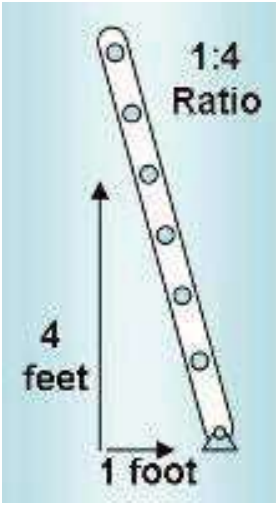
- ☐ **Repairs/Corrections must be completed by: (date)**_____
- ☐ **Repairs/Corrections mentioned above have been done.**

Superintendent _____ **Date:** ____

Distribution – Project Superintendent, Site Safety Officer (if assigned)

6. Ladders

a. Manufactured ladders must comply with OSHA, ANSI, manufacturer, and job specifications.
b. Ladders with broken or missing rungs and/or broken or split side rails will not be used.
c. All portable ladders will be equipped with non-skid safety feet and will be placed on a stable base. All access areas will be kept clear.
d. All metal ladders are prohibited (Only fiberglass, wood, or carbon fiber ladders are allowed by PNT Consulting).
e. The six foot fall protection procedure applies when working from a ladder. All ladders will be secured with a rope or other substantial device.
f. Wood ladders will not be painted except for an identification mark. Ladders will be maintained free of lines, ropes, hoses, wires, cables, oil, grease, and debris. No objects will be left on ladders.
g. Single portable ladders over 30 feet in length will not be used.
h. Side rails will extend 36 inches above the landings. All ladders in use will be tied, blocked, or otherwise secured to prevent accident/incidental displacement.
i. Never stand or sit on the top two steps of a ladder.
j. Never climb or work from the back of a ladder.
k. Never work with another person on the same ladder.
l. The contractor will provide training programs on ladders for all employees.
m. Straight or extension ladders will be placed at a one to four ratio (ladder base to wall) and (floor to top touch point of ladder). I.e. if ladder is resting against an upper level 16' off the ground, the base of the ladder will be 4' away from the wall. See diagram:



n. Extension ladder components will never be separated and used separately.

Never ascend or descend a ladder while carrying anything.

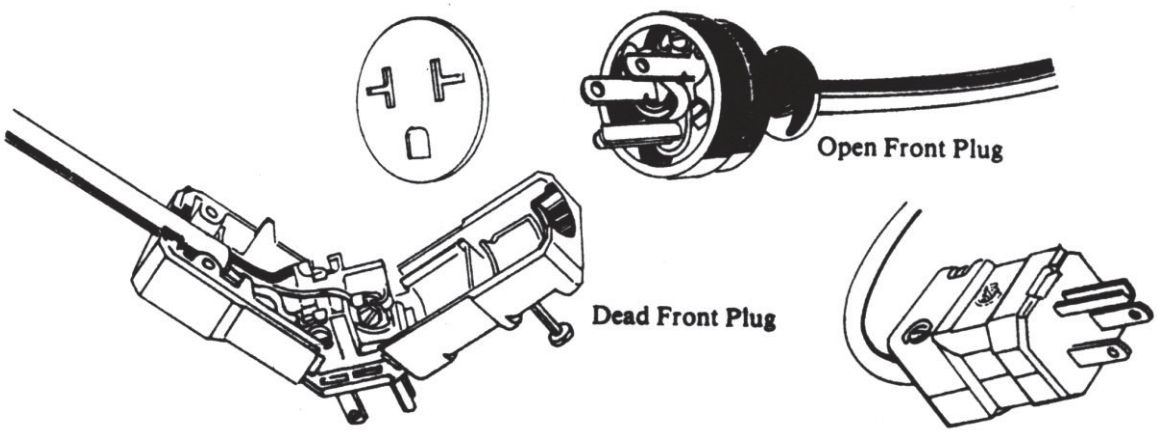
o. Always keep your belt buckle between the rails of the ladder. Do not overreach.
p. Always check to see that safety dogs or latches are engaged before using an

extension ladder. Extension ladders must be overlapped a minimum of three rungs.
q. Manufacturer applied warning labels, intended load labels, safety labels and other informational labels must be legible.
r. Job Built ladders must comply with ANSI A14.4-1979. Selected considerations for the construction of Job Built ladders are included are included in Attachment 1.

7. Electrical

a. The Electrical Superintendent/Foreman is responsible for complying with the most current versions of National Electrical Code (NEC 70) and NFPA 70E regulations and all Local/State/Federal codes. Any electrical work not in compliance will be brought to the PNT on-site Superintendent's attention immediately.
b. Only knowledgeable, certified electricians are to perform electrical work.
c. Employees will not work close to any unprotected electrical power circuit unless that circuit is d-energizedand grounded, LOCKED OUT AND TAGGED..
d. All switches must be enclosed and grounded. Panel boards must have provisions for closing and locking the main switch and fuse box compartment.
e. Extension cords used with portable electric tools and appliances must be heavy duty (no less than 12 gauge conductors) of the three wire grounding type, and must conform to OSHA standards. All cords must have ground pin in place. **NO FLAT ELECTRICAL CORDS ARE ALLOWED ON SITE.**
f. All electrical tools and extension cords must be protected by a ground fault circuit interrupter or be inspected every three months as part of an assured equipment grounding program. Temporary GFCI "pig tails" are acceptable. Note picture of acceptable pig tail.

g. Voltages must be clearly labeled on all electrical equipment and circuits. Circuits must also be clearly marked for the areas of service they provide.
h. Prior to performing any work, electricians must "lockout and tagout" the equipment or machinery. The only exception is when power is required for "megging" circuits.
i. Electrical cords and trailing cables will be covered, elevated or otherwise protected from damage. Any exposed wiring and cords with frayed or deteriorated insulation must be reported immediately and removed from service.
j. Extension cords will be used as little as possible and all plugs must be the dead front type.



k. Temporary lighting will be used in areas where there is not adequate natural or artificial lighting. Temporary lights must be equipped with guards to prevent accident/incidental contact with bulbs.
l. Working spaces, walkways, and similar locations must be kept clear of cords.
m. Electrical tools and equipment must be appropriately protected when used in wet or damp areas.

8. Small Tools

a. Proper storage for tools will be provided by the contractor.
b. Repair all damaged or worn tools promptly. Temporary and makeshift repairs are prohibited. Tools that cannot be properly repaired will be discarded immediately. PNT reserves the right to require any subcontractor to stop work for using any defective or improperly used tool.
c. The subcontractor will supply all required tools unless otherwise specified. All equipment must conform to OSHA Safety and Health Regulations for Construction, 29 CFR1926. All tools must be grounded or double insulated. The double insulating symbol looks like the following and will be located on the tool:

d. Power tools will not be used if safety equipment has been removed.
e. Employees using tools that cause objects to be thrown will wear personal protective gear, including proper eye and hearing protection.
f. Gas or propane powered tools will not be used in unventilated areas. Gas will be dispensed from U.L. approved cans only. All gas or propane powered tools must be turned off before being refueled.
g. Portable grinders must have hood-type guards and side enclosures that cover the spindle and at least 50% of the wheel. All wheels will be inspected regularly for fractures, etc. Defects will be promptly reported to the onsite Superintendent or Foreman immediately.
h. Bench grinders will have deflector shields and side cover guards. Tool rests will

have a maximum clearance of 1/8" from the wheel.

i. Air-supply lines will be inspected regularly and maintained in good condition.
j. To prevent "whipping" in the event of hose separation or failure, air sources supplying hoses will be protected with an excess flow valve and whip check safety cable. Completely bleed all air from tools before disconnecting them.
k. For cleaning purposes, the pressure of compressed air used will be 30 psi or less and hose extensions will always be used.
l. Only trained employees are to use powder-actuated tools.
m. Trained employees will inspect all powder-actuated tools on a daily basis. Any tool not found to be in proper working condition must immediately be removed from service.
n. All powder-actuated tools will be of the low velocity, cushioned pistol grip, and piston type design.
o. Only shot loads specifically labeled "no lead" or "lead free" will be allowed to be used.
p. Powder-actuated tools will NOT be used in areas where hazardous ignitable dust, gases, or liquids are present.
q. All maintenance work on powder-actuated tools must be performed according to manufacturer specifications and must be done by qualified persons only.
r. Powder-actuated tools will be locked-up when not in use to prevent unauthorized persons from using them.
s. Powder charges are not to be left on the floor. All used charges will be placed in a bucket of water and disposed of at the end of the shift. Powder actuated tools must not be left loaded and unattended.
t. Torque is the circular or rotating motion in tools such as drills, impact wrenches and saws that result in a strange twisting force. Be prepared in case of jamming.
u. Proper guards or shields must be kept in place on power tools that are being used.
v. Do not raise or lower power tools by their electrical cord or pneumatic line.

9. Scaffolding

a. Only qualified persons will design, build, or inspect scaffolds. Each application must be planned to ensure that the scaffolding conforms to all specified assembly requirements.
b. "Lean-to" scaffolds and makeshift platforms are prohibited.
c. Only materials currently being used will be stored on scaffolds. Materials are to be placed over cross members at all times. All materials will be removed from the scaffold nightly.
d. All scaffolds will be designed to carry four times the maximum intended load.
e. At no time will the scaffold be overloaded. Unstable objects such as barrels, boxes, and loose bricks will not be used to support scaffolds.
f. All scaffolds over ten feet high are required to have load footprints and limits that can be obtained from the scaffold manufacturer. A copy of all load footprints and limits will be given to any supplier stocking material on the scaffold.
g. All scaffolds must be maintained in safe condition and scaffolds damaged or

weakened must be replaced immediately.

h. Scaffolds more than six feet above the ground must have standard guardrails and toe boards attached. Top rails will be 42" +/- 3" from the working/walking platform.
i. Scaffolds will be braced and tied both horizontally and vertically at intervals according to specified regulations.
j. Scaffolds with any dimension less than 45 inches will be equipped with outriggers or secured and guarded with standard four feet high railings.
k. Mobile scaffolds will be equipped with top rails, mid rails, toe boards, and outriggers. All casters shall be locked. Mobile scaffolds will not be used if there is a change in the floor level elevation.
l. When erecting and dismantling scaffolds, OSHA's Six Foot Fall Protection requirements must be followed.
m. Inspection tags will be completed and attached to each scaffold prior to it being used.
n. Ladders must be used to climb scaffolds at all times. Workers will never climb a scaffold's cross bracing.
o. At the start of each shift, a competent person will inspect each scaffold for requirements of the standard. A green scaffold tag will be affixed to each scaffold, documenting the competent person's inspection.
p. Yellow scaffold tags will be affixed to scaffolds that are incomplete, but deemed by the competent person as safe to use.
q. Red scaffold tags will be affixed to scaffolds that are unsafe to use.
r. Both hands will be free of tools/materials when ascending or descending a scaffold. Employees will not propel themselves while working on scaffolds.
s. Adjusting or leveling screw jacks must not be extended more than twelve inches of thread.
t. Two-point suspension or "swing stages," pickboard, boatswain chains, floats and needle beams require special approval by a safety representative before use and require independent life lines.

10. Concrete and Forms

a. Workers handling cement being poured from trucks or in sacks will wear eye protection, snug fitting clothing, and dust masks.
b. All equipment and materials used in concrete construction and masonry work will meet the requirements described in ANSI-A 10.9-1970 'Safety Requirements for Concrete Construction and Masonry Work.' The onsite contracting Superintendent/Foreman will maintain a copy of the ANSI standards.
c. Employees working more than six (6) feet above adjacent working surfaces will use a safety harness with two lanyards/hooks. 100% tie-off/fall protection practices must be followed.
d. Employees are not permitted to work above vertically protruding, reinforced steel unless all haza
e. Riding and/or working under suspended concrete buckets is prohibited.
f. When reinforcing mats are used as walkways, they will be covered with plywood to assure safe footing.
h. Concrete workers must wear appropriate shirts, boots, and gloves in order to

reduce the danger of cement burns and cement dermatitis.

i. Lumber and materials will not have nails or wires protruding from them. Excess materials will be removed from the immediate work area.
j. All protruding rebar must be capped. .

11. Floor and Wall Openings

a. Inspect all new locations to ensure that all floor openings are covered with grates or covers. Any floor opening with a diameter of 2" or more will be covered.
b. Guards and/or covers are not to be removed until other means of fall protection are in place. Employees installing or removing guarding or covers will be protected by alternative fall protection. Guarding or covers shall be reinstalled by contractor/employee removing them (if hazard is still remaining).
c. Employees are prohibited in any area that could expose them to a fall unless proper fall protection procedures are in place.
d. Floor and roof openings will be covered or guarded by standard guardrails and toe boards. A standard railing consists of a top rail, intermediate (mid-rail) rail, and toe board.
e. The top rail will be approximately 42 inches from the upper surface of the rail to the floor, platform, or ramp level. If wire rope is used it will be ½" wire rope with at least 3 J-type fist grip wire rope clamps at each connection and turn buckler.
f. The midrail will be halfway between the top rail and floor, runway, platform, or ramp. If the midrail is wire rope, it will be ½" wire rope with 3 J-type, fist grip wire rope clamps at each connection and turnbuckles.
g. In areas where vertical debris net can't be installed, a toe board will be securely fastened in place and have no more than a ¼" gap between it and the floor.
h. Floor and roof openings will be covered or guarded by standard guardrails and toe boards. A standard railing consists of a top rail, intermediate (mid-rail) rail, and toe board.
i. Any other type, size, or arrangement of railing construction must be approved in writing by PNT.
j. Stair railings will be constructed similar to a standard railing. All hand rails will be provided with a minimum clearance of three (3) inches between the hand rail and any other surface or object.
k. During construction, stairs will be provided on all structures that have two or more floors.
l. Stairways will be free of hazardous projections, debris, and other loose materials.
m. Permanent steel stairways having hollow pan treads and landings will have the pans filled with solid material up to the nosing level.
n. Temporary stairs will have a landing at least twenty (20) inches wide
o. Wall openings, from which there is a drop of more than three (3) feet, will be guarded.
p. Runways will be guarded by a standard railing nineteen (19) inches or more on all sides above the floor. Whenever tools, machine parts, or materials are used on the runway, a toe board will be provided on each exposed side.
q. Regardless of height, open-sided floors, walkways, platforms, or runways adjacent

to dangerous equipment and similar hazards will be guarded with a standard railing and a four (4) foot high debris net.

12. Steel Erectors

a. Definitions:
   1. .....Who does it cover - All workers engaged in steel erection activities except electric transmission towers, communication towers, broadcast towers, and water towers or tanks. PNT also conforms with MOSH COMARCFR 1926 Subpart R Steel Erection standards. COMAR 9.12.25
   2. ..... Covered Steel Erection Activities - Hoisting, laying out, placing, connecting, welding, burning, guying, bracing, bolting, plumbing up, rigging, and moving point to point.
   3. .....Other covered Steel Erection Activities – Roof insulation, roofing, gutter, skylights, doors, windows, etc.
   4. .Controlling Contractor – A prime contractor, general contractor, construction manager or other legal entity that has overall responsibility for the construction project.

b. Notification Before Erection – PNT must certify in writing that:
   1. Concrete in footings, piers, or walls have reached 75% of design strength or are of sufficient strength to support imposed loads.
   2. Any repairs, replacements or field modifications to anchor bolts must have approval by structural engineer of record and must provide written notification to the erector.

c. Site Layout – PNT must provide:
   1. Adequate access roads.
   2. Well maintained lay down areas.
   3. Properly maintained work areas.
   4. Pre-plan hoisting activities to minimize lifts over workers. Exceptions: Worker engaged in initial connection and hooking or unhooking loads.

ci. General Provisions
   1. Cranes must be inspected pre-shift by a competent person.
   2. A qualified rigger must inspect rigging prior to each shift.
   3. No more than four floors (48') of unfinished bolting or welding above foundation or permanent floor.
   4. Fully planked or decked floor or nets shall be maintained within two stories or 30' of erection activities.
   5. All columns shall be secured with a minimum of four (4) anchor bolts before beam erection begins.
   6. Perimeter fall protection must be installed during initial structural assembly.
   7. Fall protection must be provided when working above fifteen (15) feet with the following exceptions: Initial connecting and decking in a "controlled decking zone" at heights from 15' to 30'.
   8. PNT has the option to keep the perimeter fall protection cables in place or

removed when the erection activity is finished.

9. Fall protection training is required by the employer and must be documented.

13. EXCAVATIONS: HAZARD RECOGNITION IN TRENCHING AND SHORING

I. **INTRODUCTION**

Excavating is recognized as one of the most hazardous construction operations. OSHA recently revised Subpart P, Excavations, of 29 CFR 1926.650, 1926.651, and 1926.652 to make the standard easier to understand, permit the use of performance criteria where possible, and provide construction employers with options when classifying soil and selecting employee protection methods. PNT utilizes and enforces 29 CFR 1926.650, 1926.651, 1926.652 and the VOSH standard 16 VAC-25-170-10 as well as the Code of Maryland Regulation (COMAR) standard 29 1926.652 (requirements for protective systems). All contractors will be held liable to one of these standards, depending on where jurisdiction they are working in.

II. **Prior to any excavation taking place by PNT Consulting and/or a subcontractor, MISS UTILITY, 811 and/or a similar utility location service MUST be notified no less than 24 hours or sooner depending on local regulations/laws BEFORE any excavation work is performed. All utilities MUST be marked prior to any excavation work starting. In the event of a utility strike, the utility owner MUST be notified IMMEDIATELY! If necessary (as in the event of striking a gas line), 911 should be called IMMEDIATELY!All excavation work should cease until the incident has been resolved.**

DEFINITIONS

A. **Accepted Engineering Practices** are procedures compatible with the standards of practice required of a registered professional engineer.

B. **Adjacent Structures Stability** refers to the stability of the foundation(s) of adjacent structures whose location may create surcharges, changes in soil conditions, or other disruptions that have the potential to extend into the failure zone of the excavation or trench.

C. **Competent Person** is an individual who is capable of identifying existing and predictable hazards or working conditions that are hazardous, unsanitary, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate or control these hazards and conditions.

D. **Confined Space** is a space that, by design and/or configuration, has limited openings for entry and exit, unfavorable natural ventilation, may contain or produce hazardous substances, and is not intended for continuous employee occupancy.

E. **Excavation**. An **Excavation** is any man-made cut, cavity, trench, or depression in

an earth surface that is formed by earth removal. A **Trench** is a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth of a trench is greater than its width, and the width (measured at the bottom) is not greater than 15 ft (4.6 m). If a form or other structure installed or constructed in an excavation reduces the distance between the form and the side of the excavation to 15 ft (4.6 m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

F. **Hazardous Atmosphere** is an atmosphere that by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen-deficient, toxic, or otherwise harmful may cause death, illness, or injury to persons exposed to it.

G. **Ingress and Egress** mean "entry" and "exit," respectively. In trenching and excavation operations, they refer to the provision of safe means for employees to enter or exit an excavation or trench.

H. **Protective System** refers to a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, and from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

I. **Registered Professional Engineer** is a person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer who is registered in any state is deemed to be a "registered professional engineer" within the meaning of Subpart P when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

J. **Support System** refers to structures such as underpinning, bracing, and shoring that provide support to an adjacent structure or underground installation or to the sides of an excavation or trench.

K. **Subsurface Encumbrances** include underground utilities, foundations, streams, water tables, transformer vaults, and geological anomalies.

L. **Surcharge** means an excessive vertical load or weight caused by spoil, overburden, vehicles, equipment, or activities that may affect trench stability.

M. **Tabulated Data** are tables and charts approved by a registered professional engineer and used to design and construct a protective system.

N. **Underground Installations** include, but are not limited to, utilities (sewer, telephone, fuel, electric, water, and other product lines), tunnels, shafts, vaults,

foundations, and other underground fixtures or equipment that may be encountered during excavation or trenching work.

O. **Unconfined Compressive Strength** is the load per unit area at which soil will fail in compression. This measure can be determined by laboratory testing, or it can be estimated in the field using a pocket penetrometer, Torvane Shear Tester, by thumb penetration tests, or by other methods.

P. **Definitions That Are No Longer Applicable**. For a variety of reasons, several terms commonly used in the past are no longer used in revised Subpart P. These include the following:

1. **Angle of Repose.** Conflicting and inconsistent definitions have led to confusion as to the meaning of this phrase. This term has been replaced by **Maximum Allowable Slope.**

2. **Bank, Sheet Pile, and Walls.** Previous definitions were unclear or were used inconsistently in the former standard.

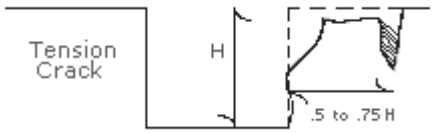
3. **Hard Compact Soil** and **Unstable Soil.** The new soil classification system in revised Subpart P uses different terms for these soil types.

III. OVERVIEW: SOIL MECHANICS

A number of stresses and deformations can occur in an open cut or trench. For example, increases or decreases in moisture content can adversely affect the stability of a trench or excavation. The following diagrams show some of the more frequently identified causes of trench failure.

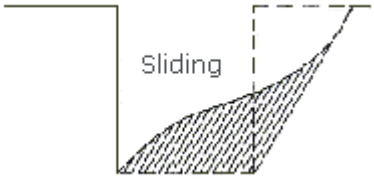
A. **Tension Cracks**. Tension cracks usually form at a horizontal distance of 0.5 to 0.75 times the depth of the trench, measured from the top of the vertical face of the trench. See the accompanying drawing for additional details.

FIGURE 5:2-1. TENSION CRACK.



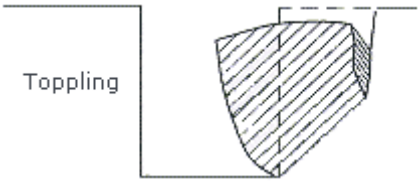
B. **Sliding** or sluffing may occur as a result of tension cracks, as illustrated below.

FIGURE 5:2-2. SLIDING.



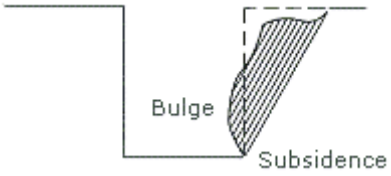
C. **Toppling**. In addition to sliding, tension cracks can cause toppling. Toppling occurs when the trench's vertical face shears along the tension crack line and topples into the excavation.

FIGURE 5:2-3. TOPPLING.

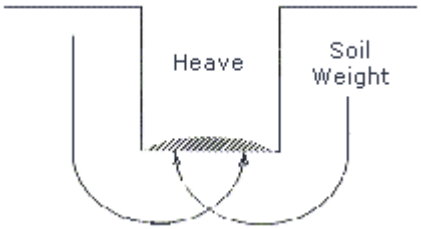


D. **Subsidence and Bulging**. An unsupported excavation can create an unbalanced stress in the soil, which, in turn, causes subsidence at the surface and bulging of the vertical face of the trench. If uncorrected, this condition can cause face failure and entrapment of workers in the trench.

FIGURE 5:2-4. SUBSIDENCE AND BULGING.

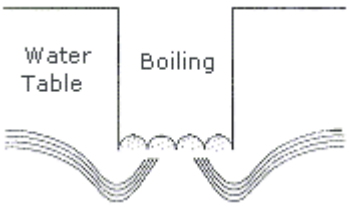


E. Heaving or Squeezing. Bottom heaving or squeezing is caused by the downward pressure created by the weight of adjoining soil. This pressure causes a bulge in the bottom of the cut, as illustrated in the drawing above. Heaving and squeezing can occur even when shoring or shielding has been properly installed.



Boiling is evidenced by an upward water flow into the bottom of the cut. A high water table is one of the causes of boiling. Boiling produces a "quick" condition in the bottom of the cut, and can occur even when shoring or trench boxes are used.

FIGURE 5:2-6. BOILING.



G. **Unit Weight of Soils** refers to the weight of one unit of a particular

soil. The weight of soil varies with type and moisture content. One cubic foot of soil can weigh from 110 pounds to 140 pounds or more, and one cubic meter (35.3 cubic feet) of soil can weigh more than 3,000 pounds.

IV. DETERMINATION OF SOIL TYPE

OSHA categorizes soil and rock deposits into four types, A through D, as follows:

G. **Stable Rock** is natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed. It is usually identified by a rock name such as granite or sandstone. Determining whether a deposit is of this type may be difficult unless it is known whether cracks exist and whether or not the cracks run into or away from the excavation.

H. **Type of Soils** are cohesive soils with an unconfined compressive strength of 1.5 tons per square foot (tsf) (144 kPa) or greater. Examples of Type A cohesive soils are often: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. (No soil is Type A if it is fissured, is subject to vibration of any type, has previously been disturbed, is part of a sloped, layered system where the layers dip into the excavation on a slope of 4 horizontal to 1 vertical (4H:1V) or greater, or has seeping water.

I. **Type B Soils** are cohesive soils with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa). Examples of other Type B soils are: angular gravel; silt; silt loam; previously disturbed soils unless otherwise classified as Type C; soils that meet the unconfined compressive strength or cementation requirements of Type A soils but are fissured or subject to vibration; dry unstable rock; and layered systems sloping into the trench at a slope less than 4H:1V (only if the material would be classified as a Type B soil).

J. **Type C Soils** are cohesive soils with an unconfined compressive strength of 0.5 tsf (48 kPa) or less. Other Type C soils include granular soils such as gravel, sand and loamy sand, submerged soil, soil from which water is freely seeping, and submerged rock that is not stable. Also included in this classification is material in a sloped, layered system where the layers dip into the excavation or have a slope of four horizontal to one vertical (4H:1V) or greater.

K. **Layered Geological Strata**. Where soils are configured in layers, i.e., where a layered geologic structure exists, the soil must be classified on the basis of the soil classification of the weakest soil layer. Each layer may be classified individually if a more stable layer lies below a less stable layer, i.e., where a Type C soil rests on top of stable rock.

V. TEST EQUIPMENT AND METHODS FOR EVALUATING SOIL TYPE

Many kinds of equipment and methods are used to determine the type of soil prevailing in an area, as described below.

1. Pocket Penetrometer. Penetrometers are direct-reading, spring-operated instruments used to determine the unconfined compressive strength of saturated cohesive soils. Once pushed into the soil, an indicator sleeve displays the reading. The instrument is calibrated in either tons per square foot (tsf) or kilograms per square centimeter (kPa). However, Penetrometers have error rates in the range of ± 20-40%.

2. Shearvane (Torvane). To determine the unconfined compressive strength of the soil with a shearvane, the blades of the vane are pressed into a level section of undisturbed soil, and the torsional knob is slowly turned until soil failure occurs. The direct instrument reading must be multiplied by 2 to provide results in tons per square foot (tsf) or kilograms per square centimeter (kPa).

3. Thumb Penetration Test. The thumb penetration procedure involves an attempt to press the thumb firmly into the soil in question. If the thumb makes an indentation in the soil only with great difficulty, the soil is probably Type A. If the thumb penetrates no further than the length of the thumb nail, it is probably Type B soil, and if the thumb penetrates the full length of the thumb, it is Type C soil. The thumb test is subjective and is therefore the least accurate of the three methods.

4. Dry Strength Test. Dry soil that crumbles freely or with moderate pressure into individual grains is granular. Dry soil that falls into clumps that subsequently break into smaller clumps (and the smaller clumps can be broken only with difficulty) is probably clay in combination with gravel, sand, or silt. If the soil breaks into clumps that do not break into smaller clumps (and the soil can be broken only with difficulty), the soil is considered unfissured unless there is visual indication of fissuring.

5. Plasticity or Wet Thread Test. This test is conducted by molding a moist sample of the soil into a ball and attempting to roll it into a thin thread approximately 1/8 inch (3 mm) in diameter (thick) by 2 inches (50 mm) in length. The soil sample is held by one end. If the sample does not break or tear, the soil is considered cohesive.

6. Visual Test. A visual test is a qualitative evaluation of conditions around the site. In a visual test, the entire excavation site is observed, including the soil adjacent to the site and the soil being excavated. If the soil remains in clumps, it is cohesive; if it appears to be coarse-grained sand or gravel, it is considered granular. The evaluator also checks for any signs of vibration.

During a visual test, the evaluator should check for crack-line openings along the failure

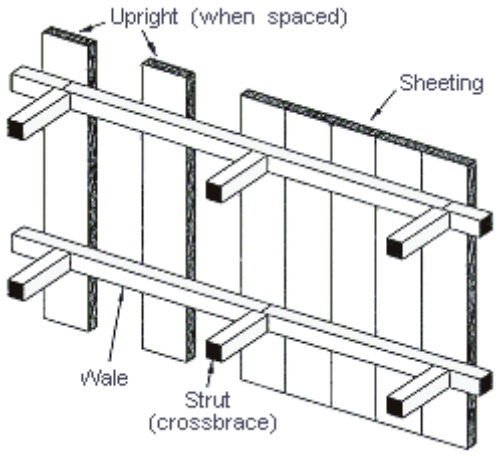
zone that would indicate tension cracks, look for existing utilities that indicate that the soil has previously been disturbed, and observe the open side of the excavation for indications of layered geologic structuring.

The evaluator should also look for signs of bulging, boiling, or sluffing, as well as for signs of surface water seeping from the sides of the excavation or from the water table. If there is standing water in the cut, the evaluator should check for "quick" conditions, water infiltration into the bottom of the excavation from below that causes a boiling condition. In addition, the area adjacent to the excavation should be checked for signs of foundations or other intrusions into the failure zone, and the evaluator should check for surcharging and the spoil distance from the edge of the excavation.

VI. SHORING TYPES

Shoring is the provision of a support system for trench faces used to prevent movement of soil, underground utilities, roadways, and foundations. Shoring or shielding is used when the location or depth of the cut makes sloping back to the maximum allowable slope impractical. Shoring systems consist of posts, wales, struts, and sheeting. There are two basic types of shoring, timber and aluminum hydraulic.

FIGURE V:2-7. TIMBER SHORING.

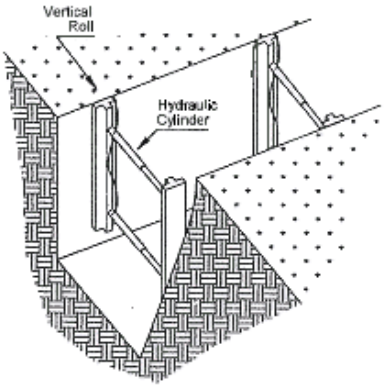


. **Hydraulic Shoring**. The trend today is toward the use of hydraulic shoring, a prefabricated strut and/or wale system manufactured of aluminum or steel. Hydraulic shoring provides a critical safety advantage over timber shoring because workers do not have to enter the trench to install or remove hydraulic shoring. Other advantages of most hydraulic systems are that they:

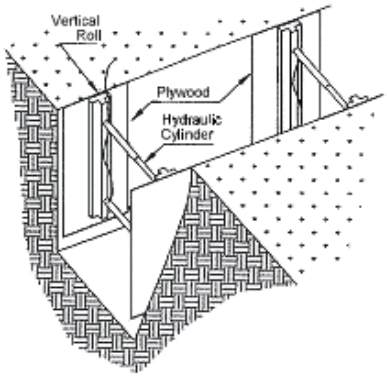
- Are light enough to be installed by one worker;
- Are gauge-regulated to ensure even distribution of pressure along the trench line;
- Can have their trench faces "preloaded" to use the soil's natural cohesion to prevent movement; and
- Can be adapted easily to various trench depths and widths.

All shoring should be installed from the top down and removed from the bottom up. Hydraulic shoring should be checked at least once per shift for leaking hoses and/or cylinders, broken connections, cracked nipples, bent bases, and any other damaged or defective parts.

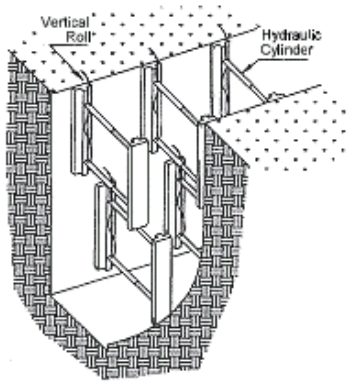
FIGURE V:2-8. SHORING VARIATIONS: TYPICAL ALUMINUM HYDRAULIC SHORING INSTALLATIONS.



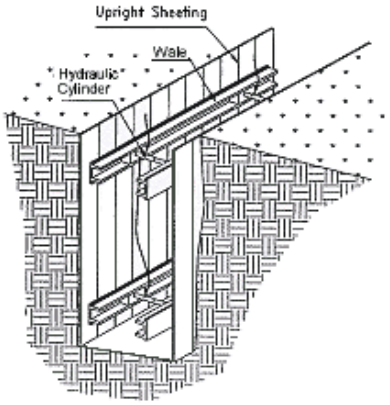
Vertical Aluminum Hydraulic Shoring
(Spot Bracing)



Vertical Aluminum Hydraulic Shoring
(With Plywood)



Vertical Aluminum Hydraulic Shoring
(Stacked)



Aluminum Hydraulic Shoring Waler System
(Typical)

A. **Pneumatic Shoring** works in a manner similar to hydraulic shoring. The primary difference is that pneumatic shoring uses air pressure in place of hydraulic pressure. A disadvantage to the use of pneumatic shoring is that an air compressor must be on site.

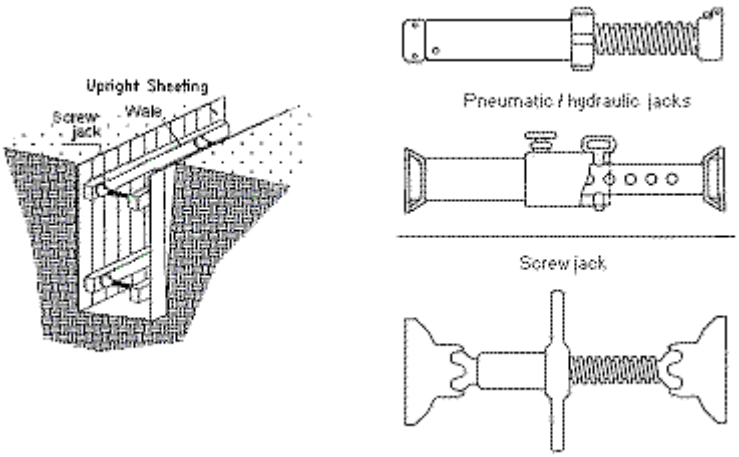
0. **Screw Jacks**. Screw jack systems differ from hydraulic and pneumatic systems in that the struts of a screw jack system must be adjusted manually. This creates a hazard because the worker is required to be in the trench in order to adjust the strut. In addition, uniform "preloading" cannot be achieved with screw jacks, and their weight creates handling difficulties.

1. **Single-Cylinder Hydraulic Shores**. Shores of this type are generally used in a water system, as an assist to timber shoring systems, and in shallow trenches where face stability is required.

2. **Underpinning**. This process involves stabilizing adjacent structures,

foundations, and other intrusions that may have an impact on the excavation. As the term indicates, underpinning is a procedure in which the foundation is physically reinforced. Underpinning should be conducted only under the direction and with the approval of a registered professional engineer.

FIGURE V:2-9. SHORING VARIATIONS.

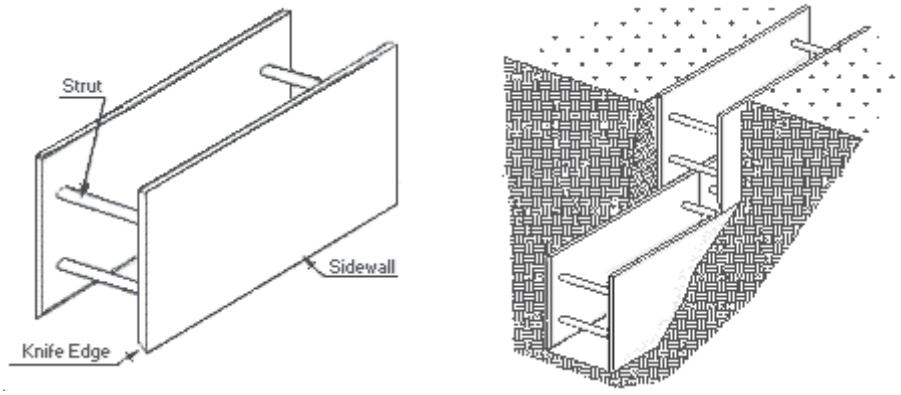


VII. SHIELDING TYPES

. A. **Trench Boxes** are different from shoring because, instead of shoring up or otherwise supporting the trench face, they are intended primarily to protect workers from cave-ins and similar incidents. The excavated area between the outside of the trench box and the face of the trench should be as small as possible. The space between the trench boxes and the excavation side are backfilled to prevent lateral movement of the box. Shields may not be subjected to loads exceeding those which the system was designed to withstand.

FIGURE V:2-10. TRENCH SHIELD.

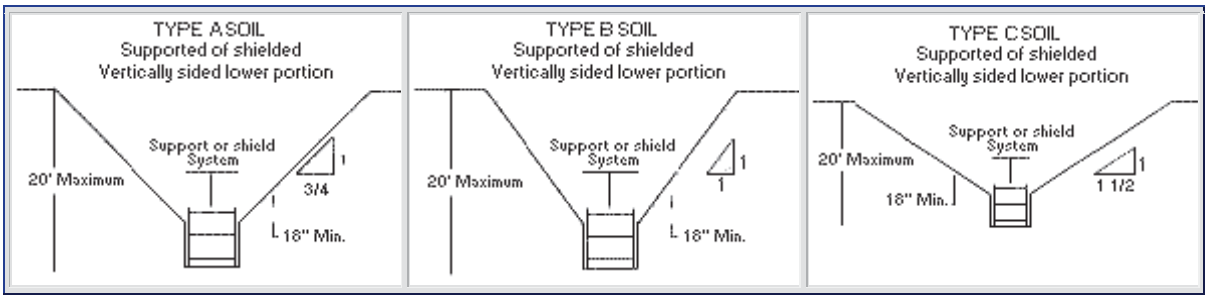
FIGURE V:2-11. TRENCH SHIELD, STACKED.



A. **Combined Use**. Trench boxes are generally used in open areas, but they also may be used in combination with sloping and benching. The box should extend at least 18 in (0.45 m) above the surrounding area if there is sloping toward excavation. This can be accomplished by providing a benched area adjacent to the box.

Earth excavation to a depth of 2 ft (0.61 m) below the shield is permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench and there are no indications while the trench is open of possible loss of soil from behind or below the bottom of the support system. Conditions of this type require observation on the effects of bulging, heaving, and boiling as well as surcharging, vibration, adjacent structures, etc., on excavating below the bottom of a shield. Careful visual inspection of the conditions mentioned above is the primary and most prudent approach to hazard identification and control.

FIGURE V:2-12. SLOPE AND SHIELD CONFIGURATIONS.



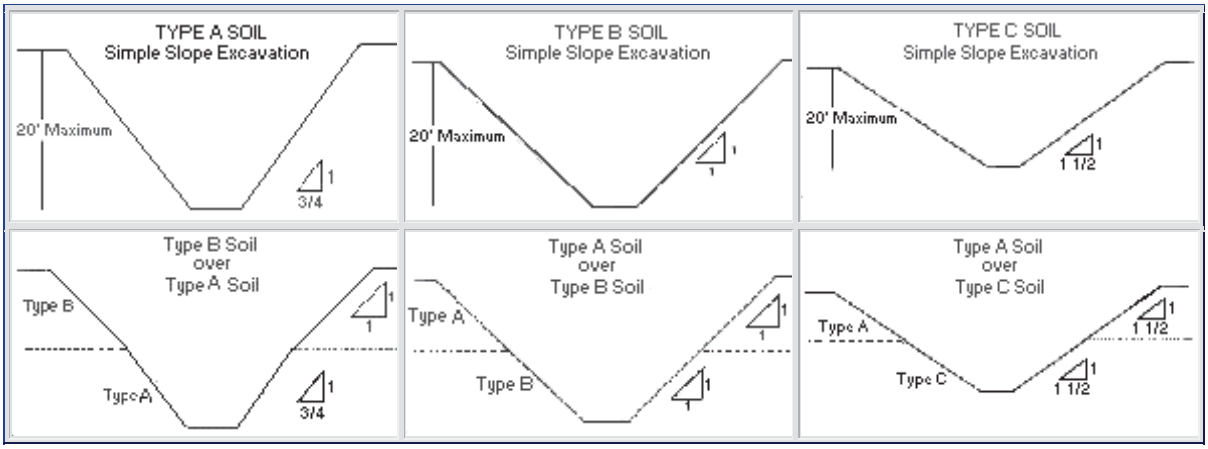
VIII. SLOPING AND BENCHING

. **Sloping**. Maximum allowable slopes for excavations less than 20 ft (6.09 m) based on soil type and angle to the horizontal are as follows:

TABLE V:2-1. ALLOWABLE SLOPES.

Soil type	height/Depth ratio	Slope angle
Stable Rock	Vertical	90°
Type A	¾:1	53°
Type B	1:1	45°
Type C	1½:1	34°
Type A (short-term)	½:1	63°
(For a maximum excavation depth of 12 ft)		

FIGURE V:2-13. SLOPE CONFIGURATIONS: EXCAVATIONS IN LAYERED SOILS.



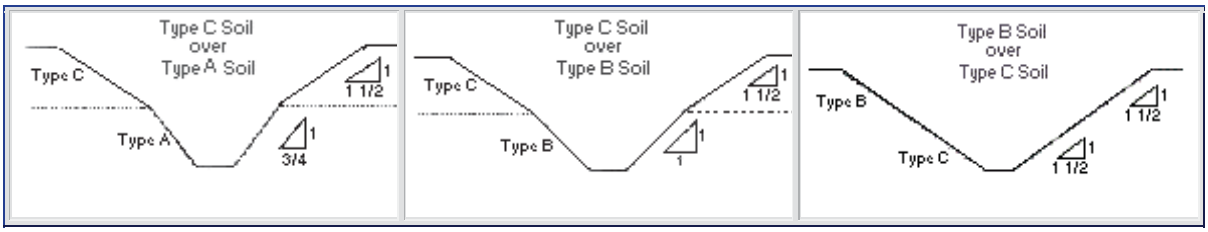
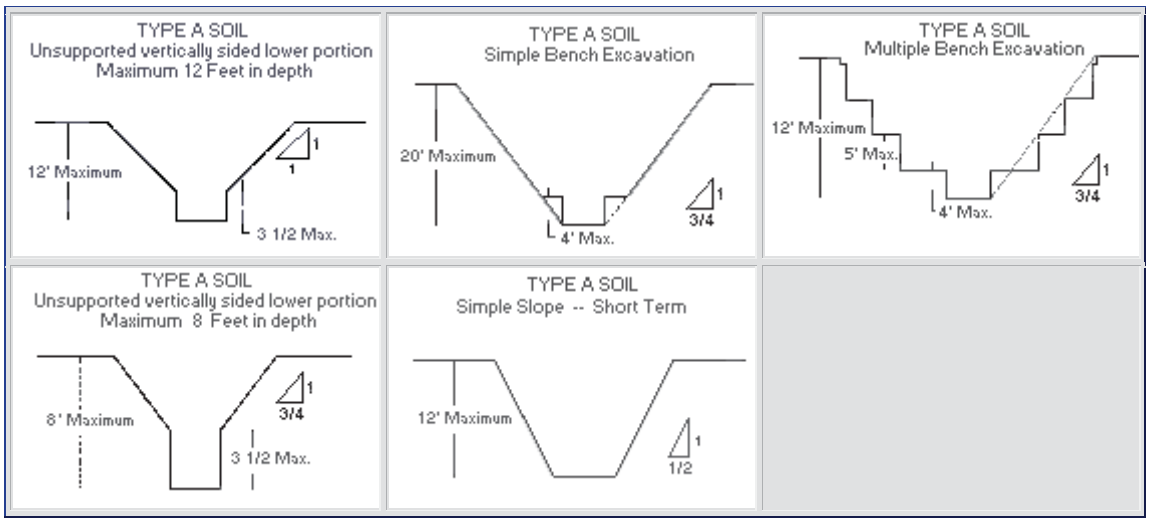


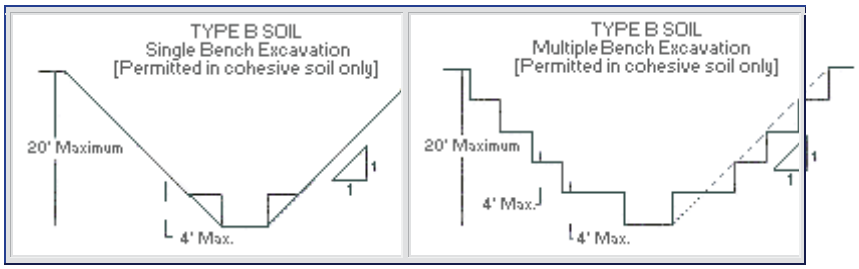
FIGURE V:2-14. EXCAVATIONS MADE IN TYPE A SOIL.



A. **Benching.** There are two basic types of benching, simple and multiple. The type of soil determines the horizontal to vertical ratio of the benched side.

As a general rule, the bottom vertical height of the trench must not exceed 4 ft (1.2 m) for the first bench. Subsequent benches may be up to a maximum of 5 ft (1.5 m) vertical in Type A soil and 4 ft (1.2 m) in Type B soil to a total trench depth of 20 ft (6.0 m). All subsequent benches must be below the maximum allowable slope for that soil type. For Type B soil the trench excavation is permitted in cohesive soil only.

FIGURE V:2-15. EXCAVATIONS MADE IN TYPE B SOIL.

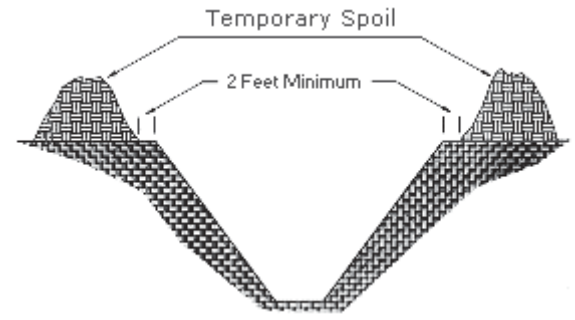


IX. SPOIL

. **Temporary Spoil**. Temporary spoil must be placed no closer than 2 ft (0.61 m) from the surface edge of the excavation, measured from the nearest base of the spoil to the cut. This distance should not be measured from the crown of the spoil deposit. This distance requirement ensures that loose rock or soil from the temporary spoil will not fall on employees in the trench.

Spoil should be placed so that it channels rainwater and other run-off water away from the excavation. Spoil should be placed so that it cannot accident/incidentally run, slide, or fall back into the excavation.

FIGURE V:2-16. TEMPORARY SPOIL.



A. **Permanent Spoil**. Permanent spoil should be placed at some distance from the excavation. Permanent spoil is often created where underpasses are built or utilities are buried. The improper placement of permanent spoil, i.e. insufficient distance from the working excavation, can cause an excavation to be out of compliance with the horizontal-to-vertical ratio requirement for a particular excavation. This can usually be determined through visual observation. Permanent spoil can change undisturbed soil to disturbed soil and dramatically alter slope requirements.

X. SPECIAL HEALTH AND SAFETY CONSIDERATIONS

J. **Competent Person**. The designated competent person should have and be able to demonstrate the following:

1. Training, experience, and knowledge of:
   - soil analysis;
   - use of protective systems; and
   - requirements of 29 CFR Part 1926 Subpart P.

2. Ability to detect:
   - conditions that could result in cave-ins;
   - failures in protective systems;
   - hazardous atmospheres; and
   - other hazards including those associated with confined spaces.

3. Authority to take prompt corrective measures to eliminate existing and predictable hazards and to stop work when required.

K. **Surface Crossing of Trenches**. Surface crossing of trenches should be discouraged; however, if trenches must be crossed, such crossings are permitted only under the following conditions:

1. Vehicle crossings must be designed by and installed under the supervision of a registered professional engineer.

2. Walkways or bridges must be provided for foot traffic. These structures shall:
   - have a safety factor of 4;
   - have a minimum clear width of 20 in (0.51 m);
   - be fitted with standard rails; and
   - extend a minimum of 24 in (.61 m) past the surface edge of the trench.

L. **Ingress and Egress**. Access to and exit from the trench require the following conditions:

1. Trenches 4 ft or more in depth should be provided with a fixed means of egress.

2. Spacing between ladders or other means of egress must be such that a worker will not have to travel more than 25 ft laterally to the nearest means of egress.

3. Ladders must be secured and extend a minimum of 36 in (0.9 m) above the landing.

4. Metal ladders should be used with caution, particularly when electric

utilities are present.

M. **Exposure to Vehicles**. Procedures to protect employees from being injured or killed by vehicle traffic include:

1. Providing employees with and requiring them to wear warning vests or other suitable garments marked with or made of reflectorized or high-visibility materials.

2. Requiring a designated, trained flagperson along with signs, signals, and barricades when necessary.

N. **Exposure to Falling Loads**. Employees must be protected from loads or objects falling from lifting or digging equipment. Procedures designed to ensure their protection include:

1. Employees are not permitted to work under raised loads.

2. Employees are required to stand away from equipment that is being loaded or unloaded.

3. Equipment operators or truck drivers may stay in their equipment during loading and unloading if the equipment is properly equipped with a cab shield or adequate canopy.

O. **Warning Systems for Mobile Equipment**. The following steps should be taken to prevent vehicles from accident/incidentally falling into the trench:

1. Barricades must be installed where necessary.

2. Hand or mechanical signals must be used as required.

3. Stop logs must be installed if there is a danger of vehicles falling into the trench.

4. Soil should be graded away from the excavation; this will assist in vehicle control and channeling of run-off water.

P. **Hazardous Atmospheres and Confined Spaces**. Employees shall not be permitted to work in hazardous and/or toxic atmospheres. Such atmospheres include those with:

1. Less than 19.5% or more than 23.5% oxygen;

2. A combustible gas concentration greater than 20% of the lower flammable limit; and

3. Concentrations of hazardous substances that exceed those specified in the Threshold Limit Values for Airborne Contaminants established by the ACGIH (American Conference of Governmental Industrial Hygienists).

4. All operations involving such atmospheres must be conducted in accordance with OSHA requirements for occupational health and environmental controls (see Subpart D of 29 CPR 1926) for personal protective equipment and for lifesaving equipment (see Subpart E of 29 CFR 1926). Engineering controls (e.g., ventilation) and respiratory protection may be required.

   When testing for atmospheric contaminants, the following should be considered:

5. Testing should be conducted before employees enter the trench and should be done regularly to ensure that the trench remains safe.

6. The frequency of testing should be increased if equipment is operating in the trench.

7. Testing frequency should also be increased if welding, cutting, or burning is done in the trench.

8. Employees required to wear respiratory protection must be trained, fit-tested, and enrolled in a respiratory protection program. Some trenches qualify as confined spaces. When this occurs, compliance with the Confined Space Standard is also required.

Q. **Emergency Rescue Equipment**. Emergency rescue equipment is required when a hazardous atmosphere exists or can reasonably be expected to exist. Requirements are as follows:

1. Respirators must be of the type suitable for the exposure. Employees must be trained in their use and a respirator program must be instituted. **PNT personnel will not enter an excavation of any depth where there is the chance of a hazardous atmosphere existing, unless:**

1. a. There is sufficient cause

b. The individual have received necessary training in confined space, respirator use, and is included in a medical surveillance program

2. Attended (at all times) lifelines must be provided when employees enter

bell-bottom pier holes, deep confined spaces, or other similar hazards.

3. Employees who enter confined spaces must be trained.

R. **Standing Water and Water Accumulation**. Methods for controlling standing water and water accumulation must be provided and should consist of the following if employees are permitted to work in the excavation:

1. Use of special support or shield systems approved by a registered professional engineer.
2. Water removal equipment, i.e. well pointing, used and monitored by a competent person.
3. Safety harnesses and lifelines used in conformance with 29 CFR 1926.104.
4. Surface water diverted away from the trench.
5. Employees removed from the trench during rainstorms.
6. Trenches carefully inspected by a competent person after each rain and before employees are permitted to re-enter the trench.

S. **Inspections**. Inspections shall be made by a competent person and should be documented. The following guide specifies the frequency and conditions requiring inspections:

1. Daily and before the start of each shift;
2. As dictated by the work being done in the trench;
3. After every rainstorm;
4. After other events that could increase hazards, e.g. snowstorm, windstorm, thaw, earthquake, etc.;
5. When fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom, or other similar conditions occur;
6. When there is a change in the size, location, or placement of the spoil pile; and
7. When there is any indication of change or movement in adjacent structures.

APPENDIX V: 2-1. SITE ASSESSMENT QUESTIONS

During first and subsequent visits to a construction or facility maintenance location, the compliance officer (or the site's safety officer or other competent person) may find the following ***Useful Questions***

1. Is the cut, cavity, or depression a trench or an excavation?
2. Is the cut, cavity, or depression more than 4 ft (1.2 m) in depth?
3. Is there water in the cut, cavity, or depression?
4. Are there adequate means of access and egress?
5. Are there any surface encumbrances?
6. Is there exposure to vehicular traffic?
7. Are adjacent structures stabilized?
8. Does mobile equipment have a warning system?
9. Is a competent person in charge of the operation?
10. Is equipment operating in or around the cut, cavity, or depression?
11. Are procedures required to monitor, test, and control hazardous atmospheres?
12. Does a competent person determine soil type?
13. Was a soil testing device used to determine soil type?
14. Is the spoil placed 2 ft (0.6 m) or more from the edge of the cut, cavity, or depression?
15. Is the depth 20 ft (6.1 m) or more for the cut, cavity, or depression?
16. Has a registered professional engineer approved the procedure if the depth is more than 20 ft (6.1 m)?
17. Does the procedure require benching or multiple benching? Shoring? Shielding?
18. If provided, do shields extend at least 18 in (0.5 m) above the surrounding area if it is sloped toward the excavation?

19. If shields are used, is the depth of the cut more than 2 ft (0.6 m) below the bottom of the shield?

20. Are any required surface crossings of the cut, cavity, or depression the proper width and fitted with hand rails?

21. Are means of egress from the cut, cavity, or depression no more than 25 ft (7.6m) from the work?

22. Is emergency rescue equipment required?

23. Is there documentation of the minimum daily excavation inspection?

14. TOWER CRANES

PURPOSE: To ensure the safe operation of tower cranes on PNT job-

sites. SCOPE: All job-sites requiring the use of a tower crane.

A. **A tower crane** should only be erected or dismantled and tested by competent persons, i.e. an engineer and erection crew trained in the erection and dismantling of that type of tower crane.

B. **A tower crane** should only be operated by a trained and competent operator who is physically fit, including eyesight and hearing, conversant with the type of crane, and able to cope with the conditions existing on site. The operator must comply with OSHA Subpart CC 1926.1400 in order to operate the crane.

C. Where the driver is required to move loads under the control of another person, a suitable signal person should be provided who is conversant with the lifting capabilities of the tower crane and able to communicate clearly with the driver via hand or radio signals. The signal person must be in compliance with 1926.1419.

D. Any method of lifting other than the recommended vertical lifting of loads should be actively discouraged, as damage may be caused to the crane.

E. **The tower crane driver** or a competent person must be capable of carrying out an inspection at the beginning of each shift and a weekly inspection of the crane and should be given sufficient time in which to do this. A report of such an inspection must be made in an appropriate document. At least every 12 months, the crane must be inspected by a qualified person. A copy of the annual inspection must be kept with the crane documentation.

F. **The tower crane** will have a maximum service wind speed, usually about 72 kph (45mph). The wind speed and would have to be substantially reduced according to the area and weight of the load being handled by the crane. The crane operator must be given sufficient authority to decide when the crane should be put out of service

because of high winds and his inability to control the load.

G. **The tower crane** must always be in a position to rotate (slew freely) when it is placed into the out of service condition. The slew brake should not be left on under normal conditions.

H. When the selection of a **tower crane** is being made against particular environmental considerations, the following are an example of what might have to be taken into account. 1. Overall area to be covered
   2. The height of the building
   3. The required speed of the lift
   4. Weight of critical loads
   5. The type of base or mounting
   6. Existing ground conditions
   7. All proximity hazards
   8. Types of jib
   9. Erection
   10. Dismantling

I. **When two or more tower cranes** are employed on a site, each should be erected to a different working height to prevent the possibility of collision between the jibs. Although the jibs may over slew the load may still contact the lower crane. Rail tracks should be placed strategically to prevent the jib of one crane hitting the tower of another.

J. Cranes and Riggers
   1. Only trained, competent, and qualified employees are permitted to operate/use any crane or rigging equipment. Training includes an in-depth review of the operating characteristics and limitations of the equipment. The operator must meet the requirements of 1926.1400.
   2. The operator will be required to present his/her credentials prior to operating the crane on a PNT jobsite.
   3. The operator must inspect his or her assigned machine before each shift (monthly documentation is required). This includes inspecting all cables, sheaves and pulleys, booms and boom angles. The crane must also have a documented annual inspection by a qualified person.
   4. For tower cranes, the foundation bolts to the crane from the concrete pad

should also be checked for any signs of movement. The electrical box that provides power to the crane should also be checked to make sure it is locked after the power is turned on.

5. The tower crane operator should avoid swinging concrete buckets, rebar, etc. over individuals on the deck.
6. Equipment will be shut off before any repairs are made or lubricants are applied. Any removed guards must be properly reinstalled before the machine is used again.
7. Loads will not exceed equipment rated capacities.
8. Standard signals will be used to direct any moving crane. One designated person is to give signals at all times.
9. Cranes and rigging equipment are not permitted to work closer than ten (10) feet to any power line (unless deactivated or properly grounded by utility company).
10. Employees are to stay clear of the cranes swing radius at all times. Never turn your back on any load. Cab portion of the crane is required to be properly blocked off (swing radius must be barricaded when unit is in use).
11. Loads will never be swung over any person.
12. A properly maintained fire extinguisher is to be kept in the crane's cab at all times.
13. All rigging devices will have permanently affixed identification stating size, grade, rated capacity, and manufacturer.
14. Any rigging not being used will be removed from the area.
15. "Shop-made" grabs, hooks, clamps, or other lifting devices are prohibited. A licensed engineer must inspect all lifting beams and spreader bars to make sure that they are the proper size for the capacity.
16. Slings will not be shortened by using knots, bolts, or other make-shift designs.
17. Wire rope slings will be padded to protect against damage from sharp corners.
18. Inspection records must be kept with all equipment.
19. Hard hats and proper personal protective equipment will be worn while operating or working close to a crane.
20. The operator is solely responsible for the safe operation of his or her assigned machine.
21. A copy of the manufacturer's operator manual must be located in the crane at all times.
22. A copy of the load chart must be in the crane cab whenever it is being operated.
23. The swing radius of the counterweight must be barricaded at all times.
24. Crane outriggers must be leveled and fully extended when making a lift. If cribbing is required, it must be constructed of suitable materials and be placed in such a manner that it transmits the load on the outrigger to the ground.
25. Tie off the load so it does not swing and interfere with a tag line on the front of the load. Never use your hands or body to guide the load.

15. Fire Prevention

A. Good housekeeping is the first rule of fire prevention. Oily rags, paper shavings, trim, etc. will be cleaned up and placed in trash receptacles.
B. Any fire extinguisher located on a PNT job-site will be tagged to indicate the last annual service, and each monthly inspection
C. Welding or cutting will not take place near locations where flammables or combustibles are present. When welding or cutting occurs, the area will be protected with fire resistant blankets. An approved fire extinguisher will also be located at each welding or cutting facility provided by the contractor. Refer to the Hot Work section for more information.
D. All flammable liquids will be stored in an approved manner and dispensed in approved safety containers. Welding gases will also be stored in an isolated area.
E. Liquefied Petroleum (LP) Gas presents special fire and explosion hazards. Only qualified persons are to handle LP gas. LP gas units will be inspected daily for leaks, etc.
F. Open fires of any kind are not permitted.
G. Combustible materials or equipment packaged in combustible containers will be stored properly. Fire extinguishers will be kept within close proximity to any combustible container.
H. Fire extinguishers will be recharged and inspected regularly (per NFPA 10 standards). A tag indicating the date of recharging will be affixed to each extinguisher.
I. Access to fire hydrants will be maintained at all times. Fire hydrants will never be blocked or obstructed in any way.
J. All combustible waste materials, rubbish, and debris will be disposed of daily.
K. Smoking is prohibited in any hazardous area and “No Smoking” signs will be posted in these areas.
L. Gas cylinders will be transported and stored in an upright position. During storage they must be kept at least twenty (20) feet from oxygen cylinders (or separated by a one half hour fire wall at least five (5) feet high).
M. No material will be stored within three (3) feet of an electrical panel, outlet, or fire suppression equipment (NEC 70 – National Electrical Code).
N. Portable power equipment must not be refueled while running or when hot. Attach a ground wire before refueling.

16. Environmental

A. Potable Water
   1. Each contractor will provide an adequate supply of drinking water at all construction sites.
   2. The portable containers used to store drinking water will be closed tightly and have a dispensing tap. Employees will not dip cups directly into the container.
   3. The container will only be used for storing the drinking water and it will be clearly marked as 'drinking water.'
   4. Each employee will have his or her own cup. A 'community' cup will not be used.
   5. Each contractor will supply single service cups that are stored in a sanitary dispenser. Trash receptacles will also be provided so that used cups can be discarded properly.
   6. Employees are encouraged to drink lots of water during hotter temperature days or when working in heat-producing conditions to avoid heat stress or stroke.

B. Toilets
   1. Toilets will be provided for employees based on the formula of 1 toilet seat and 1 urinal per 20 employees.
   2. All facilities must be kept clean and sanitary at all times.
   3. Hand cleaning/hand washing. Note, VOSH requires the availability of water and soap for handwashing. The OSHA and MOSH standards allow for waterless hand cleaner. Other state/municipality requirements will be determined and complied with by the project superintendent

C. Adequate washing facilities must be provided if employees are engaged in the application of paints, coatings, herbicides, or insecticides.

D. Material Use and Waste Management
   1. Receptacles must be placed around the job site for collection of waste materials.
   2. All hazardous waste must be stored and collected in special areas.
   3. No hazardous material is to be abandoned on the job site.
   4. No waste haulers, disposers, recyclers, or scavengers are allowed on the job site without PNT approval.
   5. All hazardous waste removed from the job site must have the on-site PNT Superintendent's authorization. No outside waste is to be disposed of using PNT facilities. Dumpsters are to be inspected frequently and any potentially hazardous material is to be placed in the appropriate storage area.
   6. No used oil or paint is to accumulate on the job site. All spills are to be cleaned up and disposed of immediately. PNT's Safety Director must be notified of the situation immediately. Any spill caused by a contractor's employee will be cleaned up and paid for by the contractor.

17 .....Motor Vehicles and Equipment

a. On-site construction vehicles and equipment will be inspected and tested. Proper documentation must be available for the on-site PNT Superintendent to review prior to bringing such equipment on site. The on-site PNT Superintendent must issue all vehicle passes.
b. All motor vehicles must be equipped with the following:
c. Adequate braking system
d. Two headlights and tail lights
e. Brake lights
f. Horn
g. Seat Belts
h. Good tires
i. Windshields and powered wipers
j. Defrosters
k. Rear-view mirror
l. Fuel cap
m. Only authorized and licensed drivers are permitted to operate vehicles or equipment.
n. Accident/incidents must be reported to the on-site PNT Superintendent immediately.
o. Employees will not use motor vehicles or equipment that have an obstructed rear view unless:
p. The vehicle has a backup alarm audible above the surrounding noise level
q. The vehicle is backed up only when an observer signals that it is safe to do so
r. No person will attempt to get on or off moving vehicles or equipment.
s. Heavy machinery and equipment which is suspended by slings, hoists, or jacks must be blocked before employees are permitted to work under or between them.
t. All hauling vehicles, where payload is loaded by crane, power shovel, loader, similar equipment must have a cab shield and/or canopy to protect the operator from ..... shifting or falling materials. The operator of any vehicle will leave the cab and stand clear of t
u. Engines must be shut off during all maintenance and fueling operations.
v. Trip handles of dump truck and heavy equipment tailgates must be positioned so that the operat
w. Employees are required to inspect their assigned vehicles at the beginning of each shift to assure that the vehicle is in safe operating condition and free of any apparent danger. Any defects must be immediately reported to their Superintendent/Foreman.
x. Employees are not permitted to ride with arms or legs outside the truck body.
y. No heavy equipment is to be driven at speeds greater than 15 MPH.
z. Only approved standard hand signals for crane, derrick, and boom equipment are to be used. These hand signals must be posted near the driver's seat of all equipment.
aa. All manufacturer specifications and limitations concerning the operation of cranes and other hoisting equipment are to be followed.
bb. Rated load capacities, operating speeds and special hazard warnings must be posted near the driver's seat on all equipment.
cc. A certified agency must inspect all hoisting machinery on an annual basis. Records

of dates and inspection results for all equipment must be readily available for review.

dd. Wire rope safety factors are to be in compliance with American National Standards Institute B30.5. The Equipment Operator shall maintain these standards.

ee. All exposed belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, and other moving parts must be guarded.

ff. The swing radius of any crane must be barricaded so as to prevent people from being struck or crushed by the crane.

gg. Prior to any crane being moved, all swinging or hanging loads must be lowered and detached.

hh. A fire extinguisher must be available in all cabs of equipment and vehicles.

ii. Rollover protection (ROPS) as specified by OSHA is required for all applicable equipment operated on the project. Grandfather clauses are not acceptable.

jj. Employees are required to obey all Local/State and company laws, rules, and regulations while operating vehicles or equipment.

kk. Personal cars are not to be used for company business unless authorized by the appropriate Superintendent. Passengers not employed by the company are also prohibited from riding in the company vehicle.

ll. Any vehicle or equipment with material extending four (4) feet or more from the rear of the vehicle must have a red flag or cloth 12 inches square attached to the material.

mm. Any vehicle over 25 hp operating in the District of Columbia must have an operator licensed by the District. Please contact Safety Director with any questions and/or the procedure for acquiring this license.

18 Employee and Public Protection

a. Work is not to be performed in any area unless specifically permitted by the contract.
b. Sidewalks, entrances to buildings, lobbies, corridors, aisles, doors, or exits must be kept clear of obstructions at all times.
    a. Appropriate warnings and instructional safety signs must be posted.
c. Sidewalks, sheds, canopies, catch platforms and appropriate fences will be used to maintain pedestrian traffic adjacent to any construction site.
d. A temporary fence will be built around the perimeter of aboveground operations that are adjacent to public areas. Perimeter fences must be at least six feet high and must consist of wood, metal, or wire mesh. When the fence is adjacent to a street intersection, the upper section of the fence must be open wire mesh above a point not over
e. Guardrails must be provided on both sides of vehicular and pedestrian bridges, ramps, runways and platforms. Pedestrian walkways must be protected with guardrails.
f. Guardrails must be made of materials capable of withstanding a force at least 200 pounds applied at any point in their structure. (Properly attached 2 X 4's are adequate)

19. Highway Work

a. All work on or adjacent to existing public and job-site roadways will be performed in conformance to the requirements of ANSI D6.1-1971, *Manual on Uniform Traffic Control Devices for Streets and Highways.* Unless otherwise provided for in these documents, the Contractor performing said work will be responsible for furnishing, set-up, and maintenance of all traffic control signage, devices, barricades, arrow boards and flag men.

b. The project Superintendent is responsible for ensuring that the work zone is reviewed every day for safety. This review should be documented.

Section 3: Continual Monitoring & Improvement

A. Safety Meetings/Training

PNT Superintendents will hold a weekly ten minute (minimum) tool box safety talk. All employees are required to attend. PNT Superintendents will update employees on any changes in procedures, new equipment, and general safety issues. Emergency procedures will be periodically reviewed. Employees will be reminded to put safety first and look out for fellow coworkers. Contractor's employees and Superintendents will offer comments and safety suggestions at this time and regularly throughout the day as needed.

Monthly safety training and/or meetings will be held to keep employees abreast of safety procedures and issues. Employees with outstanding safety records will be recognized during these meetings. All employees must attend. Quizzes and surveys may be administered after safety training or meetings.

The following form will be completed after every safety meeting/training and maintained by the on-site PNT Superintendent and PNT Safety Director.

B. Inspections

Periodic inspections will be conducted to identify hazardous conditions and unsafe behaviors. The PNT Safety Department will conduct regular safety audits, using the Predictive Solutions Safety Net Application, along with insurance companies and OSHA, and may request employees or Superintendents to participate. The auditors will look for unsafe practices and conditions that can cause an accident/incident and take corrective action immediately. Safety Audits will be recorded and saved within the Predictive Solutions Safety net application.

The following inspection form will be completed by the project superintendent weekly and provided to PNT's Safety Director. The Safety Director will review the report, take any corrective action needed, and maintain a file of inspections. This inspection will be conducted independent of the Weekly Toolbox meetings, but may be used to provide timely topics for Toolbox Meetings

Superintendent's Safety Inspection Details

Audit Type:	Safety	Audit Date:	
Project:		Inspected By:	
		Reviewed With:	

Category : Sub-Category

Administration	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Chemtrec cards carried by project leadership			
Chemtrec posters posted			
Document pre-const mtgs			
Freq/reg safety inspections by Super/project staff			
JHA submitted each trade and approved			
OSHA Posters / OSHA 300 Log			
Safety manual f(online or hard copy)			
Safety meetings			
State / Fed posters (Eng/Sp)			
Toolbox Meetings			
Visitor PPE available			
Visitor sign-in form			

Concrete & Masonry 1926.700 Subpart Q	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Adequate bracing			
Formwork drawings onsite			
Limited access zone			
Rebar caps/impalement prot.			
Rotating parts guarded			
PPE Available & Adequate			
Wall bracing as needed/required			
Washout pits/boxes			

Confined Space 1910.146	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Designated competent person			
Atmospheric conditions			
Harness / extraction equip			

Confined Space 1910.146	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Permit required			
Regular insp / air monitor			
Respiratory equipment			
Stand-by person/rescue equip			
Training documentation			
Ventilation			

Cranes And Hoisting Equipment 1926.1400 Subpart CC	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
3rd party annual inspection current			
Medical card current			
Anti Two Block device			
Boom angle indicator			
Qualified Rigging Personnel			
Cert or verify training			
Crane supported and level			
Daily inspections current			
Dist power lines/de-ener			
Fire extinguisher in crane			
Signalman identified/certified			
Gates and signals			
Lift plan on file			
Load chart posted			
Loads properly secured			
Means of communication			
Operator appears competent			
Operator manual in crane			
Outrig extend/cribbing			
Rig insp/rated/rated			
Safety latches used			
Swing radius barricaded			
Tag lines used			
Weight of load verified			

Electrical 1926.400 Subpart K	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Breaker box in good condition			
Knockouts in place/missing			
Circuits labeled			

Electrical 1926.400 Subpart K	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Cords in good condition			
Cords protected from traffic			
Elect Hot Work Procedures			
Electrical room protected			
Energized parts protected			
Equipment firmly mounted			
Temporary lighting adequate/safe			
Generators grounded			
GFCI's used			
LO/TO procedures			
NFPA 70 E for Energized work			
Proper use temp pwr bxs			
Extension cords inspected daily			
Signage present			

Environmental	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Adequate ventilation			
Atmospheric contaminants			
Containers labeled			
Dust control measures			
Erosion ctrl measures maint/adeq			
Haz material properly stored			
Noise control measures			
Regular air sampling as needed			
Spill containment adequate			
Asbestos issues addressed			
Lead issues addressed			
Adequate Potable Water			
Cooling station available for extreme hot weather			
Warming area available for extreme cold weather			

Excavations 1926.650 Subpart P	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Competent person present			
Daily inspections documented			
Access in/out excavation within 25 ?			
Excav > 20' engineered			

Excavations 1926.650 Subpart P	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Manuf. data on shoring			
Perimeter prot/barricade			
Sloped, benched, or shored			
Spoil 2' from edge			
Surface encumbrances			
Surface traffic exposure			
Water entering excavation			
Fall hazards addressed			

Fall Protection 1926.500 Subpart M	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Ext/int guardrails			
Fall protection at 6'			
Fall protection plan			
Fall rescue plan & equip avl			
Floor/wall opening protected			
Flr covrs/holes adeq,secure,label			
Guardrail system in place/adequate			
Proper anchorage points			
Roof edge protected			
Safety harness and lanyard			
Stair/ramp/walkway prot			
Training/competent person			
Warning line systems			
Controlled access zone			

Fire Protection 1926.150 Subpart F	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Emergency vehicle access			
Ext charged and inspected			
Fire suppression equip avail			
Sprinkler system in place/in service			
Fire watch when applicable			
Hot work permits			
Interior structure 1-hr rated			
LPG storage & use			
Flammable liquid storage adequate			
Fueling areas adequate			
Prop signs in store areas			

Fire Protection 1926.150 Subpart F	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Proper fuel containers used			
Temp heaters			

Hand And Power Tools 1926.300 Subpart I	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Cord in good condition			
Ground prong in place			
Guards in place			
Information label on tool			
Hand tools in good shape			
Laser in use signage			
Powder actuated equipment			
Trained operator for powder actuated tool			
Proper tool for the job			
Secure air hose couplings			
Strain relief functioning			
Tool in good condition			

Hazard Communications 1910.1200	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Copy of program on computer desktop			
Employees trained			
eMSDS program on desktop/accessible via intranet			
Inventory list			
Proper labels on containers			
Readily available			

Housekeeping	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Clear access to bldg/site			
Designated employee parking			
Impalement protection			
Portable toilets avail/clean/maint			
Proper material storage			
Roadway around proj clear			
Slip, trip, fall hazards			
Trash in protected cont			
Walkways clear			
Work areas clear of debris			

Ladders / Stairs 1926.1050 Subpart X	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Stairs illuminated			
3' above landing			
Access break >19"			
Clear of debris/materials			
Extension ladder 4:1 pitch			
Inspected for defects			
Job-blt ldrs const properly			
Ladders in good condition			
Ladders secured			
Landings and treads filled			
Proper use of ladder			
Rails at stairs/landings			
Safe work dist from hazd			
Slip trip exposure elim			
Stairways properly built			

Medical / Emergency	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
1st aid kit			
1st Aid/CPR on site			
Emergency action plan			
Emergency numbers posted			
Emergency procs supplies			
Eye wash			
Map to medical facility			
Team contact numbers			

Motorized Equipment 1926.600 Subpart O	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Back up alarm functioning			
Flagman used if applicable			
Glass free of obstructions			
Horn functioning			
Operator appears competent			
Seat belts used			
Training docs available			

P.P.E. 1926.95 Subpart E	Safe	Unsafe	Comments/Observations (Identify Subcontractor):

P.P.E. 1926.95 Subpart E	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Face shields			
Gloves			
Hard Hats			
Hearing protection			
High visibility vest			
Metatarsal protection			
Respirators			
Safety Glasses			
Proper glasses for welding /cutting			
Work Boots			
V rated or F.R. Clothing worn			
Proper Clothing			
Rebar caps			

Scaffolds 1926.450 Subpart L	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Bracing and pins in place			
Climbing mast scaffold			
Compatible components used			
Competent person present			
Daily tag inspect. system			
Gaurdrails in place @ 6'			
Platforms fully planked			
Prop secured to structure			
Proper access to platforms			
Proper loading of materials			
Safe work distances			
Sills,plates,jacks installed			
Surface in safe condition			
Swing scaffolds			
Wheels locked/secured			
Employees trained			

Scissor / Arial Lifts	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Equipment loaded properly			
Gate or chain secured			
Harness while in boom lifts			

Scissor / Arial Lifts	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Nothing to increase height			
Operating on flat surface			
Operator training			
Safe work distances			
Surface free of holes			

Site / Public Protection	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Adequate lighting			
Barricades installed properly			
Company rep present			
Excavations protected			
Falling object protection			
Perimeter fences			
Public protection signage			
Security system in place			
Street closure identified			
Traffic Control plan			

Steel Erection 1926.750 Subpart R	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
2 bolts per connection			
Adequate site conditions			
Anchor bolts certification			
Anchorage points meet req			
CDZ training / utilized			
Concrete @ 75%			
Decking secured			
EE above 30' protected			
EE btwn 15-30' fall prot pres			
Erector notif of modification			
Qualified rigger			
Fall pro training provided			
Falling object protection			
Mult lift proced utilized			
Mult lift/rig/con training			
Proper anch of colmns/beam			
Proper erection plan			
Site layout / sequence plan			

Steel Erection 1926.750 Subpart R	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Struct flooring requirements			
Written approv conc strength			

Welding / Cutting 1926.350 Subpart J	Safe	Unsafe	Comments/Observations (Identify Subcontractor):
Bottles upright/cap/secured			
Cylinder ID			
Fire ext present			
Flash arrest on torches			
Flash protection available			
Gauges working properly			
Leads in good condition			
Lead repairs adequate			
Proper Storage of cylinders			
Prop PPE in use			
Torch hoses good cond			
Weld machine ventilated			
Welding boots on device			

Section 4: Accident/Incident Management

A. Activity Hazard Analysis (AHA)

A hazard analysis is used to assess risk. The result of an AHA is the identification of unacceptable risks and the selection of the means of controlling/eliminating the risk. Seldom does a single hazard cause an accident/incident. More often, the accident/incident occurs as part of a sequence of events. PNT strives to identify the hazards before they become the accident/incident. All subcontractors are required to conduct AHAs prior to performing their work. PNT Superintendents are available, along with Safety Superintendents, to assist the subcontractor in the identification of potential hazards that could be associated with the desired work event. The AHAs work by identifying the threat that a hazard can present. PNT utilizes the Risk Assessment Code Matrix to identify the probability of a hazard happening.

The risk assessment table that PNT requires is set up as follows:

Catastrophic – Results in multiple fatalities and/or loss of system

Critical – Reduces the capability of the system or the operator ability to cope with adverse conditions to the extent that there would be:

1. Large reduction in safety margin or functional capability
2. Crew physical distress/excessive workload such that operators cannot be relied upon to perform required tasks accurately or completely
3. Fatal injury to ground personnel or general public

Marginal – Reduces the capability of the system or the operators to cope with adverse operating conditions to the extent that there would be:

1. Significant reduction in safety margin or functional capability
2. Significant increase in operator workload
3. Conditions impairing operator efficiency or creating significant discomfort
4. Physical distress to workers

Negligible – Does not significantly reduce system safety. Actions required by workers are will within their capabilities:

1. Slight reduction in safety margin or functional capabilities
2. Slight increase in workload such as a small change in the job
3. Some physical discomfort to workers (heat, cold, etc)

Probability:

- Frequent
- Likely
- Occasional
- Seldom
- Unlikely

Activity Hazard Analysis (AHA)

Activity/Work Task:	Overall Risk Assessment Code (RAC) (Use highest code)					
Project Location:	**Risk Assessment Code (RAC) Matrix**					
Contract Number:	**Severity**	**Probability**				
Date Prepared:		Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title):	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
Reviewed by (Name/Title):	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

Notes: (Field Notes, Review Comments, etc.)	Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)	
	"Probability" is the likelihood to cause an incident, near miss, or accident/incident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	**RAC Chart**
	"Severity" is the outcome/degree if an incident, near miss, or accident/incident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	**E = Extremely High Risk** **H = High Risk**
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.	**M = Moderate Risk** **L = Low Risk**

Job Steps	**Hazards**	**Controls**	**RAC**
Job Steps	**Hazards**	**Controls**	**RAC**

Equipment to be Used	**Training Requirements/Competent or Qualified Personnel name(s)**	**Inspection Requirements**

B. Accident/Incident & Near Miss Reporting Procedures

If you have a near-miss situation while working, notify your Superintendent immediately. The situation will be investigated and corrective action implemented to prevent future injury. Employees and witnesses must fully cooperate in the investigation.

If you are injured on the job:

a. Contact your Superintendent, or the nearest coworker (who will notify a Superintendent) if you are unable to contact your Superintendent due to the severity of your injury.

b. The designated employee who is trained in first aid and/or CPR will be immediately notified to assist in the situation.

c. First aid kits, which are prominently displayed throughout the job-site, will be made available and medical supplies promptly refilled.

d. If needed, the Superintendent or his other designee will transport the injured worker to the designated medical facility to receive appropriate medical attention. A post-accident/incident drug and/or alcohol test will be conducted in accordance with the contractor's and/or PNT's Drug-Free Workplace Policy.

e. If rescue personnel are summoned, the on-site PNT Superintendent will delegate an individual to wait for the rescue team and escort them to the injured employee.

f. All witnesses to the accident/incident will be available to speak with the on-site PNT Superintendent and/or Safety Department and cooperate in all accident/incident investigations. Witness statements should be taken as soon as is possible after the incident

g. PNT's Safety Director will immediately notify the insurance company of the accident/incident and file a workers' compensation claim.

Every accident/incident or near-miss situation will be reported immediately. Injured employees and witnesses to the accident/incident will assist the Superintendent in completing an accident/incident investigation report. Injured employees must comply with the medical treatment provided by the treating physician, cooperate with the insurance company and its designees, and abide by the company's return-to-work policy.

C. Accident/Incident/Incident Investigation

When an accident/incident/incident occurs, it is an indication that something has gone wrong. Accident/incidents/incidents do not just happen, they are caused. The basic cause(s) of accident/incidents are unsafe acts and/or conditions. The on-site PNT Superintendent and/or Safety Department must investigate every accident/incident to determine the cause and to initiate corrective action to assure that similar type accident/incidents will not recur from the same causes.

PNT Superintendents will complete the following accident/incident/incident investigation form and submit a copy to PNT's Safety Director for review. The Safety Director will evaluate the corrective action taken or suggested by the on-site PNT Superintendent and instruct if

additional changes will be made. The PNT Incident-Investigation Form is included in Attachment 5. A fillable .pdf version is available on the PNT Safety Intra-net site.

Tips on accident/incident investigations:

1. Every accident/incident/incident is caused. Carelessness is not a cause, but the result of some deficiency. Telling employees to be more careful will not eliminate the real accident/incident/incident cause.

2. An accident/incident/incident investigation is not a trial to find fault or to place blame. The purpose is to find accident/incident causes so that corrective measures may be taken to prevent future accident/incidents.

3. Most accident/incidents result from a combination of human error (unsafe behavior) and a physical hazard (unsafe condition). Do not overlook the possibility of multiple errors and hazards.

4. Do not stop at the obvious answer. For instance, a missing machine guard does not cause an accident/incident. The accident/incident happened because the operator entered the point of operation. Determine why the operator did this and why the guard was off the machine. Only by correcting both problems can you prevent future accident/incidents.

5. The accident/incident investigation will be conducted as soon after the accident/incident as possible. Facts will be gathered while the accident/incident is fresh in the minds of those involved. If possible, question every employee who was involved, or witnessed, the incident. Delay interviewing injured employees until after medical treatment has been received.

6. Other employees who did not witness the accident/incident but work in the area may contribute information regarding the injured workers' activities prior to the accident/incident and conditions at the time of the accident/incident.

7. The accuracy and completeness of the information received from the injured worker(s) and witnesses depends on how well the interview is conducted. Superintendents will:
   a. Put employees at ease.
   b. Ask *what* happened and *how* it happened.
   c. Permit employees to answer without interruptions.
   d. Show concern.
   e. Remember, nothing is gained with criticism or ridicule.
   f. Ask why questions only to clarify the story.
   g. Repeat the story as you understand it.
   h. Give the employee the chance to correct any misunderstandings that you have.
   i. Photographs of the conditions as they exist immediately following the accident/incident are helpful, including photos of the damaged equipment.
   j. Damaged equipment will be removed or secured for future testing and used as evidence.

k. Take immediate action to correct any obvious unsafe conditions. Determine the basic accident/incident causes and correct or recommend action to prevent reoccurrence.
l. When multiple employees are involved, interview them separately and keep them separate before and after interview.

D. Return-to-Work Policy

It is PNT's policy to return injured workers to productive work, although not necessarily to their pre-injury duties, as early as possible during their recovery. This type of work is often referred to as "modified or transitional" duty work. PNT has adopted this policy because employees who remain away from work for long periods of time not only affect the company's productivity and workers' compensation costs, they often experience slow healing and a loss of self-esteem. Within the requirements of their treating medical providers, the limitations of the law, and the economic and physical limitations of our own properties, PNT will make every effort to provide meaningful work wherever and whenever possible. Any recovering employee who is offered a physician-approved, modified-duty position will be *asked (not required)* to accept the offer.

A copy of the tasks needed to complete the employee's regular duties will be provided to the treating physician, along with the following Job Physical Assessment form. PNT's Safety Director will request that the treating medical provider complete this form. The Safety Director will identify a modified duty position to offer the employee that is within their physician's restrictions.

Job Physical Assessment

Company Name: _____
Injured Worker: _____
Claim Number: _____
Superintendent: _____ **Phone:** _____
Modified Duty Job Available: _____

The Job Physical Assessment is an objective evaluation, completed by the treating physician. Please consider each category below and objectively circle the appropriate measurement for the activity by our injured employee. Our Company will then locate a modified-duty position that is within the restrictions detailed below. A copy of the duties required to complete this modified-duty position will be provided back to the physician.

Action	Total Hours									Consecutive Hours								
Sitting:	0	1	2	3	4	5	6	7	8	0	1	2	3	4	5	6	7	8
Standing:	0	1	2	3	4	5	6	7	8	0	1	2	3	4	5	6	7	8
Walking:	0	1	2	3	4	5	6	7	8	0	1	2	3	4	5	6	7	8

Action	Repetitions					Time Limits
Bending:	0	1-15	16-30	31-60	61+	
Twisting;	0	1-15	16-30	31-60	61+	
Squatting:	0	1-15	16-30	31-60	61+	
Climbing:	0	1-15	16-30	31-60	61+	
Crawling:	0	1-15	16-30	31-60	61+	
Reaching:	0	1-15	16-30	31-60	61+	
Pushing:	0	1-15	16-30	31-60	61+	

Action	Weights (lbs)	Repetitions					Time Limits
Lifting:		0	1-15	16-30	31-60	61+	
Carrying:		0	1-15	16-30	31-60	61+	
Arm/both:		0	1-15	16-30	31-60	61+	
Left Arm:		0	1-15	16-30	31-60	61+	
Right Arm:		0	1-15	16-30	31-60	61+	
Hand/both:		0	1-15	16-30	31-60	61+	
Left Hand:		0	1-15	16-30	31-60	61+	
Right Hand:		0	1-15	16-30	31-60	61+	

Other restrictions: _____

_____

In consideration of the above restrictions, the patient is: (circle one)

Disabled **Released for restricted work** **Released for full regular work.**

Patient will be seen again for re-evaluation on : _____

Remarks: _____

_____

_____ _____ _____

Physician Name Physician Signature Date

Section 5: Workers' Compensation

By law, PNT is required by law to maintain workers' compensation insurance. The company pays for this insurance. PNT insurance premiums are not government funded in any way. Since workers' compensation is a substantial cost of doing business, our goal is to prevent and manage accident/incidents.

A. What benefits are you entitled to?

When an employee is injured during the course of employment, workers' compensation insurance provides payments to the injured worker or the treating physician(s) for medical treatment, disfigurement, death benefits, and indemnity (lost wages) payments. **The scope and amount of these payments are determined by state law.** Attorneys are not needed for you to get what you are entitled to. Attorneys, when hired, typically work on a contingent fee basis and may receive a portion of your benefits. If you report injuries immediately to your Superintendent and cooperate with your treating physician and the Insurance Company, the system will work with you to get you healthy and back to work.

Workers' compensation insurance payments *may* be denied if: 1) the employee tests positive for drugs or alcohol following the accident/incident, 2) a pre-existing injury or non-work related injury was the cause of the accident/incident, or 3) fraud exists.

Medical treatment: Medical care, services, and supplies as necessary to cure or relieve the effects of an injury sustained on-the-job.

Disfigurement: Additional compensation is paid to an injured worker for permanent disfigurement from a work-related injury (i.e. scars, discoloration, amputation etc.).

Indemnity Payments: Wage replacement while recovering from an industrial injury.

Death Benefits: Weekly payments to the surviving spouse and dependent children of a worker whose work-related injury results in death. Burial and funeral expenses are also paid.

B. Workers' Compensation Fraud

Filing false workers' compensation claims is punishable with a substantial fine and imprisonment. **Any employee who knows of a coworker who is abusing the workers' compensation system or has filed a false workers' compensation claim will call the Safety Director or other safety personnel. This call can be anonymous.**

The following is considered workers' compensation fraud or abuse:

1. Faking an accident/incident or injury.
2. Exaggerating the seriousness of an accident/incident or injury.
3. Taking more time off than is really needed to recover.
4. Attempting to collect benefits for an injury that is not job-related.
5. Submitting false or exaggerated medical bills for payment.
6. Working at another, equally demanding job while collecting workers' compensation

benefits.

7. Conspiring with, or being persuaded by, another person to do any of the above.

When people abuse workers' compensation benefits, we all pay. PNT is charged higher insurance premiums, which increases expenses and lowers profitability. The best way to safeguard against fraud is to prevent accident/incidents from happening. If you are aware of fraud, please call the Safety Director or a member of the safety staff.

Section 6: Fleet Safety Program

1. Motor Vehicle Rules

All employees who drive a PNT Consulting vehicles or their own personal vehicle on company business must abide by the following safety rules:

a. Employees are required to inspect their assigned PNT vehicle (before taking it on the road) to ensure that it is in safe working condition. This includes properly working brakes, horns, back-up alarms, and unobstructed glass. The attached inspection form will be used.
b. Any defects in the company vehicle will be reported promptly to PNT's Equipment Manager.
c. Only PNT employees are allowed to operate PNT vehicles/equipment.
d. Employees are required to obey all Local/State and company traffic regulations.
e. Engines are to be stopped and ignition keys removed when parking, refueling, or leaving the company vehicles.
f. Passengers not employed by the company are not permitted unless authorized by PNT management.
g. Employees will drive safely. Defensive driving must be practiced by all employees.
h. Seat belts and harnesses are to be worn at all times.
i. Vehicles must be locked when unattended to avoid criminal misconduct.
j. Vehicles must be parked in legal spaces and must not obstruct traffic.
k. Employees will park their personal/company vehicles in well-lighted areas at or near entrances to avoid criminal misconduct.
l. Employees will keep their headlights on at all times when driving a vehicle.
m. A vehicle when loaded with any material extending 4 feet or more beyond its rear shall have a red flag or cloth 12 inches square attached by day, or a red light visible for 300 feet by night, on the extreme end of the load.
n. Articles, tools, equipment, etc. placed in truck cabs are to be hung or stored in such a manner as not to impair vision or in any way interfere with proper operation of the vehicle.
o. When you cannot see behind your vehicle (truck), the driver will walk behind the truck prior to backing.
p. Personal use of company vehicles is not permitted without approval of management. Children are prohibited from riding in company vehicles.
q. Operating a PNT vehicle while under the influence of alcohol and other drugs is prohibited. Violators are subject to disciplinary action up to and including termination of employment.
r. Every accident/incident (no matter how small) will be reported to PNT's Safety Director and/or Equipment Manager. The Safety Director (or designated Safety Superintendent) will then investigate all accident/incidents and review them with the employee.
s. All Contractors' personal vehicles must be parked in areas designated as Contractor Parking.
t. When operating vehicles on the job site, speeds must not exceed 10 M.P.H.

u. Employees driving their own vehicles on PNT company business must exercise the same care and diligence as would be expected if they were operating a PNT owned vehicle.
v. Employees driving their own vehicles on PNT company business must carry the state the vehicle is registered in; minimum insurance limits on their vehicle.
w. Any accident which occurs in a PNT owned vehicle or a private/personal vehicle being used on company business MUST be reported to the Safety Department and to the Director of Insurance.
x. Drivers must exercise care in the use of mobile phones, GPS units, etc while driving. Drivers must follow all applicable laws pertaining to cell phone use and texting in the states in which they are operating.

2. Commercial Driver's License (CDL)

Drivers, who operate a commercial vehicle, as defined below, are required to obtain a commercial driver's license:

a. A vehicle with a gross vehicle weight rating of 26,001 or greater pounds.
b. A vehicle designed to transport 15 or more passengers (including the driver).
c. A vehicle of any size transporting hazardous material in sufficient quantities meeting the hazardous materials transportation regulations posting requirements.
d. CDL Drivers must meet the following requirements:
    1. All commercial drivers must be in good health and pass a DOT physical. The doctor will provide the driver a medical examiner's certificate that must be carried at all times when driving. The certificate must be renewed every 2 years.
    2. All commercial drivers must comply with PNT's Drug and Alcohol-Free Workplace Policy and consent to testing as defined by DOT and PNT.
    3. Be at least twenty-one (21) years of age.
    4. Speak and read English well enough to do his/her job and respond to official questions.
    5. Have a valid driver's license and pass a commercial driver's road test.
    6. Take a DOT written exam for drivers.
    7. Not be disqualified to drive a commercial motor vehicle.
    8. Be able to determine whether the vehicle is safely loaded and know how to block, brace, and tie down cargo.

3. Motor Vehicles Records (MVR)

a. All prospective and current employees will undergo annual motor vehicle record checks.
b. A list of drivers assigned PNT vehicles that are restricted to drive or cannot drive a motor vehicles any longer will be maintained by the Safety Department.
c. Violations (gathered from MVRs) are categorized as follows:

TYPE A VIOLATION: Includes, but is not limited to, DWI/DUI/OWI/OUI, refusing a

drug/alcohol test, reckless driving, manslaughter, hit and run, eluding a police officer, any felony, drag racing, license suspension, and driving while under license suspension, driving with open alcoholic container in vehicle. Any driver with these types of violations is a major concern and could be subject to removal of driving privileges and/or termination of employment.

TYPE B VIOLATION: Includes all vehicle accident/incidents, regardless of fault.

TYPE C VIOLATION: Includes all moving violations not classified as Type A or B (i.e. speeding, improper lane change, failure to yield, running red lights or stop signs, to include traffic enforcement cameras, etc.).

TYPE D VIOLATION: Includes all non-moving violations (i.e. parking, vehicle defects).

Employee violation (s) (including perspective employees)as described above may result in disciplinary action, including but not limited to the following:

Termination of employment, refusal to hire or suspension/probation of permanently assigned PNT vehicle or driving privileges(if available):

- 1 Type A violation in preceding 24 months
- 2 Type B violations in preceding 24 months
- 2 Type C violations in preceding 24 months
- 3 Type D violations in preceding 36 months

Any Combination of Type A, Type B or Type C violation in past 24 months.

4. Driver Qualification File

PNT will maintain the appropriate qualification files for each regularly employed driver.

5. Accident/incident Reporting

Driver Conduct at the Scene of the Accident/incident

a. Take immediate action to prevent further damage or injury.
b. Pull onto the median or side of the road if possible.
c. Activate hazard lights (flashers) and place warning signs promptly (if available)
d. Assist any injured person, but do not move them unless they are in danger of further ..... injury.
e. Call the Police
f. If someone is injured, request medical assistance.
g. If you are near a phone, write a note giving the location and seriousness of the accident/incident and give it to a "reliable" motorist and ask him/her to contact the police.
h. The vehicle shall not be left unattended, except in an extreme emergency.
i. Exchange identifying information with the other driver. **Make no comments about**

assuming responsibility.

j. Secure names, addresses, and phone numbers of all witnesses, or the first person on the scene if no one witnessed the accident/incident.

k. Call immediately and report the accident/incident to PNT's Safety Director and/or Equipment Manager.

Complete the Vehicle Accident/incident Report Form

a. Complete the Vehicle Accident/incident Report Form (a copy can be obtained from the Safety Director) and provide it to PNT's Safety Director. Write legibly and answer all questions completely or mark "not known." Use additional sheets of paper as needed to provide pertinent information.

6. Inspection Records & Preventative Maintenance

All drivers must regularly inspect, repair, and maintain their company vehicle. All vehicle parts and accessories must be in a safe and proper working order at all times. The following apply:

a. All truck drivers must complete the vehicle inspection report at the end of each day. Drivers of company cars will complete the vehicle inspection report semi-annually. Notify PNT's Equipment Manager of any unsafe conditions or defective parts immediately.

b. Before the vehicle is driven again, any safety defects must be repaired.

c. A copy of the last vehicle inspection report must be kept in the vehicle for at least three (3) months.

d. Quarterly preventative maintenance must be conducted on each vehicle.

e. Maintenance and inspection records must be kept at the company for one (1) year or for six (6) months after the vehicle leaves the company's ownership.

f. All vehicles are subject to a search at any time.

VEHICLE INSPECTION REPORT

(Use your safety belt)

Date: _____

Company	Location (city)	ST	Vehicle Number
Driver Name		Driver Name	
Driver Signature		Driver Signature	

Instructions: Drivers will perform necessary inspections. A (√) indicates satisfactory condition. An (X) indicates unsafe or improper conditions. An (O) indicates condition does not apply. Corrected deficiencies will be circled by management certifier.

INSIDE

- o Parking brake (apply)
- o Release trailer emergency brakes
- o Apply service brake (air loss will not exceed 3 psi/min on single vehicles, 4 psi/min on combinations)

START ENGINE

- o Oil Pressure (light or gauge)
- o Air Pressure or Vacuum (gauge)
- o Low air or vacuum warning device (air pressure below 40 psi check on pressure build-up. Air pressure above 60 psi deplete air until warning device work. Vacuum below 8 inches Hg, check on build-up. Above 8 inches Hg, Deplete vacuum until device work.
- o Instrument panel (telltale lights, buzzer, gauges)
- o Horn
- o Windshield Wiper and Washer
- o Heater-defroster
- o Mirrors
- o Steering wheel (excess play)
- o Apply trailer brakes in EMERGENCY
- o Turn on all lights including 4-way flasher
- o Starts properly

EMERGENCY EQUIPMENT

- o Fire extinguishers
- o Flags, standards, warning lights
- o Spare fuses
- o Spare bulbs
- o Chains in season
- o First-aid kit

FRONT

- o Headlights
- o Clearance lights
- o Identification lights
- o Turn signals and 4-way flasher
- o Tires and wheels-lugs and serviceability

SIDE (Left Right)

- o o Fuel Tank and Cap
- o o Sidemarker lights
- o o Reflectors
- o o Tires and wheels-lugs and serviceability
- o o Cargo tie-downs or doors

REAR

- o Tail lights
- o Stop light
- o Turn signals and 4-way flasher
- o Clearance lights
- o Identification lights
- o Reflectors
- o Tires and wheels, lugs and serviceability
- o Rear end protection (bumper)
- o Cargo tie-downs/doors

MECHANICAL OPERATION

- o Engine knocks, misses, overheats, etc.
- o Clutch skips, grabs, other
- o Transmission noisy, hard shifting, jumps out of gear, other:
- o Axles - noisy, other:
- o Steering loose, shimmy, hard, other:
- o Air, oil, water, leaks
- o Springs broken, other:
- o Brakes noisy, pulls soft, other:
- o Speedometer, tachometer
- o Tachograph, speed control devices

ON COMBINATIONS

- o Hoses, connections
- o Couplings (fifth wheel, tow bar, safety chains, locking devices)

OTHER

- o _____
- o _____
- o Equipment inspection enroute (yes, no)
- o Cargo securing devices (yes, no)

Start time:	Mileage:	End time:	Mileage:
Remarks/Other Defects:			
Defects corrected (initial) o Yes o No	Defect correction unnecessary (initial)	Certified by:	Date

PREVENTATIVE MAINTENANCE REPORT

Date/Time	Company	Location
Inspected by:	Employee I.D. Number	
Vehicle License	Vehicle Number	
	Satisfactory	**Needs Attention**
Brakes: Brake adjustment: Left Right Brake hoses Brake drums Brake shoes Parking brake Brake pedal travel		
Steering Steering suspension Change in steering action Steering components		
Tires Wear/Defect Overloading Groove depth 2/32" minimum **Wheels** Cracks Loose Nuts Rims		
Windows Windows & Windshields Wipes & Washers		
Lights Head lights Tail lights Turn signals Reflectors		
Mirrors		
Horn		
Instruments/Gauges		
Seat belts		
Battery		
Radiator & Hoses		
Exhaust system		
Suspension		
Fuel system		
Oil/Water leaks		
Oil level		
Water level		
Transmission		
Engine performance		
General condition of body & interior		
Comments:		

SUPERINTENDENT'S MOTOR VEHICLE ACCIDENT/INCIDENT INVESTIGATION REPORT

DRIVER	VEHICLE	DATE OF ACCIDENT/INCIDENT
LOCATION OF ACCIDENT/INCIDENT		TIME OF ACCIDENT/INCIDENT
DESCRIPTION OF ACCIDENT/INCIDENT: (What happened?)		
SEAT BELT WORN?		
CAUSES OF ACCIDENT/INCIDENT: (Why did it happen?)		
RECOMMENDATIONS FOR PREVENTION OF A RECURRENCE: (What will be done?)		
FOLLOW UP: (What actions were taken? Were they effective?)		

- INDICATE WITH DIAGRAM WHAT HAPPENED
- SHOW POSITION OF VEHICLES
- INDICATE DIRECTION (NORTH, SOUTH, EAST, WEST) WITH ARROWS

A. CLASSIFICATION OF ACCIDENT/INCIDENT REVIEW

θ PREVENTATBLE θ NON-PREVENTABLE

ACCIDENT/INCIDENTS USUALLY PREVENTABLE

Intersection	Cut In or Out
Backing	Pulled from Curb
Hit Other in Rear	Hit Stationary Object
Skidded	Hit Pedestrian

B. ACCIDENT/INCIDENTS USUALLY NON-PREVENTABLE

Hit in Rear Hit When Properly Parked

_____ _____

INVESTIGATING SUPERINTENDENT'S SIGNATURE MANAGER'S SIGNATURE

DATE OF REPORT _____ REVIEWED BY MANAGER _____ DATE _____

MOBILE PHONE AND OTHER ELECTRONIC DEVICE USAGE

a. Increased reliance on mobile phones, GPS units and other electronic devices in vehicles has led to a rise in the number of people who use the devices while driving. There are two dangers associated with driving while using a mobile phone, including text messaging and using the Internet and jeopardizing the safety of vehicle occupants and pedestrians. First, drivers must take their eyes off the road and hands off the wheel to manipulate the devices when dialing, texting and surfing the Web. Second, people can become so absorbed in their conversations and other uses that their ability to concentrate on the act of driving is severely impaired.

b. Mobile phones, GPS units, and other electronic devices we use in our vehicles play an integral role in our society. The convenience they offer must be judged against the hazards they pose. Their use contributes to the problem of inattentive driving, which also includes talking, eating, putting on make-up and attending to children.

c. In order to keep PNT employees and the general public safe while in possession of mobile phones, GPS devices and other electronic devices, PNT has instituted the following rules regarding the use of mobile phones in vehicles:

1. Mobile phone use and texting will be in compliance with the laws of the various states and municipalities in which the PNT vehicle is operating in.
2. GPS devices should not be programmed while the PNT vehicle is moving. Programming should be done prior to starting a trip.
3. Head phone, ear buds or other listening devices attached to an iPod or MP3 player shall not be used by the driver of a PNT vehicle. The driver must remain alert and vigilant at all times.

Section 7: OSHA (Occupational Safety & Health Administration)

A. OSHA (Records) Requirements

Copies of required accident/incident investigations and certification of employee safety training shall be maintained by PNT's Safety Director. A written report will be maintained on each accident/incident, injury or on-the-job illness requiring medical treatment. The log of work-related injuries and illnesses (Form 300) will be used to classify work-related injuries and illnesses and to note the extent and severity of each case. The summary (Form 300A) shows the totals for the year in each category. At the end of the year, post the summary in a visible location so that your employees are aware of the injuries and illnesses occurring in the workplace. This summary .....must be posted by February 1 to April 30. These records are maintained for five years from the date of preparation.

B. OSHA Inspection: What you can expect during an OSHA inspection

1. Arrival of the Compliance Officer (OSHA Inspector)
   a. Request to see credentials.
   b. Record his/her name, identification number, the name of his/her Superintendent, and office location. Obtain a copy of the OSHA Compliance Officer's business card.
   c. Every effort should be made to contact PNT's Safety Director, Deputy Safety Director or a Safety Superintendent. If the Safety Director or Superintendent is not available, ask the Officer to wait until a PNT Safety Officer arrives. If he/she cannot wait and/or the Safety Officer is not available, a PNT Superintendent/Representative will accompany the Compliance Officer.
   d. Do not volunteer any information, only answer questions.

2. Opening Conference
   a. The scope of the inspection will be discussed.
   b. The Officer will explain the reason for the inspection (i.e. employee complaint, scheduled inspection, etc.).
   c. If the reason for the inspection is an employee complaint, request a copy of the complaint.
   d. Take comprehensive notes and request to record the meeting and walk-around.
   e. A focused inspection will be requested.

3. The Walk-Around (inspection)
   a. A PNT Superintendent/Representative will accompany the Compliance Officer throughout the inspection.
   b. The Officer may ask to interview employees who must cooperate. The PNT Superintendent/Representative should not attempt to participate in the interview.
   c. PNT's Superintendent/Representative will be prepared to show the Officer: 1) the Safety Manual, 2) Hazard Communication Program, 3) OSHA poster, and 4) OSHA 300 Log (if during months of February, March and April).
   d. If at all possible, correct any violations immediately that the Officer points out.
   e. Take photographs of the same items or areas that are photographed by the Compliance

Officer.

f. Write down every possible violation, standards cited, corrective action needed, and a deadline date.

4. Closing Conference
   a. The Compliance Officer will review any violations discovered during the inspection. Compare these to the notes you took during the inspection. Point out any discrepancies and areas already corrected.
   b. Be polite and do not argue or get defensive with the Compliance Officer.
   c. If you are not clear on something, ask questions.
   d. This is a good opportunity to produce records of compliance efforts and other safety practices.

5. Citations & Penalties
   a. PNT's goal is to provide a safe and healthy work environment. If PNT is cited for OSHA violations, corrective action will be completed before the deadline provided by OSHA and as quickly as possible. It will be PNT Management's decision to appeal any citations. It will also be PNT's management discretion as to whether any penalties assessed will or will not be charged against the job.

Section 8: Special Emphasis Programs

A. Drug-Free Workplace Policy

Refer to Attachment #4

B. Lock-Out/Tag-Out

Purpose

To establish a procedure to protect and prevent personnel from injury by 1) accident/incidental activation of any powered or damaged equipment, and 2) the uncontrolled release of electrical energy. Procedure is in compliance with OSHA regulations, 29 CFR 1910.147.

Responsibility

PNT's Safety Director is responsible for compliance. The Safety Director or designated Safety Superintendent shall train Superintendents on proper lockout/tagout procedures, audit and/or oversee the application of the procedures, ensure corrective actions are taken when problems arise, and conduct an annual inspection/evaluation. Superintendents are responsible for training effected and authorized employees on the purpose and use of these procedures. The Safety Director will periodically monitor training activities and assist as required to ensure compliance with OSHA regulations and company goals. All affected and authorized employees involved in lockout/tagout procedures must receive annual training. A list of authorized, trained individuals will be maintained by PNT's Safety Director and/or Training Department.

Scope

This procedure applies to all PNT personnel and contract employees. It will be enforced during installation, cleaning, servicing, maintenance, or inspection work is performed on any powered equipment and/or processes in which the activation of such could injure an employee or cause property damage. This procedure does not apply to adjustment or other activities which require the equipment be operating at the time of service, provided other protective measures are employed.

Definitions

Lockout: The application of a lock, chains, or other appropriate apparatus, and a danger identification tag to de-energize electrical equipment and/or process system to ensure that the equipment or system cannot be activated. Note: OSHA regulations require that locks be used to secure equipment whenever possible. Chains can be wrapped around valve handles and then locked in such a way that the valve cannot be operated. Tags alone can be used when it is not possible to use a lock.

Tagout: The application of a danger identification tag when a physical lockout or de-energizing is not feasible or a lock has already been applied. Tags will bear the name of the employee applying the tag, the date of application, and a brief description of the work needed. It is always preferable to have a combination lock out /tag out system. A tag out system by itself is

not acceptable.

Energy Source: The switch or valve through which energy is controlled to the unit (e.g. motor control center (disconnect) switches, (circuit) breaker panel switches, valves, locking pins, etc.). This energy may come by: 1) electric power, 2) mechanical power, 3) hydraulic power, 4) pneumatic energy, 5) chemical system, or 6) thermal energy.

Authorized Employee: A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment.

Effected Employees: An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed. An effected employee becomes an authorized employee when the effected employees' duties include servicing or maintenance.

Lockout/Tagout Procedures

1. Each piece of equipment or system must be evaluated to identify all energy sources to be locked or tagged out. The evaluation will be done periodically by a Superintendent or an authorized employee with familiarity with the equipment/system, using the attached energy source determination checklist.
2. If the machine is determined by OSHA that formal lockout/tagout procedures are required, this will be done by an authorized employee and logged on the attached form titled "List of Lockout & Tagout Procedures." These procedures will then be followed. If no specific procedures are required, or provided by the equipment manufacturer, complete the following tasks: .....
    a. Deactivate (turn off) and secure the equipment/system at the energy source. Relieve pressure, release stored energy from all systems, and restrain or block them. (Operators must tag the appropriate switches or controls inside the control room as part of this step).
    b. Attach a lock to each isolation device and a tag to the lock. Sign and date the tag, and provide pertinent information.
    c. Check to ensure that no personnel are exposed to the equipment/system, then attempt to activate the normal operating controls to ensure proper lockout/tagout.

    CAUTION: Always return the operating control to the "neutral" or "off" position after completing this test.

    d. The equipment/system is now locked and tagged out.

Lockout/Tagout Removal Procedures

1. After installation, servicing, maintenance, inspection, or cleaning is complete, verify that all tools have been removed, all guards have been reinstalled, the area is clean and orderly, and the equipment is safe to operate.
2. Ensure that employees are not exposed to the equipment and all employees are aware of the removal of the lock and tag.
3. The locks and tags will be removed only by the employee who applied them, their Superintendent or the onsite PNT Superintendent. The Superintendent or Superintendent

will only remove the locks and tags after a reasonable effort is made to contact the employee and notify him of the removal. The tags will be signed and dated and submitted to the on-site PNT Superintendent.

4. Activate energy source as required.

Procedures Involving More Than One Person

If more than one individual is required to lockout or tagout equipment, each individual shall use his/her own assigned lockout/tagout device on the energy source. When the energy source cannot accept multiple locks or tags, a multiple lockout/tagout device (hasp) will be used. A single key will be used to lockout the equipment/system, with the key being placed in a lockout box or cabinet located on the job site. This cabinet or lockout box must allow multiple locks to secure it. Each individual will then use his/her own lock to secure the box or cabinet. As each individual no longer needs to maintain the lockout protection, that individual will remove his/her lock from the cabinet. Proper removal procedures will be followed.

List of Authorized Lockout/Tagout Individuals

Work Center	Lock Number	Name	Mechanical (yes/no)	Electrical (yes/no)

Lockout/Tagout Annual Inspection/Evaluation Report

Date of Evaluation: _____

Evaluation was made by: _____
Policy has been reviewed: Yes No

Comments on policy: _____

The following procedures have been reviewed: _____

The following procedures were modified: _____

The following procedures were added: _____

A review of the OSHA log 300, associated accident/incident reports, and OSHA Form 101 were conducted? Yes No

The following injuries resulted from lockout/tagout:

Injury	Procedure Number for Applicable Equipment	Process or Machinery

Comments:

_____ _____
Signature Date

Lockout/Tag-out Procedure Checklist
Energy Source Determination

Date: _____ Company Name: _____

Instructions: In order to determine all energy sources for each piece of equipment, all questions must be answered. If the question does not apply, write N/A.

Location: _____ Work Center: _____

Equipment Name: _____ Equipment #: _____

Serial: _____ Lockout/Tagout Procedure #: _____

1. Does this equipment have?
   a. **Electric power** (including battery)? Yes No N/A
      If yes, Motor Control Center (MCC) or power panel & breaker number: _____
      _____
      Does it have a lockout device? Yes No N/A
      Battery location: _____
      Battery disconnect location: _____

   b. **Mechanical power**? Yes No N/A
      Mark each type of energy source that applies:
      1. Engine driven Yes No N/A
         If yes, switch or key location: _____
         Is lockout device installed? Yes No N/A
         If no, method of preventing operation: _____

      2. Spring loaded? Yes No N/A
         If yes, is there a method of preventing spring activation? Yes No
         If no, how can spring tension be safely released or secured? _____
         _____

      3. Counter weight(s)? Yes No N/A
         If yes, is there a method of preventing movement? Yes No
         If yes, can it be locked? Yes No
         If no, how can it be safely secured? _____
         _____

      4. Flywheel? Yes No N/A
         If yes, is there a method of preventing movement? Yes No
         If yes, can it be locked? Yes No
         If no, how can it be safely secured? _____

Lockout/Tagout Procedure Checklist (page 2)

1. Does this equipment have (continued):
   c. **Hydraulic Power**? Yes No N/A
   If yes, location of main control/shut-off valve: _____
   Can control/shut-off valve be locked in the "OFF" position? Yes No
   If no, location of closest manual shut-off valve: _____
   Does manual shut-off valve have a lockout device? Yes No
   If no, what is needed to lock valve closed? _____
   _____
   Is there a bleed or drain valve to reduce pressure to zero? Yes No
   If no, what will be required to bleed off pressure? _____
   _____

   d. **Pneumatic Energy**? Yes No N/A
   If yes, location of main control/shut-off valve: _____
   Can control/shut-off valve be locked in the "OFF" position? Yes No
   If no, location of closest manual shut-off valve: _____
   Does manual shut-off valve have a lockout device? Yes No
   If no, what is needed to lock valve closed? _____
   _____
   Is there a bleed or drain valve to reduce pressure to zero? Yes No
   If no, what will be required to bleed off pressure? _____
   _____

   e. **Chemical System**? Yes No N/A
   If yes, location of main control/shut-off valve: _____
   Can control/shut-off valve be locked in the "OFF" or closed position? Yes
   No
   If no, location of closest manual shut-off valve: _____
   Is there a bleed or drain valve to safely reduce system pressure and drain system of chemicals? Yes No
   If no, how can the system be drained and neutralized? _____
   _____
   What personal protective clothing or equipment is needed for this equipment? _____
   _____

   f. **Thermal Energy**? Yes No N/A
   If yes, location of main control/shut-off valve: _____
   Can control/shut-off valve be locked in the "OFF" or closed position? Yes
   No
   If no, location of closest manual shut-off valve: _____
   Does manual shut-off valve have a lock valve? Yes No
   Is there a bleed or drain valve to safely reduce system pressure & temperature and drain system chemicals? Yes No
   If no, how can the system be drained and neutralized? _____
   _____

What personal protective clothing or equipment is needed for this equipment? _____

Lockout/Tagout Procedure Checklist (page 3)

Special precautions not noted above (i.e. fire hazards, chemical reactions, required cool down periods, etc.): _____

Recommendations or Comments: _____

Completed by: _____

Reviewed by: _____

Approved by: _____

List of all Lockout/Tag-out Procedures

Procedure Number	Equipment, Machinery or Process

Training Documentation for Lockout/Tagout Program

I have received training and understand all rules and regulations regarding PNT Consulting's lock-out/tag-out program.

I understand that I am required to follow the necessary precautions outlined in the lock-out/tag-out program.

I know the location of emergency phone numbers and communications systems, and the location of medical, fire, and other emergency supplies.

Employee Name: _____

Signature: _____ Date: _____

Job Location: _____

C. Confined Space Entry

PURPOSE

The purpose of this Confined Space Entry Program (Program) is to protect the health and safety of employees who enter confined spaces on PNT Consulting, llc. (PNT) job-sites. This Program defines employee responsibilities, the project evaluation and communication protocol, and entry procedures to ensure employee safety and compliance with OSHA's Subpart AA – Confined Spaces in Construction regulation.

SCOPE

This program applies to:

- All projects that have one or more confined spaces;
- All employees who are authorized to enter a confined space; and
- All employees assigned to serve as authorized entrants, attendants, entry supervisors or rescue and emergency services.

DEFINITIONS

Entry permit (Permit) – document provided by the employer who designates a space a permit space to allow and control entry into a permit space.

Host Employer – the employer that owns or manages the property where the construction work is taking place.

Lower flammable limit or lower explosive limit – the minimum concentration of a substance in the air needed for an ignition source to cause a flame or explosion.

Rescue service – personnel designated to rescue employees from permit spaces.

Retrieval system – equipment (including a retrieval line, safety harness, a lifting device or anchor, etc.) used for non-entry rescue of persons from a permit space.

RESPONSIBILITIES

Authorized entrant – an employee authorized by the entry supervisor to enter a permit space. The responsibilities of this employee are:

1. Be familiar with and understand any atmospheric and physical hazards inside the permit space, including means, signs / symptoms, and consequences of exposure.

2. Properly use all equipment required for safe permit space entry.

3. Maintain communication with the attendant as necessary to allow attendant to monitor entrant's status and alert entrant of need to evacuate in an emergency.

4. Alert the attendant when a prohibited condition or warning signs or symptoms of exposure exist.

5. Exit the permit space immediately whenever:

    a. The attendant or entry supervisor orders evacuation from the permit space;

    b. A prohibited condition exists;

    c. Warning signs or symptoms of exposure exist; or

    d. An evacuation alarm is activated.

Attendant – an employee stationed outside a permit space who assesses the status of the authorized entrant. The responsibilities of this employee are:

1. Be familiar with and understand any atmospheric and physical hazards inside the permit space, including means, signs / symptoms, and consequences of exposure.

2. Be familiar with the possible behavioral effects of hazard exposure in authorized entrants.

3. Continuously maintain an accurate count of authorized entrants in the permit space and identify entrants on the Permit.

4. Remain outside the permit space during entry operations until relieved by another attendant.

5. Maintain communication with the authorized entrant as necessary to monitor entrant's status and alert entrant of need to evacuate in an emergency.

6. Assess activities and conditions inside the permit space to determine if it's safe for entrants to remain in the space.

7. Alert the authorized entrant(s) to evacuate the permit space immediately whenever:

    a. A prohibited condition exists;

    b. Behavioral effects of hazard exposure are observed in an authorized entrant;

    c. A situation exists outside the space that could endanger an authorized entrant; or

    d. The attendant cannot effectively perform these responsibilities.

8. If an authorized entrant demonstrates they may need help evacuating a permit space:

    a. Perform non-entry rescue, if available.

    b. If non-entry rescue is NOT available, contact the emergency and rescue services listed on the Permit.

9. Keep unauthorized persons away from the permit space. Should unauthorized persons enter the permit space, advise them to exit immediately and inform the attendant and entry supervisor.

10. Perform no tasks that will interfere with their primary duty to monitor and protect the authorized entrants.

Entry supervisor – qualified person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required. The responsibilities of this employee are:

1. Be familiar with and understand any atmospheric and physical hazards inside the permit space, including means, signs / symptoms, and consequences of exposure.

2. Require continuous atmospheric monitoring wherever possible.

3. Require continuous upstream engulfment hazard monitoring and alert wherever necessary.

4. Verifying the Permit has been completed in its entirety, all tests have been conducted, and all procedures and equipment specified on the permit are in place before allowing entry.

5. Terminates the entry and cancels or suspends the permit as required.

6. Verify rescue and emergency services are available and means for communicating with them are operable.

7. Removes unauthorized individuals who enter or attempt to enter the permit space during entry operations.

EMERGENCY RESCUE

There are three options for rescuing an employee from a confined space. Emergency rescue is mandatory for all permit space entries.

Non-entry rescue – non-entry rescue is the preferred method as it's the quickest and easiest to implement. Non-entry rescue utilizes a retrieval system connected to the authorized entrant's safety harness that can be used to hoist an injured or unresponsive employee from the confined space without entering it. The following requirements pertain to non-entry rescue situations:

1. Required for permit space and alternate space entries unless retrieval equipment increases hazards or is not feasible, as in the following conditions:

    a. Obstructions or turns prevent pull on the retrieval line.

    b. Projections inside the permit space would injure the employee in a retrieval situation.

2. The following are requirements of retrieval systems:

    a. Entrants use a harness with a retrieval line attached to the back d-ring or another point that will allow for successful removal.

    b. Wristlets or anklets may be used if harness presents safety or feasibility problems and are the safest alternative.

c. Retrieval line must be attached to a mechanical device (winch / hoist) outside the space that can be used as soon as rescue is necessary.

Rescue service – rescue services are used in situations where non-entry rescue is infeasible or creates a greater hazard. Rescue teams may be local fire departments or 3rd party rescue services that are either on stand-by at the permit space or are summoned by the entry supervisor or attendant.

1. Rescue services may be used provided they have the following:

    a. Ability to respond to a rescue summons in a timely manner.

        Note: Timeliness is based off the hazards inside the space. Typically, rescue from an atmospheric hazard needs to occur much quicker than rescue from physical hazards and may require a stand-by rescue team.

    b. Skills and equipment necessary for rescue-related tasks.

2. Rescue service must be alerted of hazards they will encounter when performing rescue.

3. Rescue service must be provided access to all permit spaces they may enter so they can develop appropriate rescue plans.

Employee rescue team – employee rescue teams are the last option for permit space rescues due to the added cost of equipment and training. Be sure to evaluate a rescue service prior to selecting this option.

1. All necessary equipment will be provided at no cost to employees.

2. Each employee will receive training to perform rescue duties and be an authorized entrant.

3. One member of the rescue team will have first aid and cardiopulmonary resuscitation (CPR) training.

4. Practice rescues:

    a. Prior to entry, employees on rescue teams must perform a practice rescue from the permit space that will be entered. If the permit space is not available for practice, a representative space must be used.

    b. Practice rescues must simulate rescues with dummies or manikins.

TRAINING

All employees required to perform duties under this Program will be trained to ensure they have the skills and knowledge necessary for a safe entry operation.

1. Training will be provided to each affected employee:

    a. At no cost to the employee;

    b. In both a language and vocabulary the employee can understand;

    c. Before the employee is first assigned duties under this Program;

    d. Before there is a change in assigned duties;

e. Whenever there is a change in permit space entry operations that presents a hazard about which an employee has not previously been trained; and

f. Whenever an employee deviates from or shows lack of knowledge of safe entry procedures.

2. Training topics include, but are not limited to, the following areas:

   a. Atmospheric and physical hazards of the permit space;

   b. Duties of authorized entrant, attendant, and entry supervisor;

   c. Methods to isolate, control, and protect employees from these hazards;

   d. Dangers performing entry rescues by non-authorized personnel; and

   e. Proper use of all equipment, including personal protective equipment (PPE), necessary for a safe entry operation.

3. All training related to this Program will be accompanied by quizzes, or knowledge checks, to ensure employees understand their duties.

4. All training will be documented on sign-in sheets and entered into Halogen's eLearning module for tracking.

EQUIPMENT

The following equipment will be provided at no cost to employees:

1. Atmospheric testing and monitoring equipment
2. Ventilation equipment
3. Communication equipment
4. Respirators and other PPE as necessary
5. Lighting equipment
6. Ladders for access and egress
7. Rescue and emergency equipment

PROJECT EVAULATION AND COMMUNICATION

1. The Project Team and the Safety Department evaluate each PNT project for confined spaces prior to mobilization when creating the Site Specific Safety Plan. A Confined Spaces Competent Person must be present during the creation of this plan. In existing buildings, information from the owner, or *host employer*, regarding existing confined space locations and hazards must be obtained and incorporated into the Program.

a. If confined spaces are present on the project:

   i. The Program binder is created;

   ii. Known confined spaces are recorded in the Project Confined Space Log; and

   iii. Contractors expected to enter confined spaces are sent the Subcontractor Confined Space Packet.

b. If confined spaces are NOT present, the Program and OSHA's Subpart AA do not apply.

2. All contractors entering confined spaces must perform a hazard evaluation of each confined space they enter using the Confined Space Hazard Assessment Form. This will determine the type and location of the space, the work being performed, actual or potential health and safety hazards, and its permit classification. One form can be used for multiple confined spaces with the same configuration and hazards.

   a. Completed forms must be stored with the Program.

   b. The Project Confined Space Log must be updated with any new information.

3. The following methods are used to communicate the presence of confined spaces to employees:

   a. The Project Confined Space Log is maintained up-to-date in the Program, which is available for all employees to review in the PNT field office.

   b. Confined Spaces and the Program are discussed with all employees working on the project during Project Safety Orientations.

   c. Confined Spaces and the Program are discussed in Pre-Task and Pre-Installation planning meetings with PNT personnel and subcontractors.

   d. Known confined spaces are marked on-site with Danger signage.

4. Upon completion of the project:

   a. Copies of all cancelled permits and other information pertaining to the project's confined spaces must be given to the owner, or *host employer*, per OSHA's information exchange requirements.

   b. Hard copies of the entire Program must be kept with all other project related information for permanent storage.

ENTRY PROCEDURES

1. Prior to entry, the entry supervisor obtains a Permit from PNT's Project Superintendent or Safety Supervisor in the PNT field office. All information previously generated regarding the confined space and previous entries must be reviewed.

   a. The Permit is posted at or near the confined space entrance.

2. Designate trained employees that will have an active role in the entry operation. The roles of authorized entrant(s), attendant(s), entry supervisor, and rescue and emergency services personnel must be assigned.

3. Prior to removing the confined space entrance cover, eliminate any hazards making removing the entrance cover unsafe.

   Note: A hazardous atmosphere creating high pressure inside the space is one example. Under high-pressure conditions, check the cover to determine if it's hot. If so, loosen cover while fastened in place to release any residual pressure.

4. Once an entrance cover is removed, immediately guard the opening with a railing, a cover, or another barrier to prevent accidental falls into the opening and to protect employees inside the space from falling objects. Vehicular protection must be installed as necessary.

5. Prior to entering the space, evaluate the space for engulfment hazards and provide an early-warning system to monitor upstream engulfment hazards and alert authorized entrants and attendants in sufficient time to safely exit the space.

6. Prior to entering the space, assess the space for physical hazards and eliminate or isolate them to control the hazard wherever possible.

7. Prior to entering the space and before mechanical ventilation is used, sample the internal atmosphere with a calibrated direct-reading air monitor to determine if acceptable entry conditions exist with natural ventilation.

   a. Below are acceptable entry conditions. A deficiency in any of these categories at any time is a prohibited condition and confined space entry is not allowed until a safe atmosphere can be achieved.

      i. Oxygen level between 19.5% and 23.5%

      ii. Flammable gas concentration below 10% of its lower flammable limit

      iii. Carbon monoxide (CO) levels below 35 parts per million (PPM)

      iv. Hydrogen sulfide (H_2S) levels below 10 PPM

      v. Toxic air contaminants less than the OSHA permissible exposure limit (PEL). If no PEL exists, use the threshold limit value (TLV) established by the American Conference of Governmental Industrial Hygienists.

   b. Authorized entrants and their representatives may observe all testing and results. If the authorized entrant or their representative has reason to believe the evaluation of the space was not adequate, the confined space shall be re-tested.

   c. If acceptable entry conditions exist with natural ventilation, there is no need to setup forced air ventilation.

   d. If acceptable entry conditions DO NOT EXIST, ventilate all areas inside the space where employees will be working with a continuous forced air ventilation system.

      Note: Forced air ventilation must be directed to ventilate the immediate areas where employees will be working and must continue until all employees have left the space.

i. If ventilation stops working, all authorized entrants must leave the space immediately and may not re-enter the space until ventilation resumes and the air has been verified safe to breathe.

8. Record initial air monitoring results on the Confined Space Entry Permit.

9. Ensure safe access and egress into and out of the space using ladders or other safe method.

10. Set up Emergency Rescue (see Emergency Rescue section of this Program for details).

11. Prior to entering the space, set up the communication system between the authorized entrant and attendant. Authorized entrants and attendants must maintain contact with each other for the duration of the entry.

    a. At least one attendant must be stationed outside the permit space into which entry is authorized to handle the retrieval line and summon assistance in case of an emergency.

    b. Attendants cannot be assigned more than one permit space at a time.

12. If all entry procedures and permit requirements have been met, the entry supervisor may authorize entry into the permit space.

13. Continuously monitor the atmosphere in the authorized entrant's immediate area during the entire entry operation. Air monitoring equipment must have an alarm to notify all entrants if a hazardous atmosphere is detected.

14. In the event of an audible alarm within the confined space that indicates a prohibited condition, the following must occur:

    a. Each authorized entrant must leave the space immediately;

    b. The space must be evaluated to determine how the hazard developed; and

    c. Measures must be implemented to protect employees from hazard before any subsequent entries.

15. Any problems that arose during the entry operation must be documented on the Permit. Examples of problems include, but are not limited to, the following:

    a. Unauthorized entry of a permit space

    b. Detection of a prohibited condition

    c. An injury or near-miss during entry

    d. A change in use or configuration of a permit space

    e. Employee complaints about the effectiveness of the Program

16. Upon completion of the entry operation, the entry supervisor must cancel the Permit and return it to the PNT Project Superintendent or Safety Supervisor for filing with the Program. Any problems that arose during entry must be discussed with PNT.

PERMIT SPACE RECLASSIFICATION

Permit-required confined spaces can be reclassified as non-permit spaces under certain conditions. This reclassification eliminates many of OSHA's confined space requirements.

1. Permit-required confined spaces can be reclassified as non-permit spaces under these conditions:

    a. There is no actual or potential atmospheric hazards; and

    b. All physical hazards inside the space are eliminated or isolated without entering the space.

2. Reclassification must be documented on the Confined Space Entry Permit.

3. If hazards arise during entry into one of these reclassified spaces, all entrants must exit the space immediately and the space must be reevaluated and reclassified back to a permit space.

ALTERNATE ENTRY PROCEDURES

Permit-required confined spaces may be entered using Alternate Entry Procedures in specific situations to eliminate many of OSHA's confined space requirements.

1. Alternate Entry Procedures may be used in the following situations:

    a. All physical hazards inside the permit space have been eliminated or isolated through engineering controls;

    b. The only hazard in the space is actual or potential hazardous atmosphere; and

    c. The hazardous atmosphere can be controlled through continuous ventilation and monitoring.

2. The entry supervisor obtains a blank Alternate Entry Certificate from PNT's Project Superintendent or Safety Supervisor in the PNT field office. All information previously generated regarding the confined space and previous entries must be reviewed.

    a. The Alternate Entry Certificate is posted at or near the confined space entrance.

3. Prior to removing the confined space entrance cover, eliminate any hazards making removing the entrance cover unsafe.

    Note: A hazardous atmosphere creating high pressure inside the space is one example. Under high-pressure conditions, check the cover to determine if it's hot. If so, loosen cover while fastened in place to release any residual pressure.

4. Once an entrance cover is removed, immediately guard the opening with a railing, a cover, or another barrier to prevent accidental falls into the opening and to protect employees inside the space from falling objects. Vehicular protection will be installed as necessary.

5. Prior to entering the space, verify that all physical hazards have been eliminated or isolated.

6. Prior to entering the space, ventilate all areas inside the space where employees will be working with a continuous forced air ventilation system.

Note: Forced air ventilation must be directed to ventilate the immediate areas where employees will be working and must continue until all employees have left the space.

a. If ventilation stops working, all authorized entrants must leave the space immediately and may not re-enter the space until ventilation resumes and the air has been verified safe to breathe.

7. Prior to entering the space, sample the internal atmosphere with a calibrated direct-reading air monitor for oxygen content, flammable gases and vapors, and potential toxic air contaminants.

    a. Below are acceptable entry conditions. A deficiency in any of these categories at any time is a prohibited condition and confined space entry is not allowed until a safe atmosphere can be achieved.

        i. Oxygen level between 19.5% and 23.5%

        ii. Flammable gas concentration below 10% of its lower flammable limit

        iii. Carbon monoxide (CO) levels below 35 parts per million (PPM)

        iv. Hydrogen sulfide (H_2S) levels below 10 PPM

        v. Toxic air contaminants less than the OSHA permissible exposure limit (PEL). If no PEL exists, use the threshold limit value (TLV) established by the American Conference of Governmental Industrial Hygienists.

    b. Authorized entrants and their representatives may observe all testing and results. If the authorized entrant or their representative has reason to believe the evaluation of the space was not adequate, the confined space shall be re-tested.

8. Record initial air monitoring results on the Alternate Entry Certificate.

9. Ensure safe access and egress into and out of the space using a ladder or other safe method.

10. Set up non-entry rescue (see Emergency Rescue section of this Program for details).

11. Continuously monitor the atmosphere in the entering employee's immediate area during the entire entry operation. Air monitoring equipment must have an alarm to notify all entrants if a hazardous atmosphere is detected.

12. In the event of an audible alarm within the confined space that indicates a prohibited condition, the following must occur:

    a. Each employee must leave the space immediately;

    b. The space must be evaluated to determine how the hazard developed; and

    c. Measures must be implemented to protect employees from hazard before any subsequent entries.

13. Any problems that arose during the entry operation must be documented on the Alternate Entry Certificate. Examples of problems include, but are not limited to, the following:

    a. Unauthorized entry of a permit space

b. Detection of a prohibited condition

c. An injury or near-miss during entry

d. A change in use or configuration of a permit space

e. Employee complaints about the effectiveness of the Program

14. Upon completion of the entry operation, the entry supervisor must cancel the Alternate Entry Certificate and return it to the PNT Project Superintendent or Safety Supervisor for filing with the Program. Any problems that arose during entry must be discussed with PNT.

ANNUAL PROGRAM REVIEW

This program is reviewed for deficiencies annually and updated as necessary. Cancelled permits must be referenced when performing this review. If major deficiencies are noted prior to the annual review, the program will be updated as soon as possible to ensure we are adequately protecting employees.

OWNER COMPLIANCE GUIDE
CONFINED SPACES IN CONSTRUCTION

BACKGROUND

In August 2015, OSHA issued the Subpart AA – Confined Spaces in Construction regulation. This Guide will assist a property owner, or **host employer** as defined by OSHA, with their obligations under this standard in order to enhance employee safety and ensure compliance.

WHAT IS A CONFINED SPACE?

OSHA defines a **confined space** as *a space that:*

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

Examples of confined spaces on a construction site include, but are not limited to, the following: bins, boilers, pits, manholes, tanks, ducts, sewers, storm drains, etc.

CONFINED SPACE HAZARDS

Confined spaces present special hazards not found in normal spaces due to the configuration and contents of the confined space. Confined spaces may be poorly ventilated creating a hazardous atmosphere in the form of insufficient oxygen or hazardous levels of toxic gases. In addition to atmospheric hazards, confined spaces present physical hazards from a variety of sources ranging from mechanical and electrical equipment inside the space to fall exposures in and around the space.

Due to the extreme and unique hazards of a confined space, employers must evaluate each project for the existence of confined spaces and determine the hazards of each. Confined spaces containing actual or potential hazards that could cause death, injury or acute illness, incapacitation, entrapment, or otherwise interfere with a worker's ability to leave the space in an emergency are considered **permit-required confined spaces**. Employers must take special precautions when entering these permit spaces including defining entry procedures, ensuring employees are properly trained, and planning rescue procedures.

OSHA defines a **permit-required confined space** as *a confined space that:*

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

WHAT IS THE OWNER'S ROLE?

OSHA defines the **host employer** as *the employer that owns or manages the property where the construction work is taking place*. The host employer's duty under the confined spaces standard is to share information it has about permit space hazards with the controlling contractor. This information will be used by DAVIS when evaluating confined space hazards and disseminated to contractors entering the confined spaces to ensure all necessary precautions are taken.

WHAT INFORMATION MUST BE PROVIDED TO DAVIS?

If you know of any confined spaces on this project that may be permit-required, please provide the following information to DAVIS:

1. Completed Confined Space Hazard Evaluation Form for each space. This is a DAVIS form that will be sent separately from this Guide; and

2. Any precautions that the host employer or any previous contractor implemented for the protection of employees in the permit space.

If there are no confined spaces on this project that may be permit-required, please let us know in writing via email, letter, etc.

QUESTIONS?

If you have additional questions after reviewing this guide, please contact DAVIS's Project Manager for assistance.

SUBCONTRACTOR COMPLIANCE GUIDE
CONFINED SPACES IN CONSTRUCTION

BACKGROUND
In August 2015, OSHA issued the Subpart AA – Confined Spaces in Construction regulation. This Guide will assist you with your obligations under this standard and walk you through DAVIS's new communication protocol. OSHA has directed us, the controlling contractor, to facilitate the communication and coordination required under the new standard and the items contained herein are not optional.

This Guide is not a full review of OSHA's new regulation. For information on this standard, please contact your Safety Department or visit www.osha.gov.

WHAT IS A CONFINED SPACE?

OSHA defines a **confined space** as *a space that:*

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

Examples of confined spaces on a construction site include, but are not limited to, the following: bins, boilers, pits (including elevator pits), manholes, tanks, ducts, sewers, storm drains, etc.

CONFINED SPACE HAZARDS

Confined spaces present special hazards not found in normal spaces due to the configuration and contents of the confined space. Confined spaces may be poorly ventilated creating a hazardous atmosphere in the form of insufficient oxygen or hazardous levels of toxic gases. In addition to atmospheric hazards, confined spaces present physical hazards from a variety of sources ranging from mechanical and electrical equipment inside the space to fall exposures in and around the space.

Due to the extreme and unique hazards of a confined space, employers must evaluate each project for the existence of confined spaces and determine the hazards of each. Confined spaces containing actual or potential hazards that could cause death, injury or acute illness, incapacitation, entrapment, or otherwise interfere with a worker's ability to leave the space in an emergency are considered **permit-required confined spaces**. Employers must take special precautions when entering these permit spaces including defining entry procedures, ensuring employees are properly trained, and planning rescue procedures.

OSHA defines a **permit-required confined space** as *a confined space that:*

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

WHAT INFORMATION MUST BE PROVIDED TO DAVIS?

The following information must be on file with DAVIS PRIOR TO ENTRY. Failure to provide any of this information will delay the confined space entry until paperwork is complete.

1. Completed Hazard Evaluation Forms for each confined space to be entered. This is a DAVIS form that will be sent separately from this Guide.
2. Written Confined Space Entry Program
3. Employee Confined Space Training Records

Please send all information to DAVIS's Project Team for review.

COMMUNICATION AND COORDINATION

Once all the required documentation is on file, confined space entry may begin. The process for entering confined spaces on DAVIS jobsites is as follows:

1. Prior to entry, email the Confined Space Entry Notification Form to DAVIS's Confined Space Point-of-Contact. Entry may not be allowed if another entrant is already in the confined space or if there are activities outside the space that may introduce hazards. In these instances, a Pre-Entry Briefing will be held to determine if entry is possible.

2. Complete entry based on your own hazard evaluation to determine confined space classification and complete all necessary permits / certificates.

3. Upon conclusion of the entry, email all paperwork to DAVIS's Confined Space Point-of-Contact, alerting them of any issues that arose during entry including, but not limited to, the following. If any of these issues arise, a Post-Entry Briefing will be held to discuss the issue.

    a. Unauthorized entry of a permit space
    b. Detection of a prohibited condition
    c. An injury or near-miss during entry
    d. A change in use or configuration of a permit space
    e. Employee complaints about the effectiveness of the Program

QUESTIONS?

If you have additional questions after reviewing this guide, please contact DAVIS's Project Manager for assistance.

Confined Space Evaluation Form

Complete this form for each confined space you enter to help identify the hazards and determine classification. Work must be evaluated prior to entry, as the status may change based on new conditions or the activity.

Confined Space Information

Evaluation Type:	☐ Initial ☐ Re-Evaluation
Confined Space:	Click here to enter text.
Location:	Click here to enter text.
Description:	Click here to enter text.
Work Performed:	Click here to enter text.
Evaluating Employer:	Click here to enter text.

Hazard Identification *(If YES, enter a description of the hazard and check the appropriate space classification)*

	YES	NO
Oxygen Levels: Rusting; biological decomposition; combustion; oxygen displacement; etc. Describe: Click here to enter text.	☐	☐
Flammable Atmosphere: Combustible gases; vapors; particulate; solvents or fuels; etc. Describe: Click here to enter text.	☐	☐
Toxic Atmosphere: Hydrogen sulfide; carbon monoxide; hot work; hazardous chemicals; etc. Describe: Click here to enter text.	☐	☐
Engulfment: Loose granular material; water or sewage flow; flooding; water table; etc. Describe: Click here to enter text.	☐	☐
Environmental: Heat / Cold Stress; illumination; noisy equipment; slippery surfaces; etc. Describe: Click here to enter text.	☐	☐
Ignition Sources: Hot work; heat sources; sparks; static discharge; grinding; etc. Describe: Click here to enter text.	☐	☐
Electrical: Live electrical outside conduit; high-voltage; switch gear; exposed terminals; etc. Describe: Click here to enter text.	☐	☐
Physical: 6' falls; access; entrapment; unguarded parts; pedestrian / vehicle protection; etc. Describe: Click here to enter text.	☐	☐
Process Hazards: contaminant producing activities; chemicals used; lasers; welding flash; etc. Describe: Click here to enter text.	☐	☐
Other: Any hazards not listed above Describe: Click here to enter text.	☐	☐

☐Permit Required Confined Space	☐Non-permit Space	☐Alternate Space	☐Re-classified Space

Evaluated By: Click here to enter text. **Date:** Click here to enter text.

Confined Space Entry Permit

PROJECT INFORMATION

Project: _____

Project Number: _____

Superintendent: _____

CONFINED SPACE INFORMATION *(Refer to Confined Space Hazard Assessment Form for Hazards.)*

Confined Space #: _____ Confined Space Type: _____ Entry Employer: _____

Date of Entry: _____ Time of Entry: _____ Time Permit Expires: _____

Work Performed: _____

Chemicals Used: _____

Confined Space Hazards: _____

Hazard Controls: _____

Space Classification: Permit-Required ☐ Alternate Space ☐ *Actual / potential hazardous atmosphere controlled with ventilation and monitoring & no physical hazards* Reclassified Space ☐ *No actual / potential hazardous atmosphere & all physical hazards isolated without entry*

EMPLOYEE ASSIGNMENTS *(Training rosters may be used instead of listing employee.)*

Title	Print Name	Signature
Entry Supervisor:		
Authorized Entrant(s):		
Attendant(s):		

COMMUNICATION *(Communication between Authorized Entrant(s) and Attendant(s) must remain throughout entire entry.)*

Method: Radio ☐ Cell ☐ Voice ☐ Other:

Equipment:

Has communication been tested and is functional? Yes ☐ No ☐

RESCUE PLAN

Jobsite address:

Method: External (non-entry) ☐ Internal (entry) ☐

Who? Attendant ☐

Rescue Service ☐ Service: _____ Phone: _____

On-site Team ☐ Team:

Equipment: Tripod ☐ Harness ☐ Winch ☐ Other:

Rescue plan:

ATMOSPHERIC TESTING *(Continuous monitoring required, document every 15 minutes. Entry Checklist on back must be completed before entry.)*

Gas Monitor Type:

Time	Oxygen (O_2)	Flammables (LEL)	Carbon Monoxide (CO)	Hydrogen Sulfide (H_2S)	Other: _____	Initials
Safe Conditions:	**19.5% - 23.5%**	**< 10% of LEL**	**0 – 35 PPM**	**0 – 10 PPM**		
Pre-Entry Levels:						

ENTRY CHECKLIST *(If answering No to any of these questions, add an appropriate comment and the safety precautions that will be taken.)*

	Item	Yes	No	N/A	Comments
	Has air quality been tested and Safe Conditions achieved? If yes, document readings next to Pre-Entry Levels. **If not, no entry is allowed.**	☐	☐	☐	
	Is Confined Space Danger signage posted outside space? This is mandatory for all confined spaces, except manholes.	☐	☐	☐	
	Has a pre-entry safety meeting been conducted?	☐	☐	☐	
	Has all exposed electrical been locked and tagged out?	☐	☐	☐	
	Have all pipes, hoses, and ducts been blocked off?	☐	☐	☐	
	Has the area been drained, washed, or properly cleaned?	☐	☐	☐	
	Has the surrounding area been secured with barricades / guardrails?	☐	☐	☐	
	Is there an engulfment hazard? If yes, provide an early-warning system to monitor "upstream" hazards if possible.	☐	☐	☐	
	Is there any Hot Work? If yes, permits must be completed.	☐	☐	☐	
	Is there adequate lighting inside confined space?	☐	☐	☐	
	Are there temperature extremes inside the confined space?	☐	☐	☐	
	Is there excessive noise inside the confined space?	☐	☐	☐	
	Are there obstructions within space preventing safe retrieval?	☐	☐	☐	
	Did each employee involved in this confined space entry receive Confined Space Entry training?	☐	☐	☐	
	Are there any other anticipated hazards?	☐	☐	☐	
	Is the necessary personal protective equipment (fall protection equipment, hearing protection, gloves, face shields, goggles, etc.) on-site and readily available?	☐	☐	☐	
	Has continuous mechanical ventilation been established? This is mandatory for all permit and alternate space entries. **Exit space if mechanical ventilation is interrupted!!**	☐	☐	☐	
	Is an entrance cover being removed where employees could fall into the confined space? If yes, install guardrails or other barricade around the space.	☐	☐	☐	
	Has safe access into and egress out of the space with ladders or other means been established?	☐	☐	☐	
	Is there a fire extinguisher at the entrance or on stand-by?	☐	☐	☐	

ENTRY AUTHORIZATION

All necessary conditions and/or preparations have been satisfied, and I certify that the safety guidelines for Confined Space Entry have been followed.

Entry Supervisor Authorization Signature _____ Employee Number _____

PERMIT TERMINATION

☐ Operation Complete

☐ Prohibited Condition *(Hazardous atmosphere, unauthorized entrant, uncontrolled physical hazard, etc.)*
Explain: _____

Entry Supervisor Termination Signature _____ Date and Time of Permit Closure _____

Training Documentation for Confined Space

I have received training and understand all details concerning the confined space requirements.

I understand that I am required to follow the necessary precautions outlined in PNT's Confined Space Program.

I know the location of emergency phone numbers and communications systems, and the location of medical fire, and other emergency supplies.

Employee Name: _____

Signature: _____ Date: _____

Job Location: _____

D. Hot Work Program

Purpose
To establish a procedure for the control of hazards associated with welding, cutting, or the use of spark producing tools for the prevention of fire or subsequent injury to personnel.

Responsibility
It is the responsibility of all Contractors' employees/Superintendents/managers that will either perform or oversee the operation or employee, to adhere to the requirements of the Hot Work Permit Program. PNT's onsite Superintendent will designate the Contractor's Hot Work Coordinator. It will be the responsibility of the Coordinator to evaluate all jobs prior to the work beginning to assess hazards and necessary controls required **before** any work will begin.

Scope
This procedure applies to any hot work performed by any employee or contractor. This procedure does not apply to hot work performed in designated Safe Work areas.

Definitions
Hot work - Work involving the use of open flame or spark producing tools such as, but not limited to, welding, cutting, brazing, soldering, electrical motor usage, drills, saws, and other open flames or electric arc and heat producing jobs and equipment that could ignite combustibles.

Safe Work Areas- Areas which have been designated/designed specifically for cutting, welding, and grinding activities. The Hot Work Coordinator is responsible for designating all Safe Work Areas once he is assured of proper protection against combustibles.

Procedures
1. A Hot Work Permit must be issued prior to initiating any hot work outside of a designated Hot Work Area. This site will be evaluated for potential fire and safety hazards by the Coordinator prior to starting the job. The Coordinator will carefully review activities to determine if a less hazardous mechanical method such as cutting with a hack saw can be used instead of more heat and spark producing methods.

2. Safe work permits are issued by PNT's onsite Superintendent. The permit remains active for the duration of the work shift.

3. Where practical, all flammable and combustible materials shall be relocated at least thirty-five (35) feet from the work area. Where relocation is impractical, combustibles, and flammables shall be protected with flame proof covering or otherwise shielded with metal or flameproof curtains.

4. The person conducting the hot work will have a readily available fire extinguisher rated at a minimum of 2A:40BC.

Where potential for flammable or combustible vapors or gases might be present in the area, these concentrations must be determined before work begins. The Hot Work Coordinator will determine the concentration of the vapors or gases, and this measurement will be recorded.

6. Hot work **shall not** be permitted if the concentration reaches 5% of the lower explosive limit (LEL). If combustible gas meter indicates any concentration of flammable vapor, the hot work permit shall not be approved until the person approving the permit:
    a. Understands the source of the flammable-combustible vapors.
    b. Can assure that concentration will not increase to a dangerous level while work is underway.

7. When performing hot work overhead the area below must be roped off and posted if combustibles could inadvertently be moved into the area or people enter the area.

8. Where possible, noncombustible barriers will be placed around and under hot work area to confine sparks.

9. A fire watch is a necessary step to implement whenever work is conducted, such as:
    a. All work in buildings and storage sheds
    b. An appreciable amount of combustible material in building construction, contents or insulation is closer than 35 feet to the point of operation.
    c. An appreciable amount of combustible materials are more than 35 feet away from work, but can easily be reached by sparks, embers, etc.
    d. Wall or floor openings are within 35 feet of work, including concealed spaces in walls or floors
    e. Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation of heat.

10. Open drains which lead to underground drainage systems, which could contain flammable or combustible vapors, will:
    a. have testing for the presence of any flammable or combustible vapors done before starting work.
    b. have drains covered with fire blanket or similar protection to prevent access to sparks even if the atmosphere is safe
    c. if determined to contain flammable or combustible vapors, the system must be purged with nitrogen to below 5% lower explosive limit (LEL).

11. In areas immediately hazardous to life, hose masks, hose masks with blowers, or a self-contained breathing apparatus (SCBA) will be used in addition to suitable rescue equipment for confined space entry situations. All full face breathing equipment will be approved by US Bureau of Mines, NIOSH, or similar approval authority.

12. Employees are required to wear the proper personal protective equipment, such as coveralls, safety goggles, face shield, welding hood, welding jacket, etc., as demanded by the type of work completed and required by the Hot Work Coordinator and/or PNT's onsite Superintendent.

Fire watch:

Having the appropriate extinguishing equipment ready, available, and having the individual trained in its use are very important. As a minimum, an extinguisher with a rating of 2A:40BC will be provided. For those jobs where a significant amount of combustibles are present within the 35-foot area, a hose stream up to 1" will be considered by the Hot Work Coordinator. The fire watch shall be familiar with all equipment for sounding an alarm in event to a fire, and any additional procedures necessary to summon aid.

Personnel will watch for fires in all exposed areas, and try to extinguish them only when within the capacity of the equipment available. If the fire is of such magnitude that it is beyond the capacity of the fire watch to

extinguish, the fire watch will immediately summon aid (911) or the local emergency phone number.

The watch will be maintained until after the risk of fire has passed. This period will be at least thirty (30) minutes after the completion of the job.

Contractors:

Contractors are required to follow facility hot work procedures as outlined. The Contractor is responsible for ensuring that all procedures are followed.

Contractual language between the Contractor and subcontractors can also help transfer exposures generated by having subcontractors work on premises. A hold harmless agreement signed by the subcontractor in favor of PNT and being named as additional named insured within the sub-contractors insurance policy helps maintain a degree of protection if an incident occurs. The subcontractor's policy limits will be at least equal to the total exposure to economic loss from a disastrous fire, at a minimum, this would include the full replacement cost of all damaged property plus your business interruption costs.

Hot Work Permit

Permit #	Permit Expires	Date/Time Job Began	Date/Time Job Finished
Building		Department	
Employee Completing Job		Superintendent	
Fire Watch Inspector		Hot Work Coordinator	
Location of work to be completed			
Description of work to be completed			

Equipment Required: ☐ Fire Extinguisher☐☐☐☐☐ Hand hose☐☐☐☐☐☐☐☐ SCBA☐☐☐☐☐☐☐☐ ABA☐☐☐☐☐☐☐☐ Coveralls
☐ Gas Detection Instrument☐☐☐☐☐☐☐☐ Safety Goggles☐☐☐☐☐☐☐☐ Face shield☐☐☐☐☐☐☐☐☐☐ Welding Hood☐☐☐☐☐☐☐☐☐☐
Welding Jacket

Safety Precautions

☐ Job can be completed in the maintenance shop	☐ Floor/Wall openings within 35 feet are tightly covered
☐ Job can be completed mechanically	☐ Surrounding floors swept clean & wet down (if needed)
☐ Flame/Spark-producing equipment inspected	☐ Personnel protective equipment worn as required
☐ Sprinklers operable & will not be taken out of service	☐ Fire watch assigned for at least ½ hour after job is completed
☐ Work confined to area/equipment specified in permit	☐ Fire extinguishers recharged after job is completed

Combustibles

☐ There are no combustible fibers, dusts, vapors, gases, or liquids in the area.
☐ A combustible gas detection instrument was used to verify the absence of gases or vapors
☐ Combustibles relocated 35 feet from operation and protected with noncombustible shields or flame-proofed curtains/covers
☐ Continuous monitoring of surrounding pipes, equipment, and tanks which may leak during

Signature of Hot Work Coordinator

Signature of Fire Watch Inspector

Training Documentation for Hot Work

I have received training and understand all details concerning PNT's hot work requirements.

I understand that I am required to follow the necessary precautions outlined in PNT's Hot Work Program.

I know the location of emergency phone numbers and communications systems, and the location of medical, fire, and other emergency supplies.

Employee Name: _____

Signature: _____ Date: _____

Job Location: _____

E. Hazard Communication

Purpose

To ensure that information about the dangers of all hazardous materials used by the Contractors are known to all affected employees. Procedure is within requirements of the OSHA Hazard Communication Standard and corresponding state laws.

Responsibility

All employees of PNT (including subcontractors and their employees) will participate in the hazard communication program and comply with all provisions of this policy. This includes, but is not limited to, fully understanding and following all precautions listed on Safety Data Sheets (SDS)/ for materials they will use, be exposed to, or handle while on the job site. PNT's Safety Director is responsible for maintaining this program and ensuring compliance with all local, state, and federal laws.

Scope

This policy covers container labeling, safety data sheets, employee training and information, hazardous non-routine tasks, contractors, list of hazardous chemicals, chemicals in unlabeled pipes and safety procedures.

Policy

Container Labeling:

1. The Contractor Superintendent will verify that all containers received for use will be clearly labeled with the following standardized 1 6-section format of the SDS:
    a. Identification, which includes elements found on the label such as product identifier and contact information
    b. Hazard identification of the label elements, including the signal word, hazard and precautionary statements and pictogram
    c. Ingredient composition and information, which for substances includes the chemical name and its synonyms; for mixtures the same details as required for substances, but also must specify the concentration of each ingredient.
    d. First Aid measures
    e. Firefighting measures
    f. Accidental release measures, including instructions for evacuations, containment methods and cleanup procedures.
    g. Handling and storage guidance
    h. Exposure controls and personal protection, including permissible exposure limits, engineering controls and recommended personal protective equipment
    i. Physical and chemical properties, including its appearance, odor, flammability or explosive limits, and melting or freezing points
    j. Stability and reactivity of the chemical
    k. Toxicological information, which addresses the likely routes of exposure and a description of exposure effects
    l. Non-mandatory sections that might include ecological information, disposal considerations, transportation information and regulatory information

b. .

SAMPLE LABEL

PRODUCT IDENTIFIER

CODE
Product Name

SUPPLIER IDENTIFICATION

Company Name
Street Address
City State
Postal Code Country
Emergency Phone Number

PRECAUTIONARY STATEMENTS

Keep container tightly closed. Store in cool, well ventilated place that is locked.
Keep away from heat/sparks/open flame. No smoking.
Only use non-sparking tools.
Use explosion-proof electrical equipment.
Take precautionary measure against static discharge.
Ground and bond container and receiving equipment.
Do not breathe vapors.
Wear Protective gloves.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
Dispose of in accordance with local, regional, national, international regulations as specified.

In Case of Fire: use dry chemical (BC) or Carbon dioxide (CO_2) fire extinguisher to extinguish.

First Aid
If exposed call Poison Center.
If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.

HAZARD PICTOGRAMS

SIGNAL WORD

Danger

HAZARD STATEMENT

Highly flammable liquid and vapor.
May cause liver and kidney damage.

SUPPLEMENTAL INFORMATION

Directions for use

Fill weight: Lot Number
Gross weight: Fill Date:
Expiration Date:

2. All materials onsite are to be stored in their original container with the label attached.
3. Any material with a label missing or illegible will be reported to the Superintendent immediately for proper labeling.
4. Stationary, secondary, or portable containers will be clearly labeled with either an extra copy of the original manufacturer's label or with tile "central stores" generic labels which have a block for identification and blocks for the hazard warning.
5. Signs, placards, or other written materials that convey specific hazard information may be used in place of individual container labels if there are a number of stationary process containers within a work area which store similar contents.
6. Portable containers do not need to be labeled if the chemicals are transferred to labeled containers and used by the employee making the transfer during that shift. No unmarked containers of any size shall be left unattended in the work area.

Safety Data Sheets (SDS)

1. Any product having a hazardous warning on its label requires an SDS.
2. The manufacturer, distributor, or vendor shall provide the SDS for the hazardous product.
3. All SDSs shall be forwarded to PNT's onsite Superintendent and reviewed by the Superintendent, Contractor's Superintendent and employees using the product to determine safe work practices and personal protection, as needed. The SDS's will be maintained by CHEMTREC and will be accessible via phone number 703-253-4256 24/7. The sheets can be faxed or emailed to the work site that needs/requests them.

Pictograms

1. Hazard pictograms are one of the key elements for the labeling of containers under the GHS: along with:
2. An identification of the product
3. A signal word – either DANGER or WARNING where necessary
4. Hazard statements, indicting the nature and degree of the risks posed by the product
5. Precautionary statements, indicating how the product should be handled to minimize risks to the user
6. The identity of the supplier

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PICTOGRAMS: Symbols are listed below with usage labels that the pictograms are used for

EXPLOSIVE
USAGE

- Unstable explosives
- Explosives, divisions 1.1,1.2,1.3,1.4
- Self-reactive substances and mixtures, types A & B
- Organic Peroxides, types A, B

FLAMMABLE
USAGE

- Flammable gases, category 1
- Flammable aerosols, categories 1, 2
- Flammable liquids, categories 1,2,3
- Flammable solids, categories 1, 2
- Self-reactive substances and mixtures, types B,C,D,E,F
- Pyrophoric liquids, category 1
- Pyrophoric solids, category 1
- Self-heating substances and mixtures, categories 1,2
- Substances and mixtures, which in contact with water , emit flammable gases, categories 1,2,3
- Organic peroxides, types B,C,D,E,F

OXIDIZING
USAGE

- Oxidizing gases, category 1
- Oxidizing liquids, categories 1,2,3
- Oxidizing solids, categories 1,2,3

COMPRESSED GASES
USAGE

- Compressed gases
- Liquefied gases
- Refrigerated liquefied gases
- Dissolved gases

CORROSIVE
USAGE

- Corrosive metals, category 1
- Skin corrosion, categories 1A, 1B, 1C
- Serious eye damage, category 1

HEALTH HAZARD
USAGE

Acute toxicity (oral, dermal, inhalation, categories 1,2,3

IRRITANT
USAGE

- Acute toxicity (oral dermal, inhalation, category 4
- Skin irritation, categories 2,3
- Eye irritation, category 2A
- Skin sensitization, category 1
- Specific target organ toxicity following single exposure, category 3
    - Respiratory tract irritation
    - Narcotic effects

HEALTH HAZARDS
USAGE

Respiratory sensitization, category 1
Germ cell mutagenicity, categories 1A, 1B, 2
Carcinogenicity categories 1A, 1B, 2
Reproductive toxicity categories 1A, 1B, 2
Specific target organ toxicity following single exposure categories 1,2
Aspiration hazard, categories 1,2

ENVIRONMENTALLY DAMAGING
USAGE

Acute hazards to the aquatic environment, category 1
Chronic hazards to the aquatic environment, categories 1, 2

Employee Training and Information

1. PNT's Safety Director, and/or PNT Training Institute will provide training to employees when hired and routinely thereafter on the hazardous nature of chemical products. Training will include:
    - The Hazard Communication Policy
    - Where to find information on new GHS-formatted SDS and labels
    - How to interpret GHS information, including an understanding of pictograms, signal words, hazard and precautionary statements, and revised product classifications.
    - Chemicals present in their workplace operations
    - Physical and health effects of the hazardous chemicals
    - Appropriate work practices and controls when using chemicals
    - Emergency and first-aid procedures
    - How to read labels and review an SDS to obtain appropriate hazard information
    - The SDS files will be located and stored at CHEMTREC and will be accessible via a telephone call to CHEMTREC. The proper SDS can then be electronically sent and/or faxed to a jobsite as requested.
2. After attending the training class, each employee will sign a form to verify that they attended the training, received the written materials, and understand PNT's policies on Hazard Communication.

Hazardous Non-Routine Tasks

1. Periodically, employees are required to perform hazardous non-routine tasks. Examples of non-routine tasks performed by employees of PNT are as follows: Confined space entry, tank cleaning, and painting reactor vessels.

2. Prior to starting work on such projects, each affected employee will be given information by the PNT's onsite Superintendent regarding the hazardous chemical he/she may encounter. This information will include specific chemical hazards, protective safety measures the employee can use, and measures the company has taken to lessen the hazards including ventilation, respirators, presence of other employees, and emergency procedures.

Informing Contractors and Others

1. PNT's onsite Superintendent shall advise Contractors and other clients of our Hazard Communication Program.
2. Copies of the SDS for all materials brought onto the site will be made available upon request to each Contractor from PNT's onsite Superintendent.
3. The Superintendent will also obtain chemical information from Contractors that may expose any employee to hazardous chemicals which they bring into the workplace.

List of Hazardous Chemicals

PNT maintains a list of all known hazardous substances presently being used. This list is outlined in PNT's Hazard Communication Program. Further information on each chemical can be found by reviewing the SDSs.

Chemicals in Unlabeled Pipes

1. Work activities are often performed by employees in areas where chemicals are transferred through unlabeled pipes.
2. Prior to starting work in these areas, the employee shall contact his/her Superintendent or PNT's onsite Superintendent for information regarding:
   - Chemicals in the pipes
   - Potential hazards
   - Safety precautions

Safety Procedures & Recommendations

1. Work Habits

Chemicals come in various forms and can affect those exposed in different ways. A chemical can take the form of a mist, vapor, liquid, dust, fume or gas. The type of chemical, the way it is used, and the form that it takes determine its effect and what will be done to avoid harmful exposure. Some basic safety precautions will be understood and followed including:

- Know what to do in an emergency. CHEMTREC can be called for advice in an emergency situation.
- If there is a leak or spill, keep away from the area, unless you know what the chemical is and how to safely clean it up. Know where emergency protective equipment and supplies are kept and how to use them.
- Use appropriate protective clothing and equipment (glasses, aprons, boots, gloves, etc.) as required or as necessary.
- If clothing becomes contaminated by the chemical, shower or wash the skin areas exposed. Change and decontaminate clothing (or dispose of clothing if it is designed for single use).
- Do not take contaminated clothing home to be laundered. By doing so, it could expose family members to the contaminant.
- When working with chemicals, always wash hands thoroughly before eating, drinking, or smoking. If necessary, shower and change clothes before going home.
- Never take food into the work area where chemicals are being used or stored.

- If work will be done in an area where there is a possibility of exposure to toxic substances, use a buddy system or establish an emergency communication system. A worker can be dangerously exposed or overcome by a chemical and need immediate assistance.
- Keep the workplace clean to reduce the risk of contamination.
- Where possible, wipe up and absorb the contaminant, using proper protective equipment as required.
- Clean up spills immediately and dispose of contaminated material properly.
- With some chemicals, a vacuum is recommended for clean up rather than a broom or compressed air. The idea is to collect and confine the contaminant, not just spread it around.

2. Safety Wear

- ANSI approved eye or face protection will be worn continuously.
- Gloves will be worn which will resist penetration by the chemical being handled and have been checked for pin holes, tears, or rips.
- Wear protective coveralls or apron.
- Footwear will cover feet completely (NO open-toe shoes or sandals).

3. Jobsite and Equipment

- Have separate container for trash and broken glass.
- Never block any escape routes, and plan alternate escape routes.
- Never block a fire door open.
- Never store materials in aisles.
- All moving belts and pulleys will have safety guards.
- Instruct personnel in the proper use of the eye-wash fountain, emphasizing rolling of the eyeballs, and turning eyelids "inside-out."
- Ensure that eye-wash fountains will supply at least fifteen (15) minutes of water flow.
- Sample breathing air space for measurement of possible contaminants, and keep good records.
- Regularly inspect fire blankets for rips and holes and keep good records of the inspections. Regularly inspect safety showers and eye-wash fountains and keep records of inspections.
- Keep up-to-date emergency phone numbers posted next to the phone.
- Place fire extinguishers near an escape route, not in a "dead end."
- Regularly maintain fire extinguishers, maintain records, and train personnel in the proper use of extinguishers through actual fire situations. See NFPA 10 requirements
- Acquaint personnel with the meaning of "Class A fire", "Class B fire", etc., and how they relate to fire extinguisher use.
- Regularly check hood for proper draft also verify that exhaust air from an external hood vent is not redrawn into room air.
- Secure all compressed gas cylinders and transport them securely on a hand truck. Install chemical storage shelves with lips, and never use stacked boxes in lieu of shelves.
- Have appropriate equipment and materials available for spill control replaced when it becomes dated.

4. Chemical Storage

- Do not store materials on the floor.
- Separately store Organic and Inorganic chemicals.
- No top shelf or above eye level chemical shelve storage.
- Shelf assemblies are firmly secured to walls, preferred material is wood.
- Store acids, poisons, and flammable liquids in separate dedicated cabinets.

5. Purchasing, Use, and Disposal

- If possible, purchase chemicals in class-size quantities only. Label all chemicals accurately with date of receipt, or preparation, initialed by the person responsible, and pertinent precautionary information on handling.
- Follow all directions for disposing of residues and unused portions of reagents.
- Properly store flammable liquids in small quantities in containers with a provision for bonding to receiving vessel when the liquid is transferred.
- Never open a reagent package until the label has been read and completely understood. Have a Material Safety Data Sheet on hand before using a chemical.
- Prepare a complete list of chemicals of which you wish to dispose.
- Classify each of the chemicals on the disposal list into a hazardous or non-hazardous waste chemical. (Check with the local environmental agency office for details.)
- Unlabeled bottles (a special problem) must be identified to the extent that they can then be classified as hazardous or non-hazardous wastes. Some landfills will analyze a mystery bottle for a fee, if it is shipped to the landfill in a separate package, labeled as a sample, and accompanied by a letter also identifying it as a sample, with instructions to analyze the contents sufficiently to allow proper disposal.

6. Substitutions

- Reduce risk by diluting substances instead of using concentrates.
- Use films, videotapes, and other methods rather than experiments involving hazardous substances.
- Undertake all substitutions with extreme caution.

Training Documentation for Hazard Communication Program

I have received training and understand how to read the Safety Data Sheets/SDS and container labels regarding hazardous products.

I have received general training on the hazardous chemicals in which I might be exposed.

I understand that I am required to review SDSs for any material I am using for the first time.

I know where the SDSs are for my work area are kept and understand that they are available for my review. CHEMTREC is the official library for all of the chemicals in use by PNT

I understand that I am required to follow the necessary precautions outlined in PNT Consulting's Hazard Communication Policy and SDSs, including use of personal protective equipment and/or apparel.

I know the location of emergency phone numbers CHEMTREC 703-253-4256) and communications systems, and the location of medical, fire, and other emergency supplies.

I am aware of my right to obtain copies of the Hazardous Chemical list, written PNT Consulting's Hazard Communication Policy, and SDSs at my request.

Employee Name:_____

Signature:_____ Date: _____

Job Location:_____

F. Personal Protective Equipment

Purpose
To provide guidelines concerning the proper use of Personal Protective Equipment and to comply with OSHA standards outlined in Title 29, Code of Federal Regulations (CFR), parts 1900-1999.

Definition
PPE includes clothing and other accessories designed to create a barrier between the user and workplace hazards. It will be used in conjunction with engineering, work practice and/or administrative controls to provide maximum employee safety and health in the workplace.

Responsibility
All Contractors are responsible for providing and insuring the use of required personal protective equipment. All employees will use protective equipment described by local, state, federal, PNT and Construction Management's rules and regulations to control or eliminate any hazard or other exposure to illness or injury.

Training
Proper employee training on the correct usage of PPE will likely eliminate many accident/incidents and injuries from occurring. Before performing any work that requires the use of PPE, PNT's Safety Director, or his/her delegate, must train employees on the following:

- When and what types of PPE are necessary
- How the PPE is to be used
- What the PPE's limitations are

In many cases, more than one type of PPE will provide adequate protection. In such cases, employees will have their choice of which type of approved protection they would like to use.

PNT is required to document in writing that training has been performed and that employees understand all training materials. Written certifications will contain the names of all employees trained, the date(s) of training, and the PPE requirements. Training records will be filed with PNT's Safety Director and/or Training Department.

Hazard Assessment Form

Facility:	Assessor:
Area:	Date of Assessment:
Task or Job Function:	

SECTION 1. Hazards (Check the appropriate box)			SECTION 2. Describe Specific Eye Hazards	SECTION 3. Identify type of PPE required For those eye hazards outlined in Section 2
Eye Hazard	YES	NO		
Impact				
Penetration				
Chemical				
Heat				
Light/Radiation				

SECTION 1. Hazards (Check the appropriate box)			SECTION 2. Describe Specific Head Hazards	SECTION 3. Identify type of PPE required for Those hazards outlined in Section 2. Check one.
Head Hazard	YES	NO		No head protection is needed
Burn				Class A
Electric Shock				Class B
Impact				Class C
Penetration				
Chemical				

SECTION 1. Hazards (Check the appropriate box)			SECTION 2. Describe Specific Foot Hazards	SECTION 3. Identify type of PPE required For those foot hazards delineated in Section 2.
Foot Hazard	YES	NO		
Chemical				
Compression				
Impact				
Puncture				
Penetration				

SECTION 1. Hazards (Check the appropriate box)			SECTION 2. Describe Specific Hand Hazards	SECTION 3. Identify type of PPE required For those hand hazards delineated in Section 2.
Hand Hazard	YES	NO		
Burn				
Electric Shock				
Impact				
Penetration				
Chemical				

SECTION 1. Hazards (Check the appropriate box)			SECTION 2. Describe Specific Respiratory Hazards	SECTION 3. Type of Respirator Needed Circle One
Respiratory Hazard	YES	NO		Half Face
Gas				Full Face
Vapor				Quarter Face
Fumes				Powered Air
Dust				Purifying (PAPR)
Mist				Air Line
Asphyxia				Escape Pack
Particulates				None Needed

SECTION 1. Other Hazards (Fill in those that apply)	SECTION 2. Describe Other Hazards	SECTION 3. Identify type of PPE needed for other hazards.

Training Documentation for Personal Protective Equipment

I have received training on the details of PNT Consulting's Personal Protective Equipment Program.

I understand that I am required to follow all necessary precautions outlined in the Personal Protective Equipment Program.

I know the location of emergency phone numbers and communications systems, and the location of medical, fire, and other emergency supplies.

Employee Name: _____

Signature: _____ Date: _____

Job Location: _____

Types of Protection

1. **Head Protection -**The wearing of approved non-conductive safety hats is mandatory in all construction areas **100% of the time**. Refer to ANSI Z89.1 Safety Requirements for Industrial Head Protection. **NO EXCEPTIONS!**

   Helmet Selection
   Proper helmet selection is critical in preventing head injuries from occurring. Each type and class of helmet is intended to protect against specific hazards. PNT's onsite Superintendent or his/her delegate is responsible for making sure employees wear the proper helmet.

   The following types and classes of protective helmets are available:

   Type 1 - helmets with full brim, not less than 1¼ inches wide
   Type 2 - brimless helmets with a peak extending forward from the crown

   For industrial purposes, three classes are recognized:

   Class A - general service, limited voltage protection
   Class B - utility service, high-voltage protection
   Class C - special service, no voltage protection

   Class A helmets are intended for protection against impact hazards. They are predominately used in manufacturing, construction, shipbuilding, tunneling, lumbering and mining industries.

   Class B utility service helmets protect against impact and penetration from falling objects and from high-voltage shock and burn. They are used mostly by electrical workers.

   Class C helmets are designed specifically for lightweight comfort and impact protection. They are typically manufactured from aluminum and offer no dielectric protection. Class C helmets are often used in construction and manufacturing occupations, oil fields, refineries, and chemical plants.

   All helmets will be water-resistant and made of slow burning material when exposed to heat. The helmet type will be located inside the shell along with the manufacturer's name, ANSI designation, and class.

   Helmet Fit
   A properly fitting helmet will be snug on the head. The helmet's headband will be adjusted accordingly to receive the proper fit. When the headband is adjusted properly, it provides sufficient clearance between the shell and headband. The peak will face forward.

Helmet Inspection and Maintenance

Manufacturer's specifications will be followed with regard to the proper cleaning methods. Helmets will be cleaned by dipping them in hot, soapy water. They will then be scrubbed and rinsed in clear, hot water. After rinsing, the shell will be carefully inspected for signs of damage. It is the employee's responsibility to keep their helmet clean.

All components, shells, suspensions, headbands, sweatbands, and accessories will be inspected daily for dents, cracks, penetration, or any other damage that might reduce the original degree of safety. Damaged helmets will be replaced immediately.

2. **Eye and Face Protection** - Safety glasses with side shields will be provided by the employees Superintendent/Foreman/Company and **are mandatory at all times**.
   a. **All construction areas require 100% eye protection at all times**. Minimum eye protection includes approved safety glasses with side shields or mono-goggles meeting the standards specified in ANSI Z87.1-1968.
   b. Additional eye and face protection will be used by employees when:
      1. Welding, burning, or using cutting torches
      2. Using abrasive wheels, grinders, or files
      3. Chipping concrete, stone, or metal
      4. Working with any materials subject to scaling, flaking, or chipping
      5. Drilling or working under dusty conditions
      6. Sanding or water blasting
      7. Waterproofing
      8. Using explosive actuated fastening or nailing tools
      9. Working with compressed air or other gases
      10. Working with chemicals or other hazardous materials
      11. Using chop, chain, or masonry saws
      12. Working near any of the above named operations

   To protect from injurious light radiation, all affected employees will use equipment with filter lenses. The following chart outlines appropriate shade numbers for various operations.

Filter Lenses for Protection Against Radiant Energy

Operation	Electrode Size (1/32)	Amps	Minimum Protective Shade*
Shielded metal arc welding	Less than 3/32	Less than 60	7
	3/32-5/32	60-160	8
	5/32-8/32	160-250	10
	More than 8/32	250-500	11
Gas metal and flux cored arc welding		Less than 60	7
		60-160	10
		160-250	10
		250-500	10
Gas tungsten arc welding		Less than 50	8
		50-150	8
		150-500	10
Air carbon	Light	Less than 500	10
Arc cutting	Heavy	500-1000	11
Plasma arc welding		Less than 20	6
		20-100	8
		100-400	10
		400-800	11
Plasma arc cutting	Light**	Less than 300	8
	Medium**	300-400	9
	Heavy**	400-800	10
Torch soldering			2
Torch brazing			3
Carbon arc welding			14
Gas Welding:			
Light	Under 1/8	Under 3.2	4
Medium	1/8-1/2	3.2-150	5
Heavy	Over 1/2	Over 12.7	6
Oxygen Cutting:			
Light	Under 1	Under 25	3
Medium	1-6	25-50	4
Heavy	Over 6	Over 50	5

*In selecting eye and face protection, start with a shade that is too dark to see the weld zone. Then, without going below the minimum, go to a lighter shade which gives sufficient view of the weld zone. In oxyfuel gas welding or cutting where the torch produces a bright yellow light, it is recommended that a filter lens be used to absorb the yellow or sodium line in the visible light of the (spectrum) operation.

**These values apply where the actual arc is clearly seen. Experience has shown that lighter filters might be used when the arc is hidden by the workpiece.

Selection

There are different types of eye and face protection designed for particular hazards. In selecting protection, consider type and degree of hazard. Where a choice of protection is given, worker comfort will be the deciding factor in selecting eye protection.

Employees who use corrective eye glasses will wear face shields, goggles, or spectacles of one of the following types:

- Spectacles with protective lenses providing optical correction
- Goggles or face shields worn over corrective spectacles without disturbing the adjustment of the spectacles
- Goggles that incorporate corrective lenses mounted behind the protective lenses

Fit

Skilled persons will fit all employees with goggles or safety spectacles. Prescription safety glasses will be fitted by qualified optical personnel.

Inspection and Maintenance

Eye protection lenses will be kept clean at all times. Continuous vision through dirty lenses can cause eye strain. Daily inspection and cleaning of eye protection with hot, soapy water is also recommended. Pitted lenses will also be replaced immediately as they can be a source of reduced vision. Deeply scratched or excessively pitted lenses are also more likely to break Employees are responsible for taking care of their eye protection. They are also responsible for turning in eye protection that is in poor shape to their immediate Superintendent.

3. **Respiratory Protection -** Respiratory protection devices approved by the U.S. Bureau of Mines will be provided by the Contractor and worn by employees exposed to hazardous concentrations of toxic or noxious dust, fumes or mists as required by OSHA. The Hazard Communications Program will include respiratory protection programs. Refer to the Respiratory Protection Program of this manual for more information.

4. **Hearing Protection -** Exposure to high noise levels can cause hearing loss or impairment and can create physical and psychological stress. There is no cure for noise-induced hearing loss, so the prevention of excessive noise exposure is the only way to avoid hearing damage. Specifically designed protection is required, depending on the type of noise encountered and the auditory condition of each employee.

   The Contractor Superintendent, or his/her delegate, is responsible for providing appropriate hearing protection to employees. Pre-formed or molded earplugs are the best form of hearing protection. They will be individually fitted by a professional. Waxed cotton, foam, or fiberglass wool earplugs can also be used as hearing protection. When used properly, they work as well as most molded earplugs. Disposable earplugs will be discarded after each usage. For proper protection, non-disposable earplugs will be cleaned after each use. Plain cotton will not be used as it does not effectively protect against hazardous noises.

5. **Foot and Leg Protection -** Work shoes/boots are to be worn by all field employees. Tennis shoes, sandals, flip-flips, docksiders, hush puppies, steel toed sneakers and bare feet are prohibited. In addition to safety shoes, canvas or leather leggings and spats will be worn by welders, metal lancers, or anyone working around molten metal. Hard sole dress shoes with leather uppers are also acceptable to be worn by office personnel that may have to visit a jobsite on occasion. Open toed shoes are not acceptable and will not be allowed. High heel shoes will not be allowed under any circumstances.

6. **Glove and Hand Protection -** Gloves provided by the Contractor will be worn when handling objects or substances that could cut, tear, burn, or otherwise injure the hand. Gloves will not be used when operating drill presses, power saws, or similar rotating machinery.

7. **Clothing -** Wear safe and practical working apparel. Be sure that any clothing you wear is not highly flammable. Neckties and loose, torn, or ragged clothing will not be worn while operating lathes, drill presses, reamers and other machines with revolving spindles or cutting tools. Jewelry of any kind will not be worn when working around machinery or exposed electrical equipment.

8. **Hair -** Employees wearing long hair, beards, or mustaches will not work with rotating machinery or equipment, or use respiratory equipment, if their hair, beard, or mustache constitutes a potential hazard. Judgment will be made by the onsite Contractor Superintendent and reviewed by PNT's onstie Superintendent.

9. **Other Personal Protective Equipment -** Other required equipment to be used under unusual circumstances such as high temperature work, handling corrosive liquids, etc., not specifically covered in this section will be reviewed by PNT's Safety Department and furnished by the Contractor when required.

G. Respiratory Protection Program 1910.134

I. OBJECTIVE

The PNT Consulting Respiratory Protection Program is designed to protect employees by establishing accepted practices for respirator use, providing guidelines for training and respirator selection, and explaining proper storage, use and care of respirators. This program also serves to help the company and its employees comply with Occupational Safety and Health Administration (OSHA) respiratory protection requirements as found in 29 CFR 1910.134.

It is the goal of PNT to engineer out or otherwise not have to perform any work that would involve the Respiratory Protection Program.

II. ASSIGNMENT OF RESPONSIBILITY

A. Employer

PNT Consulting is responsible for providing respirators to employees when they are necessary for health protection. PNT will also monitor the use of respirators by subcontractors to help determine if the proper respirator is being used. PNT Consulting will provide respirators that are applicable and suitable for the intended purpose at no charge to affected employees. Any expense associated with training, medical evaluations and respiratory protection equipment will be borne by the company.

B. Program Administrator

The Program Administrator for PNT Consulting personnel only is Paul Harvey – PNT Corporate Safety Director and Todd Harvey, Deputy Safety Director. The Program Administrator or a designated Safety Superintendent or job-site Superintendent is responsible for administering the respiratory protection program. The Program Administrator for a subcontractor will be a designated administrator and will perform the duties listed below: Duties of the program administrator include:

1. Identifying work areas, process or tasks that require workers to wear respirators.
2. Evaluating hazards.
3. Selecting respiratory protection options.
4. Monitoring respirator use to ensure that respirators are used in accordance with their specifications.
5. Arranging for and/or conducting training.
6. Ensuring proper storage and maintenance of respiratory protection equipment.
7. Conducting qualitative fit testing with Bitrex.
8. Administering the medical surveillance program.
9. Maintaining records required by the program.
10. Evaluating the program.
11. Updating written program, as needed.

C. Superintendents

Superintendents are responsible for ensuring that the respiratory protection program is implemented in their particular areas. In addition to being knowledgeable about the program requirements for their own protection, Superintendents must also ensure that the program is understood and followed by the employees under their charge. Duties of the Superintendent include:

1. Ensuring that employees under their supervision (including new hires) receive appropriate training, fit testing, and annual medical evaluation.
2. Ensuring the availability of appropriate respirators and accessories.
3. Being aware of tasks requiring the use of respiratory protection.
4. Enforcing the proper use of respiratory protection when necessary.
5. Ensuring that respirators are properly cleaned, maintained, and stored according to this program.
6. Ensuring that respirators fit well and do not cause discomfort.
7. Continually monitoring work areas and operations to identify respiratory hazards.
8. Coordinating with the Program Administrator on how to address respiratory hazards or other concerns regarding this program.

D. Employees

Each employee is responsible for wearing his or her respirator when and where required and in the manner in which they are trained. Employees must also:

1. Care for and maintain their respirators as instructed, guard them against damage, and store them in a clean, sanitary location.
2. Inform their Superintendent if their respirator no longer fits well, and request a new one that fits properly.
3. Inform their Superintendent 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 this program.
4. Use the respiratory protection in accordance with the manufacturer's instructions and the training received.

III. APPLICABILITY

This program applies to all employees who are required to wear respirators during normal work operations, as well as during some non-routine or emergency operations, such as a spill of a hazardous substance.

In addition, any employee who voluntarily wears a respirator when one is not required (i.e., in certain maintenance and coating operations) is subject to the medical evaluation, cleaning, maintenance, and storage elements of this program, and will be provided with necessary training. Employees who voluntarily wear filtering face pieces (dust masks) are not subject to the medical evaluation, cleaning, storage, and maintenance provisions of this program (Subpart D)

All employees and processes that fall under the provisions of this program are listed in Attachment D.

IV. PROGRAM

A. Hazard Assessment and Respirator Selection

The Program Administrator will (who is a member of the subcontractor staff) will select respirators to be used on site, based on the hazards to which workers are exposed and in accordance with the OSHA Respiratory Protection Standard. The Program Administrator will conduct a hazard evaluation for each operation, process, or work area where airborne contaminants may be present in routine operations or during an emergency. A log of identified hazards will be maintained by the Program Administrator (See Sample Hazard Evaluation, Attachment C). The hazard evaluations shall include:

1. Identification and development of a list of hazardous substances used in the workplace by department or work process.
2. Review of work processes to determine where potential exposures to hazardous substances may occur. This review shall be conducted by surveying the workplace, reviewing the process records, and talking with employees and Superintendents.
3. Exposure monitoring to quantify potential hazardous exposures.

The proper type of respirator for the specific hazard involved will be selected in accordance with the manufacturer=s instructions. A list of employees and appropriate respiratory protection will be maintained by the Program Administrator (see Attachment D).

B. Updating the Hazard Assessment

The Program Administrator must revise and update the hazard assessment as needed (i.e., any time work process changes may potentially affect exposure). If an employee feels that respiratory protection is needed during a particular activity, he/she is to contact his/her Superintendent or the Program Administrator. The Program Administrator will evaluate the potential hazard, and arrange for outside assistance as necessary. The Program Administrator will then communicate the results of that assessment to the employees. If it is determined that respiratory protection is necessary, all other elements of the respiratory protection program will be in effect for those tasks, and the respiratory program will be updated accordingly.

C. Training

The Program Administrator will provide training to respirator users and their Superintendents on the contents of the PNT Consulting Respiratory Protection Program and their responsibilities under it, and on the OSHA Respiratory Protection Standard. All affected employees and their Superintendents will be trained prior to using a respirator in the workplace. Superintendents will also be trained prior to supervising employees that must wear respirators.

The training course will cover the following topics:

1. the PNT Consulting Respiratory Protection Program;
2. the OSHA Respiratory Protection Standard (29 CFR 1910.134);
3. respiratory hazards encountered at PNT Consulting and their health affects;
4. proper selection and use of respirators;
5. limitations of respirators;
6. respirator donning and user seal (fit) checks;
7. fit testing;
8. emergency use procedures;
9. maintenance and storage; and
10. medical signs and symptoms limiting the effective use of respirators.

Employees will be retrained annually or as needed (e.g., if they change departments or work processes and need to use a different respirator). Employees must demonstrate their understanding of the topics covered in the training through hands-on exercises and a written test. Respirator training will be documented by the Program Administrator and the documentation will include the type, model, and size of respirator for which each employee has been trained and fit tested.

D. NIOSH Certification

All respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH) and shall be used in accordance with the terms of that certification. Also, all filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. The label must not be removed or defaced while the respirator is in use.

E. Voluntary Respirator Use

The Program Administrator shall authorize voluntary use of respiratory protective equipment as requested by all other workers on a case-by-case basis, depending on specific workplace conditions and the results of medical evaluations.

The Program Administrator will provide all employees who voluntarily choose to wear the above respirators with a copy of Appendix D of the OSHA Respiratory Protection Standard. (Appendix D details the requirements for voluntary use of respirators by employees.) Employees who choose to wear a half face piece APR must comply with the procedures for Medical Evaluation, Respirator Use, Cleaning, Maintenance and Storage portions of this program.

F. Medical Evaluation

Employees who are either required to wear respirators, or who choose to wear a half face piece APR voluntarily, must pass a medical exam provided by PNT Consulting before being permitted to wear a respirator on the job. Employees are not permitted to wear respirators until a physician has determined that they are medically able to do so. Any employee refusing the medical evaluation will not be allowed to work in an area requiring respirator use.

A licensed physician, will provide the medical evaluations. Medical evaluation procedures are as follows:

1. The medical evaluation will be conducted using the questionnaire provided in Appendix C of the OSHA Respiratory Protection Standard. The Program Administrator will provide a copy of this questionnaire to all employees requiring medical evaluations.
2. To the extent feasible, the company will provide assistance to employees who are unable to read the questionnaire. When this is not possible, the employee will be sent directly to the physician for medical evaluation.
3. All affected employees will be given a copy of the medical questionnaire to complete, along with a stamped and addressed envelope for mailing the questionnaire to the company physician. Employees will be permitted to complete the questionnaire on company time.
4. Follow-up medical exams will be granted to employees as required by the Standard, and/or as deemed necessary by the evaluating physician.
5. All employees will be granted the opportunity to speak with the physician about their medical evaluation, if they so request.
6. The Program Administrator shall provide the evaluating physician with a copy of this Program, a copy of the OSHA Respiratory Protection Standard, the list of hazardous substances by work area, and the following information about each employee requiring evaluation:

    a. his or her work area or job title;
    b. proposed respirator type and weight;
    c. length of time required to wear respirator;

d. expected physical work load (light, moderate or heavy);
e. potential temperature and humidity extremes; and
f. any additional protective clothing required.

7. Positive pressure air purifying respirators will be provided to employees as required by medical necessity.
8. After an employee has received clearance to wear his or her respirator, additional medical evaluations will be provided under the following circumstances:

    a. The employee reports signs and/or symptoms related to their ability to use the respirator, such as shortness of breath, dizziness, chest pains or wheezing.
    b. The evaluating physician or Superintendent informs the Program Administrator that the employee needs to be reevaluated.
    c. Information found during the implementation of this program, including observations made during the fit testing and program evaluation, indicates a need for reevaluation.
    d. A change occurs in workplace conditions that may result in an increased physiological burden on the employee.

A list of PNT Consulting employees currently included in medical surveillance is provided in Attachment D of this program.

All examinations and questionnaires are to remain confidential between the employee and the physician. The Program Administrator will only retain the physician=s written recommendations regarding each employee=s ability to wear a respirator.

G. Fit Testing

Employees who are required to or who voluntarily wear half-face piece APRs will be fit tested:

1. prior to being allowed to wear any respirator with a tight-fitting face piece;
2. annually; or
3. when there are changes in the employee's physical condition that could affect respiratory fit (e.g., obvious change in body weight, facial scarring, etc.).

Employees will be fit tested with the make, model, and size of respirator that they will actually wear. Employees will be provided with several models and sizes of respirators so that they may find an optimal fit. Fit testing of powered air purifying respirators will be conducted in the negative pressure mode.

The Program Administrator will conduct fit tests in accordance with the OSHA Respiratory Protection Standard.

H. General Respirator Use Procedures

1. Employees will use their respirators under conditions specified in this program, and in accordance with the training they receive on the use of each particular model. In addition, the respirator shall not be used in a manner for which it is not certified by NIOSH or by its manufacturer.

2. All employees shall conduct user seal checks each time they wear their respirators. Employees shall use either the positive or negative pressure check (depending on which test works best for them) as specified in the OSHA Respiratory Protection Standard.

    a. Positive Pressure Test: This test is performed by closing off the exhalation valve with your hand. Breathe air into the mask. The face fit is satisfactory if some pressure can be built up inside the mask without any air leaking out between the mask and the face of the wearer.

    b. Negative Pressure Test: This test is performed by closing of the inlet openings of the cartridge with the palm of you hand. Some masks may require that the filter holder be removed to seal off the intake valve. Inhale gently so that a vacuum occurs within the face piece. Hold your breath for ten (10) seconds. If the vacuum remains, and no inward leakage is detected, the respirator is fit properly.

3. All employees shall be permitted to leave the work area to go to a safe room to maintain their respirator for the following reasons:

    a. to clean their respirator if it is impeding their ability to work;
    b. to change filters or cartridges;
    c. to replace parts; or
    d. to inspect respirator if it stops functioning as intended.

    Employees should notify their Superintendent before leaving the area.

4. Employees are not permitted to wear tight-fitting respirators if they have any condition, such as facial scars, facial hair, or missing dentures, that would prevent a proper seal. Employees are not permitted to wear headphones, jewelry, or other items that may interfere with the seal between the face and the face piece.

5. Before and after each use of a respirator, an employee or immediate Superintendent must make an inspection of tightness or connections and the condition of the face piece, headbands, valves, filter holders and filters. Questionable items must be addressed immediately by the Superintendent and/or Program Administrator.

I. Air Quality

For supplied-air respirators, only Grade D breathing air shall be used in the cylinders. The Program Administrator will coordinate deliveries of compressed air with the company's vendor and will require the vendor to certify that the air in the cylinders meets the specifications of Grade D breathing air.

The Program Administrator will maintain a minimum air supply of one fully charged replacement cylinder for each SAR unit. In addition, cylinders may be recharged as necessary from the breathing air cascade system located near the respirator storage area.

J. Change Schedules

Respirator cartridges shall be replaced as determined by the Program Administrator, Superintendent(s), and manufacturers= recommendations.

K. Cleaning

Respirators are to be regularly cleaned and disinfected at the designated respirator cleaning station. Respirators issued for the exclusive use of an employee shall be cleaned as often as necessary. Atmosphere-supplying and emergency use respirators are to be cleaned and disinfected after each use.

The following procedure is to be used when cleaning and disinfecting reusable respirators:

1. Disassemble respirator, removing any filters, canisters, or cartridges.
2. Wash the face piece and all associated parts (except cartridges and elastic headbands) in an approved cleaner-disinfectant solution in warm water (about 120 degrees Fahrenheit). Do not use organic solvents. Use a hand brush to remove dirt.
3. Rinse completely in clean, warm water.
4. Disinfect all facial contact areas by spraying the respirator with an approved disinfectant.
5. Air dry in a clean area.
6. Reassemble the respirator and replace any defective parts. Insert new filters or cartridges and make sure the seal is tight.
7. Place respirator in a clean, dry plastic bag or other airtight container.

The Program Administrator will ensure an adequate supply of appropriate cleaning and disinfection materials at the cleaning station. If supplies are low, employees should notify their Superintendent, who will inform the Program Administrator.

L. Maintenance

Respirators are to be properly maintained at all times in order to ensure that they function properly and protect employees adequately. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or deteriorated parts will be replaced prior to use. No components will be replaced or repairs made beyond those recommended by the manufacturer. Repairs to regulators or alarms of atmosphere-supplying respirators will be conducted by the manufacturer.

1. All respirators shall be inspected routinely before and after each use.

2. Respirators kept for emergency use shall be inspected after each use, and at least monthly by the Program Administrator to assure that they are in satisfactory working order

3. The Respirator Inspection Checklist (Attachment E) will be used when inspecting respirators.

4. A record shall be kept of inspection dates and findings for respirators maintained for emergency use.

5. Employees are permitted to leave their work area to perform limited maintenance on their respirator in a designated area that is free of respiratory hazards. Situations when this is permitted include:

    a. washing face and respirator face piece to prevent any eye or skin irritation;
    b. replacing the filter, cartridge or canister;
    c. detection of vapor or gas breakthrough or leakage in the face piece; or
    d. detection of any other damage to the respirator or its components.

M. Storage

After inspection, cleaning, and necessary repairs, respirators shall be stored appropriately to protect against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals.

1. Respirators must be stored in a clean, dry area, and in accordance with the manufacturer's recommendations. Each employee will clean and inspect their own air-purifying respirator in accordance with the provisions of this program, and will store their respirator in a plastic bag in the designated area. Each employee will have his/her name on the bag and that bag will only be used to store that employee's respirator.
2. Respirators shall be packed or stored so that the face piece and exhalation valve will rest in a near normal position.

3. Respirators shall not be placed in places such as lockers or toolboxes unless they are in carrying cartons.

4. Respirators maintained at stations and work areas for emergency use shall be stored in compartments built specifically for that purpose, be quickly accessible at all times, and be clearly marked.

N. Respirator Malfunctions and Defects

1. For any malfunction of an ASR (atmosphere-supplying respirator), such as breakthrough, face piece leakage, or improperly working valve, the respirator wearer should inform his/her Superintendent that the respirator no longer functions as intended, and go to the designated safe area to maintain the respirator. The Superintendent must ensure that the employee either receives the needed parts to repair the respirator or is provided with a new respirator.

   All workers wearing atmosphere-supplying respirators will work with a buddy. The Program Administrator shall develop and inform employees of the procedures to be used when a buddy is required to assist a coworker who experiences an ASR malfunction.

2. Respirators that are defective or have defective parts shall be taken out of service immediately. If, during an inspection, an employee discovers a defect in a respirator, he/she is to bring the defect to the attention of his/her Superintendent. Superintendents will give all defective respirators to the Program Administrator. The Program Administrator will decide whether to:

   a. temporarily take the respirator out of service until it can be repaired;
   b. perform a simple fix on the spot, such as replacing a head strap; or
   c. dispose of the respirator due to an irreparable problem or defect.

   When a respirator is taken out of service for an extended period of time, the respirator will be tagged out of service, and the employee will be given a replacement of a similar make, model, and size. All tagged out respirators will be turned in to the Program Administrator or to a Safety Superintendent.

O. Emergency Procedures

In emergency situations where an atmosphere exists in which the wearer of the respirator could be overcome by a toxic or oxygen-deficient atmosphere, the following procedure should be followed. Job Superintendents shall identify work areas with the potential for emergency situations and list the areas in Attachment F of this document. Locations of emergency respirators are also listed in Attachment F.

1. When the alarm sounds, employees in the affected area must immediately don their emergency escape respirator, shut down their process equipment, and exit the work area.

2. All other employees must immediately evacuate the buildingA site specific Emergency Action Plan describes these procedures (including proper evacuation routes and rally points) in greater detail.

3. Employees who must remain in a dangerous atmosphere must take the following precautions:

    a. Employees must never enter a dangerous atmosphere without first obtaining the proper protective equipment and permission to enter from the Program Administrator or Superintendent.
    b. Employees must never enter a dangerous atmosphere without at least one additional person present. The additional person must remain in the safe atmosphere.
    c. Communications (voice, visual or signal line) must be maintained between both individuals or all present.
    d. Respiratory protection in these instances is for escape purposes only. *PNT Consulting* employees are not trained as emergency responders, and are not authorized to act in such a manner.

P. Program Evaluation

The Program Administrator will conduct periodic evaluations of the workplace to ensure that the provisions of this program are being implemented. The evaluations will include regular consultations with employees who use respirators and their Superintendents, site inspections, air monitoring and a review of records. Items to be considered will include:

1. comfort;
2. ability to breathe without objectionable effort;
3. adequate visibility under all conditions
4. provisions for wearing prescription glasses;
5. ability to perform all tasks without undue interference; and
6. confidence in the face piece fit.

Identified problems will be noted in an inspection log and addressed by the Program Administrator.

Q. Documentation and Recordkeeping

1. A written copy of this program and the OSHA Respiratory Protection Standard shall be kept in the Program Administrator's office and made available to all employees who wish to review it.

2. Copies of training and fit test records shall be maintained by the Program Administrator. These records will be updated as new employees are trained, as existing employees receive refresher training, and as new fit tests are conducted

3. For employees covered under the Respiratory Protection Program, the Program Administrator shall maintain copies of the physician's written recommendation regarding each employee's ability to wear a respirator. The completed medical questionnaires and evaluating physician's documented findings will remain confidential in the employee's medical records at the location of the evaluating physician's practice.

ATTACHMENT A

Sample Hazard Assessment Log

Hazard Assessment Log *DATE*				
Department	Contaminants	Exposure Level (8 hr TWA*)	PEL**	Controls

* Summarized from Industrial Hygiene report provided by *Responsible Person*.

** These values were obtained from a survey on average exposures as published in the American Journal of Industrial Hygiene _____.

ATTACHMENT B

Sample Record of Respirator Use

Required and Voluntary Respirator Use at *(PNT Consulting)*	
Type of Respirator	Department/Process

* until ventilation is installed.

ATTACHMENT C

Sample Hazard Evaluation

Process Hazard Evaluation for *PNT CONSULTING* *DATE*	
Process	Noted Hazards

(Include documentation of the sampling data that hazard evaluation is based on.

ATTACHMENT D

Sample Record of Respirator Issuance

PNT Consulting Personnel in Respiratory Protection Program *Date*				
Respiratory protection is required for and has been issued to the following personnel:				
Name	Department	Job Description/ Work Procedure	Type of Respirator	Date Issued

ATTACHMENT E

Respirator Inspection Checklist

Type of Respirator:	Location:
Respirator Issued to:	Type of Hazard:
Face piece	_____ Cracks, tears, or holes _____ Face mask distortion _____ Cracked or loose lenses/face shield
Head straps	_____ Breaks or tears _____ Broken buckles
Valves:	_____ Residue or dirt _____ Cracks or tears in valve material
Filters/Cartridges:	_____ Approval designation _____ Gaskets _____ Cracks or dents in housing _____ Proper cartridge for hazard
Air Supply Systems	_____ Breathing air quality/grade _____ Condition of supply hoses _____ Hose connections _____ Settings on regulators and valves
Rubber/Elastomer Parts	_____ Pliability _____ Deterioration

Inspected by:	Date:
Action Taken:	

ATTACHMENT F

Sample Emergency Potential Log

The following work areas at *PNT Consulting* have been identified as having foreseeable emergencies:

Area	Type of Emergency	Location of Emergency Respirator(s)

_____ _____

Program Administrator Date

ATTACHMENT G

Sample Immediately Dangerous to Life and Health (IDLH) Assessment Log

The Program Administrator has identified the following area as presenting the potential for IDLH conditions:

Process	IDLH Condition	Procedure

_____ _____

Program Administrator Date

H. Bloodborne Pathogen Exposure Control

Purpose
To establish guidelines to protect PNT's employees who, in response to medical emergencies, may be potentially exposed to blood and/or body fluids.

Scope
This policy covers the employees' qualification, compliance methods, vaccinations, training, and record keeping.

Policy
Employee Qualification

All PNT Consulting employees will follow the precautions provided in this policy. Some employees may have more potential for exposure. These employees must take additional precautions, such as wearing personal protective equipment

Compliance Methods

Three compliance methods will be observed in order to prevent contact with blood or other potentially infectious materials. All blood or other potentially infectious material (i.e. body fluids) will be considered infectious regardless of the perceived status of the source individual.

These compliance methods include:

1. Engineering & work practice controls
2. Housekeeping
3. Personal protective equipment.

A. Engineering & Work Practice Controls:

1. Controls will be in place to minimize or eliminate exposure (i.e. sharps disposable containers, self sheathing needles, etc.). Contaminated sharps will be placed immediately or as soon as possible after use, into appropriate containers. The containers are closable, puncture resistant, leak proof, and labeled with a biohazard label. Contaminated needles will not be bent, recapped, removed, sheared, or intentionally broken.
2. All employees will wash hands using soap, running water, and friction if potential exposure exists. Hand washing facilities are readily accessible to employees and are located throughout the facility. Hand washing will be done (at a minimum):
    a. At the beginning and the end of a work shift
    b. Prior to physical contact with an employee, patient, etc.
    c. Immediately after or as soon as feasible following contact with blood or potentially infectious materials.
    d. Immediately after or as soon as feasible after removal of gloves or other personal protective equipment.
3. Procedures involving blood or other potentially infectious materials will be performed asto minimize splashing, spraying, spattering, aerosolization, and generation of droplets.
4. In work areas where there is a reasonable likelihood or potential exposure to blood or other infectious materials, employees are not to eat, drink, smoke, apply cosmetics or lip balm, handle contact lenses, or use hand lotions. Food and beverages are not to be kept in refrigerators, freezers, shelves, cabinets, or on counter or bench tops where blood or other infectious materials are present.
5. Specimens of blood or other infectious materials will be placed in a container which prevents

leakage during the collection, handling, processing, storage, and transport of the specimens. The containers will be labeled and color coded in accordance with OSHA standards. The container must be closed prior to storage, transport, and shipping. If outside contamination of the primary container occurs, the primary container shall be placed within a secondary container which prevents leakage during the handling, processing, storage, transport, and/or shipping of the specimen. The secondary container may be a zip-lock or other sealable plastic bag.

6. Equipment which has become contaminated with blood or other infectious materials shall be examined prior to servicing or shipping and shall be decontaminated as necessary unless the decontamination of the equipment is not feasible.

B. Housekeeping:
    1. Contaminated work surfaces will be decontaminated with an appropriate disinfectant immediately or as soon as feasible. An appropriate disinfectant is registered with the EPA as HIV- and HBV-effective (i.e. a solution of 5.25% sodium hypocrite (household bleach) diluted between 1:10 and 1:100 = 1 cup bleach per 2 gallons of water).
    2. A blood and body fluid spill kit will be retained at each PNT Consulting, Inc Superintendent's office for use in the case of a spill of blood or other potentially infectious material. The kit will contain: 1) a pair of vinyl or latex gloves, 2) two pieces of absorbent material, such as a cloth or paper towel, 3) a small bucket or spray bottle, 4) two plastic bags, 5) disinfectant.
    3. If the floor or other surfaces have been contaminated with blood or other potentially infectious materials, the employee will do the following:
        a. Put on gloves.
        b. Lay out a bag in an open fashion.
        c. Dampen first piece of absorbent material and mop up spill.
        d. Deposit material in bag and avoid touching outside of bag.
        e. If outside of bag is contaminated, put contaminated bag into second bag.
        f. Dampen second piece of absorbent material and clean floor or surface. Deposit into bag.
        g. Tie bag snugly.
        h. Dispose of bag in common waste container.
        i. Return buck or spray bottle to storage area. Restock used items in spill kit.
        j. Wash hands after removing gloves.
    4. Regulated waste shall be placed in approved properly labeled containers and disposed according to established regulatory procedures.
    5. Laundry, which includes linens and reusable personal protective equipment, will be handled as little as possible and with minimum agitation, bagged, and containerized.
    6. Contaminated laundry will not be sorted or rinsed in the location of use. Whenever laundry is wet, the laundry shall be placed and transported in bags or containers designed to prevent soak through and/or leakage. Employees handling soiled laundry shall wear disposable or utility gloves and gowns. The facility shall wash contaminated laundry according to recommendations outlined by the Center for Disease Control (i.e. wash with detergent and water at 160ºF for 25 minutes).

C. Personal Protective Equipment:
    1. Personal protective equipment will be provided to PNT employees, based on anticipated exposures. The protective equipment will be considered
    appropriate only if does not permit blood or other potentially infectious materials to pass through or reach the employees' clothing, skin, eyes, mouth under normal conditions of use and for the duration of time which the protective equipment will be used. The following protective equipment is available and will be used, cleaned, laundered and/or disposed of as

appropriate:

a. Disposable gloves, gown/apron, shoe covers, surgical mask/cap, and breathsaver resuscitator.
b. Eye/Face protection device
c. Lab coats, clinic jacket

2. Gloves, gowns, shoe covers, and masks/caps must be worn when it is reasonably anticipated that the employee may have direct contact with blood or other potentially infectious materials. Disposable breathsaver resuscitators provide emergency breathing capability to the victim without direct mouth-to-mouth contact. Eye/face protection devices, such as surgical masks and caps, goggles, glasses with solid side shields, or chin-length face shields, must be worn whenever splashes, spray, spatter, droplets of blood, or other potentially infectious materials may be generated.

Vaccinations & Evaluations

All PNT employees who have been identified as having exposure to blood or other potentially infectious materials will be offered the Hepatitis B vaccine, at no cost to the employee. The vaccine will be offered within ten (10) working days of their initial assignment, involving the potential for occupational exposure to blood or other potentially infectious materials. Employees who previously had the vaccine may submit to anti-body testing which shows the employee to have sufficient immunity.

Post-exposure evaluations and follow-ups are provided for an employee who has been exposed to an incident involving the release of blood or potentially infectious materials.

The Maintenance Record Form (at the end of this Program) includes a record of vaccinations, evaluations, and follow-ups, or an employee's signed statement declining these services. The completed form shall be retained by PNT's Safety Director.

Training

All applicable PNT employees shall be trained in conjunction with applicable requirements for certification (CPR, and First Aid). Where independent training is not available, company-sponsored training will be offered. Annual retraining will also be made available in accordance with OSHA standards. A record of training shall be included on the Maintenance Record Form.

Additional training will include:

1. OSHA standards for bloodborne pathogens
2. Exposure Control Plan review
3. Procedures at this jobsite which may cause exposure to blood or other potentially infectious materials
4. Control methods which will be used at the jobsite
5. Personal Protective Equipment available
6. Hepatitis B Vaccination program
7. Post exposure evaluation & follow-up
8. Signs and labels used at the jobsite

Recordkeeping

The Maintenance Record Form maintains the following information in accordance with OSHA requirements. The completed form shall be maintained by PNT personnel. PNT's Safety Director shall maintain a summary log of employees' training, vaccinations, and issued Personal Protective Equipment. A sample is provided following the Maintenance Record Form.

Employee Name & Social Security Number (SS #)	Record of Post-Exposure Evaluations & Follow-ups
Company Name, Department, & Location	Personal Protective Equipment Provided

Hepatitis B Vaccination Record Training Record
Employee Signature

Bloodborne Pathogen Exposure Control Maintenance Record

Distribution: o Copy to Personnel o Copy to Employee o Copy Superintendent o Copy _

Employee Name: _____ SS #: _____
Company Name: _____
Dept: _____ Location: _____

Hepatitis B Vaccination Record*
Date: _____ Physician: _____
Date: _____ Physician: _____
Date: _____ Physician: _____

Post-Exposure Evaluation/Follow-up
Date: _____ Incident: _____
Date: _____ Incident: _____
Date: _____ Incident: _____

*I have been offered the opportunity to receive a Hepatitis B vaccination and hereby decline this opportunity.
Signature: _____

Personal Protective Equipment Record
I have received the following equipment and maintain it in good condition:

	Date of Issue and Reissue		
Disposable Gloves			
Surgical Mask & Cap			
Eye/Face Protection			
Gown, Apron, Shoe Cover			
Breathsaver Respirator			
Other:			

Training Record

Type(s) of Certification: _____
Initial Training:
Subject: _____ Date: _____ By Whom: _____
Annual Retraining:
Subject: _____ Date: _____ By Whom: _____
Subject: _____ Date: _____ By Whom: _____
Subject: _____ Date: _____ By Whom: _____

Confirmation of Policy Receipt and Review

I have received a copy of PNT Consulting Bloodborne Pathogen Exposure Control Plan. I have reviewed the Plan, understand it, and agree to abide by it.

Employee's Signature: _____ Date: _____
Superintendent's Signature: _____ Date: _____

Bloodborne Pathogen Summary Log

Completed and Maintained by the Safety Director

Instructions: Enter the appropriate information for each employee participating in the Bloodborne Pathogen Exposure Control Plan. Revised dates for retraining and recertification shall be entered upon completion of applicable requirements.

Employee	Certification	Training	Vaccination	PPE

I. Violence Prevention Program

Purpose

To establish guidelines to protect employees against workplace violence.

Policy

Nothing is more important to PNT than the safety and well being of its employees. Threats, threatening behavior, or acts of violence against employees, visitors, guests, or other individuals by anyone on PNT property will not be tolerated. Violations of this policy will lead to disciplinary action, which may include dismissal, arrest, and prosecution.

Any person who makes substantial threats, exhibits threatening behavior, engages in violent acts, or brings a weapon onto PNT property shall be removed from the premises as quickly as safety permits and shall remain off premises pending the outcome of an investigation. PNT will initiate an appropriate response, including but not limited to suspension, reassignment of duties, termination of employment and/or business relationship, and/or criminal prosecution of the person(s) involved.

No existing policy, practice, or procedure will be interpreted to prohibit decisions designed to prevent a threat from being carried out, a violent act from occurring, or a life-threatening situation from developing.

All PNT personnel are responsible for notifying their Superintendent or the management representative(s) designated below of any threats that they have witnessed, received, or has been told that another person has witnessed or received. Even without an actual threat, personnel will also report any behavior they have witnessed which they regard as threatening or violent, when that behavior is job related or might be carried out on at a PNT site. Employees are responsible for making this report regardless of the relationship between the individual initiating the threat or threatening behavior and the person(s) receiving the threat, including domestic problems which they fear may result in violent acts against them or a coworker.

All individuals who apply for or obtain a protective or restraining order which lists PNT locations as protected areas must provide a copy of the petition used to obtain the order, as well as a copy of the protective or restraining order which was granted, to their immediate Superintendent or the designated representative(s) listed below.

PNT understands the sensitivity of the information requested and has developed confidentiality procedures that recognize and respect the privacy of the reporting employee(s).

The designated management representative(s):

Name: Paul Harvey
Title: Safety Director
Location: PNT Consulting llc
528 County Road 1546
Hughes Springs, TX 75656
Telephone: 903/641-9791

Name: Todd Harvey
Title: Deputy Director of Safety
Location: PNT Consulting llc
528 County Road 1546
Hughes Springs, TX 75656
Telephone: 903/386-8559

Name: Nicolaza Harvey
Title: South East Regional Safety Superintendent
Telephone: Cell 903-386-8575

J. Fall Protection

Purpose: To establish guidelines to prevent employees from sustaining serious injury if they fall on the job.

Policy

OSHA has revised its construction industry safety standards for fall protection requirements (Codes 1926.500, 1926.501, 1926.502, and 1926.503) and has developed systems and procedures designed to prevent employees from falling off, onto, or through working levels and to protect them from being struck by falling objects. These policies cover all construction workers except those inspecting, investigating, or assessing workplace conditions prior to the actual start of work or after all work has been completed.

These policies identify areas where fall protection is needed. These areas include ramps, runways, walkways, excavations, hoist areas, holes, formwork and reinforcing steel, leading edge work, unprotected sides and edges, overhand bricklaying, roofing, pre-cast concrete erection, wall openings, and residential construction. These policies set a uniform threshold height of six (6) feet, thereby providing consistent protection. This means that the Contractor must protect employees from fall hazards and falling objects whenever an employee is six (6) feet or more above a lower level. ***PNT has adopted the (6) foot height as the height where fall protection will be required.***

Under these new standards, management will have the flexibility to select fall protection measures compatible with the type of work being performed. Fall protection generally can be provided through the use of guardrails, safety nets, personal fall arrest systems, positioning device systems, and warning line systems.

Duty to Have Fall Protection

PNT's onsite Superintendent is required to assess all new jobsites prior to any work being performed to determine if the walking/working surfaces have the strength to safely support workers. The Safety Department is available to assist in the assessment of the jobsite for fall hazards that must be protected. Employees are not permitted to work on any new surfaces until those surfaces are determined to be safe. Once the Superintendent determines that the surface is safe, the Superintendent must select one of the options previously listed for the work operation if a fall hazard is present (guardrails, safety nets, etc.).

Controlled Access Zones

A controlled access zone is a work area designated and clearly marked in which certain types of work may take place without the use of conventional fall protection systems to protect the employees working in the zone. These are used to keep out workers other than those authorized to enter work areas from which guardrails have been removed. Where there are no guardrails, masons are the only workers allowed in controlled access zones.

Controlled access zones, when created to limit entrance to areas where leading edge work and other operations are taking place, must be defined by a control line or by any other means that restricts access. Control lines will consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions. Each must be:

- Flagged or clearly marked at not more than six (6) foot intervals with high-visibility material
- Supported so that the lowest point is not less than thirty-nine (39) inches from the walking/working surface and the highest point is not more than forty-five (45) inches from the walking/working surface
- Strong enough to sustain stress of at least two hundred (200) pounds. Control lines will extend along the entire length of the unprotected or leading edge and will be parallel to this edge; and
- Control lines also must be connected on each side to a guardrail system or wall.

When control lines are used, they will be erected not less than six (6) feet nor more than twenty-five (25) feet from the unprotected or leading edge, except when precast concrete members are being erected. With precast concrete member erection, the control line will be at least six (6) feet but less than sixty (60) feet from the leading edge.

Controlled access zones, when used to determine access to areas where overhead bricklaying and related work are taking place, are to be defined by a control line erected at least ten (10) feet but not more than fifteen (15) feet from the working edge. Additional control lines must be erected at each end to enclose the controlled access zone. Only employees engaged in overhand bricklaying or related work is permitted in the controlled access zones.

On floors and roofs where guardrail systems are not in place prior to the beginning of overhand bricklaying operations, controlled access zones will be enlarged as necessary to enclose all points of access, material handling areas, and storage areas. On floors and roofs where guardrail systems are in place, but need to be removed to allow overhand bricklaying work or leading edge work to take place, only that portion of the guardrail necessary to accomplish that day's work will be removed.

Excavations

Each employee at the edge of excavation six (6) feet or more deep will be protected from falling by a guardrail system, fence, barricade, or cover. Where walkways are provided to permit employees to cross over excavations, guardrails are required on the walkway if it is six (6) feet or more above the excavation.

Hoist Areas

Each employee in a hoist area will be protected from falling six (6) feet or more by guardrail systems or personal fall arrest systems. If guardrail systems must be removed to facilitate hoisting operations, as during the landing of materials, and a worker must lean through the access opening or out over the edge of the access opening to receive or guide equipment and materials, that employee must be protected by a personal fall arrest system.

Leading Edges

Employees constructing a leading edge six (6) feet or more above lower levels will be protected by guardrail systems, safety net systems, or personal fall arrest systems. If the Contractor's Superintendent can demonstrate that it is infeasible or creates a greater hazard to implement these systems, he or she must develop and implement a fall protection plan that meets the requirements of 29 CFR 1926.502(k).

Roofing

Low-Slope Roofs (≤ 4/12 slope) - Employees engaged in roofing activities on low-slope roofs with unprotected sides and edges six (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 guardrail system, warning line system and safety net system, warning line system and personal fall arrest system, or warning line system and safety monitoring system. On roofs fifty (50) feet or less in width, the use of a safety monitoring system without a warning line system is permitted.

Steep Roofs (≥ 4/12 slope) - Employees on a steep roof with unprotected sides and edges six (6) feet or more above lower levels will be protected by a guardrail system with toeboards, safety net systems, or personal fall arrest systems.

Fall Protection Systems Criteria and Practices

Guardrail Systems must meet the following criteria:

- Top-rails and mid-rails must be at least one-quarter inch thick to prevent cuts and lacerations.
- If wire rope is used for top-rails, it must be flagged at not more than six (6) foot intervals with high visibility materials.

- Steel or plastic binding cannot be used as top-rails or mid-rails.
- The top edge height of top-rails or guardrails must be forty-two (42) inches plus or minus three (3) inches above the walking/working level.
- When workers are using stilts, the top edge height of the top-rail, or equivalent member, must be increased by an amount equal to the height of the stilts.
- Screens, mid-rails, mesh, intermediate vertical members, or equivalent intermediate structural members must be installed between the top edge of the guardrail system and the walking/working surface when there are no walls at least twenty-one (21) inches high.
- When mid-rails are used, they must 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 must extend from the top rail to the walking/working level and along the entire opening between top rail supports.
- Intermediate members, such as balusters, when used between posts, will not be more than nineteen (19) inches apart.
- Other structural members will be installed so that there are no openings in the guardrail system more than nineteen (19) inches.
- The guardrail system must be capable of withstanding a force of at least two hundred (200) pounds applied in any outward or downward direction.
- Mid-rails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members will be capable of withstanding a force at least one-hundred and fifty (150) pounds applied in any downward or outward direction at any point along the mid-rail or other member.
- Guardrail systems will be surfaced to protect workers from punctures or lacerations and to prevent clothing from snagging.
- The ends of top-rails and mid-rails must not overhang terminal posts, except where such overhang does not constitute a projection hazard.
- When guardrail systems are used at hoisting areas, a chain or gate must be placed across the access opening between guardrail sections when hoisting operations are not taking place.

<u>Personal Fall Arrest Systems</u>

These consist of an anchorage, connectors, and full body harness and may include a decelerator device, lifeline, or suitable combinations. If a personal fall arrest system is used for fall protection, it must do the following:

- Limit maximum arresting force on an employee to 1,800 pounds when used with a body harness
- Be rigged so that an employee cannot free fall more than six (6) feet or contact any lower level
- Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to three and a half (3 ½) feet
- Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of six (6) feet or the free fall distance permitted by the system, whichever is less

Effective January 1, 1998, the use of a body belt for fall arrest is prohibited and the following precautions must be taken:

- Personal fall arrest systems must be inspected prior to each use for wear damage and other deterioration. Defective components must be removed from service. Dee-rings and snaphooks must have a minimum tensile strength of 5,000 pounds. Dee-rings and snaphooks will be proof-tested to a minimum tensile load of 3,600 pounds without cracking, breaking, or suffering permanent deformation.
- Snaphooks will be sized to be compatible with its connecting member or will be of a locking configuration. Unless the snaphook is a locking type and designed for the following

connections, they shall not be engaged (a) directly to webbing, rope or wire rope; (b) to each other; c) to a dee-ring to which another snaphook or other connector is attached; (d) to a horizontal lifeline; or (e) to any object incompatible in shape or dimension relative to the snaphook, thereby causing the connected object to depress the snaphook keeper and release unintentionally.

- On suspended scaffolds or similar work platforms with horizontal lifelines that may become vertical lifelines, the devices used to connect to a horizontal lifeline will be capable of locking in both directions on the lifeline. Horizontal lifelines will be designed, installed, and used under the supervision of a qualified person, as part of a complete personal fall arrest system that maintains a safety factor of at least two. Lifelines will be protected against being cut or abraded.
- Self-retracting lifelines and lanyards that automatically limit free fall distance to two (2) feet or less shall be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in the fully extended position. Self-retracting lifelines and lanyards that do not limit free fall distance to two (2) feet or less, rip-stitch lanyards, and tearing and 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. Ropes and straps used in lanyards, lifelines, and strength components of body belts and body harnesses will be made of synthetic fibers.
- Anchorages will be designed, installed, and used under the supervision of a qualified person, as part of a complete personal fall arrest system that maintains a safety factor of at least two (2). Anchorages used to attach personal fall arrest systems will be independent of any anchorage being used to support or suspend platforms and must be capable of supporting at least 5,000 pounds per person attached. Lanyards and vertical lifelines must have a minimum breaking strength of 5,000 pounds.

Positioning Device Systems

These body belt or body harness systems will be set up so that a worker can free fall no farther than two (2) feet. They will 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 snaphooks, dee-rings, and other connectors used with a positioning device must meet the same criteria as those for personal fall arrest systems.

Safety Monitoring Systems

When no other alternative fall protection has been implemented, the Contractor Superintendent will implement a safety monitoring system **(IT IS CRITICAL TO NOTE THAT THIS IS A LAST RESORT SOLUTION TO FALL PROTECTION).** Employers must appoint a competent person to monitor the safety of workers and the Contractor Superintendent must 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 workers and can see them
- Is close enough to communicate with workers
- has no other duties to distract from the monitoring function

Safety Net Systems

The following precautions must be taken when using a safety net system:

- Safety nets must be installed as close as possible under the walking/working surface on which employees are working and never more than thirty (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 thirty-six (36) square inches

or be longer than six (6) inches on any side.

- The openings, measured center-to-center, will not exceed six (6) inches.
- All 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 six (6) inches apart.
- Safety nets will be installed with sufficient clearance underneath to prevent contact with the surface or structure below.
- When nets are used on bridges, the potential fall area from the walking/working surface to the net will be unobstructed.
- Items that have fallen into safety nets must be removed as soon as possible or before the next work shift.
- Safety nets will extend outward from the outermost projection of the work surface as follows:

Vertical distance from working level to horizontal plane of net.	**Minimum required horizontal distance of outer edge of net from the edge of the working surface.**
Up to 5 feet	8 feet
More than 5 feet up to 10 feet	10 feet
More than 10 feet	13 feet

Warning Line Systems

Warning line systems consist of ropes, wires, or chains, and will be set up as follows:

- Flagged at no more than six (6) foot intervals with high-visibility material
- Rigged and supported so that the lowest point (including sag) is no less than thirty-four (34) inches from the walking/working surface and its highest point and is no more than thirty-nine (39) inches from the walking/working surface
- The rope, wire, or chain will have a minimum tensile strength of 500 pounds and after being attached to the stanchions must support the load applied to the stanchions (upright post or support)
- 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 no less than six (6) feet from the roof edge parallel to the direction of mechanical equipment operation, and no less than ten (10) feet from the edge perpendicular to the direction of mechanical equipment operation. When mechanical equipment is not being used, the warning line must be erected no less than six (6) feet from the roof edge.

Toeboards

The following precautions and procedures must be followed when using toeboards:

- When toeboards are used as protection from falling objects, they must be erected along the edges of the overhead walking/working surface for a distance sufficient to protect persons working below
- Toeboards will be capable of withstanding a force of at least fifty (50) pounds applied in any downward or outward direction at any point along the toeboard
- Toeboards will be a minimum of three and a half (3 ½) inches tall from their top edge to the level of the walking/working surface, have no more than one quarter (1/4) inches clearance

above the walking/working surface, and be solid or have openings no larger than one (1) inch in size

- When tools, equipment, or materials are piled higher than the top edge of a toeboard, paneling or screening must be erected from the walking/working surface or toeboard to the top of a guardrail system's top-rail or mid-rail for a distance sufficient to protect employees below

K. ASBESTOS MANAGEMENT GUIDELINES

BACKGROUND

Asbestos is the generic term for a group of naturally occurring fibrous minerals with high tensile strength, flexibility and resistance to thermal, chemical and electrical conditions. Until 1978, asbestos was widely processed and used for its bonding and insulating capabilities.

Asbestos in the construction industry is commonly found in such materials as shingles, roof tar, roof cement and felt, ceiling and floor tiles, cement pipe, fire-resistant drywall, pipe and structural insulation, paints and acoustical applications. As a consequence, most workers are exposed to asbestos during the renovation of buildings in which ACM is present.

Asbestos fibers enter the body in two ways – through inhalation and ingestion. The fibers then become embedded in the tissues of the respiratory or digestive system. Exposure to asbestos can cause debilitating or fatal diseases such as *asbestosis* (scarring of the lungs); lung cancer; *mesothelioma*, a cancerous tumor that spreads rapidly in the cells of the membranes which cover the lungs and other organs; and *gastrointestinal cancer*. The latency period for onset of symptoms ranges from 10 to 40 years after the initial exposure.

POLICY

Necessary and appropriate actions will be taken at all locations to prevent the exposure of employees and the general public to airborne asbestos fibers. ***The PNT Safety Department shall be notified and consulted prior to undertaking any demolition or renovation activities where asbestos is or may be presumed present. Only a certified and licensed abatement contractor may disturb, handle, remove or dispose of asbestos containing material.***

OVERVIEW

The removal and disposal of asbestos are strictly regulated and must comply with both U.S. EPA and OSHA regulations. The objective of these regulations is to minimize human exposure to airborne asbestos fibers.

The U.S. EPA regulates asbestos containing material (ACM) under the Clean Air Act, 40 CFR, Part 61, Subpart M. The rule applies to demolition or renovation operations affecting facilities or portions thereof which contain any pipe, duct, boiler, tank, furnace or structural member that is covered or coated with friable ACM and includes removal instructions and guidelines for preparation for transportation, disposal site selection and actual disposal of materials which contain friable asbestos. Potential employee exposure to ACM is also regulated by OSHA under 29 CFR Part 1910.1001 and 29 CFR Part 1926.1101.These regulations include but are not limited to, employee training, exposure limits, site set up, work practices and engineering controls.

DEMOLITION AND RENOVATION

The PNT Safety Department must be notified and consulted prior to the undertaking of any demolition or renovation of any facility where ACM is present or suspected. All affected parts of the facility will need to be thoroughly inspected for the presence of ACM, and all friable ACM, non-friable ACM in poor condition and ACM which is part of the demolition or renovation must be removed prior to the commencement of any work activity. The PNT Safety Department will assist project management in the selection of properly qualified contractors to perform asbestos surveys, sampling, abatement, oversight and air monitoring.

In an effort to ensure compliance with applicable state and federal laws and regulations, and to minimize the

release of asbestos fibers, the following guidelines are to be implemented by all PNT employees during demolition and renovation operations in which ACM may be present.

1. ***Notify the PNT Safety Department immediately upon discovery of suspected ACM***. If the material is disturbed and causes an emission. Evacuate all personnel from the affected area immediately and contact the PNT Safety Department. Do not attempt to clean up or dispose of ACM which has been disturbed. This is not only a health hazard, it is *illegal* if you are not a certified and licensed contractor.

2. Use only qualified individuals or contractors to perform work that disturbs ACM and to conduct inspections of ACM. Require such individuals or contractors to take appropriate precautions to protect themselves and other employees as well as surrounding areas from exposure to asbestos fibers.

3. Have suspected building materials sampled and tested for the presence of asbestos. Use only qualified individuals or contractors to collect samples and qualified laboratories to analyze samples. The PNT Safety Department will maintain a list of qualified laboratories and will address and handle any testing of samples. The results will be reported to the Superintendent.

4. Until proven otherwise, suspect materials shall be presumed to contain asbestos, and proper precautions must be taken to alert employees of the presence of ACM and to prevent exposure.

4. Make regular inspections of all sites where ACM is or may be suspected to be present.

5. Ensure that all required state and local permits for work that disturbs ACM are obtained and that contractors and workers have all of the required training and any required state or local licenses. The PNT Safety Department will assist in confirming this information.

EXAMPLES OF SUSPECT ACM

i. Sprayed on insulation on pipes, ducts and boilers and sprayed on fireproofing.

ii. Other pipe and boiler insulation or insulating block installed before 1976.

iii. Sprayed on ceiling material, wallboard, spackle or joint compound, acoustic ceiling tiles and non-wood shingles installed before 1979.

MANAGEMENT OF ASBESTOS

Generally, any owner or person who exercises control over the management and record-keeping functions relating to a building or facility of a covered OSHA workplace must take the following precautions:

1. Utilize a certified contractor to determine the presence of ACM at the facility. All materials suspected to be ACM are presumed to be ACM until testing confirms otherwise.

2. If ACM is confirmed to be present, warning labels must be affixed to the asbestos or signs posted nearby. The labels or signs must include the following information:

iv. DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

3. In any area where a qualified contractor has found airborne asbestos concentrations to exceed permissible exposure limit (PEL) as defined by 29 CFR 1910.1001(b), warning signs must be posted at the entryway to the area, containing the following information:

v. DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
MAY BE REQUIRED IN THIS AREA

4. The building and facility owners must maintain records of all information for the duration of of ownership and must be transferred to successive owners.

5. Employers and building owners must provide notice and an asbestos awareness training program to all employees who will work in areas where ACM is present. The training must be provided yearly.

EMERGENCY OPERATIONS

In the event of an emergency, such as a broken steam line or hot water line, where repairs must be undertaken immediately, the Superintendent in charge must presume that any insulating material is ACM unless it is known otherwise. The Superintendent must ensure that steps are taken to minimize the creation of any dust, including wetting of the material being removed. The PNT Safety Department must be notified immediately upon stabilization of the emergency. A qualified asbestos abatement contractor shall be engaged to survey and properly dispose of any disturbed ACM.

For more information on how to properly handle an asbestos discovery, contact the PNT Safety Department at 703-289-9233

L. Lead Exposure Compliance/Management Program

Purpose

The purpose of this program is to inform PNT employees and subcontractors, that PNT is complying with the OSHA lead standard, Title 29 Code of Federal Regulations 1926.62 by adhering to the changes and additions to the Maryland Occupational Safety & Health (MOSH) administrative of 1926.62

- Ensuring that no employee is exposed to lead at concentrations greater than 50 µg/m^3 of air averaged over an eight (8) hour period.

- Ensuring that if an employee is exposed to lead for more than eight (8) hours in any work day, the employee's allowable exposure, as a time weighted average (TWA) for that day, must be reduced according to the following formula: Allowable employee exposure (in µg/m^3) = 400 divided by hours worked in a day.

- Knowing that when respirators are used to limit employee exposure as required by paragraph (c) of Section 1926.62, and all requirements of paragraphs (e)(1) and (f) of Section1926.62, have been met, employee exposure may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.

This program applies to all abatement, construction, demolition, or renovation work where one of our employees may be occupationally exposed to lead. All work related to construction, alteration, including painting is included. ***It is the goal of PNT to divert any lead abatement work to a properly qualified subcontractor. It is the goal of PNT to observe the abatement actions of the subcontractor.***

Administrative Duties

The Project Manager/Superintendent is responsible for its implementation and maintenance of this program. Copies of this written program may be obtained in the PNT Safety manual or at the corporate office from the Director of Safety.
This written safety plan covers the multiple potential job sites of PNT Consulting.

Exposure Assessment

Protection of Employees during Exposure Assessment

When tasks are presumed to generate lead exposures greater that the permissible exposure limit (PEL) of 50 µg/m^3 of air averaged over an eight hour period, we treat affected employees as if they were exposed above the PEL and implement procedures to protect workers until we perform an employee exposure assessment and document that an employee's lead exposure is not above the PEL.

Tasks estimated to generate a TWA of 50 µg/m^3 of air include:

- Manual demolition of structures (e.g. Dry wall), manual scraping, manual sanding, heat gun applications, and power tool cleaning with dust collection systems where lead coatings or paint are present.

• Spray painting with lead paint

Tasks estimated to generate a TWA of 500 µg/m^3 of air include:
• Using lead containing mortar or lead burning.

• Rivet busting, and power tool cleaning without dust collection systems.

• Cleanup activities, where dry expendable abrasives are used, and abrasive blasting enclosure movement and removal where lead containing coatings or paint are present.

Based on historical data from previous lead removal/abatement jobs, we will take measures as recommended in 29 CFR 1926.62 to protect our employees. These measures include but are not limited to:

• Appropriate respiratory protection (protection factor of 10, 25, 50, or 100) depending on the tasks involved and the estimated exposures).
• Proper personal protective clothing and equipment
• Change areas
• Hand washing facilities
• Biological monitoring
• Training

Initial Determination

PNT will assess each new project to determine if employees may be exposed to lead at or above the action level of 30 µg/m^3 of air as an eight hour TWA. This initial determination can be based on:
• Employee exposure monitoring.
• Objective data demonstrating that under expected conditions, specific processes, operations, or activities involving lead cannot result in employee exposure to lead at or above the action level.
• Previous monitoring for lead exposures within the last 12 months during work operations conducted under workplace conditions closely resembling the processes, types of materials, control methods, work practices, and environmental conditions used and prevailing in your operations.

We base initial determinations on employee exposure data. Our employee exposure monitoring data includes:
• Information, observations, or calculations which would indicate employee exposure to lead.
• Previous measurements of airborne lead.
• Any employee complaints of symptoms which may be attributable to exposure to lead.

Initial Determination Results

If our initial determination reveals employee exposures to be below the action level, an independent third party air-monitoring agency will be employed to conduct periodic air monitoring during operations to confirm that airborne lead levels are below the action level. The independent third party will only be hired if the subcontractor performing the abatement is not performing sufficient air monitoring as observed by the PNT safety department. The abatement subcontractor should provide their own air monitoring.
If our initial determination reveals employee exposures to be at the action level but at or below the PEL, an independent air monitoring agency will be employed to conduct air monitoring and personal air sampling of 25% of the represented work force. This monitoring can also be performed by the subcontractor if they are trained to do so.

If our initial determination reveals that employee's exposures will be above the PEL, attempts will be made through administrative and engineering controls to reduce exposures below the PEL. If this should fail to reduce the exposure level, employees shall wear the appropriate level of PPE necessary to reduce exposures below the PEL.

Additional Exposure Assessments

If changes in equipment, process, control, personnel or tasks occur after initial determination, we reevaluate to determine if employees are exposed to higher concentrations of lead. We will employ an independent third party air-monitoring agency to conduct periodic air monitoring of the work site to determine if changes occur in the exposure levels.

Employee Notification

Within five (5) working days of completing an exposure assessment we notify each employee in writing of his/her assessment results. Our procedure for this notification process is that we will post all air monitoring results for employees to review within five (5) working days.

Methods of Compliance

This program is PNT's written strategy and schedule for protecting our workers from lead exposure. It incorporates all relevant information that relates to this goal, so that we determine whether we appropriately analyzed problems and solutions (including alternatives) relating to lead exposure.

This program is intended to reduce employee exposure to at or below the PEL. When all feasible engineering and work practice controls that can be instituted are not sufficient to reduce employee exposure to acceptable levels, appropriate respiratory protection will be provided to supplement such controls.

Our job sites, equipment, and materials are regularly inspected. For most projects, lead abatement activities are expected to be the primary cause of our lead exposures.

To reduce and maintain employee exposures to lead at or below the PEL, we require our subcontractors to have implemented state-of-the art engineering and work practices to include, but not limited to; wet methods, negative air systems, necessary PPE.

Work Practice Programs

Our jobs are typically multi-employer worksites. The procedure we use to cooperate with other subcontractors and inform all employees of potential exposure to lead shall be that the subcontractor must supply this organization copies of lead worker and/or lead Superintendent licenses for all employees who may be exposed to lead from lead abatement activities. All subcontractor employees shall receive a site safety orientation to include the hazards of lead of the site prior to beginning work.
As an employer we want to keep our employees fully informed of all aspects of this plan. Our job site project management team along with our safety department will make frequent and regular inspections of the job site, materials, and equipment, and ensure a copy of this written plan is available at the worksite.

Respiratory Protection

As engineering controls and work practices are generally sufficient to reduce exposures to at or below the PEL

without the use of respirators, unless an employee specifically requests a respirator, respiratory protection will not be routinely used on PNT work-sites.

During the exposure assessment to document that our employees are not exposed above the PEL, PNT treats employees performing certain operations as if they were exposed above the PEL. This means providing respiratory protection. Our respirator program includes a copy of the requirements of 29CFR1926.62(f), 29CFR1926.62 App. B, and 29 CFR 1910.134 and is included in this plan. We provide NIOSH approved respirators, recommended in Table 1 of 29 CFR 1926.62, to employees who request them. Any employee may ask his Superintendent for a respirator and one will be provided upon that request in accordance with company policy.

PNT provides powered air purifying respirators (PAPR) instead of respirators recommended in Table 1 of 29CFR1926.62 to employees exposed to 1250 $\mu g/m^3$ of air or more who request them. Any employee who requests a PAPR through his Superintendent will be provided one upon that request in accordance with company policy.

Protective Work Clothing and Equipment

PNT provides personal protective equipment as interim protection for employees during exposure assessment, since our employees may be exposed to lead (1) above the PEL without regard to the use of respirators, or (2) to lead compounds which may cause skin or eye irritation. This outline of our Protective Work Clothing and Equipment policy is included as part of the site plan when required. PNT will also provide protective clothing and equipment at no cost to our employees.

The types of protective clothing provided by our company shall include, but is not limited to: Cotton tyvek coveralls, with hood; Saranex coated tyvek coveralls with hood; latex gloves with taped interfaces, safety glasses, and hardhats where necessary. This equipment is considered disposable, and is to be disposed of at the job site.
PNT will replace or repair any damaged equipment providing the employee notifies his Superintendent of the damage to his protective clothing.

Housekeeping

PNT believes that a rigorous housekeeping program is necessary in jobs where lead exposure or the potential of lead exposure to keep airborne lead levels below permissible limits. This requires a regular housekeeping schedule adapted to exposure conditions on the site.
For our projects our housekeeping procedures will include but are not limited to:

- Vacuuming floors and other surfaces where lead accumulates to minimize the likelihood of lead becoming airborne.

- Shoveling or wet sweeping (permitted only where vacuuming or other equally effective methods have been tried and found ineffective).

- Use of HEPA filters on vacuum cleaners.

- Emptying vacuums so that lead is not reintroduced into the workplace.

Hygiene Facilities and Practices

PNT will provide hygiene facilities for our workers and assure they follow good hygiene practices. We prohibit smoking, eating, applying cosmetics, and the presence of tobacco products, foodstuffs, or cosmetics in all work areas where employees are exposed to lead above the PEL. PNT makes sure worker will comply with these requirements through regular inspections by Superintendent personnel. Employees who fail to follow accepted/prescribed hygiene and safety procedures will be subject to disciplinary actions as prescribed by company policy.

Medical Surveillance

PNT supports the practices necessary for early detection of lead exposure. The medical surveillance program supplements the primary goals of the lead exposure control program of preventing disease through elimination or reduction of airborne concentrations of lead, and sources of ingestion. The medical surveillance provisions incorporate both initial and ongoing medical surveillance.
PNT will provide initial medical surveillance to employees who are occupationally exposed to airborne lead levels at or above the PEL. This monitoring consists of sampling blood and analyzing it for lead and zinc protoporphyrin levels. Where this initial biological monitoring indicates that an employee's blood lead level is at or above 40 µg/dl of whole blood, we provide biological monitoring every two (2) months. This frequency will continue until two consecutive blood samples and analysis indicates that the employee's blood lead level is below 40 µg/dl of whole blood. Otherwise, employees will be biologically monitored on a semi-annual basis.

All medical examinations, procedures, and blood lead level sampling/analysis shall be conducted by Licensed healthcare practitioners and/or physicians. PNT's medical surveillance program shall meet the requirements of 29CFR1926.62.

Medical Removal Protection

PNT removes employees from work who have exposures to lead at or above the action level each time a periodic and a follow-up blood sample indicates that the blood lead levels are at or above 50 µg/dl of whole blood. PNT also removes employees from work who have exposures to lead at or above the action level when a health care professional determines that they have medical conditions which, when exposed to lead, places them at greater risk for those health problems. Employees who are removed from work will receive all wages, benefits, for a period of 18 months without loss of seniority or promotion opportunities. The company reserves the right to place an employee in a position, of equal responsibility, where the employee will not be exposed occupationally to lead.

Employee Education and Training

Employees can do much to protect themselves from the risks of occupational lead exposure if they know about them. In our training programs we inform employees of the specific hazards associated with their work environment, protective measures which can be taken, and their rights under the standard (Including the contents of 29 CFR 1926.62 and appendices A & B) prior to the time of initial assignment. All employees working in areas with airborne lead levels above the PEL are required to possess lead worker and/or lead Superintendent licenses for the state in which they are working when required

Signs

Because exposure to lead is a serious health hazard, PNT will, or require the abatement subcontractor to post signs that warn employees of lead hazards and of the possible need to use respirators and other protective equipment in the area. Appropriate lead warning signs will be provided at all entrances and exits to the work area. Additionally, employees will be instructed as to the meanings of the various signs at the worksite during training.

Record keeping

PNT's subcontractor will maintain accurate biological and environmental monitoring records of employee exposures to potentially toxic materials, including lead. The records are maintained and kept for an indefinite period of time. PNT allows employees unlimited access to their records as required.

PNT includes the following exposure monitoring records on its employees only

- Exposure assessment
- Medical surveillance results
- Medical removals
- Objective data for exemption from requirement for initial monitoring
- Procedures for making records available
- Procedures for transfer of records

Observation of Monitoring

PNT provides our employees the opportunity to observe exposure monitoring of toxic materials or harmful physical agents. When an observer is present, Superintendent personnel shall ensure that the observer is provided with the following:

- An explanation of the measurement procedures being used.
- Allowing the observation of all steps related to the measurement procedures.
- The dissemination of the results when returned by the laboratory.
- Providing the observer with the proper personal protective equipment.
- Assuring that observers comply with all applicable safety and health procedures.

M. Crane Safety Policies & Procedures

1. **SCOPE AND APPLICATION**

This Crane Safety Policies and Procedures shall apply to all crane operations and activities on all PNT projects. A PNT Safety Superintendent should be consulted prior to any crane pick so that the aspects of the pick and the qualifications of the operator, rigger, etc. can be verified. All Superintendents should follow OSHA Subpart 1926.1400 CC for guidance and instructions on crane operation on their jobsites. The 29 Code of Maryland Regulations (COMAR) 1926.550 Cranes and Derricks should also be followed

It is also understood, however, that it is not possible to address every possible issue, situation and circumstance that may arise or be encountered on a project.

For this reason, if there are any conflicts or questions that occur, or if any portion of this policy does not specifically address a particular crane operation matter on a job, then the Director of Safety or the Deputy Director of Safety should contacted for clarification.

The Project Manager or the project Superintendent shall fill out a "Crane Pick Assistance Request" (PNT Intranet Page/Departments/Safety/Public Documents/Forms/Manual Forms)form no earlier than three weeks and no later than three work days prior to the crane pick and submit to the Safety Department. This document must be filled out so that the Safety Department can evaluate the pick for compliance with OSHA standard 1926.1400.This form can be obtained by contacting the Safety Department, or from the PNT Intranet Page(PNT Intranet Page/Departments/Safety/Public Documents/Forms/Manual Forms)

These Policies and Procedures are intended to supplement, not replace, applicable and governing state and/or federal occupational safety and health laws and standards.

2. **AUTHORITY & RESPONSIBILITIES OF PERSON ASSOCIATED WITH CRANE OPERATIONS – and with COMAR 9.12.26 COMAR policy**

2.1 **PNT Personnel**

a. Project manager.

The project Manager shall assure that all administrative requirements of these Policies & Procedures are accomplished and complied with.

The project Manager shall also oversee the activities of the project or Superintendent to assure that the requirements of these Policies & Procedures are complied with.

The project manager has complete authority to cease any crane activity or operation which is deemed to be unsafe or not complying with these Policies & Procedures, including those activities and operations of subcontractors.

b. Project Superintendent.

The Project Superintendent shall assure that all technical requirements of these Policies & procedures are complied with and that all field operations and crane activities on the project are in accordance with these Policies & Procedures, including those activities and operations of subcontractors.

The Project Superintendent has complete authority to cease any crane activity or operation which is deemed to be unsafe or not complying with these Policies & Procedures, including those activities and operations of subcontractors.

The Project Superintendent shall thoroughly review and become familiar with these Policies and procedures prior to participating in any crane operation or activity.

The Superintendent shall insure that all crane activities and operations are appropriately planned and that those people under his/her direct supervision or control carry out this planning. (see paragraph 6, Crane Operations, of these policies and Procedures.)

c. Forman.

The Forman shall thoroughly review and become familiar with these Policies and procedures prior to participating in any crane operation or activity.

The Forman shall be responsible for any crane activity or operations done at his/her direction or for the benefit of his /her work activities. (see paragraph 6, Crane Operations, of these policies and Procedures.)

If the Foreman is to supervise a pre-planned lift, he or she will review the plan prior to the lift. He/she has no authority to deviate from the plan, although he/she must use reasonable judgement whether to proceed or not as the plan is acted upon.

Any questions or misunderstandings by the foreman of his/her responsibilities and /or authority shall be clarified by his immediate Superintendent prior to commencing with any crane activity or operation.

2.2 Subcontractors.

Each subcontractor of PNT Consulting, on all PNT projects, shall comply with this Crane Safety Policies and Procedures and with OSHA 1926.1400 CC.

All subcontractors shall also comply with the following requirements:

a. Subcontractors shall have at the job-site at all times during the complete duration of all subcontractors' crane activities and operations an individual designated as its competent person. A competent person is defined as one capable of recognizing safety hazards and with the authority to take whatever action is necessary to immediately abate safety hazards. The person selected and designated by the subcontractor as its competent person must be acceptable to PNT.

b. Subcontractors shall fully comply with the paragraph of the Subcontract's Safety Requirement Exhibit of PNT's Subcontract Agreement with subcontractors.

c. Prior to commencing with a Critical Lift (see Paragraph 7, Critical Lifts, of these Policies & Procedures) or the erection or dismantlement of a tower crane. Subcontractor shall submit to PNT, in a form and format acceptable to PNT, insurance certificate(s) evidencing insurance coverage's including general liability, automobile liability and workers' compensation. The limits of liability of these coverage's to be provided by subcontractor will be stipulated by PNT. The certificate(s) to be submitted by subcontractor shall name PNT and the project Owner as additional insured, and shall be specific to the type of crane operation involved.

d. Prior to commencing with the use of its crane and related equipment, subcontractor shall submit to PNT, in a form and format acceptable to PNT, evidence and certification that its crane and related equipment is safe for use and worthy to be operated on the project. This certification shall include statements by an officer of the subcontractors company that the crane and related equipment meets all governing state and/or federal occupational safety and health standards and PNT requirements, and is safe for use and in safe working order.

3. INSPECTION OF CRANE

Each and every crane shall be inspected according to the criteria as indicated below. All documentation of crane inspection shall be with the crane and available for review at any time by authorized persons. The crane shall not be operated unless the required documentation of inspection is present on the crane. This documentation shall also be submitted by vendors and subcontractors to PNT upon request.

Any items found to be deficient or in need of repair or correction during any inspection shall be remedied prior to the crane being used or operated.

These requirements are in addition to those of the manufacturer of the crane.

a. Annual Inspection

The crane shall be inspected one time per year each and every year after its manufacture and service start date.

This inspection shall be performed by an independent third-party. The independent third-party shall be a competent person and, where required by law, certified to perform such inspection. When a crane is rented from a crane rental company, an annual inspection performed by an employee of the company may be acceptable as long as this employee has been trained in crane inspection by a government or private agency recognized by the U.S Department of Labor. A copy of the training certification of the inspector, if an employee of the crane rental company, shall accompany the annual inspection.

The annual inspection shall be comprehensive of all components of the crane and its safe operation and use.

b. Monthly Inspection

The owner of the crane shall have a qualified person inspect it monthly with special emphasis on critical wear areas and document the inspection utilizing a form acceptable to PNT.

c. Daily Inspection

The operator or oilier of the crane shall inspect it daily and document the inspection utilizing a form acceptable to PNT.

4. CRANE SAFETY EQUIPMENT

All cranes shall have installed and functional the safety components and devices as specified by the crane manufacturer and as originally on the crane at the time of manufacture. Such equipment would include anti-two-block devices, load-moment indicators and "deadman" controls. No crane shall be used which does not have this safety equipment installed and functional

Unless otherwise impossible due to extreme extenuating circumstances, only the most recently manufactured model crane shall be used. If an older model crane is to be used, then it shall be retrofitted, as recommended by the crane manufacturer, with the most effective safety devices available.

A crane load indicator and anti-two-block device should be installed on all hoist lines as a minimum on all cranes. These devises should be tested and maintained per the manufacturer's recommendations.

5 QUALIFICATIONS OF CRANE OPERATORS

Each subcontractor shall pre-qualify its operator(s) for work on the project prior to the operator(s) commencing work on the job.

PNT requires that all operators of cranes be qualified and/or certified by an accredited crane operator testing agency/organization as per 1926.1427. A copy of the operator's license, certification as applicable shall be submitted to PNT prior to the operator performing work on the project.

All operators must be reasonably acceptable to PNT.

6. CRANE OPERATIONS

All PNT operations and activities involving rented cranes shall be supervised by a PNT Superintendent/ Foreman.

All operations and activities involving subcontractor-owned or rented cranes shall be supervised by the most senior Superintendenty person that the subcontractor has on the job and the subcontractor's competent person as previously defined in paragraph 2.2 (a)

The person supervising the crane operation and activity is responsible to plan for the safe execution of the same. The crane operator is responsible to follow the supervising person's plan and the safe execution of the crane operation and activity. The crane operator shall not be the crane activity Superintendent.

The person supervising the crane operation and activity shall assure that the crane is not operated in a manner that exceeds the crane manufacturer's requirements or recommendations for safe operation.

In addition to the requirements, recommendations, and safe operating instructions of the crane manufacturer, the following rules shall also apply to each crane operation and activity.

a. The crane shall be positioned so that it is level to within 1 degree of horizontal, with outriggers, tracks, or stabilizers fully extended, and on a surface that is capable of supporting the crane and the maximum load it will hoist.

b. The crane manufacturer's operators manual and other manuals for the crane and the crane's load charts specific to the crane itself shall be in the crane and adhered to at all time.

c. All safety devices and components, provided as original equipment or retrofitted such as anti-two-block devices and or load-moment indicators, shall be in functional working condition at all times. (See paragraph 4, Crane Safety Equipment, of these Policies and Procedures.)

d. Prior to commencing with hoisting a load with the crane, the person supervising the crane operations and activity and the crane operator shall both know the actual total weight of the load to be hoisted, including the weight of the rigging utilized and any other components which reduce the lifting capacity, and check that the total load can be safely lifted within the limit of the crane's load chart based on any configuration of the crane at any time during the lifting sequence.

e. The crane Superintendent and /or the crane operator shall and must decline to operate the crane or attempt to lift or hoist any load when the operator, using experience, judgment and factual information determines that the crane is unsafe or the lift activity is not adequately planned or would otherwise be unsafe for any reason whatsoever. Any exception to this paragraph must be approved by the project manager.

CRITICAL LIFTS

7 A Critical Lift is that crane operation or activity which includes one or more of the following elements:

a. The use of two or more cranes to hoist or lift a load.

b. Any lift or load which, when hoisted, will or may very likely exceed 75% of the capacity of the crane in its current configuration at any time during the lift sequence. The determination of the lift or load weight shall take into consideration not only the weight of the item or items being hoisted, but also all rigging equipment, etc.

c. A lift or hoisting of a load at or in close proximity to active streets and /or areas occupied by the public.

d. A lift in which the crane is in close proximity to or has the potential to contact energized electrical lines.

e. Lift involving specialized or unique and complex rigging equipment, the use of which requires a more sophisticated level of training than the conventional crane operations.

f. Lifts in which persons will be in a crane personnel basket suspended from the crane or a work

platform attached to the crane.

g. Tower crane erection and dismantlement.

i. Unusual weather and Superintendent concerns.

7.2 Any crane operation and activity which is considered a Critical Lift shall not be commenced until a written plan for same is accomplished. (see attached Critical Lift Document)

8. TRAINING OF PERSONS ASSOCITED WITH CRANE OPERATIONS AND ACTIVITIES

Because a thorough and complete understanding of safe operations of cranes and crane activities is essential to the avoidance of accident/incidents, it is of extreme importance that all persons associated and involved with crane operations be properly and adequately trained.

For this reason, the Project Manager and or Project Superintendent shall assure that any persons involved with crane operations receive the training necessary for safe work to be performed.

N. CRITICAL LIFTS & RIGGING PROCEDURES

A "Crane Pick Assistance Request" form should be filled out by the Project Manager and/or the Superintendent so that the Safety Department can review the critical lift plan to ensure that it complies with OSHA standard 1926.1400. No lift should be done without first reviewing with the Corporate Safety Department.

No critical lifts (materials hoisting) will be undertaken without first developing a Critical Lift Plan specific to that project. ***The plan must be reviewed by the Corporate Safety Department***. A critical lift is defined as the load being lifted exceeding 75% of the capacity of the crane at the time of the pick. The plan will specify the following:

●location of lift

●name and telephone of contact person responsible for developing the plan

●date and attendees of Prelift Meeting of all those involved in creating the plan

●hoisting method; equipment used will comply with all ANSI and OSHA requirements

●outside agencies to be contacted (eg. Utilities)

●drawing showing:

- ○location of load before and after lift, as well as travel path
- ○power lines and other obstacles; specify clearances
- ○underground hazards (sewers, water, gas) where load may cause damage

The plan will designate the following **4 key positions/lifting personel** and their respective duties.

●**<u>Competent Person</u>**

- qualifications:
- knows capacities of equipment
- understands how to inspect it (see attached guidelines)
- qualified to connect and control load
  Duties:

- directs lift
- signals operator
- keeps work area (travel path and destination) clear

●**Signal Person**

- name and location will also be shown on drawing
- radio required if visual contact with operator is impossible

●**Operator**

- has authority to stop lift

●**Tag Line Attendant**

- control load and prevent rotation
- *two* tag line attendants may be required for some loads
- name, location, and path will be shown on drawing

Communication Methods

●standard ANSI hand signals

●emergency signals

●methods of voice communication (radio/voice, etc.)

Rigging Weight

●from hook down (include all rigging hardware, block, headache ball if used, and load)

Load Analysis (to help choose appropriate sling type)

●size

●weight

- use rigging tables or calculate by measuring volume and applying specific gravity

●Identify Center of Gravity (CG)

- use reference handbook such as ***"Bob's Rigging & Crane Handbook***"

- CG must be directly under hook; if not, the load will *swing* and unequal stresses will be placed on the sling legs

●effects of shape, contents, surface finish, crush resistance

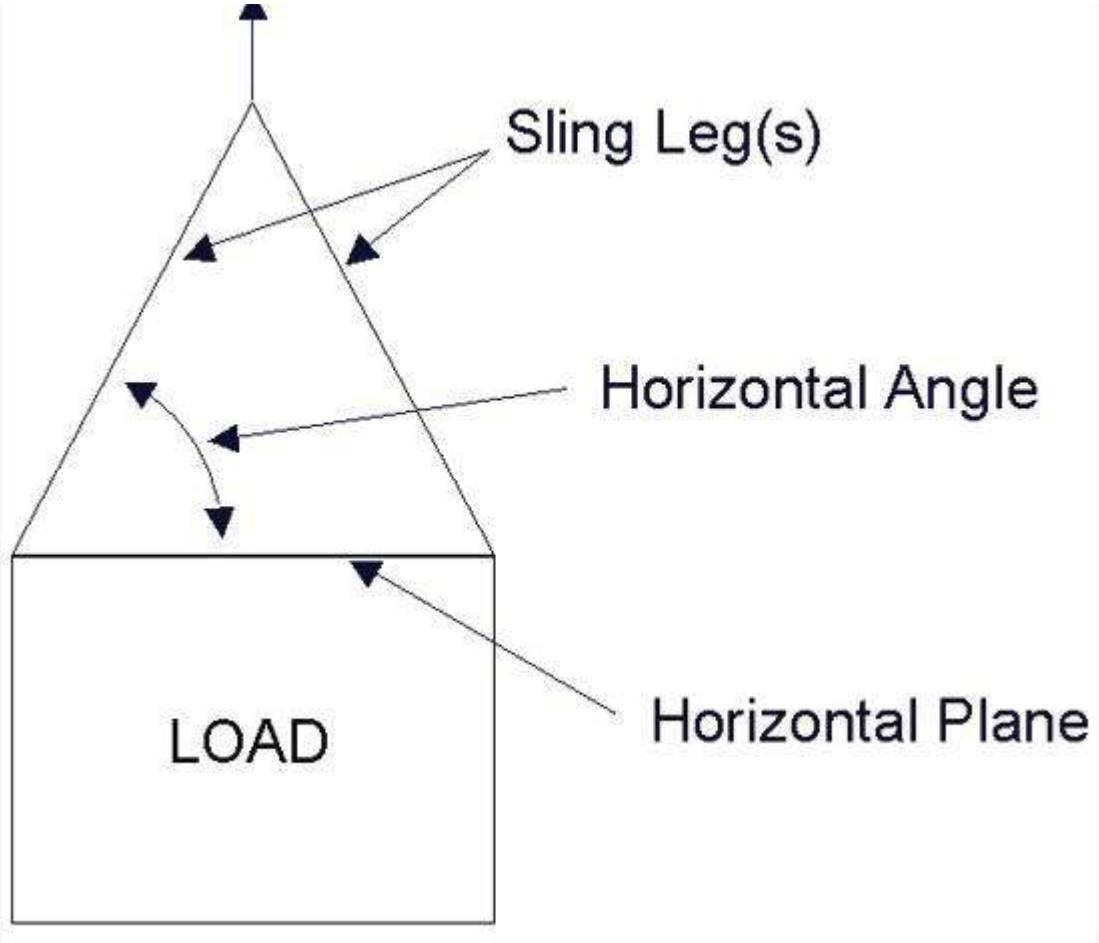
●identify reasons for appropriate sling(webbing, chain, metal mesh, or wire rope)

eg. Nylon web slings mould themselves to the load; they do not crush the load. However, they do not resist abrasion or high temperatures.

Single vertical hitch not used for long, loose, or difficult to balance loads where load may rotate or tilt (figure 3)
Double basket hitch used for loose loads; provides support & compresses load

Calculate Sling Angle

How to calculate sling angle



To calculate the load on a particular sling leg proceed as follows:

1. Take the total weight of the load and divide this by the number of legs supporting the load. For example, assume a 2000 pound load is to be supported by 2 legs of a sling. The above will give a total minimum weight on each leg of the sling of 2000 pounds divided by 2 legs or 1000 pounds.
2. Determine the load factor by observing the load factor chart below. Ex. Assume that the leg angle will be 60°. The load factor for 60° from the load factor chart is 1.154.
3. Multiply the load factor times the minimum weight to be supported by the leg, i.e. 1000 pounds times 1.154=1154 pounds. The rated sling capacity needed is then 2308 (1154x2) pounds in basket capacity to safely lift the 2000 pound load.

Leg Angle	Load Factor
90°	1.000
85°	1.003
80°	1.015
75°	1.035
70°	1.064
65°	1.103
60°	1.154
55°	1.220
50°	1.305
45°	1.414
40°	1.555
35°	1.743
30°	2.000

Sling Angle is affected by number of legs (eg. A vertical hitch is always 90°)

As Sling Angle decreases (closer to horizontal),the weight on the leg decreases. It is always preferable to have the sling legs as close to the horizontal as possible.

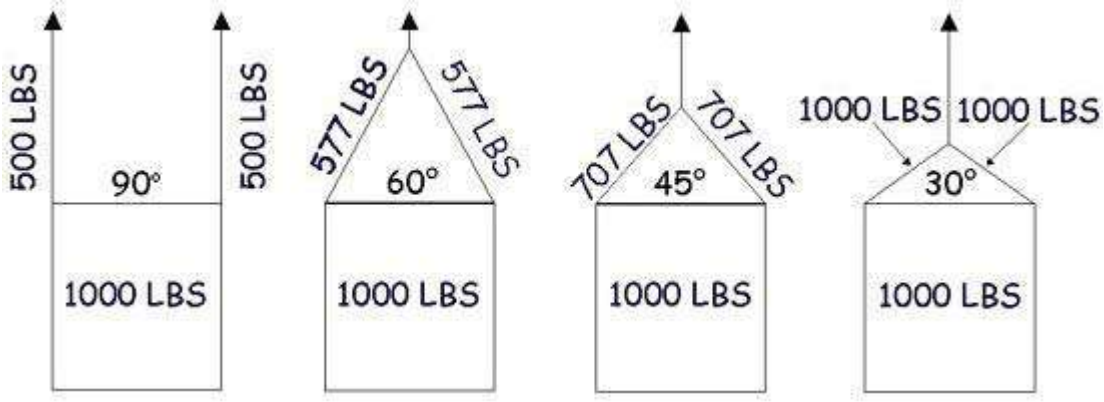


*Illustration: effect of sling angle on rated capacity:*The best sling angles are 60 – 90° never less than 45° or greater than 120°. (same reason outrigger tie-backs run as straight back as possible)
For example:

●a 45° angle increases the load 1.5 times.

Therefore, always use the longest sling possible.

Rule of thumb: If the shortest leg is longer than the sling distance between attachment points, the sling angle is greater than 60°

Consider also that any time a wire rope sling is bent around corners or curves, reduction in rated capacity occurs (D/d ratio). Check reference table for the actual rated capacity of the sling.

Rigging Gear

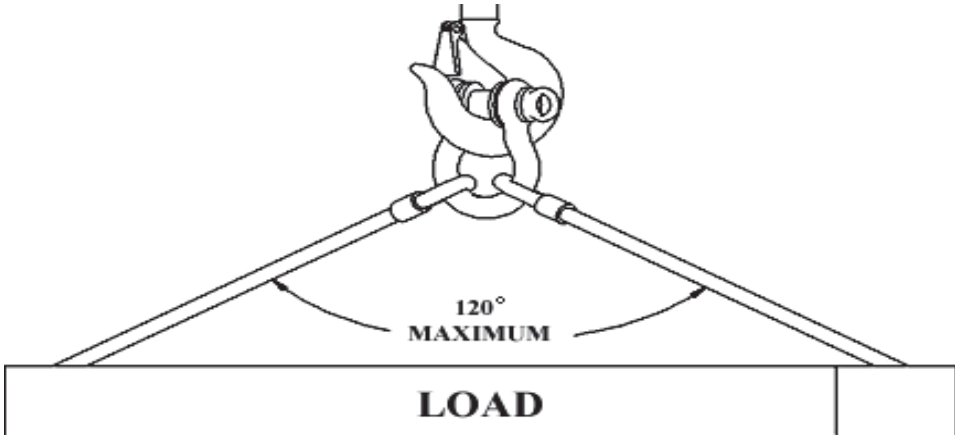
●identify hoisting device

●identify slings, attachments, blocking, shoring, and all other equipment used to position and move load (all metal components should be forged alloy steel)sling *material* and type of *hitch*

●determine Safe Working Load (aka Working Load Limit or WLL); or Rated Capacity)

- hardware all attachments must have same WLL as sling
- consider effect of angle of load on shackle and other hardware as was done with the sling legs.

Angle of side load from vertical In-line of shackle	Adjusted Working Load Limit
0° In-Line	100% of Rated Working Load Limit
45° from In-Line	70% of Rated Working Load Limit
90°	50% of Rated Working Load Limit



from In-Line

Consider that the sling's rated capacity differs depending on type of hitch used. Basket is stronger that a vertical hatch, choker is weaker.

With 2 or more slings on a hook, use a shackle

Swivels should be used where a shackle could twist ad become eccentrically loaded

Never run a sling though a hook or shackle as it can slide in the hook shackle

Environmental Considerations

- High winds or snow affect visibility
- Cold temperatures, ice and snow can cause shock loading (load frozen to ground.)
- Flames, hot temperatures, high surface temps.
- Rough terrain could topple hoisting equipment
- Electrocution is greatest cause of hoisting indicents. Minimum clearancefor overhead powerlines is 10feet

- Hazardous substances
  - Never use nylon slings with acid
  - a. Never use polyester with caustics.

2. Include the attached lift guidelines
   a. Worksite inspection
   b. Lift test
   c. Performing the list
   d. After the lift.
   e. Examine load
   f. Inspection of path load will follow
   g. Ensure destination is clear and suitable
   h. Analyze swing radius of crane, building clearances
   i. Perform lift test
   j. Ensure no cause of fouling the load
   k. Use padding and blocking to protect the sling from sharp corners, rough edges, or sharp corners, rough edges or sharp bends in lines.
   l. Ensure hook above the CG (center gravity)
   m. Ensure sling seated in hook bowl and all connections are correct as illustrated below:

- Keep hands clear of pinch points
- Have operator slowly take up slack to prevent shock loading
- Be sure lift line is vertical; Reposition boom if necessary so dangerous dragging or swinging does not occur.

Performing the lift

- Lift smoothly, no jerking the load
- Avoid raising the load higher than necessary
- Never leave load suspended
- Keep area clear
- Follow planned path
- Prevent rotation by using tags lines and lifting gently
- Only tag line attendant and signal man should be in lift area
- Competent person stays in view of the operator and provides clear signals using two way radio if necessary
- ANSI hand signals must be posted at the site.
- Only one person may control lift.

HOOKS

- Saddle (bowl); replace is wear is >10% of original thickness
- Neck
- Eye (ring)
- Throat (does it close properly)

Shackles

ID tag must be legible
Pin (must be the original shackle pin; not ordinary bolt; on permanent rigging , the pin must be a bosl with a nut at the end.
Eyes (does pin thread properly)
Opening between eyes (reject if spread)

Chain

Measure wear both on inner and outer part of link barrels

Custom Accessories

Custom accessories must be proof tested to 125% of rated capacity and marked with safe working load.

O. Hazmat & Spill Prevention Response Plan

This spill plan is designed to handle the HAZMAT & non HAZMAT spill requirements, including cleanup procedures, of any place that PNT may work as well provide a means for providing an inventory for any HAZMAT materials that may be encountered on a job-site.

Spill Prevention:

The following are general requirements for any hazardous materials stored or used at the facility that PNT may be working. In the event of a spill or contact with a hazardous material, immediately contact CHEMTREC at 703-253-4256 for relevant information and assistance.

General Requirements

1. Ensure all hazardous substances are properly labeled.
2. Store, dispense, and/or use hazardous substances in a way that prevents releases.
3. Provide secondary containment when storing hazardous substances in bulk quantities (~55gl).
4. Maintain good housekeeping practices for all chemical materials at the facility.
5. Routine/Daily checks in the hazardous material storage area to be performed by PNT Superintendent and/or other designated personnel.
6. Inspections of the hazardous material storage area, secondary containment, and annular space (interior cavity of double wall tank) on any present Above-ground Storage Tanks (AST) or Underground Storage Tanks (UST) need to be logged in this plan. See Appendix A - Inspection Log.

Facility Specific Requirements (as determined by the customer)

1. _____
   _____
2. _____
   _____

Spill Containment:

The general spill response procedure at any facility is to stop the source of the spill, contain any spilled material, and clean up the spill in a timely manner to prevent accident/incidental injury or other damage.

Small spills will be contained by site personnel if they are able to do so without risking injury. Spill kits are located at the following location(s): **PNT Warehouse & Job-site if Needed. Spill kits should be maintained on the job-site if there is any possibility that HAZMAT materials that could potentially be spilled.**

Emergency Procedures:

Immediately call 911 in the event of injury, fire or potential fire, or spill of a hazardous substance that gives rise to an emergency situation. Also, immediately contact CHEMTREC to obtain the appropriate SDS.

b. Emergency telephone numbers are:

- VA Fire Department ……..……911
- DC Fire Department ……911
- MD Fire Department……911
- **Emergency Environmental Response Company: (DC METRO, ATLANTA, GA & CHARLESTON, SC)**

  - **HEPACO** **800-888-7689**
  - **CHEMTREC** **703253-4256**

- If a spill has occurred, contact the following persons immediately:

Robert Poole - Corporate Safety Director (Primary)	**703-929-7302**
Ed Van Haute – Deputy Safety Director (Secondary)	703-231-5206
Robert Poole – Corporate Safety Director (After Hours Emergency Contact)	703-929-7302

- **In the event of a large spill, a properly trained employee should**:
  - Notify the primary and/or secondary contact from the list above. Continue your spill response. The primary contact at this time should assess additional notification requirements Retrieve the spill kit from the closest location.
  - Assess the area for any immediate dangers to your health or safety (i.e. a wrecked car on fire). If any dangers are present, move away from the area, **call 911**.
  - Assess the size of the leak and any immediate threat of the spill reaching the floor/storm drains or permeable surfaces in the area. If there is an immediate threat and there are no safety concerns, then attempt to block the spill from coming in contact with the floor/storm drain or permeable surface. If no drain covers are available, then try to use absorbent (cat litter) and/or sock booms or rags to stop the spill from getting into the drains or to any permeable surfaces. Contact CHEMTREC at 703-253-4256
  - If there is no immediate threat to the floor/storm drains or permeable surfaces, or after controlling the spill, try to plug or stop the leak, if possible. If applicable, put on protective gear (gloves, goggles, protective clothing, etc.) and plug the leak.
  - If the spill can be contained with absorbent booms, deploy them around the spill. Use the booms to direct the spill away from any immediate hazards.
  - Once the spill has been contained and any immediate threat to storm drains or permeable surfaces has been minimized, contact the spill cleanup contractor and dispatch them to clean up the spill or commence spill cleanup procedures.
  - If, at anytime, there is a threat to safety or the chance of the spill reaching a floor/storm drain, **call 911 & CHEMTREC at 703-256-4256**

CLEAN-UP PROCEDURES

- Spilled chemicals should be effectively and quickly contained and cleaned up. Employees should clean up spills themselves ***only if properly trained and protected.*** Employees who are not trained in spill cleanup procedures should report the spill to the Responsible Person(s) listed above, warn other employees, and leave the area. The spill area should be protected (barricaded) so that no unauthorized personnel can enter the area.
- The Maximum Cleanup Amounts that properly trained employee can cleanup is listed below. The spills are classified as small, medium or large. In the event of spills greater than these amounts, contact the appropriate responders listed in the Emergency Contact Numbers listed above.
- The following general guidelines should be followed for evacuation, spill control, notification of proper authorities, and general emergency procedures in the event of a chemical incident in which there is potential for a significant release of hazardous materials.

1. Evacuation

- Persons in the immediate vicinity of a spill should *immediately evacuate* the premises (except for employees with training in spill response in circumstances described below). If the spill is of "medium" or "large" size, or if the spill seems hazardous, immediately notify emergency response personnel.

2. Spill Control Techniques

- Once a spill has occurred, the employee needs to decide whether the spill is small enough to handle without outside assistance. Only employees with training in spill response should attempt to contain or clean up a spill. Call CHEMTREC at 703-253-4256 to assist in analyzing the situation.
- NOTE: If you are cleaning up a spill yourself, make sure you are aware of the hazards associated with the materials spilled, have adequate ventilation, and proper personal protective equipment. Treat all residual chemical and cleanup materials as hazardous waste.
- Spill control equipment should be located wherever significant quantities of hazardous materials are received or stored. MSDSs, absorbents, over-pack containers, container patch kits, spill dams, shovels, floor dry, acid/base neutralizers, and "caution-keep out" signs are common spill response items.

3. Spill Response and Cleanup

- Chemical spills are divided into three categories: Small, Medium and Large. Response and cleanup procedures vary depending on the size of the spill.

Small Spills: Any spill where the major dimension is less than 18 inches in diameter. Small spills are generally handled by internal personnel and usually do not require an emergency response by police or fire department HAZMAT teams. Call CHEMTREC at 703-253-4256 to review the spill with them and access any actions that may need to be taken.

- Quickly control the spill by stopping or securing the spill source. This could be as simple as uprighting a container and using floor-dry or absorbent pads to soak up spilled material. Wear gloves and protective clothing, if necessary.

- Put spill material and absorbents in secure containers if any are available.

- Consult with the Facility Responsible Person and the MSDS for spill and waste disposal procedures.

- In some instances, the area of the spill should not be washed with water. Use Dry Cleanup Methods and **never** wash spills down the drain, onto a storm drain or onto the driveway or parking lot.

- Both the spilled material and the absorbent may be considered hazardous waste and must be disposed of in compliance with state and federal environmental regulations.

- **Medium Spills:** Spills where the major dimension exceeds 18 inches, but is less than 6 feet. Outside emergency response personnel (police and fire department HAZMAT teams) should usually be called for medium spills. Common sense, however, will dictate when it is necessary to call them. Make sure to contact CHEMTEC at 703-253-4256 for professional input regarding the situation.

- Immediately try to help contain the spill at its source by simple measures only. This means quickly uprighting a container, or putting a lid on a container, if possible. Do not use absorbents unless they are immediately available. Once you have made a quick attempt to contain the spill, or once you have quickly determined you cannot take any brief containment measures, leave the area and alert Emergency Responders at 911. Closing doors behind you while leaving helps contain fumes from spills. Give police accurate information as to the location, chemical, and estimated amount of the spill.

- Evaluate the area outside the spill. Engines and electrical equipment near the spill area must be turned off. This eliminates various sources of ignition in the area. Advise Emergency Responders on how to turn off engines or electrical sources. Do not go back into the spill area once you have left. Help emergency responders by trying to determine how to shut off heating, air conditioning equipment, or air circulating equipment, if necessary.

- If emergency responders evacuate the spill area, follow their instructions in leaving the area.

- After emergency responders have contained the spill, be prepared to assist them with any other information that may be necessary, such as MSDSs and questions about the facility. Emergency responders or trained personnel with proper personal protective equipment will then clean up the spill residue. Do not re-enter the area until the responder in charge gives the all clear. Be prepared to assist these persons from outside the spill area with MSDSs, absorbents, and containers.

- Reports must be filed with proper authorities. It is the responsibility of the spiller to inform both his/her Superintendent and the emergency responders as to what caused the spill. The response for large spills is similar to the procedures for medium spills, except that the exposure danger is greater.

- **Large Spills:** Any spill involving flammable liquid where the major dimension exceeds 6 feet in diameter; and any “running” spill, where the source of the spill has not been contained or flow has not been stopped.

- Leave the area and notify Emergency Responders (911). Give the operator the spill location, chemical spilled, and approximate amount. Also contact CHEMTREC at 703-253-4256

- From a safe area, attempt to get MSDS information for the spilled chemical for the emergency responders to use. Also, be prepared to advise responders as to any ignition sources, engines, electrical power, or air conditioning/ventilation systems that may need to be shut off. Advise responders of any absorbents, containers, or spill control equipment that may be available. This may need to be done from a remote area, because an evacuation that would place the spiller far from the scene may be needed. Use radio or phone to assist from a distance, if necessary. Contact CHEMTREC at 703-253-4256 for information on the MSDS/SDS sheets.

- Only emergency response personnel, in accordance with their own established procedures, should handle spills greater than 6 feet in any dimension or that are continuous. Remember, once the emergency responders or HAZMAT team is on the job cleaning up spills or putting out fires, the area is under their control and no one may re-enter the area until the responder in charge gives the all clear.

Provide information for reports to Superintendents and responders, just as in medium spills.**REPORTING SPILLS**

- All chemical spills, regardless of size, should be reported as soon as possible to the Facility Responsible Person. The Responsible Person will determine whether the spill has the potential to affect the environment outside of the facility and must be reported to 911or the National Response Center (NRC) at 800-424-8802. ***The Safety Director or Deputy Safety Director should be consulted prior to any calls made to the VA DEQ or the NRC.*** Examples of spills that could affect the outside environment include spills that are accompanied by fire or explosion and spills that could reach nearby water bodies.

Spill Reporting:
Notify the following agencies if a hazardous substance has been released to soil, surface water, storm drains or the spill exceeds 25 gallons.

c. Virginia Department of Environmental Quality……(800) 592-5482(only notify after consulting with Safety Director/Deputy Safety Director)

d. National Response Center (NRC)……..(800) 424-8802(only notify after consulting with Safety Director/Deputy Safety Director)

Emergency Environmental Response Company: (DC METRO, ATLANTA, GA & CHARLESTON, SC)

HEPACO 800-888-7689

- **CONSULT THE SAFETY DIRECTOR OR CORPORATE OFFICER BEFORE CONTACTING HEPACO**

THE VA DEPT. OF ENVIORNMENTAL QUALITY OR THE NATIONAL RESPONSE CENTER SHOULD BE CONTACTED ONLY AFTER CONSULTING WITH SAFETY DIRECTOR AND/OR DEPUTY SAFETY DIRECTOR.

Plan Management:
The primary contact, or their designee, shall administer this plan and will be responsible for updating and including any required documentation.

Training:
All personnel that may respond to a spill, large or small, need to be trained on the contents and procedures in this plan. Trained personnel will add their name, date of training, and phone number to the Training Log (see Appendix D). ***Only persons trained on this plan shall respond to a spill.*** If you are not trained and witness a spill, call or notify the primary and secondary contacts listed on page 2 of this plan. Be sure to contact CHEMTREC at 703-253-4256

Spill Tracking:
Any spills must be entered into the Spill Log (see Appendix C). If a large catastrophic spill occurs, attach additional pages to describe the event. Include known or possible causes, areas affected, and effectiveness of the cleanup. Include a review of the cleanup contractor and their procedures. For small spills, it is sufficient to fill out the Spill Log, and to take measures to prevent a repeat occurrence.

Facility Inspections:
Routine inspections will be conducted daily during regular business hours on standard business days. Daily inspections will include, at a minimum, a visual inspection of the hazardous materials containers and the area immediately adjacent to it for signs of a spill or leak. These inspections do not need to be logged unless a spill or leak is detected. Ideally, this inspection will be conducted by a manager or by regular employees.

Full site inspections will be conducted monthly by the primary contact or their designee and will include, at a minimum, those items included on the inspection form in Appendix B.

Appendix B Inspection Form

Acceptable	Unacceptable	
☐	☐	**Lids and Labels?** Have all lids and caps been returned to their proper place? Do all the containers still have labels?
☐	☐	**Evidence of Spills?** Is there any indication that a spill might have occurred? If so, was the spill properly cleaned up? Was there any spill kit materials used? Was the Spill Log filled out for that incident? Any housekeeping issues?
☐	☐	**Any Alarms or Sensor issues? (Tanks with alarm systems only)** Have there been any alarm conditions in the past month? If alarms have occurred, has the monitoring system been serviced by the manufacturer or an authorized service company? Is the system up and working at this time? Is the sensor working? Did you conduct a test of the alarm and the sensor? When was the last time the sensor was serviced?
☐	☐	**New Hazardous Materials?** Have any new chemical products been purchased? Do you have the MSDS for the new product? Have you assessed how to store and handle this new product safely? Have you added the new hazardous material to the inventory sheet in this plan? Is the container properly labeled?
☐	☐	**Spill Kit Complete?** Have any items been used from the spill kit? If items are missing, is there an associated entry in the Spill Log? Are there any items missing that are currently on order? Is the spill kit stored where it is supposed to be stored? Is there a sufficient supply of daily cleanup materials?
☐	☐	**Storm Drains?** Is there a buildup of sediment in the drain traps? Is there any evidence of drain clogging? Are the drain filters still intact? Any need replacing? Have they been replaced?
☐	☐	**Items Fixed?** Have all deficiencies previously noted been fixed or made acceptable?

List any issues, deficiencies, or failures in detail:

_____

_____

_____

_____

_____

Appendix C – Spill Log

Date of Spill	Location of Spill	Size of Spill (~ gallons)	Prevention Measures Taken?	Spill Kit Materials Reordered?	Was the Spill Kit Adequate? (List any deficiencies, i.e. missing equipment, etc.)

Appendix D – Training Log

Employee Name (print name)	Employee Phone Number	Date Training Completed

Site Map

(Location of spill kits, inside floor drains, storm drains, and hazardous material storage areas.)

P. MOLD & REMEDIATION PLAN

Introduction

Concern about indoor exposure to mold has increased along with public awareness that exposure to mold can cause a variety of health effects and symptoms, including allergic reactions. This section of the safety manual provides recommendations for the prevention of mold growth and describes measures designed to protect the health of building occupants and workers involved in mold cleanup and prevention. ***Mold clean up and remediation shall be performed by a licensed subcontractor and not by PNT personnel at any time.*** Mold remediation should always be mitigated by an outside contractor with a license to safely remove and dispose of the mold.The advice of a medical professional should always be sought if there are any emerging health issues. This section will help those responsible for building maintenance in the evaluation of remediation plans. The information in these guidelines is intended only as a summary of basic procedures and is not intended, nor should it be used, as a detailed guide to mold remediation. These guidelines are subject to change as more information regarding mold contamination and remediation becomes available.

Mold Basics

Molds are part of the natural environment. Molds are fungi that can be found anywhere - inside or outside - throughout the year. About 1,000 species of mold can be found in the United States, with more than 100,000 known species worldwide.

Outdoors, molds play an important role in nature by breaking down organic matter such as toppled trees, fallen leaves, and dead animals. We would not have food and medicines, like cheese and penicillin, without mold.

Indoors, mold growth should be avoided. Problems may arise when mold starts eating away at materials, affecting the look, smell, and possibly, with the respect to wood-framed buildings, affecting the structural integrity of the buildings.

Molds can grow on virtually any substance, as long as moisture or water, oxygen, and an organic source are present. Molds reproduce by creating tiny spores (viable seeds) that usually cannot be seen without magnification. Mold spores continually float through the indoor and outdoor air.

Molds are usually not a problem unless mold spores land on a damp spot and begin growing. They digest whatever they land on in order to survive. There are molds that grow on wood, paper, carpet, foods and insulation, while other molds feast on the everyday dust and dirt that gather in the moist regions of a building.

When excessive moisture or water accumulates indoors, mold growth often will occur, particularly if the moisture problem remains uncorrected. While it is impossible to eliminate all molds and mold spores, controlling moisture can control indoor mold growth.

All molds share the characteristic of being able to grow without sunlight; mold needs only a viable seed (spore), a nutrient source, moisture, and the right temperature to proliferate. This explains why mold infestation is often found in damp, dark, hidden spaces; light and air circulation dry areas out, making them less hospitable for mold.

Molds gradually damage building materials and furnishings. If left unchecked, mold can eventually cause structural damage to a wood framed building, weakening floors and walls as it feeds on moist wooden structural members. If you suspect that mold has damaged building integrity, consult a structural engineer or other professional with the appropriate expertise.

Since mold requires water to grow, it is important to prevent excessive moisture in buildings. Some moisture problems in buildings have been linked to changes in building construction practices since the 1970s, which resulted in tightly sealed buildings with diminished ventilation, contributing to moisture vapor buildup. Other moisture problems may result from roof leaks, landscaping or gutters that direct water into or under a building, or unvented combustion appliance. Delayed or insufficient maintenance may contribute to moisture problems in buildings. Improper maintenance and design of building heating/ventilating/air-conditioning (HVAC) systems, such as insufficient cooling capacity for an air conditioning system, can result in elevated humidity levels in a building.

Health Effects

Currently, there are no federal standards or recommendations, (e.g., OSHA, NIOSH, EPA) for airborne concentrations of mold or mold spores. Scientific research on the relationship between mold exposures and health effects is ongoing. This section provides a brief overview, but does not describe all potential health effects related to mold exposure. For more detailed information, consult a health professional or your state or local health department.

There are many types of mold. Most typical indoor air exposures to mold do not present a risk of adverse health effects. Molds can cause adverse effects by producing allergens (substances that can cause allergic reactions). Potential health concerns are important reasons to prevent mold growth and to remediate existing problem areas.

The onset of allergic reactions to mold can be either immediate or delayed. Allergic responses include hay fever-type symptoms such as runny nose and red eyes.

Molds may cause localized skin or mucosal infections but, in general, do not cause systemic infections in humans, except for persons with impaired immunity, AIDS, uncontrolled diabetes, or those taking immune suppressive drugs.

Molds can also cause asthma attacks in some individuals who are allergic to mold. In addition, exposure to mold can irritate the eyes, skin, nose and throat in certain individuals. Symptoms other than allergic and irritant types are not commonly reported as a result of inhaling mold in the indoor environment.

Some specific species of mold produce mycotoxins under certain environmental conditions. Potential health effects from mycotoxins are the subject of ongoing scientific research and are beyond the scope of this document.

Eating, drinking, and using tobacco products and cosmetics where mold remediation is taking place should be avoided. This will prevent unnecessary contamination of food, beverage, cosmetics, and tobacco products by mold and other harmful substances within the work area.

Prevention

Moisture control is the key to mold control. When water leaks or spills occur indoors - act promptly. Any initial water infiltration should be stopped and cleaned promptly. A prompt response (within 24-48 hours) and thorough clean- up, drying, and/or removal of water-damaged materials will prevent or limit mold growth.

Mold prevention tips include:

- Repairing plumbing leaks and leaks in the building structure as soon as possible.
- Looking for condensation and wet spots. Fix source(s) of moisture incursion problem(s) as soon as possible.
- Preventing moisture from condensing by increasing surface temperature or reducing the moisture level in the air (humidity). To increase surface temperature, insulate or increase air circulation. To reduce the moisture level in the air, repair leaks, increase ventilation (if outside air is cold and dry), or dehumidify (if outdoor air is warm and humid).
- Keeping HVAC drip pans clean, flowing properly, and unobstructed.
- Performing regularly scheduled building/ HVAC inspections and maintenance, including filter changes.
- Maintaining indoor relative humidity below 70% (25 - 60%, if possible).
- Venting moisture-generating appliances, such as dryers, to the outside where possible.
- Venting kitchens (cooking areas) and bathrooms according to local code requirements.
- Cleaning and drying wet or damp spots as soon as possible, but no more than 48 hours after discovery.
- Providing adequate drainage around buildings and sloping the ground away from building foundations. Follow all local building codes.
- Pinpointing areas where leaks have occurred, identifying the causes, and taking preventive action to ensure that they do not reoccur.

Questions That May Assist in Determining Whether a Mold Problem Currently Exists

- Are building materials or furnishings visibly moisture damaged?
- Have building materials been wet more than 48 hours?
- Are there existing moisture problems in the building?
- Are building occupants reporting musty or moldy odors?
- Are building occupants reporting health problems that they think are related to mold in the indoor environment?
- Has the building been recently remodeled or has the building use changed?
- Has routine maintenance been delayed or the maintenance plan been altered?

Always consider consulting a health professional to address any employee health concerns.

Remediation Plan (Information Only)

Remediation includes both the identification and correction of the conditions that permit mold growth, as well as the steps to safely and effectively remove mold damaged materials.

Before planning the remediation assess the extent of the mold or moisture problem and the type of damaged materials. If you choose to hire outside assistance to do the cleanup, make sure the contractor has experience with mold remediation. Check references and ask the contractor to follow the recommendations in EPA's publication, "Mold Remediation in Schools and Commercial Buildings," or other guidelines developed by professional or governmental organizations.

The remediation plan should include steps to permanently correct the water or moisture problem. The plan should cover the use of appropriate personal protective equipment (PPE). It also should include steps to carefully contain and remove moldy building materials in a manner that will prevent further contamination. Remediation plans may vary greatly depending on the size and complexity of the job, and may require revision if circumstances change or new facts are discovered.

If you suspect that the HVAC system is contaminated with mold, or if mold is present near the intake to the system, contact the National Air Duct Cleaners Association (NADCA), or consult EPA's guide, "Should You Have the Air Ducts in Your Home Cleaned?" before taking further action. Do not run the HVAC system if you know or suspect that it is contaminated with mold, as it could spread contamination throughout the building. If the water or mold damage was caused by sewage or other contaminated water, consult a professional who has experience cleaning and repairing buildings damaged by contaminated water.

The remediation manager's highest priority must be to protect the health and safety of the

building occupants and remediators. Remediators should avoid exposing themselves and others to mold-laden dusts as they conduct their cleanup activities. Caution should be used to prevent mold and mold spores from being dispersed throughout the air where they can be inhaled by building occupants. In some cases, especially those involving large areas of contamination, the remediation plan may include temporary relocation of some or all of the building occupants.

When deciding if relocating occupants is necessary, consideration should be given to the size and type of mold growth, the type and extent of health effects reported by the occupants, the potential health risks that could be associated with the remediation activity, and the amount of disruption this activity is likely to cause. In addition, before deciding to relocate occupants, one should also evaluate the remediator's ability to contain/minimize possible aerosolization of mold spores given their expertise and the physical parameters of the workspace. When possible, remediation activities should be scheduled during off hours when building occupants are less likely to be affected.

Remediators, particularly those with health related concerns, may wish to check with their physicians or other health-care professionals before working on mold remediation or investigating potentially moldy areas. If any individual has health concerns, doubts, or questions before beginning a remediation/cleanup project, he or she should consult a health professional.

Mold Remediation/Cleanup Methods (Information Only)

The purpose of mold remediation is to correct the moisture problem and to remove moldy and contaminated materials to prevent human exposure and further damage to building materials and furnishings. Porous materials that are wet and have mold growing on them may have to be discarded because molds can infiltrate porous substances and grow on or fill in empty spaces or crevices. This mold can be difficult or impossible to remove completely.

As a general rule, simply killing the mold, for example, with biocide is not enough. The mold must be removed, since the chemicals and proteins, which can cause a reaction in humans, are present even in dead mold.

A variety of cleanup methods are available for remediating damage to building materials and furnishings caused by moisture control problems and mold growth. The specific method or group of methods used will depend on the type of material affected. Some methods that may be used include the following:

Wet Vacuum

Wet vacuums are vacuum cleaners designed to collect water. They can be used to remove water from floors, carpets, and hard surfaces where water has accumulated. They should not be used to vacuum porous materials, such as gypsum board. Wet vacuums should be used only on wet materials, as spores may be exhausted into the indoor environment if insufficient liquid is present. The tanks, hoses, and attachments of these vacuums should be thoroughly cleaned

and dried after use since mold and mold spores may adhere to equipment surfaces.

Damp Wipe

Mold can generally be removed from nonporous surfaces by wiping or scrubbing with water and detergent. It is important to dry these surfaces quickly and thoroughly to discourage further mold growth. Instructions for cleaning surfaces, as listed on product labels, should always be read and followed.

HEPA Vacuum

HEPA (High-Efficiency Particulate Air) vacuums are recommended for final cleanup of remediation areas after materials have been thoroughly dried and contaminated materials removed. HEPA vacuums also are recommended for cleanup of dust that may have settled on surfaces outside the remediation area. Care must be taken to assure that the filter is properly seated in the vacuum so that all the air passes through the filter. When changing the vacuum filter, remediators should wear respirators, appropriate personal protective clothing, gloves, and eye protection to prevent exposure to any captured mold and other contaminants. The filter and contents of the HEPA vacuum must be disposed of in impermeable bags or containers in such a way as to prevent release of the debris.

Disposal of Damaged Materials

Building materials and furnishings contaminated with mold growth that are not salvageable should be placed in sealed impermeable bags or closed containers while in the remediation area. These materials can usually be discarded as ordinary construction waste. It is important to package mold-contaminated materials in this fashion to minimize the dispersion of mold spores. Large items with heavy mold growth should be covered with polyethylene sheeting and sealed with duct tape before being removed from the remediation area. Some jobs may require the use of dust-tight chutes to move large quantities of debris to a dumpster strategically placed outside a window in the remediation area.

Use of Biocides

The use of a biocide, such as chlorine bleach, is not recommended as a routine practice during mold remediation, although there may be instances where professional judgment may indicate its use (for example, when immuno-compromised individuals are present). In most cases, it is not possible or desirable to sterilize an area, as a background level of mold spores comparable to the level in outside air will persist. However, the spores in the ambient air will not cause further problems if the moisture level in the building has been corrected.

Biocides are toxic to animals and humans, as well as to mold. If you choose to use disinfectants or biocides, always ventilate the area, using outside air if possible, and exhaust the air to the outdoors. When using fans, take care not to extend the zone of contamination by distributing mold spores to a previously unaffected area. **Never mix chlorine bleach solution with other cleaning solutions or detergents that contain ammonia because this may produce highly toxic**

vapors and create a hazard to workers.

Some biocides are considered pesticides, and some states require that only registered pesticide applicators apply these products in schools, commercial buildings, and homes. Make sure anyone applying a biocide is properly licensed where required.

Fungicides are commonly applied to outdoor plants, soil, and grains as a powder or spray. Examples of fungicides include hexachlorobenzene, organomercurials, pentachlorophenol, phthalimides, and dithiocarbamates.

Do not use fungicides developed for outdoor use in any indoor application, as they can be extremely toxic to animals and humans in an enclosed environment.

When you use biocides as a disinfectant or a pesticide, or as a fungicide, you should use appropriate PPE, including respirators. Always, read and follow product label precautions. It is a violation of Federal (EPA) law to use a biocide in any manner inconsistent with its label direction.

Mold Remediation Guidelines

This section presents remediation guidelines for building materials that have or are likely to have mold growth. The guidelines are designed to protect the health of cleanup personnel and other workers during remediation. These guidelines are based on the size of the area impacted by mold contamination. Please note that these are guidelines; some professionals may prefer other remediation methods, and certain circumstances may require different approaches or variations on the approaches described below. If possible, remediation activities should be scheduled during off-hours when building occupants are less likely to be affected.

Although the level of personal protection suggested in these guidelines is based on the total surface area contaminated and the potential for remediator or occupant exposure, professional judgment always should play a part in remediation decisions. These remediation guidelines are based on the size of the affected area to make it easier for remediators to select appropriate techniques, not on the basis of research showing there is a specific method appropriate at a certain number of square feet. The guidelines have been designed to help construct a remediation plan. The remediation manager should rely on professional judgment and experience to adapt the guidelines to particular situations. When in doubt, caution is advised. Consult an experienced mold remediator for more information.

Level I: Small Isolated Areas (10 sq. ft or less) - e.g., ceiling tiles, small areas on walls.

- Remediation can be conducted by the regular building maintenance staff as long as they are trained on proper clean-up methods, personal protection, and potential health hazards. This training can be performed as part of a program to comply with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

- Respiratory protection (e.g., N-95 disposable respirator) is recommended. Respirators must be used in accordance with the OSHA respiratory protection standard (29 CFR 1910.134). Gloves and eye protection should be worn.

- The work area should be unoccupied. Removing people from spaces adjacent to the work area is not necessary, but is recommended for infants (less than 12 months old), persons recovering from recent surgery, immune-suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).

- Containment of the work area is not necessary. Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.

- Contaminated materials that cannot be cleaned should be removed from the building in a sealed impermeable plastic bag. These materials may be disposed of as ordinary waste.

- The work area and areas used by remediation workers for egress should be cleaned with a damp cloth or mop and a detergent solution.

- All areas should be left dry and visibly free from contamination and debris.

Level II: Mid-Sized Isolated Areas (10-30 sq. ft.) – e.g., individual wallboard panels.

- Remediation can be conducted by the regular building maintenance staff. Such persons should receive training on proper clean-up methods, personal protection, and potential health hazards. This training can be performed as part of a program to comply with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

- Respiratory protection (e.g., N-95 disposable respirator) is recommended. Respirators must be used in accordance with the OSHA respiratory protection standard (29 CFR 1910.134). Gloves and eye protection should be worn.

- The work area should be unoccupied. Removing people from spaces adjacent to the work area is not necessary, but is recommended for infants (less than 12 months old), persons recovering from recent surgery, immune-suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).

- Surfaces in the work area that could become contaminated should be covered with a secured plastic sheet(s) before remediation to contain dust/debris and prevent further contamination.

- Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.

- Contaminated materials that cannot be cleaned should be removed from the building in a sealed impermeable plastic bag. These materials may be disposed of as ordinary waste.

- The work area and areas used by remediation workers for egress should be HEPA vacuumed and cleaned with a damp cloth or mop and a detergent solution.

- All areas should be left dry and visibly free from contamination and debris.

Level III: Large Isolated Areas (30 –100 square feet) – e.g., several wallboard panels.

Industrial hygienists or other environmental health and safety professionals with experience performing microbial investigations and/or mold remediation should be consulted prior to remediation activities to provide oversight for the project.

The following procedures may be implemented depending upon the severity of the contamination:

- It is recommended that personnel be trained in the handling of hazardous materials and equipped with respiratory protection (e.g., N-95 disposable respirator). Respirators must be used in accordance with the OSHA respiratory protection standard (29 CFR 1910.134). Gloves and eye protection should be worn.

- Surfaces in the work area and areas directly adjacent that could become decontaminated should be covered with a secured plastic sheet(s) before remediation to contain dust/ debris and prevent further contamination.

- Seal ventilation ducts/grills in the work area and areas directly adjacent with plastic sheeting.

- The work area and areas directly adjacent should be unoccupied. Removing people from spaces near the work area is recommended for infants, persons having undergone recent surgery, suppressed people, or people with chronic inflammatory lung diseases.

(e.g., asthma, hypersensitivity pneumonitis, and severe allergies).

- Dust suppression methods, such as misting (**not soaking**) surfaces prior to mediation, are recommended.

- Contaminated materials that cannot be cleaned should be removed from the building in sealed impermeable plastic bags. These materials may be disposed of as ordinary waste.

- The work area and surrounding areas should be HEPA vacuumed and cleaned with a damp cloth or mop and a detergent solution.

- All areas should be left dry and visibly free from contamination and debris.

Note: If abatement procedures are expected to generate a lot of dust (e.g., abrasive cleaning of contaminated surfaces, demolition of plaster walls) or the visible concentration of the mold is heavy (blanket coverage as opposed to patchy), it is recommended that the remediation procedures for Level IV be followed.

Level IV: Extensive Contamination (greater than 100 contiguous square feet in an area).

Industrial hygienists or other environmental health and safety professionals with experience performing microbial investigations and/or mold remediation should be consulted prior to remediation activities to provide oversight for the project.

The following procedures may be implemented depending upon the severity of the contamination:

- Personnel trained in the handling of hazardous materials and equipped with:

  Full face piece respirators with HEPA cartridges;

  Disposable protective clothing covering entire body including both head and shoes; and

  Gloves.

- Containment of the affected area:

  Complete isolation of work area from occupied spaces using plastic sheeting sealed with duct tape (including ventilation ducts/grills, fixtures, and other openings);

  The use of an exhaust fan with a HEPA filter to generate negative pressurization; and

Airlocks and decontamination room.

- If contaminant practices effectively prevent mold from migrating from affected areas, it may not be necessary to remove people from surrounding work areas. However, removal is still recommended for infants, persons having undergone recent surgery, immune- suppressed people, or people with chronic inflammatory lung diseases. (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).

- Contaminated materials that cannot be cleaned should be removed from the building in sealed impermeable plastic bags. The outside of the bags should be cleaned with a damp cloth and a detergent solution or HEPA vacuumed in the decontamination chamber prior to their transport to uncontaminated areas of the building. These materials may be disposed of as ordinary waste.

- The contained area and decontamination room should be HEPA vacuumed and cleaned with a damp cloth or mopped with a detergent solution and be visibly clean prior to the removal of isolation barriers.

Personal Protective Equipment (PPE)

Any remediation work that disturbs mold and causes mold spores to become airborne increases the degree of respiratory exposure. Actions that tend to disperse mold include: breaking apart moldy porous materials such as wallboard; destructive invasive procedures to examine or remediate mold growth in a wall cavity; removal of contaminated wallpaper by stripping or peeling; using fans to dry items or ventilate areas.

The primary function of personal protective equipment is to prevent the inhalation and ingestion of mold and mold spores and to avoid mold contact with the skin or eyes. The following sections discuss the various types of PPE that may be used during remediation activities.

Skin and Eye Protection

Gloves protect the skin from contact with mold, as well as from potentially irritating cleaning solutions. Long gloves that extend to the middle of the forearm are recommended. The glove material should be selected based on the type of substance/ chemical being handled. If you are using a biocide such as chlorine bleach, or a strong cleaning solution, you should select gloves made from natural rubber, neoprene, nitrile, polyurethane, or PVC. If you are using a mild detergent or plain water, ordinary household rubber gloves may be used.

To protect your eyes, use properly fitted goggles or a full face piece respirator. Goggles must be designed to prevent the entry of dust and small particles. Safety glasses or goggles with open vent holes are not appropriate in mold remediation.

Respiratory Protection

Respirators protect cleanup workers from inhaling airborne mold, contaminated dust, and other particulates that are released during the remediation process. Either a half mask or full face piece air-purifying respirator can be used. A full face piece respirator provides both respiratory and eye protection. Please refer to the discussion of the different levels of remediation to ascertain the type of respiratory protection recommended. Respirators used to provide protection from mold and mold spores must be certified by the National Institute for Occupational Safety and Health (NIOSH). More protective respirators may have to be selected and used if toxic contaminants such as asbestos or lead are encountered during remediation.

As specified by OSHA in 29 CFR 1910.134 individuals who use respirators must be properly trained, have medical clearance, and be properly fit tested before they begin using a respirator. In addition, use of respirators requires the employer to develop and implement a written respiratory protection program, with worksite-specific procedures and elements.

Protective Clothing

While conducting building inspections and remediation work, individuals may encounter hazardous biological agents as well as chemical and physical hazards. Consequently, appropriate personal protective clothing (i.e., reusable or disposable) is recommended to minimize cross-contamination between work areas and clean areas, to prevent the transfer and spread of mold and other contaminants to street clothing, and to eliminate skin contact with mold and potential chemical exposures.

Disposable PPE should be discarded after it is used. They should be placed into impermeable bags, and usually can be discarded as ordinary construction waste. Appropriate precautions and protective equipment for biocide applicators should be selected based on the product manufacturer's warnings and recommendations (e.g., goggles or face shield, aprons or other protective clothing, gloves, and respiratory protection).

Sampling for Mold

Is it necessary to sample for mold? **In most cases, if visible mold growth is present, sampling is unnecessary**. Air sampling for mold may not be part of a routine assessment because decisions about appropriate remediation strategies often can be made on the basis of a visual inspection.

Your first step should be to inspect for any evidence of water damage and visible mold growth. Testing for mold is expensive, and there should be a clear reason for doing so. In many cases, it is not economically practical or useful to test for mold growth on surfaces or for airborne spores in the building. In addition, there are no standards for "acceptable" levels of mold in buildings, and the lack of a definitive correlation between exposure levels and health effects makes interpreting the data difficult, if not impossible.

Testing is usually done to compare the levels and types of mold spores found inside the building with those found outside of the building or for comparison with another location in the building. In addition, air sampling may provide tangible evidence supporting a hypothesis that investigators have formulated. For example, air sampling may show a higher concentration of the same species of mold when the HVAC is operating than when it has been turned off. This finding may convince the investigators that the mold is growing within, and being disseminated by, the HVAC system. Conversely, negative results may persuade investigators to abandon this hypothesis and to consider other sources of mold growth or dissemination. If you know you have a mold problem, it is more important to spend time and resources removing the mold and solving the moisture problem that causes the moldy conditions than to undertake extensive testing for the type and quantity of mold.

If you are in doubt about sampling, consult an industrial hygienist or other environmental health or safety professional with experience in microbial investigations to help you decide if sampling for mold is necessary or useful, and to identify persons who can conduct any necessary sampling. Due to the wide difference in individual susceptibility to mold contamination, sampling results sampling may have limited application. However, sampling results can be used as a guide to determine the extent of an infestation and the effectiveness of the cleanup. Their interpretation is best left to the industrial hygienist or other environmental health or safety professional.

Sampling for mold should be conducted by professionals with specific experience in designing mold-sampling protocols, sampling methods for microbial contaminants, and interpretation of results. For additional information on air sampling, refer to the American Conference of Governmental Industrial Hygienists' document, "Bioaerosols: Assessment and Control." In addition, sampling and analysis should follow any other methods recommended by either OSHA, NIOSH, EPA, the American Industrial Hygiene Association, or other recognized professional guidelines. Types of samples can include: air samples, surface samples, bulk samples, and water samples from condensate drain pans or cooling towers.

Microscopic identification of the spores/ colonies requires considerable expertise. These services are not routinely available from commercial laboratories. Documented quality control in the laboratories used for analysis of the bulk, surface, and other air samples is necessary. The American Industrial Hygiene Association offers accreditation to microbial laboratories (Environmental Microbiology Laboratory Accreditation Program (EMLAP)). Accredited laboratories must participate in quarterly proficiency testing (Environmental Microbiology Proficiency Analytical Testing Program (EMPAT)).

Remediation Equipment

There are various types of equipment useful in mold assessment and remediation. Some of the more common items include:

Moisture Meters

Moisture meters measure/monitor moisture levels in building materials, and may be helpful

for measuring the moisture content in a variety of building materials following water damage. They also can be used to monitor the progress of drying damaged materials. These direct reading devices have a thin probe that is inserted into the material to be tested or pressed directly against the surface of the material. Moisture meters can be used on materials such as carpet, wallboard, wood, brick, and concrete.

Humidity Gauges or Meters

Humidity meters can be used to monitor indoor humidity. Inexpensive (less than $50) models that monitor both temperature and humidity are available.

Humidistat

A humidistat is a control device that can be connected to an HVAC system and adjusted so that if the humidity level rises above a set point, the HVAC system will automatically turn on and reduce the humidity below the established point.

Boroscope

A boroscope is a hand-held tool that allows users to see potential mold problems inside walls, ceiling plenums, crawl spaces, and other tight areas. It consists of a video camera on the end of a flexible "snake." No major drilling or cutting of dry wall is required.

HVAC System Filter

High-quality filters must be used in a HVAC system during remediation because conventional HVAC filters are typically not effective in filtering particles the size of mold spores. Consult an engineer for the appropriate filter efficiency for your specific HVAC system, and consider upgrading your filters if necessary. A filter with a minimum efficiency of 50 to 60% or a rating of MERV 8, as determined by Test Standard 52.2 of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, may be appropriate.

Remember to change filters as appropriate, especially following any remediation activities. Remove filters in a manner that minimizes the reentry of mold and other toxic substances into the workplace. Under certain circumstances, it may be necessary to wear appropriate PPE while performing this task.

How Do You Know When You Have Finished Remediation/Cleanup?

- You must have identified and completely corrected the source of the water or moisture problem.

- Mold removal should be complete. Visible mold, mold-damaged materials, and moldy odors should no longer be present.

- Sampling, if conducted, should show that the level and types of mold and mold spores inside the building are similar to those found outside.

- You should revisit the site(s) after remediation, and it should show no signs of moldy or musty odors, water damage, or mold growth.

Conclusion

After correcting water or moisture infiltration, the prompt removal of contaminated material and structural repair is the primary response to mold contamination in buildings. In all situations, the underlying cause of water accumulation must be rectified or the mold growth will reoccur. Emphasis should be placed on preventing contamination through proper building and HVAC system maintenance and prompt repair of water damaged areas.

Effective communication with building occupants is an essential component of all large-scale remediation efforts. The building owner, management, and/or employer should notify occupants in the affected area(s) of the presence of mold. Notification should include a description of the remedial measures to be taken and a timetable for completion. Group meetings held before and after remediation with full disclosure of plans and results can be an effective communication mechanism. Individuals with persistent health problems that appear to be related to mold exposure should see their physicians for a referral to practitioners who are trained in occupational/environmental medicine or related specialties and are knowledgeable about these types of exposures.

Q. Aerial Lift/Boom Lift Safety

A. Before Operating an Aerial Lift

a. Check operating and emergency controls, both in the bucket and on the unit itself.
b. Check safety devices such as outriggers and guardrails
c. Check out personal fall protection gear that will be worn while operating the aerial lift.
d. Check the wheels and tires for proper inflation and/or other damage.
e. Check for possible leaks (hydraulic, air, fuel) **NEVER** check for hydraulic leaks with your hand.
f. Check where the lift will be used. Look for a level surface that will not shift. Check the slope of the ground or floor.
g. Check for hazards such as holes, drop-offs, bumps, and debris and overhead power lines.

B. Set outriggers, brakes and chock wheels even if you are working on a level surface.

C. Using the Aerial Lift

a. Always close lift platform chains or doors.
b. Stand on the floor of the bucket or lift platform. **DO NOT** climb or lean over the guardrails.
c. Do not exceed the manufacturer's load capacity limits.
d. Non electrical workers working in the aerial lift **MUST** stay a minimum of 10' away from any electrical line/hazard.

D. Preventing falls

a. OSHA requires either a full body harness or a positioning device on aerial boom lifts. PNT requires the full body harness. PNT requires the full body harness for all lifts inclusive of boom, aerial and scissors lifts.

E. To Prevent Tipovers

a. Always read/review manufacturer's instructions pertaining to prevention of tipovers of the aerial lift.
b. Do not drive with the lift platform elevated.
c. Do not exceed vertical or horizontal reach limits or the specified load capacity of the lift.
d. On an elevated lift, avoid too much pushing/pulling.

F. Training

a. OSHA requires a qualified person must train all users of the aerial lift. (OSHA defines a qualified person as having extensive knowledge, training, and experience can solve problems related to the subject matter.).
b. The training must include
    i. Any electrical, fall , and falling-object hazards
    ii. Procedures for dealing with hazards
    iii. How to operate the lift correctly (including maximum intended load and load capacity).
    iv. The user **MUST** demonstrate that he/she knows how to use the lift.
    v. Manufacturer requirements
    vi. If the hazards change or the type of aerial lift changes, or a worker is not operating the lift properly, workers must be retrained.
c. The aerial lift must be inspected as the manufacturer requires (every 3 months or after 150 hours of use, whichever comes first).
d. The owner must do a detailed annual detailed inspection as required by the manufacturer.

G. Rental Lifts (The rental company should)

a. Be sure the lift is properly inspected and serviced by the rental company before taking possession.
b. Provide operator and maintenance manuals and maintenance history
c. Make sure the operator controls are easy to reach and properly marked.

H. NEVER modify an aerial lift without the permission of the manufacturer.

I. ONLY use the aerial lift under the conditions in which the manufacturer says it can be operated in safely

J. ALWAYS wear proper fall protection when operating any lift on a PNT job.

R. Arc Flash Safety NFPA 70E Compliance Guide

Scope

NFPA 70E applies to employees who work on or near exposed energized electrical conductors or circuit parts. This includes electrical maintenance personnel, operators, troubleshooters, electricians, linemen, engineers, Superintendents, site safety personnel or anyone exposed to energized equipment of 50 volts or more.

The goal of the standard is to keep electrical workers free from the hazards of shock, electrocution, arc flash and arc blast. In support of this goal, NFPA 70E (most current version) version, and the NEC (most current version) require or recommend facilities provide:

OSHA adopted regulations on safe electrical work practices in 1990 based on NFPA 70E, and is proposing a revised standard that conforms to the most recent editions of the standard. Given that the NEC (National Electrical Code) and OSHA have both started referring to it in their documents, citations are now being written based on the electrical safety standard.

NFPA 70E applies to employees who work on or near exposed energized electrical conductors or circuit parts. This includes electrical maintenance personnel, operators, troubleshooters, electricians, linemen, engineers, Superintendents, site safety personnel or anyone exposed to energized equipment of 50 volts or more.

The goal of NFPA 70E is to keep electrical workers free from the hazards of shock, electrocution, arc flash and arc blast.

An Arc Flash is an electrical explosion due to a fault condition or short circuit when either a phase to ground or phase to phase conductor is connected and current flows through the air.

Who is Responsible?

In OSHA's General Duty Clause and the Multiple-Employer Citation Policy Section 5 (a)(1) of the Occupational Safety and Health Act, employers are required to furnish their employees a place of employment free from recognized hazards that cause or are likely to cause death or serious physical harm to the employees. The employers who directly employ the exposed electrical workers, building owners, property managers, facility manager and general contractors to the process are directly responsible as well. OSHA has posted on its website the definitions of the four employer role categories:

1. **Exposing :** This is an employer whose own employees are exposed to the hazard.

2. **Creating:** This is an employer who creates a hazard to which a different employer's employees are exposed.

3. **Correcting:** This is an employer who has been brought in to specifically correct the hazard

4. **Controlling:** This is an employer with general Superintendenty authority over the worksite with the authority to have safety and health violations corrected.

   OSHA recorded its new electrical safety standards in the Federal Register on February 14, 2007 (Department of Labor, OSHA, 29-CFR, Part 1910, Electrical Standard, Final Rule). These standards became enforceable on August 31, 2007.
   In this government archive, OSHA states:

   "The Occupational Safety and Health Administration (OSHA) is revising the general industry electrical installation standard found in Subpart S of 29 CFR Part 1910. The Agency has determined that electrical hazards in the workplace pose a significant risk of injury or death to employees, and that the requirements in the revised standard, which draw heavily from the most current edition of the National Fire Protection Association's (NFPA) Electrical Safety Requirements for Employee Workplaces (NFPA 70E), and the most current edition of the National Electrical Code (NEC), are reasonably necessary to provide protection from these hazards. This final rule focuses on safety in the design and installation of electric equipment in the workplace. This revision will provide the first update of the installation requirements in the general industry electrical installation standard since 1981. OSHA is also replacing the reference to the 1971 NEC in the mandatory appendix to the general industry powered platform standard found in Subpart F of 29 CFR Part 1910 with a reference to OSHA's electrical installation standard."

Application

Arc flashes cause electrical equipment to explode, resulting in an arc-plasma fireball. Temperatures may exceed 35,000° F (the surface of the sun is 9000° F). These high temperatures cause rapid heating of surrounding air and extreme pressures, resulting in an arc blast. The arc flash / blast will likely vaporize all solid copper conductors which will expand up to 67,000 times its original volume when it is vaporized. The arc flash / blast produces fire, intense light, pressure waves and produces flying shrapnel.

When an arc flash happens, it does so without warning and is lightning quick. The result of this violent event is usually destruction of the equipment involved, fire, and severe injury or death to any nearby people.

The energy released by the arc is a function of:

- System voltage
- Magnitude of the current

It is important to note that the clearing time (or duration of the arc) can significantly affect the intensity of an arc flash whereby lower amperage systems can become more dangerous than higher amperage systems

The degree of injury is directly related to the power of the arc flash, the distance the person is at the time of the arc flash and the protective equipment worn by an individual during an arc flash. Due to the force from the explosion of energy (the blast) and the intense heat, burns, concussions, collapsed lungs, hearing loss, shrapnel injuries, and broken bones are the common injuries. Death can and does occur from these injuries, but is mostly associated with blast.

It is estimated that 5 to 10 arc flash and blast explosions occur in electrical equipment every day in the United States with 2,000 people each year being admitted to burn centers for severe burns

Unfortunately, there is no way to completely prevent an arc flash happening in electrical distribution systems. The best one can do is to mitigate or reduce the risk.

However, when workers must work on energized electrical equipment, they must be qualified to do so, be made aware of the hazards and follow proper work practices as described in NFPA 70E. This includes wearing the proper personal protective equipment (PPE). It should be noted that the owner of the equipment is responsible for ensuring all calculations for or an Arc Flash study must be completed by them before allowing work on energized equipment.

The Risk Control Hierarchy by NIOSH systematically reduces risk to its lowest practicable level by prioritizing ways to mitigate a given risk. Higher priority and weight are given to methods that seek to control risk by proactive means as close as possible to the root cause. Meanwhile lower priority is placed on reactive methods of controlling damage after an incident has occurred. Specifically, the Risk Control Hierarchy ranks the most effective to least effective ways to reduce risk as follows:

1. Elimination – remove the hazard

   Only work on energized electrical equipment, when absolutely necessary. De-energizing equipment removes the arc flash hazard, although there is some risk of arc flash and blast when testing to make sure that the equipment is de-energized.

2. Substitution – replace higher risks with lower risks. This can be done with two methods:

   Arc Flash Study with short circuit study and protective device coordination study can identify how to reduce an arc flash hazard category for some

equipment.

Technologies can be implemented to reduce risks. This includes equipment such as arc limiting fuses and remote racking technologies.

3. Engineering Controls – reinvent ways to limit/prevent the risk

   This can be done by replacing it with equipment that will lower the incident energy, including but not limited to: adjusting breaker settings and redesigning electrical distribution systems. While most of these mitigations require electrical engineering analysis, steps that don't require engineering can be taken as well, such as implementing electrical covers with infrared inspection ports.

4. Awareness – raise knowledge of risks and consequences thereof

   Train all workers on the hazards of arc flash Although this is #4 on the Risk Control Hierarchy, it should be the first thing done and is mandated by OSHA regulations. It is only through training that workers will understand how to eliminate, substitute or otherwise lower the risk.

   Conduct an arc flash study to properly identify the hazards, boundaries and required PPE

5. Administrative Controls – create regulations, work processes, etc.

   Make sure that you have a written electrical safety program AND that everyone receives training AND that it is enforced.

   Allow only Qualified Persons wearing the proper PPE and using the correct tools around electrically energized equipment.

   Preventive maintenance plans for electrical systems based on NFPA 70B. A proper preventive maintenance program will help identify or fix electrical hazards before they become big problems.

6. PPE – use Personal Protective Equipment as last defense

   OSHA states that only a "Qualified Person" is permitted to work on or near exposed energized parts and that a "Qualified Person" is "one who has received training in and has demonstrated skills and knowledge in the construction and operation of electric equipment and installations and the hazards involved."

> Establishing “Qualified Person” status is mandatory for all individuals exposed to the hazards of electrical energy who are employed at US company locations including wholly-owned facilities as well as affiliate and leased facilities where the company has responsibility for facility operations through an operating (or similar) agreement

OSHA mandates that employers identify electrical hazards, warn their workers about them and provide the proper protective equipment and training related to working around the hazards. These are the only official regulations. OSHA provides the employer “what” to do, but does not define “how” to do it. The role of NFPA 70E, IEEE and NEC is to provide guidance on “how” to properly implement the OSHA regulations.

The regulations that govern arc flash are:

1. OSHA Standards 29-CFR, Part 1910. Occupational Safety and Health Standards. 1910 sub part S (electrical) Standard number 1910.333 specifically addresses Standards for Work Practices and references NFPA 70E. OSHA 29CFR 1910.335 (a) (1)(i) requires the use of protective equipment when working where a potential electrical hazard exists and 29CFR 1910.132(d)(1) which requires the employer assess the workplace for hazards and the need for personal protective equipment.

2. NFPA 70E provides guidance on implementing appropriate work practices that are required to safeguard workers from injury while working on or near exposed electrical conductors or circuit parts that could become energized. Part II 2-1.3.3 regarding Arc Flash Study / Analysis states that an “ Arc Flash Hazard Analysis shall be done before a person approaches any exposed electrical conductor or circuit part that has not been placed in an electrical safe work condition”. This Arc Flash Hazard Analysis must be done to determine the level of Personal Protection Equipment PPE that a worker must use, and the Arc Flash Boundary in inches along with the incident energy found at each location. Each electrical panel must be marked with an ANSI z535 approved Arc Flash Warning Label. The owner should provide the Arc Flash Study/Analysis prior to any work being performed on the system.

3. The National Fire Protection Association (NFPA) Standard 70E – “The National Electrical Code” (NEC) contains requirements for warning labels, including ANSI compliance.

4. The Institute of Electronics and Electrical Engineers (IEEE) 1584 – Provides the Guide to Performing Arc Flash Hazard Study Calculations

Compliance with OSHA involves adherence to a six-point plan:

A facility must provide, and be able to demonstrate, a safety program with defined responsibilities.

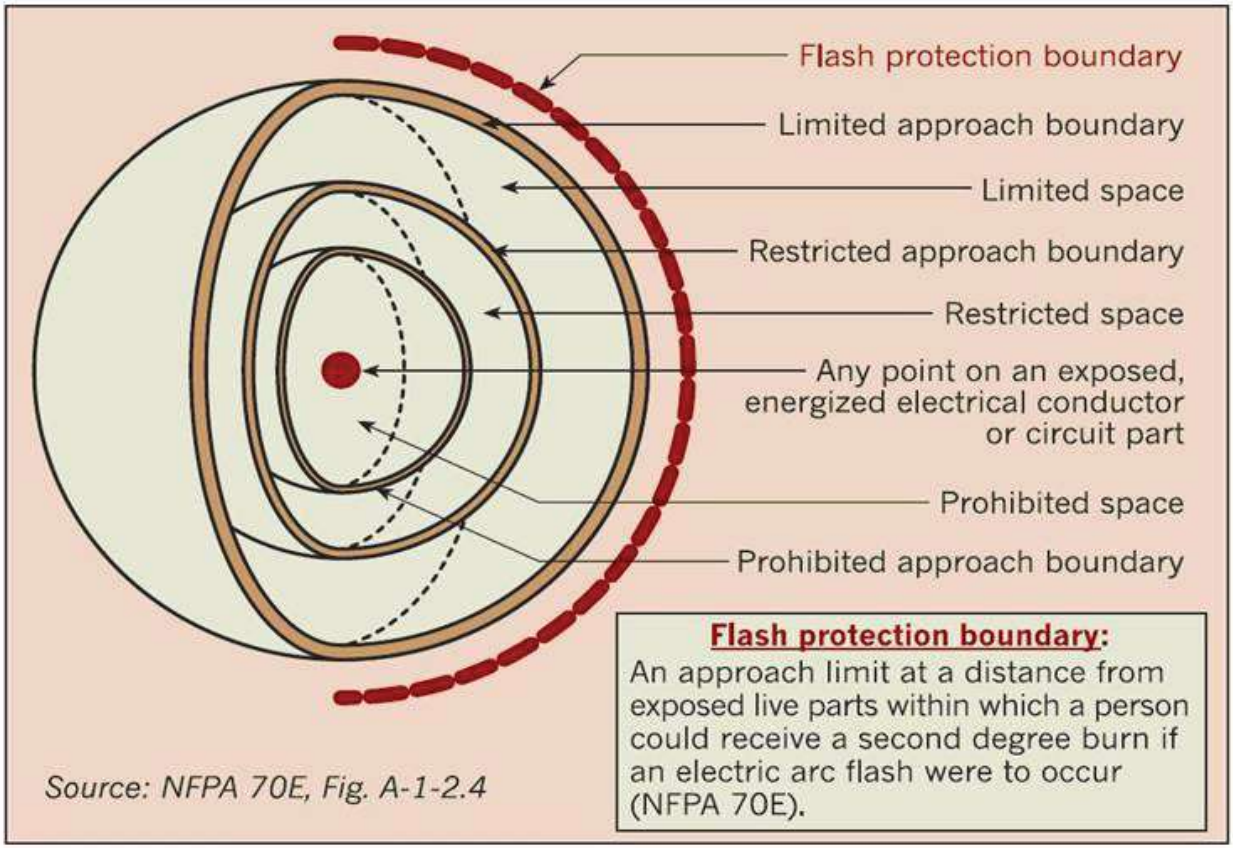
1. **Calculations for the degree of arc flash hazard.**
2. **Correct personal protective equipment (PPE) for workers**
3. **Electrical Safety Training for workers on the hazards of arc flash.**
4. **Appropriate tools for safe working.**
5. **Warning labels on equipment. Note that the labels are provided by the equipment owners, not the manufacturers.**
6. **Companies will be cited and fined for not complying with these standards.**

NFPA 70 E Table 130.4 ©(a)(AC Systems) and 130.4 (C)(b)(DC Systems) identifies arc flash hazard approach boundaries based on the nominal voltage On the surface, this table appears to be an easy and low-cost solution, however, it has many conditions and potential problems.

Flash Protection Boundary (FPB)

The FPB is a safe approach distance from energized equipment or parts. NFPA 70E establishes the default flash protection boundary at 4 feet for low voltage (< 600V) systems where the total fault exposure is less than 5000 amperes-seconds (fault current in amperes multiplied by the upstream device clearing time in seconds. NFPA 70E also allows the FPB to be calculated. In some instances, calculations may decrease the boundary distance. Persons crossing into the flash protection boundary are required to wear the appropriate PPE as determined by calculating methods contained in NFPA 70E. In addition, a qualified person must accompany unqualified persons. The boundary is defined as the distance at which the worker is exposed to 1.2 cal/cm^2 for 0.1 second. IEEE Std 1584 (most current version)details the procedure and needed equations for arc flash calculations. The equations are used to calculate the incident energy and flash boundary. The IEEE procedure is valid for voltages ranging from 208V volts to 15kV with gap ranges between 3 mm. and 153 mm.

The following diagram illustrates the approach boundaries discussed above:



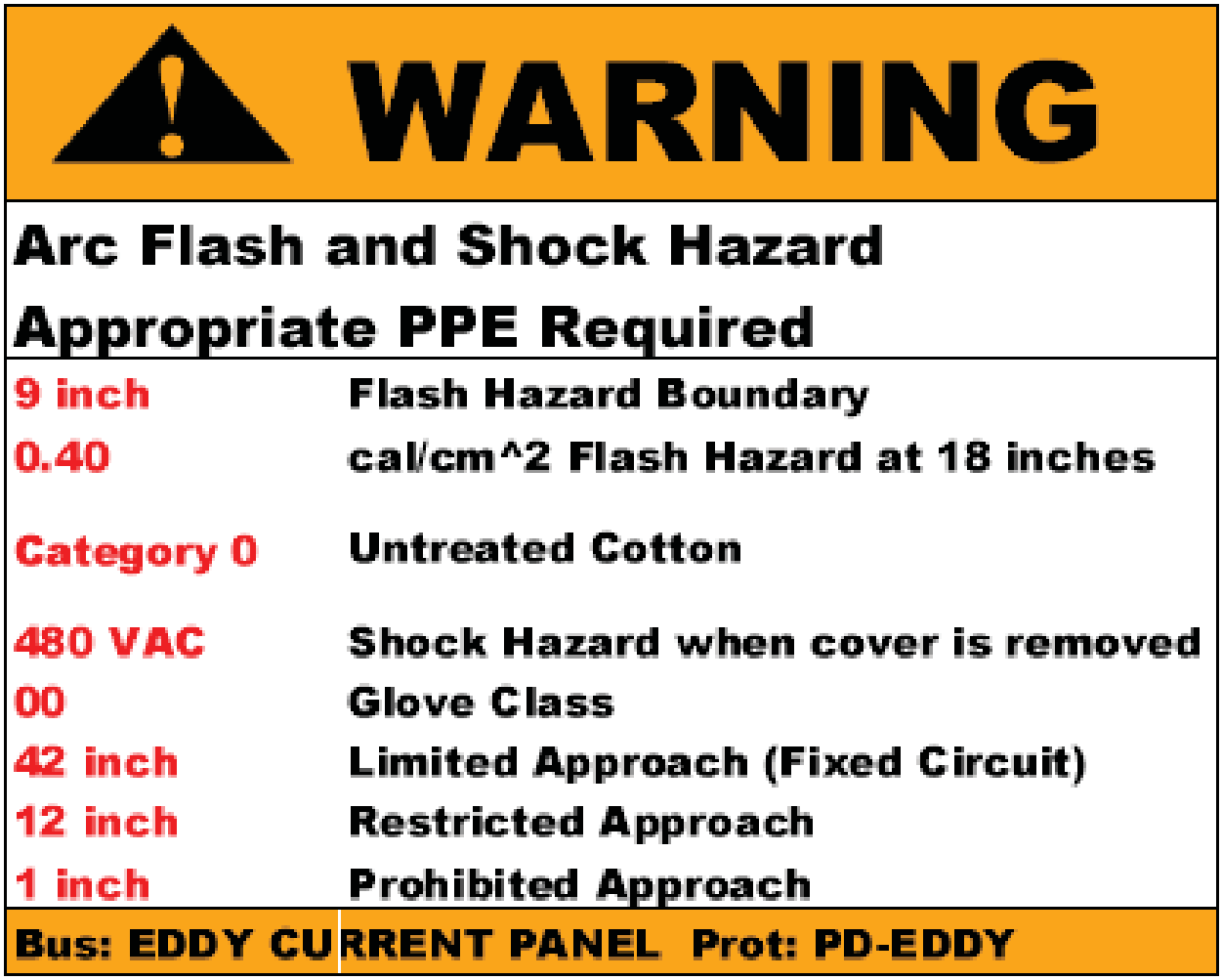
The short-circuit study is based on a review of one-line drawings by a professional engineer. Maximum available fault current is calculated at each significant point in system. Each interrupting protective device is then analyzed to determine whether it is appropriately designed and sized to interrupt the circuit in the event of a bolted type of short circuit. Next, the associated equipment must be reviewed to insure that the bus bar is adequately braced to handle the available fault current. Finally, the bolted fault currents are converted into arc fault currents for additional analysis.

A short circuit study is not required to complete an arc flash study, however, short circuit information is required in order to analyze an electrical distribution system to determine if changes can be made to mitigate arc flash hazards. A minor change in an adjustable breaker may make the difference in the result of an arc flash hazard category “4” or a “2”. The availability of the short circuit information is a standard output of an arc flash study calculation, however, there is a big difference between having the information available and doing a report. Arc flash mitigations can be completed with short circuit information, but without doing a study. A study is value added information to help a plant run more efficiently.

Most companies that complete an arc flash study / analysis also choose to get the short circuit study as well in order to take advantage of the information at a reduced cost compared to doing just a short circuit study. Future standards for conducting an arc flash will most likely include a short circuit study in order to help standardize the expected results of an arc flash

program.

The NEC® and NFPA 70E require labeling of equipment to warn of potential arc flash hazards. Each panel must be marked with an ANSI approved Arc Flash Warning Label to warn and instruct workers of the arc flash hazard, voltage, arc flash boundary and required PPE (Personal Protective Equipment). Subject to the requirements of the facility and arc flash analysis, labels are attached for each analyzed point of concern. An example of a warning label follows.



Conducting an arc flash study / analysis is a complex process and requires engineers familiar with conducting power analysis studies and arc flash analysis in particular. Properly collecting all the data is the first phase of the project, which is difficult for anyone to do if they are not first familiar with all the potential outcomes and pitfalls of conducting an arc flash analysis. The engineer that conducts the study needs to proficient in conducting short circuit studies, protective device coordination studies and have a strong understanding of NFPA 70E and IEEE

1584.

Beyond technical qualifications, in-house assessments are something that plant managers or engineers have little time for, often resulting in the project not getting completed or conditions of the electrical equipment changing before completion, making the results void.

The biggest reason not to do the study internally is the cost of getting it wrong. If someone is injured or killed due to an arc flash and the analysis was incorrect and done by someone who is not considered qualified to conduct the study, the liability will rest with the person or group that performed the study.

For some larger organizations that have multiple and large facilities and are willing to invest in developing a team to perform the analysis and are comfortable with the liability, conducting the studies internally can help save money. For all other organizations, conducting an arc flash analysis internally typically has little or no upside compared to any cost savings.

In summary, it is critical that any subcontractor performing electrical work on high voltage gear MUST conduct an arc flash analysis and follow NFPA 70E. It is the responsibility of the PNT Superintendent to ensure that the subcontractor performing the work conduct the necessary calculations and have the proper protective clothing and gear.

Section 9. New Employee Safety

PNT's Safety Department will provide safety training to all newly hired employees.

General safety orientation containing information common to all employees will be reviewed, ***before beginning their regular job duties.*** Recommendations include (at a minimum):

- Review the PNT Safety Manual, with extra time spent on; accident/incident & hazard reporting procedures, emergency procedures, first aid, personal protective equipment, and special emphasis programs (Drug-Free Workplace Policy, Return-to-Work Policy, etc.).
- Encourage & motivate employee involvement in safety. Make each accountable for their safety and the safety of their coworkers.
- Explain the workers' compensation system and fraud prevention
- Review any known workplace hazards.
- Conduct training on any topics that are not schedule to be addressed within a reasonable timeframe and are relevant to the employee's job.

Job-specific training ***provided before performing the task*** will include:

- Review completed Pre-Project Plans
- Specific safety rules, procedures, hazards, and special emphasis programs (Lockout/Tagout, etc.) to complete their job
- Identify employee's or employer's responsibilities

Continual training will be provided to new hires. Each new hire will be assigned to work with an experienced worker for at least six (6) months. The senior employee will act as a mentor and ensure that the employee is working safely and exhibits a positive safe attitude.

PNT's Safety Director will complete the attached new employee safety checklist for each new employee during their safety training.

New Employee Safety Checklist

Employee Name:_____ID:_____
Date Employed:_____Date Checklist Completed: _____
Checklist completed by: _____
Department Assigned: _____ Type of Work: _____
Summary of Work Experience: _____
Superintendent: _____

Ask Employee: *Do you have any physical conditions or handicaps which might limit your ability to perform this job? If so, what reasonable accommodation can be made by us?*_____
Did the employee have a pre-employment drug test? Yes No physical? Yes No
Any work restrictions indicated from the physical? _____

The PNT Consulting Safety Director and new employee will review the following safety concerns. Check & discuss all that apply.

- Provide the employee with a copy of the Safety Handbook.
- PNT Consulting safety policies & programs _____
- Safety rules (general & specific to job) _____
- Safety rule enforcement _____
- Use of tools & equipment _____
- Proper guarding of equipment _____
- Proper clothing & personal protective equipment _____
- Materials handling _____
- Accident/incident & Hazard Reporting Procedures _____
- Housekeeping _____
- Special hazards of the job _____
- Emergency Procedures _____
- Employee Responsibilities/Accountability _____
- Overview of workers' compensation _____
- Hazardous materials _____
- Location of First Aid Kits_____
- Vehicle Safety _____
- Where to go for medical treatment _____
- Other: Drug-Free Workplace, Return-to-Work, Incentives, Lock-Out/Tag-Out, etc._____

Employee shall receive additional training from: _____
Probationary period is from _____ to _____
Performance (including safety) will be reviewed formally by the Director of Labor

Employee agrees to cooperate fully with the safety efforts of PNT Consulting, follow all safety rules, and use good judgment concerning safe work behavior. Yes No (Have employee sign)

Comments: _____
_____

Signed: _____ Signed: _____Trainer

Section 10 Safety Violation (Subcontractors and Employees)

1. The process for handling subcontractor Safety Violations serious enough to warrant placement on the Subcontractors Safety Watch List are is identified in the “Subcontractor Disciplinary Policy This policy is included in this manual as an attachment (Attachment 2), and is included in the Standard Subcontract Agreement.

2. The process for handling unsafe actions on the part of PNT employees is identified in the Employee Safety Disciplinary Policy, included in this manual as an attachment (Attachment 3)

3. The Disciplinary Action Notice (next page) may be used by PNT Superintendents to document occurrences that may require disciplinary actions

PNT Consulting Inc.
DISCIPLINARY ACTION NOTICE

Name: _____

Trade: _____

Employer: _____

Reason: (Explain Below) _____
_____
_____
_____

Type of Disciplinary Action Taken:

1. Oral Warning ( )
2. Written Warning ( )
3. Suspension ( )
4. Discharge ( )

I have discussed the above cited reprimand with subject employee

Effective this date:

_____ _____
Person writing action Date

_____ _____
Supervisor Date

_____ _____
Employee Date

_____ _____
Superintendent Date

_____ _____
Safety Representative Date

Comments: _____
_____

Section 11. Contractual Controls

Contractual language between PNT and other contractors can help transfer exposures generated by having subcontractors perform work for us. These include:

Indemnification Agreement- This is an agreement that is part of the overall contract. It is signed by the subcontractor to hold PNT harmless for certain acts of omission and degrees of negligence caused by subcontractor employees. It helps maintain a degree of protection for the contractor will an incident occurs.

Certificate of Insurance- A copy of each Contractor's current Workers' Compensation and General Liability insurance policies are required to be shown before any work is to be performed on each job site. Liability limits of General Liability coverage will not be less than $1,000,000.

Additional Named Insured- PNT shall be named as an Additional Named Insured on each Contractor's insurance policy. This gives PNT additional protection by making available the Contractor's insurance policy as primary with additional limits before PNT policy becomes involved for accident/incidents involving Contractor employees. **THIS IS TYPICALLY ACCOMPLISHED THROUGH THE CERTIFICATE OF INSURANCE. PNT WILL BE NAMED AS ADDITIONAL INSURED ON THE SUBCONTRACTOR'S POLICY.**

Anytime you observe a Contractor performing work in an unsafe manner, please report that person or persons directly to the PNT onsite representative immediately.

Section 12: Acknowledgment Form

The rules, programs, and procedures stated above and in PNT's Safety Manual are not intended to cover all the possible situations you will be faced with on the job. PNT encourages you to act in a safe and responsible manner at all times, both on and off the job.

I have read PNT's Safety Handbook, understand it, and agree to abide by it. I understand that violation of these rules may lead to dismissal.

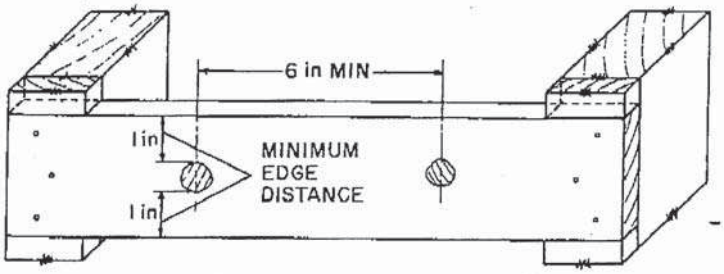
Print Name: _____

Signature: _____

Date: _____

Attachment 1

Selected Considerations for the Construction of Job Built Ladders



NOTE: Maximum of two tight and sound knots per span not closer than 6 inches on center, larger than 3/4 inch in diameter, nor closer than 1 inch from the edge.

Fig. 1
Example of Permissible Knot Spacing

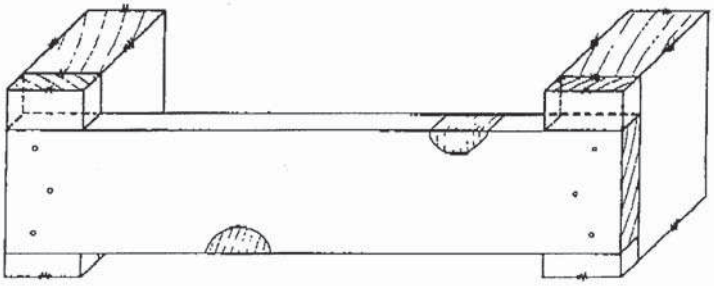


Fig. 2
Example of Impermissible Knots at Edge

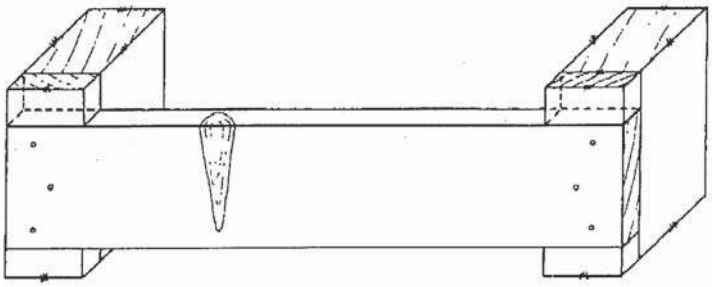


Fig. 3
Example of Impermissible Spike Knots

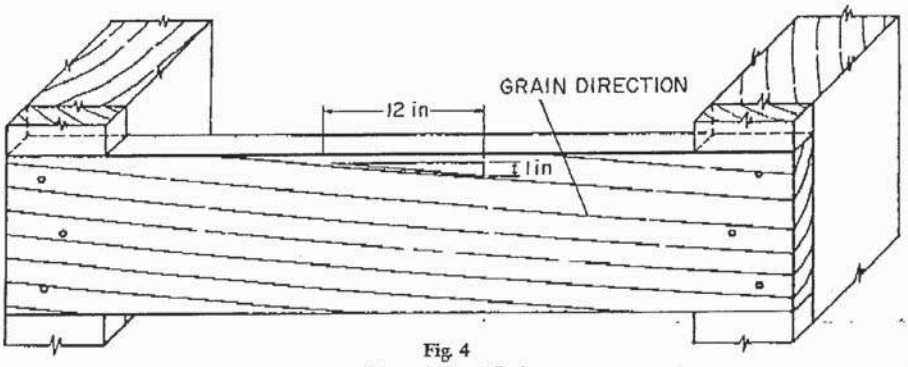
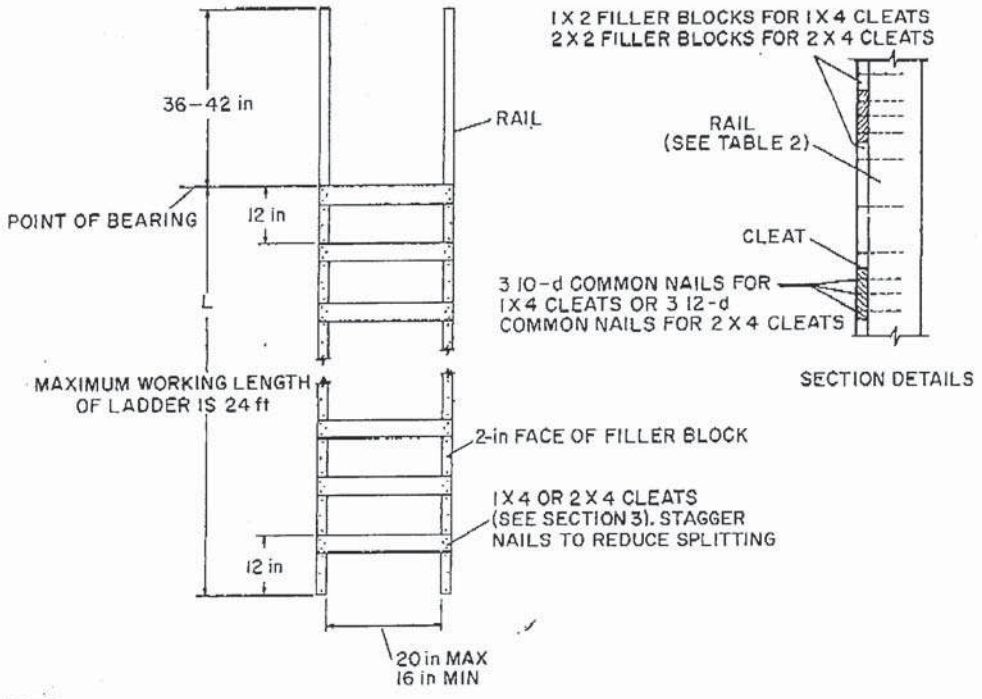
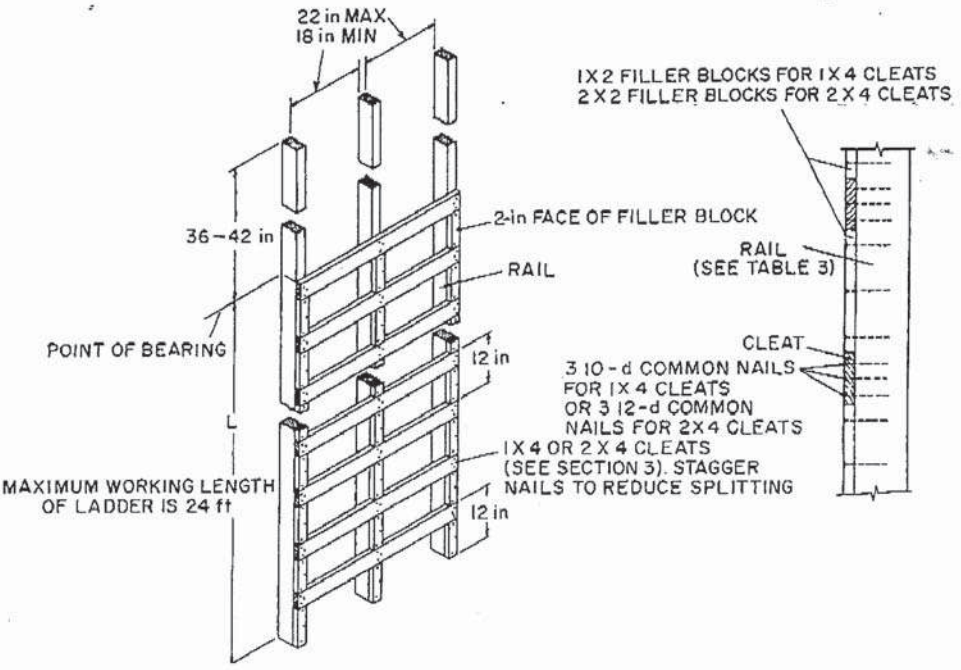


Fig. 4
Slope of Wood Grain



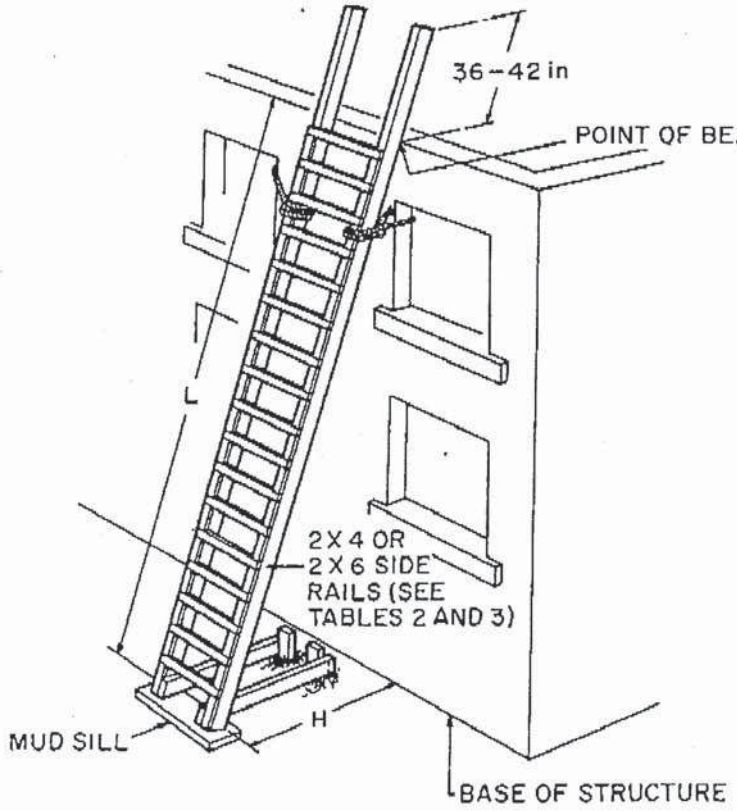
NOTES:
(1) All material shall comply with Section 3.
(2) All lumber sizes shown are nominal.
(3) 1-1/2-inch end distance shall be provided for top and bottom nails on filler blocks.
(4) For woods with high splitting tendency, see 4.5.3.

Fig. 5
Cleat Attachment, Single-Cleat Ladders



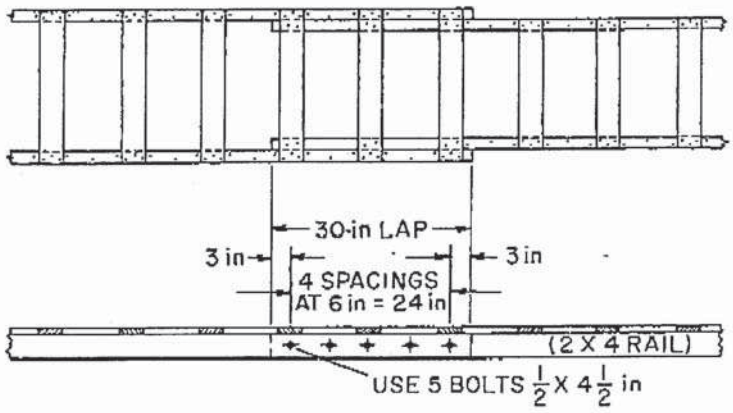
NOTES:
(1) All material shall comply with Section 3.
(2) All lumber sizes shown are nominal.
(3) Cleats shall extend full width of ladder.
(4) 1-1/2-inch end distance shall be provided for top and bottom nails on filler blocks.
(5) For woods with high splitting tendency, see 4.5.3

Fig. 6
Cleat Attachment, Double-Cleat Ladders

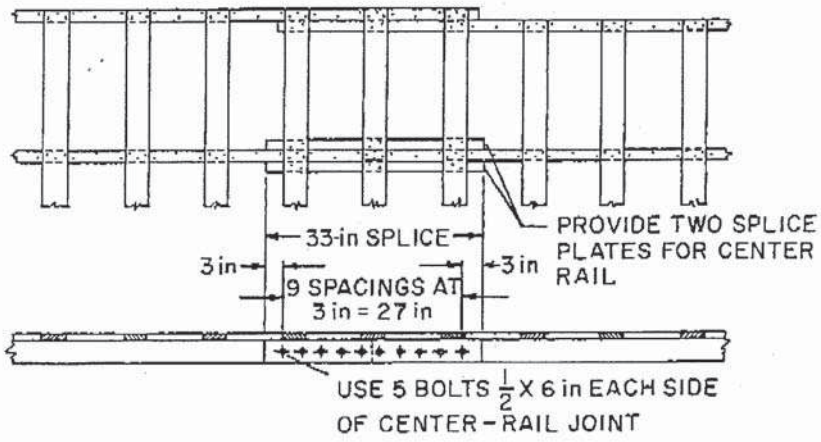


NOTES:
(1) Rails shall extend at least 36 inches above point of bearing.
(2) The top of the ladder shall be tied off as near the point of bearing as possible.
(3) The base shall be secured against displacement.
(4) The pitch, H divided by L, shall not exceed 1 in 4 (see Tables 2 and 3).
(5) Security attachments shall be affixed directly to the rails and *not* to the cleats.
(6) An alternate method of securing the base is shown in Fig. 10

Fig. 7
Ladder Pitch



SIDE-RAIL SPLICE



CENTER-RAIL SPLICE

NOTES:
(1) The splice shall be located as near the top point of the bearing as possible.
(2) Holes shall be drilled for a snug fit along the rail centerline.
(3) Two washers and a lock washer shall be provided with each bolt.
(4) Ladders with splices shall not be used at a pitch flatter than 1 in 8.

Fig. 8
Ladder Splices, 2 X 4 Rail

Attachment 2

POLICY	
Subject: Subcontractor Safety Disciplinary Policy	Effective Date: December 10, 2013
Policy Number: Safety 002	Page: 1 of 6
Revised: December 5, 2013	Reviewed: Robert Poole

References:

1. PNT Consulting Safety Manual
2. PNT Consulting Standard Subcontract Agreement

POLICY:

Subcontractors that fail to work in a safe manner, and in compliance with applicable Federal, State and Local laws and regulations, Owner's standards, or the PNT Safety Program, will be subject to disciplinary action, as described in this policy. This policy includes:

1. Identifying Subcontractors that work in an unsafe manner.
2. Placing a Subcontractor that works in an unsafe manner on the Safety Watch List.
3. Limiting a Subcontractor's opportunity to bid projects as a result of its placement on the Safety Watch List.
4. If appropriate, allowing Subcontractors to continue working on existing projects
5. If appropriate, removing Subcontractors from the Safety Watch List.

SCOPE: All PNT Consulting Subcontractors subject to the Standard Subcontract Agreement.

ADMINISTRATION: This policy will be administered by

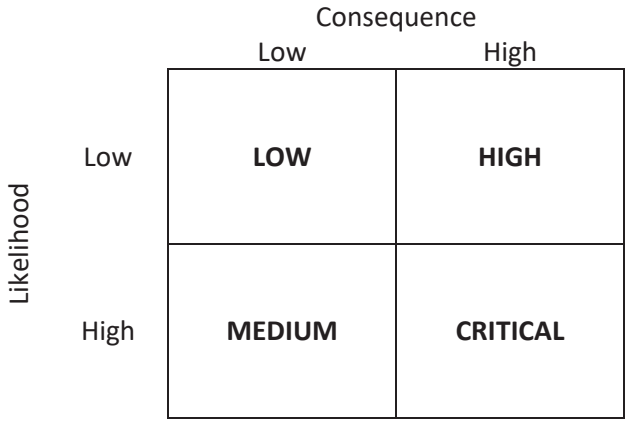
PT's Director of Safety.**Criteria for Inclusion on the Subcontractor's Safety Watch List**

In executing these actions, Superintendents will be guided by their own good judgment and the best interests of PNT Consulting.

1. A superintendent's daily safety inspection or a routine safety audit by a safety superintendent uncovers unsafe conditions of varying severity[1]:
    a. Low severity (likelihood of an injury/incident occurring is low, and the consequence of that injury/incident is low-not likely to cause hospitalization)

[1] Severities are as identified in the Predictive Solutions Safety Auditing Application, and as reported on Predictive Solutions Audit Reports. Severities are assigned based on the experience and judgment of the Superintendent or Safety Superintendent. The Director and Deputy Director of Safety are copied on all Unsafe Observations.

b. Medium Severity (likelihood of an injury/incident occurring is high, and the consequence of that injury/incident is low-not likely to cause hospitalization)
c. High Severity (likelihood of an injury/incident occurring is low, and the consequence of that injury/incident is high- likely to cause hospitalization or worse)
d. Critical Severity (likelihood of an injury/incident occurring is high, and the consequence of that injury/incident is high- likely to cause hospitalization or is life threatening)



2. The Superintendent and/or the Safety Superintendent will decide what actions to take while correcting these conditions. Documentation should be performed by the Superintendent and/or the Safety Superintendent in Predictive Solutions. Typical actions based on the severity of the situation are:
    a. Low-Correct situation onsite and allow subcontractor to continue work
    b. Medium-Subcontractor re-trains the offending worker, document re-training and allow the individual to continue work. Documentary evidence of retraining will be presented to the project superintendent. This retraining may occur on the same day onsite, or offsite, depending on the complexity of the re-training.
    c. High/Critical-based on the discretion of the Superintendent/Safety Superintendent, the individual may be re-trained off site, removed temporarily from the jobsite, or permanently removed from the jobsite. Documentary evidence of retraining will be presented to the project superintendent. The Subcontractor will continue working, but that individual involved with the incident will not be permitted to return to the jobsite until he or she is re-instated
3. Repeated medium, high or critical severity conditions created by a subcontractor and/or its employees will result in the issuance of a "Notice of Safety Non-Compliance" by the Project Superintendent and/or the Safety Superintendent. Based on the judgment of the Superintendent, with the advice of the Safety Superintendent and the Safety Department, the Subcontractor's work will be stopped and the condition will be corrected. The Subcontractor will be responsible for submitting a formal Corrective Action Plan to the Superintendent within 24 hours. If a Subcontractor's work is stopped due to an unsafe condition, Subcontractor is responsible for the cost of delays caused by the stoppage.
    a. "Repeated" is defined as:

i. 2 or more “Critical” Unsafe Observations in the previous 30 day period on or all PNT projects where that subcontractor has a presence.
ii. Any combination of 5 or more “Critical”, “High”, or “Medium” Unsafe Observations in the previous 30 day period on any PNT project.

b. If Corrective Actions are accepted by the Superintendent, advised by the Safety Superintendent and/or the Safety department, the Subcontractor may resume work.
c. If another High or Critical condition is created by the Subcontractor, a “Warning Letter for Safety Non-Compliance” will be issued by the Superintendent or Safety Superintendent to the Subcontractor.
d. The Subcontractor will be placed on the Subcontractor Safety Watch List for the reasons stated in the Notice of Safety Non-Compliance and/or Warning Letter for Safety Non-Compliance.
e. The Director of Safety and/or the Deputy Director of Safety will be immediately notified whenever a “Notice of Safety Non-Compliance” or a “Warning Letter for Safety Non-Compliance” is issue to the subcontractor owner and/or president.

4. When a Subcontractor is placed on the Subcontractor Safety Watch List, it may finish any contract work on current projects (except on any project that the Subcontractor may have been terminated for cause). However, once placed on the Subcontractor Safety Watch List, the Subcontractor may not bid on any new work for 6 months from the date of the Warning Letter.
5. If a Subcontractor wishes to be re-instated and removed from the Safety Watch List at the end of the 6 month period, it must:
    a. Petition the Director of Safety in writing, requesting removal from the Watch List, describing in the petition all actions taken to correct or prevent the occurrence of the condition(s) that resulted in the Warning Letter.
    b. The Director of Safety, in conjunction with the Sector Vice President and an Owner, will review Subcontractor’s petition and render a decision within 10 days of the date of the petition. Removal of a Subcontractor from the Subcontractor Safety Watch List will be at the sole discretion of PNT Consulting llc.

NOTICE OF SAFETY NON-COMPLIANCE

To:_____, Site Representative for_____

_____ ("Subcontractor") has been found to be in non-compliance with one or more Federal, State, or PNT Consulting llc. safety requirements as specified below. This safety non-compliance must be corrected immediately for Subcontractor to meet the requirements of the Subcontract. Subcontractor must also submit, within 24 hours, to the Project Superintendent, the specific Corrective Actions that Subcontractor plans to take to correct and/or prevent additional occurrences of these non-compliant conditions. Failure to submit acceptable Corrective Actions will result in issuance of a Warning Letter for Safety Non Compliance, and placement on the PNT Consulting Subcontractor Safety Watch List

Item# Item of Non-Compliance

_____ _____

_____

_____

Item # Item of Non -Compliance

_____ _____

_____

_____

Item # Item of Non-Compliance_____ _____

_____

_____

Issued By: _____ Date: _____

Signature of Site Superintendent or Safety Superintendent

Received By: _____ Date: _____

Signature of Representative Receiving Notice

cc: PNT Safety Director
PNT Project Manager
PNT Safety Director
Subcontractor Project Manager

WARNING LETTER FOR SAFETY NON-COMPLIANCE

Project Name and Number_____

_____("Subcontractor"), has been found to be in violation of its Subcontract with PNT Consulting llc. due to its failure to comply with applicable Federal, State, or Company safety requirements.

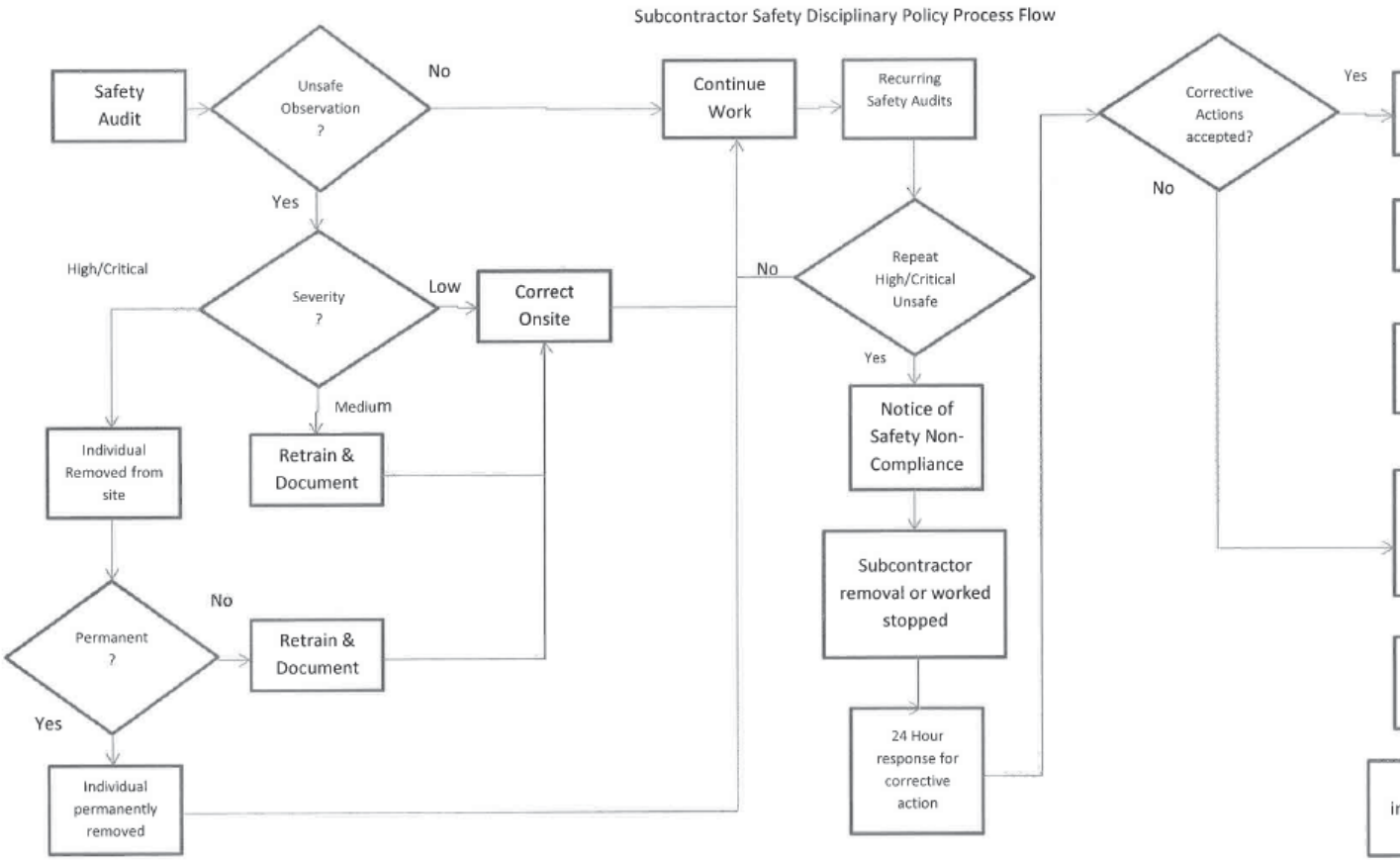
On_____(date), in accordance with the PNT Subcontractor Disciplinary Policy Subcontractor's representative, _____,was given a Notice of Safety Non-Compliance (copy attached). This notice specified areas where Subcontractor failed to comply with Federal, State, or Company safety requirements, and required that these items be corrected immediately, and that acceptable corrective actions be put in place.

As a result of Subcontractor's continued, documented non-compliance with relevant safety standards, Subcontractor is hereby placed on the PNT Consulting Subcontractor Safety Watch List. As a result of this action, Subcontractor:

a. May continue performance on current projects to completion, but must implement corrective actions, accepted by PNT Consulting llc., to ensure safe working conditions.
b. Subcontractor may not bid on any PNT Consulting projects for 6 months from the date of this letter.
c. At the end of the specified 6 month period, Subcontractor may petition the PNT Consulting Director of Safety for removal from the Safety Watch List. Removal of the Subcontractor from the Subcontractor Safety Watch-list will be at the sole discretion of PNT Consulting.

_____ _____
Signature of Director of Safety/Deputy Director of Safety Date

cc: PNT Project Manager
Subcontractor Project Manager
File


Subcontractor Safety Disciplinary Policy Process Flow
Safety Audit
Unsafe Observation ?
No
Continue Work
Recurring Safety Audits
Corrective Actions accepted?
Yes
No
Yes
High/Critical
Severity ?
Low
Correct Onsite
No
Repeat High/Critical Unsafe
Yes
Medium
Individual Removed from site
Retrain & Document
Notice of Safety Non-Compliance
Subcontractor removal or worked stopped
Permanent ?
No
Retrain & Document
Yes
24 Hour response for corrective action
Individual permanently removed

Attachment 3

POLICY	
Subject: Employee Safety Disciplinary Policy	Effective Date: January 1, 2014
Policy Number: Safety 003	Page: 1 of 4
Written: November 21, 2013	Reviewed: Robert Poole

References:

3. PNT Consulting Safety Manual
4. 29 CFR 1926/1910
5. Client/Project Specific Safety program , if applicable

POLICY:

PNT Consulting employees who fail to work in a safe manner, in compliance with applicable Federal, State or Local laws, Client standards, or the PNT Safety Program, will be subject to disciplinary action, as described in this policy. This policy includes:

6. Identifying those employees who work in an unsafe manner
7. Actions taken for isolated or repeated incidents
8. Referral to the Safety Committee
9. Convening Safety Review Board
10. Actions recommended by the Safety Review Board
11. Actions taken by sector leadership
12. Owner approval as required

SCOPE: All PNT Consulting Employees.

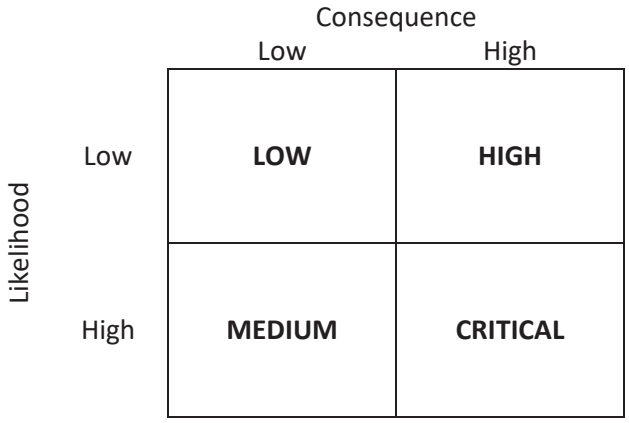
ADMINISTRATION: This policy will be administered by the Director of Safety

PROCESS: In executing these actions, Supervisors will be guided by their own experience and good judgment and the best interests of PNT Consulting.

6. Any PNT Supervisor, either in the field or in an office environment, may observe unsafe acts of varying severity[2]:

[2] Severities are as identified in the Predictive Solutions Safety Auditing Application, and as reported on Predictive Solutions Audit Reports. Severities are assigned based on the judgment and experience of the Superintendent or Safety Superintendent.

a. Low severity (likelihood of an injury/incident occurring is low, and the consequence of that injury/incident is low-not likely to cause hospitalization)
b. Medium Severity (likelihood of an injury/incident occurring is high, and the consequence of that injury/incident is low-not likely to cause hospitalization)
c. High Severity(likelihood of an injury/incident occurring is low, and the consequence of that injury/incident is - likely to cause hospitalization or worse)
d. Critical Severity (likelihood of an injury/incident occurring is high, and the consequence of that injury/incident is - likely to cause hospitalization or is life threatening)



7. The individual in a supervisory role will decide what actions to take while correcting these conditions. or Typical actions based on the level of severity are:
    a. Low-Correct onsite and continue work. Repeated Low severity unsafe acts may result in actions under paragraph 2. below
    b. Medium-Supervisor corrects/retrains individual onsite. The following additional actions will be taken:
        i. The supervisor will document the unsafe condition that he or she observed
        ii. retraining the supervisor will document the steps taken to retrain the employee
        iii. Documentation will then be forwarded to the Director of Safety for retention. (Documentation maintained for 2 years).
        iv. Repeated medium severity unsafe acts may result in actions under paragraph 2. below.
    c. High/Critical-The supervisor will notify the Chair of the Safety Committee (Director of Safety) of the unsafe action or condition by the close of the next working day.
        i. The Chair of the Safety Committee (Director of Safety) will confer with any two additional members of the Safety Committee for a decision on whether to convene a Safety Review Board. These members may, recommend to the owners that immediate termination of the employee as appropriate due to flagrant, willful safety violations without convening a Safety Review Board. violations but are not limited to:

1. Working under the influence of alcohol or drugs (unless prohibited by state or local law, the supervisor may ask for a drug test to be administered)
2. Fighting/assault
3. Sabotage to equipment or work in progress
4. Flagrant violation of established safety policies/procedures (e.g. willful refusal to use mandated PPE.)

ii. Members of the Safety Review Board (Any 3 members of the Safety Committee and a Field VP from a different sector than the employee involved) will hear the circumstances and conditions of the unsafe act from the supervisor and the individual involved.

iii. The Safety Review Board will unanimously recommend one of the following actions to the individual's Sector Vice President:
    1. Counseling Statement from the Sector Vice President, forwarded to the Director of Safety for retention, with additional training as required. The Counselling Statement will include the following:
        a. The specific unsafe act, with a reference to the applicable standard (29 CFR 1926, EM385-1-1, etc.)
        b. Date, Time and Location of the unsafe act
        c. Training or other actions to be completed by the individual, as applicable
        d. Statement that any future unsafe acts may result in disciplinary action, up to and including termination.
    2. Unpaid leave of 5 days, with notification to the Owners
    3. Demotion accompanied by reduction in salary/wage to the immediate previous level, with approval of the Owners
    4. Any other action determined by PNT Consulting based upon the facts and circumstances of the particular case.
    5. Termination, with Owner's Approval

iv. The Senior Member of the Safety Review Board will forward all board notes and minutes, including recommendations, to the Director of Safety for retention.

v. The Sector Vice President will determine the level of disciplinary action applied, taking into account the recommendation of the Safety Review Board, the best interests of PNT Consulting, and fairness to the individual involved.

vi. The Safety Director will record the decision of the Sector leadership for retention, including the written concurrence of the owners.

Attachment #4
PNT CONSULING LLC.

POLICIES	
SUBJECT: Drug and Alcohol Free Workplace	**EFFECTIVE DATE:** C. February, 1997
POLICY NUMBER: 46	**PAGE:** 1 of 6
D. REVISED: **E.** F. August 2014	**REVIEWED:** G. August 2014

PURPOSE:

PNT values its employees and recognizes their need for a safe and healthy work environment. Employees that abuse drugs or alcohol are less productive and can be a considerable risk to the safety, security, and productivity of our Company. The establishment of a Drug and Alcohol Free Workplace Policy is consistent with PNT's culture and is in the best interest of PNT and its employees.

SCOPE:

All PNT Consulcting llc. employees.

POLICY:

It is the policy of PNT to maintain a workplace free from the use and abuse of drugs and alcohol (with the limited exception of responsible consumption of alcohol at designated social functions periodically hosted by the company). Compliance with this policy is a condition of continued employment. It supersedes any other PNT policy or practice on this subject. At anytime, PNT may unilaterally, at its discretion, amend, supplement, modify, or change any part of this policy. The policy does not represent an expressed or implied contract, and it does not affect your status as an at-will employee.

To maintain a Drug and Alcohol Free Workplace, PNT has established the following policy with regard to the use, possession, and sale of drugs and alcohol. Drug and alcohol testing practices

will be adopted to identify employees or applicants using drugs and/or alcohol. PNT may assist employees who need confidential assistance with a drug or alcohol problem.

DRUG AND ALCOHOL PROHIBITIONS:

An "Illegal Drug" means any drug (1) that is not legally obtainable, or (2) that is legally obtainable, but has not been legally obtained, or (3) that is a controlled substance. The term includes prescribed drugs not legally obtained and prescribed drugs not being used for prescribed purposes.

An employee involved in any of the following activities at *anytime during the hours between the beginning and end of the employee's work day*, whether or not on Company business, premises, or property, is in violation of PNT policy and subject to disciplinary action:

A. Bringing illegal drugs onto Company premises or property, including Company owned or leased vehicles, or a PNT client's premises;

B. Having possession of or being under the influence of illegal drugs; or

C. Using, consuming, transforming, distributing or attempting to distribute, manufacturing, or dispensing illegal drugs.

In addition, PNT strictly prohibits the abuse of alcohol or prescription drugs. This means the use of prescribed drugs for reason other than their prescribed purpose.

Any employee refusing to cooperate with or submit to questioning, medical or physical tests, or examinations, when requested or conducted by the Company or its designee, is in violation of Company policy and subject to disciplinary action.

DRUG AND ALCOHOL TESTING:

PNT asserts its legal right and prerogative to test any employee for drug and / or alcohol abuse. Employees may be asked to submit to a medical examination and / or submit to urine, saliva, breath, and / or hair testing for drugs or alcohol. Any information obtained through such examinations may be retained by PNT and is the property of PNT.

In particular, PNT reserves the right, in its discretion and within the limits of federal and state laws, to examine and test for the presence of drugs and alcohol (as stated above) in situations such as, but not limited to the following:

1. Post Job Offer
   All offers of employment will be made subject to the results of a drug test. Applicants will be required to voluntarily submit to a urinalysis test and sign a consent agreement that will release PNT from liability. The Company will not discriminate against applicants for employment because of past drug abuse. It is the current abuse of drugs that prevents employees from performing their jobs.

2. Post-Accident
   An incident occurring while on Company business that results in injury (requiring medical treatment) to an employee or others and/or damage to Company property will require a drug and/or alcohol test.
   Failure to report any accident that meets the post-accident testing criteria is in violation of Company policy and subject to disciplinary actions. Employees testing positive, under certain state laws, may be ineligible for workers compensation benefits.

3. Random
   For the added safety and health of PNT employees, as well as the direct impact on PNT profitability, image, and reputation as a drug-free organization, all employees are subject to random, unannounced drug tests at any time the Company deems necessary to ensure a Drug-Free Workplace.
   Random selections will be made by the testing firm using computer based random number programs that match up with employee numbers. Employees selected will be notified early in the day and are expected to go to the testing site that same day.

4. Reasonable Suspicion
   Reasonable Suspicion is based on valid and documentable facts that lead a supervisor to believe that an employee is under the influence of alcohol or illegal drugs. The employee will be immediately removed from his or her duties and required to take a drug test. The employee will be allowed to return to duty following receipt of negative test results.

PNT will utilize the services of a third party Medical Review Officer who will review all test results prior to the results being submitted to PNT. Should an employee test positive for drugs, the Medical Review Officer will attempt to contact the employee and discuss the results. If the positive test result is due to prescription drug use or other legitimate reasons, the test results will be forwarded to PNT as negative.

All drug testing results and Employee Assistance Program records are treated as confidential medical records.

EMPLOYEE ASSISTANCE:

A fundamental purpose of PNT's Drug-Free Workplace Program is to assist employees who suffer from drug or alcohol abuse. If you need confidential help with a drug or alcohol problem, contact the Safety Director. If eligible, you will be granted a medical leave of absence for rehabilitation. If you are enrolled in the Company health plan, your health care benefits may pay a portion of your rehabilitation costs. Any additional costs are the employee's responsibility.

Contacting the Safety Director will not be a defense to avoid disciplinary action where the facts proving a violation of this policy or giving rise to other disciplinary action are obtained outside of this consultation.

DRUG TESTING PROCEDURES:

Whenever possible, the drug test will be performed from urine specimens collected at a qualified collection site. A breath or saliva alcohol test will be performed for all post-accident/incident and reasonable-cause situations. If the saliva alcohol test reads positive, a breath alcohol test will be performed at the collection site.

The collection site will take necessary steps to avoid any dilution or alteration of the specimen. However, the test shall be conducted in a professional and sanitary manner with due regard for the individual’s privacy, dignity, and confidentiality. Proper handling of the specimens will be maintained so that the specimen results can be traced to the proper individual.

The specimen will be analyzed for the following controlled substances. Some of the common drug names are included in parentheses:

- Cannabinoids (Marijuana)
- Cocaine
- Opiates (Heroin, Morphine, Codeine)
- Amphetamines (Stimulants like Benzedrine and Didrex)

- Phencyclidine (PCP)

- Barbiturates (Depressants like Phenobarbital and Secobarbital)
- Benzodiazepines (Depressants like Valium and Xanax)
- Propoxyphene (Narcotics like Darvon and Darvocet)

All specimens will be confirmed through Gas Chromatography with Mass Spectrometry (GC/MS) by a laboratory certified by the Substance Abuse and Mental Health Services Administration (SAMHSA). Any positive result from this GC/MS test will be reviewed by an independent Medical Review Officer (MRO) prior to the result being communicated to the company. The MRO will give you the opportunity to rebut a positive test result and provide evidence of the proper use of a prescription drug. This will ensure that positive results are not due to prescription drugs or other factor which the MRO feels justifies the presence of controlled substances.

Any employee who is tested will have the right, upon request, to see the results of his/her test and to request a retest of the original specimen at a different SAMHSA-certified laboratory (at the employee's expense) within ten (10) business days of being notified of a positive test result.

All information regarding the drug and/or alcohol test results or failure to complete rehabilitation will remain confidential.

DISCIPLINARY:

PNT reserves the right to use disciplinary actions, up to and including termination of employment. The employee's present job assignment, the employee's record with the company, and other factors, including the impact of the violation upon the conduct of the company business may be considered. Any employee who refuses to submit to drug/alcohol testing or attempts to adulterate or alter the specimen will be subject to disciplinary actions.

CONSENT:

As a condition of continued employment, employees must sign the attached consent form.

CONSENT FORM

I hereby acknowledge receipt of PNT Consuling's Substance-Abuse Policy regarding drugs and alcohol.

My signature acknowledges my understanding and concurrence with the procedures outlined in the above referenced policy. It is my consent to submit to medical testing, including but not limited to giving urine, breath, blood, sweat, and/or saliva sample(s) to be used for drug and alcohol analysis under the conditions outlined in the policy.

In connection with and consistent with the provisions of the Substance-Abuse Policy:

(1) I authorize the release of any urine, breath, blood, sweat, and/or saliva sample(s) and the results of any tests and examinations performed thereon to PNT Consulting and any doctor, medical personnel, hospital, medical center, clinic, etc., or any representatives with whom they may choose to consult regarding the sample tests or examination results. I will be given an opportunity to explain a positive test result to the Medical Review Officer before the test result is reported to PNT Consulting as a verified positive test result.

(2) I understand that the test results may be released by PNT Consulting to applicable state unemployment agencies and to the PNT Consulting workers' compensation insurer(s), where permitted or required by law. I understand that if I test positive for drugs or alcohol following an on-the-job accident/incident or refuse to submit to any drug and/or alcohol test required by this policy, I may be ineligible for workers' compensation and/or unemployment benefits.

(3) I understand that refusal to submit to any test required by this policy, a positive test result, or refusal to authorize the release of the results is grounds for disciplinary action up to and including termination of employment.

I recognize that PNT Consulting's policy on drugs and alcohol does not constitute an expressed or implied contract of employment.

EMPLOYEE NAME _____ SOCIAL SECURITY NO._____
(Printed)

EMPLOYEE SIGNATURE _____ DATE _____

WITNESS SIGNATURE _____

DATE _____

PNT Injury/incident
Subcontractor Injury/incident
Close Call/Near Miss
Property Damage

Incident Reporting and Investigation Form

Workers Compensation/General Liability

(Fill out all sections. Be as specific as possible and include/attach drawings, photos, sketches, statements and additional narration as needed)

Date:	**Project #**	**Project Name:**		
Superintendent Contact Information				
Superintendent		**Cell Phone**		
Date of Incident		Time of Incident		
Injured Party (Did this incident result in a fatality □Yes □No?)				
If no injury, check this box and skip to next section ☐	Injured Party's Name and Title		Contact Phone Number	
Name of Employer:				
Nature of Illness:				
□ *Strain/Sprain*	□ *Dislocation*	□ *Heat Related issue*	**Treatment**	**Name/Address of treating Facility:**
□ *Fracture*	□ *Internal*	□ *Other (Specify)*	□ *First Aid*	
□ *Laceration/Cut*	□ *Burn/Scald*		□ *E.R*	
□ *Bruising*	□ *Foreign Body*		□ *Dr.'s Office*	
□ *Scratch/Abrasion*	□ *Chemical Reaction*		□ *Hospital Stay*	
□ *Amputation*	□ *Allergic Reaction*	Body Part Injured	□ *Other*	
□ *Strain/Sprain*	□ *Concussion*			
Witnesses and/or Witness Statement				
Witness (Name and Contact Information		Witness Statement Attached □ **Yes** □**No**		
Property Damage				
List Property		*Nature of Damage*		
Object/Substance Inflicting Damage		*Approximate Cost*		
The Incident (Use additional pages as needed, Reference below and attach)				

Incident Reporting and Investigation Form

Workers Compensation/General Liability

Activity Hazard Analysis Review		
Is there an Activity Hazard Analysis that applies to the task that was being performed? If yes, review the AHA, answer the questions below, and attach a copy to this report. If no, Complete the explanation as to why there was no AHA.	□ Yes	□ No
Were hazards sufficiently identified? (If not, explain below)	□ Yes	□ No
Were identified controls adequate and implemented (If not, explain below)	□ Yes	□ No
Were identified controls implemented? (If not, explain below)	□ Yes	□ No
Explanations for AHA review		

Investigation Team (Individual or all team members)	
Name	**Title**

Attachments (List)

Incident Reporting and Investigation Form

Workers Compensation/General Liability

Why did it happen? (Root Cause Analysis) **What was the root cause of the incident, illness or injury:**		
Unsafe Acts	**Unsafe Conditions**	**Management System Deficiencies**
□ Improper Work Technique	□ Poor work station design	□ Lack of written procedures
□ No PPE or improper use	□ Fire or explosion hazard	□ Safety rules not enforced
□ Safety Rule Violation	□ Congested work area	□ Hazards not identified
□ Operating W/O authorization	□ Hazardous substances	□ PPE not available
□ Failure to warn or secure	□ Inadequate ventilation	□ Insufficient worker training
□ Operating at improper speeds	□ Improper material storage	□ Improper maintenance
□ By-passing safety devices	□ Improper tool or eq.	□ Inadequate Supervision
□ Guards not used	□ Insufficient job knowledge	□ Insufficient job planning
□ Improper loading or placement	□ Slippery conditions	□ Inadequate hiring practices
□ Improper lifting	□ Poor housekeeping	□ Poor process design
□ Servicing or adjusting in motion	□ Excessive noise	□ No superintendent safety audit
□ Horseplay	□ Inadequate guarding	□ Inadequate equipment
□ Drug or alcohol use	□ Defective tools/Eg.	□ Unsafe design or construction
□ Unsafe acts of others	□ Insufficient lighting	□ Unrealistic scheduling
□ Unnecessary haste	□ Inadequate Fall Protection	□ Insufficient supervisor training
□ Other (Describe)	□ Other	□ Other
Describe "other"		

What should be done to prevent a recurrence? *(Be specific as to what actions should be taken)*

Corrective Actions Tracking (All blocks must be filled in and all information verifiable)				
List actions that have or will be taken to prevent recurrence	Assigned to	Scheduled Completion	Actual Completion	Follow up date
Name of Person Completing this Form/Date:				

	PNT Consulting Safety and Health Manual	Doc No:	SOP-MSFT-01
		Initial Issue Date	2/15/16
		Revision Date:	4/1/17
RULES		Prepared by: Todd Harvey	
		Document Location:	

1 Purpose

1.1 All employees are responsible for safety. Rules will apply to ALL employees.

2 Scope

2.1Employees shall comply with all established safety rules, regulations, procedures, and instructions which are applicable to their own actions and conduct.

3 Definitions

None

4 Responsibilities

4.1All PNT employees are responsible for monitoring daily work activities and identifying any unsafe acts or conditions. Notable violators will be susceptible to the PNT 3 strike rule.

4.2 Promptly report all accidents, hazards, incidents, and near-miss occurrences to your immediate Superintendent, regardless of whether or not injury or property damage was involved.

4.3 Employees are to comply with all PNT Safety Policy and OSHA (federal and/or State plan) standards. Failure to do so will result in the disciplinary action as defined below.

5 Guidelines

5.1 Do not visit, talk to, or distract another employee who is operating a machine, or who is engaged in a work activity where the possibility of injury exists.

5.2 Do not participate in horseplay, scuffling, pushing, fighting, throwing things, or practical jokes.

5.3 Observe all no-smoking signs and regulations.

5.4 Do not run on company/job site premises.

5.5 Use handrails on steps, elevated platforms, scaffolds, or other elevations.

5.6 Assist others and ask for assistance in lifting and carrying heavy or awkward objects.

5.8 Firearms, ammunition, and explosives are prohibited at PNT workplaces.

5.9 NO radios are permitted on PNT construction sites. Personal stereos with headphones - e.g. IPods, MP3 players - are NOT permitted to be worn in the workplace or construction sites.

6 Three Strike Rule

6.1 Whenever a violation of the PNT Safety Policy, Job Safety Standards, or OSHA Regulations occurs, the following enforcement policy will be implemented:

6.2 1st offense = written warning.
6.3 2nd offense = suspension from the job and mandatory attendance at the next scheduled PNT Project Safety Orientation.
6.4 3rd offense = permanent dismissal from the job. A meeting may be conducted with the violators' employer.

6.5 Acceleration of the enforcement policy may take place if the violation warrants it.

6.6 Automatic Dismissals
6.7 Automatic dismissals will be issued for fighting, harassment, going to the bathroom outside of a designated bathroom facility, possession of firearms, or possession or use of alcohol or unauthorized drugs on this site. Any obtrusive or unacceptable behavior will be grounds for dismissal.
6.8 The company reserves the right to terminate immediately any employee or subcontractor who acts unsafely or creates an unsafe condition on PNT Consulting job-sites.

	PNT Consulting Safety and Health Manual	Doc No:	SOP-MSFT-04
		Initial Issue Date	2/15/16
		Revision Date:	4/1/17
MATERIAL HANDLING & BACK SAFETY		Prepared by: Todd Harvey	
		Document Location:	

3.1. Purpose

3.1.1. The purpose of this SOP is to establish guidelines to inform PNT personnel of the appropriate techniques required for the movement of material by PNT personnel on job sites.

3.2. Scope

3.2.1. This SOP applies to all PNT personnel where materials and heavy objects are being moved manually i.e. by an individual or individuals, and the lifting techniques that should be used.

3.3. Definitions

3.3.1. Engineering Controls – Engineering controls are methods that are built into the design of a plant, equipment or process to minimize the hazard. Engineering controls are a very reliable way to control worker exposures, if, the controls are designed, used and maintained properly.

3.3.2. Two Man Lifts – The act of two people lifting a heavy object together to disperse the weight of the object between both people and reduce the risk of injury to either party.

3.3.3. Competent Person – A person who has the knowledge, training, and experience to perform functions associated with hoist operations, and who also is authorized by the employer to take corrective action regarding hoist use and safety

3.4. Responsibilities

3.4.1. Vice President of Safety – Responsible for periodic review of the guidelines in this policy.

3.4.2. Foreman/Site Supervisor – Responsible for identifying and correcting improper lifting techniques of employees and reviewing the procedures used to determine if they are consistent with this SOP. This review of the work areas shall continue periodically throughout the project. The Foreman/Supervisor is also responsible for ensuring employees know how to complete a visual Hazard Assessment.

3.4.3. Employees – Employees must complete a visual Hazard Assessment prior to reengaging in lifting practices to avoid exposing themselves to soft tissue and/or musculoskeletal injuries. They are to observe all safety guidelines for material handling as defined below.

3.5. Guidelines

3.5.1. Emlployees are only to perform safe manual lifts, detailed below, if an item to be moved does not meet the criteria outlined in this SOP, then the employee must make modifications prior to attempting to lift the load.

3.5.2. If a lifting related injury occurs, retraining of personnel will be conducted, after a root cause analysis is completed in which findings will be used to prevent reoccurrence.

3.6. One Person Lifts

3.6.1. One person should be able to lift an object weighing up to 51 pounds:

3.6.1.1. If the object is within 7 inches from the front of his or her body;

3.6.1.2. If the object is at waist height and directly in front of the person;

3.6.1.3. If there is no twisting involved;

3.6.1.4. If there is a handle on the object;

3.6.1.5. If the load inside doesn't shift once lifted;

3.7. Two Person Lifts

3.7.1. If any of the conditions listed above for one person lifts exist, then lifting and moving the load may cause injury to the person lifting the item, modifications should be made to avoid injury. Employees can utilize the following techniques to offset the risk of injury:

3.7.1.1. Decrease the weight of the load;

3.7.1.2. Utilize the two person lift technique;

3.7.1.3. Use mechanical assistance (dolly, cart, lift, etc.).

3.8. Reducing Lifting Exposures

3.8.1. Lifting exposures can be reduced by implementing engineering controls.

3.8.1.1. Examples of engineering controls that may be utilized by PNT employees on job sites include:

3.8.1.1.1. Using truck ramps and dolly's to move objects off of trucks, rather than lifting them manually.

3.8.1.1.2. Using a cart to move a load of boxes.

3.8.2. Lifting exposures can be reduced by implementing administrative controls.

3.8.2.1. Examples of administrative controls that may be utilized by PNT employees on job sites include:

3.8.2.1.1. Employing a two man lift;

3.8.2.1.2. Reducing the weight of the load to be lifted.

3.9. Potential Hazards

3.9.1. Weight of Objects

3.9.2. Awkward Postures

3.9.3. High-Frequency and Long-Duration Lifting

3.9.4. Inadequate Handholds

3.9.5. Environmental Factors, including: cold temperatures and low visibility or poor lighting.

3.10. Training

3.10.1. PNT employees who handle materials should receive training and information on techniques and best practices regarding lifting and moving materials in an effort to reduce exposure to musculoskeletal injuries. Training shall include:

3.10.1.1. Proper lifting techniques and work practices;

3.10.1.2. Principles of good body mechanics and preventative stretching;

3.10.1.3. When to employee a two man lift.

05.1 Purpose

The following are the minimum safety practices for the operation of forklifts and heavy equipment (bulldozers, backhoes, etc.).

05.2 Scope

Only trained and authorized operators are permitted to operate a forklift or heavy equipment. All operators will be trained by a Certified Forklift / Heavy Equipment Trainer.

05.3 Definitions

05.3.1 License or Certificate of training – Forklift operators receive annual mandatory forklift training and shall retain a license or certificate on their person at all times.

05.3.2 Inspection – Operator must inspect their forklift or equipment daily prior to operation thereof. This will include, at a minimum: brakes, steering controls, warning light, clutch, horn, fluid levels, and other devices for safe and proper operation.

05.4 Responsibilities

05.4.1 Every forklift operator must receive forklift training which is administered by a qualified instructor.

05.4.1.1 Training shall include a formal instruction, practical training, and a workplace specific operator evaluation.

05.4.1.2 Training topics shall include, but are not limited to; inspection procedures, safe operation, load capacities, and acceptable attachments.

05.4.1.3 Training shall be re-administered at a minimum of every three (3) years or if the operator displays non-compliant behavior.

05.4.2 Every forklift operator must remain in possession of their Forklift / Heavy Equipment license or certificate at all times.

05.4.3 Every forklift operator must conduct daily inspection of their machines prior to work.

05.4.3.1 Operators need to document their inspection results and defects on the attached Inspection Report Form.

05.4.3.2 Operator must verify trailer chocks, supports, and dock plates prior to loading/unloading; if applicable.

05.4.3.3 Superintendent must be notified of any defects immediately, as no defective equipment shall be utilized.

05.4.3.4 Adjustments and repairs will be made by authorized personnel only.

05.5 Guidelines

05.5.1 NEVER check the engine while it is running.

05.5.2 NEVER check for hydraulic leaks with your hand.

05.5.3 Wash equipment whenever necessary. The equipment must be kept clean and free of oil and grease.

05.5.4 Employees will operate their equipment/forklift at safe speed and within rated load capacity. Drive to the right. Do not exceed 10 miles per hour - or posted authorized speeds - on project roads.

05.5.5 Passengers are not permitted on forklifts or heavy equipment except for training purposes.

05.5.6 Mobile equipment will never be left unattended without first shutting off the power, neutralizing controls, setting brakes, and lowering forks or bucket. Do not park on an incline. Wheels will be chocked properly.

05.5.7 *All* mobile equipment must have a **functional** and tagged fire extinguisher on board.

05.5.8 Sound horn at exits, corners, cross aisles, intersections, and when approaching pedestrians. Do not use horn needlessly or at undue length.

05.5.9 Always look in the direction equipment is travelling, looking backward when backing up, even for a short distance. Keep a clear view of the path. When forward vision is obstructed, drive in reverse. When backing equipment in Virginia, the reverse signal operation regulation must be followed. If you are unfamiliar with this regulation, advise your Superintendent immediately so that the appropriate training can be given by the PNT Safety Department.

05.5.10 When traveling, with or without a load, keep forks or bucket as low as possible.

05.5.11 Avoid following pedestrians or other vehicles too closely, especially when operating on inclines or in noisy areas.

05.5.12 Ascend/descend all ramps and inclines slowly. Wait for passengers to exit the ramp before attempting to ascend/descend. When descending, always use low gear and the slowest speed control. Do not descend ramps with the load at the front of the forklift. Never ascend in reverse. When ascending, loaded forklifts will be driven with the load upgrade.

05.5.13 If the forklift is equipped with a seatbelt, the belt must be worn at all times.

05.6 Forklift Inspection Check List – see the 2 next pages for complete form.

Forklift Inspection Check List

Date:_____ **Inspector:**_____ **Title:**_____

Grade: 1 = Satisfactory, 2 = Needs some attention, 3 = Needs immediate action

Item	*Grade*	*Comments*
Operator Training		
Personnel operating the forklift properly trained.		
Condition of Forklift		
Brakes		
Steering controls		
Warning lights		
Horn		
Clutch		
Warning Lights		
Engine		
Overhead guard		
Capacity Sign posted		
Fire Prevention		
Fire extinguisher on board & functional		
Fluids		
Levels Adequate		
Fueling done to avoid spilling		
If spillage occurs, is fuel washed away completely from forklift and area; and are measures taken to control vapors before restarting engine?		
Personal Protective Equipment		
Hard hats provided & worn where danger of falling objects exist		
General PPE rules on proper clothing & footwear followed		
Additional OSHA Requirements		
Are driving paths marked, in good condition, and clear?		
Repairs are conducted in designated areas		
Operating rules posted & enforced		
Batteries charged in properly vented rooms (no smoking)		
Are dust & fume exposures generated by the forklift through operation, fueling, or repair controlled?		
Seatbelt in forklift and worn while operating the forklift		
Other:		

Action Taken:

- **Repairs/Corrections must be completed by: (date)_____**
- **Repairs/Corrections mentioned above have been done.**

Superintendent _____ Date: _____

Distribution – Project Superintendent, Site Safety Officer (if assigned)

06.1 Purpose

The following are the minimum safety practices for ladder usage.

06.2 Scope

06.3 Definitions

None

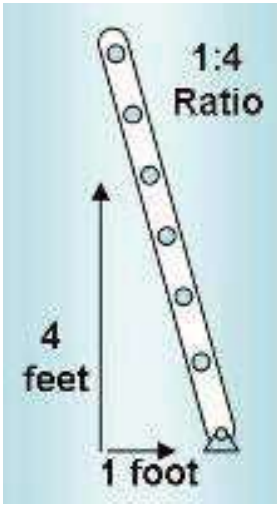
06.3 Responsibilities

06.3.1.1 Employees must inspect ladder(s) prior to every use.
06.3.1.2 Employees shall ensure that they are using a ladder rated to support the weight of the employee and any tools necessary to complete the task. Load limits shall not be exceeded.
06.3.1.3 Employees may only use ladders for the purpose in which they were designed.

06.5 Guidelines

06.5.1 Manufactured ladders must comply with OSHA, ANSI, manufacturer, and job specifications.
06.5.2 Ladders with broken or missing rungs and/or broken or split side rails will not be used.
06.5.3 All portable ladders will be equipped with non-skid safety feet and will be placed on a stable base. All access areas will be kept clear.
06.5.4 All metal ladders are prohibited (Only fiberglass, wood, or carbon fiber ladders are allowed by PNT Consulting).
06.5.5 The 6-foot fall protection procedure applies when working from a ladder. All ladders will be secured with a rope or other substantial device.
06.5.6 Wood ladders will not be painted except for an identification mark. Ladders will be maintained free of lines, ropes, hoses, wires, cables, oil grease, and debris. No objects shall be left on ladders.
06.5.7 Single portable ladders over 30 feet in length will not be used.
06.5.8 Side rails will extend 36 inches above the landings. All ladders in use will be tied, blocked, or otherwise secured to prevent accident/incidental displacement.
06.5.9 Never stand or sit on the top 2 steps of a ladder.
06.5.10 Never climb or work from the back of a ladder.
06.5.11 Never work with another person on the same ladder.
06.5.12 The contractor will provide training programs on ladders for all employees.

06.5.13 Straight or extension ladders will be placed at a one-to-four ratio (ladder base to wall & also from floor to top touch point of ladder). I.e., if ladder is resting against an upper level 16' off the ground, the base of the ladder will be 4' away from the wall. See diagram:



06.5.14 Extension ladder components will never be separated or used separately.

06.5.15 Job Built ladders must comply with ANSI A14.4-1979. Selected considerations for the construction of Job Built ladders are included in Attachment 1.

06.5.16 Always keep your belt buckle between the rails of the ladder. Do not overreach.

06.5.17 Never ascend or descend a ladder while carrying anything.

06.5.18 Always check to see that safety dogs or latches are engaged before using an extension ladder. Extension ladders must be overlapped a minimum of three rungs.

06.5.19 Manufacturer applied warning labels, intended load labels, safety labels and other informational labels must be legible.

07.1 Purpose

Application of professional and safety principles regarding compliance with workplace rules and regulations and codes as set at the Local/State/Federal level.

07.2 Scope

Only knowledgeable, certified electricians are to perform electrical work. Any electrical work not in compliance with NEC Codes or other Local/State/Federal codes will be brought to the PNT on-site Superintendent's attention immediately.

07.3 Definitions

NEC – National Electrical Code; Regulations include NEC 70 and NFPA 70#.

07.4 Responsibilities

07.4.1 The PNT Director of Safety provides over-site and will address all reviews and updates of the Electrical Safety Program.

07.4.2 Employees will not work close to any unprotected electrical power circuit unless that circuit is de-energized and grounded, LOCKED OUT AND TAGGED

07.4.3 All switches must be enclosed and grounded. Panel boards must have provisions for closing and locking the main switch and fuse box compartment.

07.4.4 Any exposed wiring and cords with frayed or deteriorated insulation must be assumed to be energized and shall be reported immediately and removed from service and/or protected.

07.4.5 Work on electrical components (excluding extension cord repairs) shall only be performed by qualified Electricians.

07.4.6 When it is necessary to complete work on any energized equipment, authorization must be provided by PNT Safety. The qualified Electrician performing the work must be equipped with non-conductive apparel and insulation means must be taken.

07.5 Guidelines

07.5.1 All electrical cords and equipment are to be inspected before each use. Any defective cords or equipment shall be removed from service. Extension cords used with portable electric tools and appliances must be heavy duty (no less than 12-guage conductors) of the three-wire grounding type, and must conform to OSHA standards. All cords must

have ground pin in place. **NO FLAT ELECTRICAL CORDS ARE ALLOWED ON SITE.**

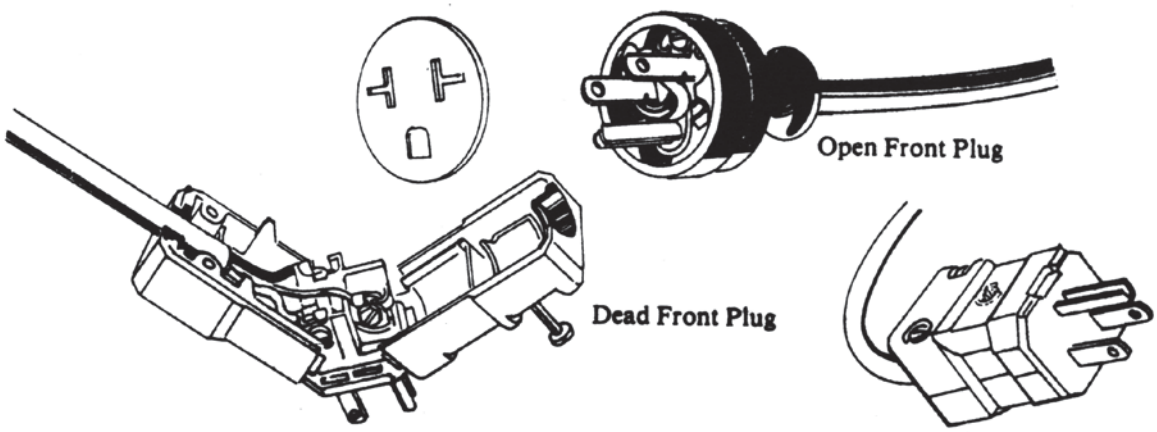
07.5.2 All electrical tools and extension cords must be protected by ground fault circuit interrupters. Temporary GFCI "pig tails" are acceptable. Note picture of acceptable pig tail (below):

07.5.3 Voltages must be clearly labeled on all electrical equipment and circuits. Circuits must also be clearly marked for the areas of service they provide.

07.5.4 Prior to performing any work, electricians must "lockout and tag-out" the equipment or machinery. The only exception is when power is required for "megging" circuits.

07.5.5 Electrical cords and trailing cables will be covered, elevated or otherwise protected from damage. Any exposed wiring and cords with frayed or deteriorated insulation must be reported immediately and removed from service.

07.5.6 Extension cords will be used as little as possible and all plugs must be the dead front type.



07.5.7 Temporary lighting will be used in areas where there is not adequate natural or artificial lighting. Temporary lights must be equipped with guards to prevent accident/incidental contact with bulbs.

07.5.8 Working spaces, walkways, and similar locations must be kept clear of cords.

07.5.9 Electrical tools and equipment must be appropriately protected when used in wet or damp areas.

07.5.10 All ladders must be of the non-conductive type. Aluminum ladder shall not be permitted on site.

07.5.11 When working and/or operating equipment (excluding cranes) near overhead power lines a clearance of 10 feet minimum must be maintained. Clearances shall be maintained in compliance with OSHA Table S5. Qualified personal shall de-energize or adequately insulate power lines if work is scheduled to take place within 10 feet of lines.

07.5.12 If it is determined to be infeasible to de-energize equipment in order to perform work. All NFPA 70E guidelines must be complied with. Insulating shields/barriers are used where necessary.

07.6 Training

07.6.1 Employees shall receive general electrical safety awareness training prior to beginning work. This training shall include general electrical hazard identification pertaining to their company's scope of work.

09.1 Purpose

Applying principles for the design, build, and inspection of scaffolds.

09.2 Scope

Only qualified persons will design, build, and inspect scaffolds. Each application must be planned to ensure that the scaffolding conforms to all specified assembly.

09.3 Definitions

None

09.4 Responsibilities

09.4.1 Employees should request assistance as needed for handling heavy or bulky objects or materials.

09.4.2 Know when to use an appropriate, approved lifting device (i.e., special trucks, racks, hoists, and other devices) for lifting very heavy, bulky, large or unyielding objects.

09.5 Training

09.5.1 Employees using scaffolding on any PNT project shall be provided training by a qualified person. The training shall pertain to the specific type of scaffold the employees plan to use.

09.5.2 The training shall include the following

09.5.2.1 The nature of any electrical hazards, fall hazards and falling object hazards in the work area.

09.5.2.2 The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used.

09.5.2.3 The proper use of the scaffold, and the proper handling of materials on the scaffold.

09.5.2.4 The maximum intended load and the load-carrying capacities of the scaffolds used

09.5.2.5 In other unique concerns related to the specific type of scaffold and/or related to the planned activity.

09.5.3 Retraining shall be administered when the employee displays behaviors non-compliant with the PNT Safety Program.

09.5 Guidelines

09.5.1 "Lean-to" scaffolds and makeshift platforms are prohibited.

09.5.2 Only materials currently being used will be stored on scaffolds. Materials are to be placed over cross members at all times. All materials will be removed from the scaffold nightly.

09.5.3 All scaffolds will be designed to carry four times the maximum intended load.

09.5.4 At no time will the scaffold be overloaded. Unstable objects such as barrels, boxes, and loose bricks will not be used to support scaffolds.

09.5.5 All scaffolds over ten feet high are required to have load footprints and limits that can be obtained from the scaffold manufacturer. A copy of all load footprints and limits will be given to any supplier stocking material on the scaffold.

09.5.6 All scaffolds must be maintained in safe condition and scaffolds damaged or weakened must be replaced immediately.

09.5.7 Scaffolds more than 6 feet above the ground must have standard guardrails and toe boards attached. Top rails will be 42" +/- 3" from the working/walking platform.

09.5.8 Scaffolds will be braced and tied both horizontally and vertically at intervals according to specified regulations.

09.5.9 Scaffolds with any dimension less than 45 inches will be equipped with outriggers or secured and guarded with standard four feet high railings.

09.5.10 Mobile scaffolds will be equipped with top rails, mid rails, toe boards, and outriggers. All casters shall be locked. Mobile scaffolds will not be used if there is a change in the floor level elevation.

09.5.11 When erecting and dismantling scaffolds, OSHA's Six Foot Fall Protection requirements must be followed.

09.5.12 Inspection tags will be completed and attached to each scaffold prior to it being used.

09.5.13 Ladders must be used to climb scaffolds at all times. Workers will never climb a scaffold's cross bracing.

09.5.14 Ladders must be used to climb scaffolds at all times. Workers will never climb a scaffold's cross bracing.

09.5.15 At the start of each shift, a competent person will inspect each scaffold for requirements of the standard. A green scaffold tag will be affixed to each scaffold, documenting the competent person's inspection.

09.5.16 Yellow scaffold tags will be affixed to scaffolds that are incomplete, but deemed by the competent person as safe to use.

09.5.17 Red scaffold tags will be affixed to scaffolds that are unsafe to use.

09.5.18 Both hands will be free of tools/materials when ascending or descending a scaffold. Employees will not propel themselves while working on scaffolds.

09.5.19 Adjusting or leveling screw jacks must not be extended more than twelve inches of thread.

09.5.20 Two-point suspension or "swing stages," pick board, boatswain chains, floats and needle beams require special approval by a safety representative before use and require independent life lines.

11.1. PURPOSE

11.1.1. The purpose of this SOP is to establish safe operating procedures for PNT employees working in or near excavation or trenching operations at PNT field sites.

11.2. SCOPE

11.2.1. This SOP applies to all field locations and activities that may expose PNT employees to excavation or trenching hazards. While the actual excavation activities will not be conducted by , employees may be exposed to the same hazards when required to be in the area of such operations. This SOP is not intended to cover any subcontractors of PNT or others, nor will it be used to in any way define the means and methods of the construction contractor's operations.

11.3. DEFINITIONS

11.3.1. Adjacent Area – The horizontal surface area surrounding the excavation, which extends outward from the excavation edge up to a distance that is half the depth of the excavation.

11.3.2. Competent Person – Competent person is one who is capable of identifying existing and potential hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authority to take corrective action to eliminate or reduce the hazard.

11.3.3. Excavation – Any manmade cavity or depression in the earth's surface, including its sides, walls, or faces, formed by earth removal and producing unsupported earth conditions.

11.3.4. Protective System – Shoring, shielding, sloping or equivalent designed to prevent collapse of the excavation.

11.3.5. Trench – A narrow excavation made below the earth's surface. In general, the depth is greater than the width, but the width of a trench is no greater than 15 feet.

11.4. RESPONSIBILITIES

11.4.1. Contractor Competent Person – The Contractor Competent Person will be designated by the excavation contractor and is responsible for identifying the hazards and potential hazards during an excavation activity, including testing to determine soil types, protective systems design

requirements, hazardous atmospheres, and daily inspection requirements. They are responsible for inspecting the excavation daily and prohibiting entrance into unsafe excavations. They are responsible for completing the Soil Analysis when soil analysis has been performed to determine the type(s) of soil present in the excavation site. Any deficiencies must be corrected before work can occur inside the excavation. All subcontractors are responsible for providing their own competent person for their own excavation activities. PNT employees will not assume the competent person role and will inquire of the Contractor Competent Person whether entry is safe; if the Contractor Competent Person refuses to advise PNT, then a PNT employee may advise only PNT employees and employees of a PNT contractor whether it is safe to enter but only if (a) specifically trained to do so and (b) that role is approved, on a case by case basis, by the DOS in writing.

11.4.2. Vice President of Safety – Responsible for periodically reviewing and updating this program.

11.4.3. Business Unit Manager – The Business Unit Manager is responsible for providing appropriate resources and personnel needed to conduct operations safely.

11.4.4. Foreman/Site Supervisor – Responsible for making sure that the designated competent person for any excavation is on site each day the excavation will be entered by PNT employees and that the appropriate inspections have been completed. The foreman/site supervisor will verify that PNT personnel entering or working near excavations have been appropriately trained.

11.4.5. Employee – The employee is responsible for knowing the hazards and understanding the consequences of entering an excavation not inspected and approved by a competent person. They must understand and utilize the provided personal protective equipment and exit the excavation if the competent person orders evacuation. Employees will not enter excavations unless a work task cannot be accomplished from above.

11.5. GUIDELINES

11.5.1. PNT will use these guidelines for entry into an excavation for any purpose.

11.5.1.1 Underground installations and/or utilities are shall be located and identified prior to performing any excavation.

11.5.2. Hazards Associated with Excavation/Trenching

11.5.2.1. The principle hazards associated with excavation/trenching are:

- Suffocation, crushing, or other injury from falling material
- Damage/failure of installed underground services and consequent hazards
- Tripping, slipping or falling

- Possibility of explosive, flammable, toxic or oxygen-deficient atmosphere in excavation

11.5.2.1.2. Hazard Controls

- Stairs, ladders or ramps are required for trenches that are greater than 4 feet deep.
- There must be a clear safe path of no more than 25 feet of lateral travel for a worker to reach a means (ramps, ladders, stairs, etc.) to exit a trench excavation.
- The Construction Contractor's Competent Person should have inspected the excavation each day prior to any entry and should have completed an Excavation Checklist equivalent to the one in Appendix A.
- The Construction Contractor's Competent Person should have completed a Soil Analysis Checklist (Appendix B) when soil analysis has been performed to determine the type(s) of soil present in the excavation.
- Guardrails shall be installed for crossings and walkways to protect employees from fall exposures.
- No PNT employees are permitted underneath suspended loads.
- BEFORE a PNT employee enters the excavation, PNT must confirm that the Construction Contractor's Competent Person has tested the atmosphere in excavations greater than 4 feet deep, as well as ones where oxygen deficiency or a hazardous atmosphere exists or could reasonably be expected to exist (such as in excavations in landfill areas or in areas where hazardous chemicals are stored nearby). A four-gas meter should have been used to check for lower explosion limit, carbon monoxide, hydrogen sulfide, and oxygen.
- If necessary to avoid an oxygen deficiency or a hazardous atmosphere, the construction contractor shall provide forced ventilation using a standard blower to provide for safe entry based upon the contaminants in the excavation. Validate the efficiency of the ventilation by verifying that the four gas meter is kept in the excavation while employees are inside.
- Water should not be allowed to accumulate within any excavation. The construction contractor should have a portable pump available to dewater the hole prior to personnel entry.
- Spoil piles must be maintained at least two feet from the edge of the excavation.

11.5.2.2. In general, PNT employees should not work alone on potentially hazardous sites such as performing bridge or rooftop inspections, excavations (if the construction contractor is not

present), or certain surveys, such as on highways. If unexpected hazards are encountered which may make completion of operations dangerous, the FTL or employee should stop work and consult with the PM or Supervisor to evaluate if the work can be completed safely. If it cannot, work will cease until appropriate controls can be implemented

11.5.3. Requirements for Protective Systems

11.5.3.1. Excavations less than 5 feet deep are not required to have protective systems if deemed safe by the Construction Contractor's Competent Person. Any excavation 5 feet deep or more requires some protective system. Some excavations less than 5 feet deep may still need protection systems in unstable soil conditions.

11.5.3.2. Protective systems may include benching, sloping, shoring or shielding and may be designed by competent persons using the OSHA tables in 1926 subpart P or may be designed by a registered Professional Engineer (PE). Since there are so many specifications for these systems, it is imperative that a competent person evaluate the excavation.

11.5.3.3 Protective systems shall provide adequate protection against protection hazards which may be located adjacent to the trench/excavation. (ie- vehicle, mechanized equipment, stored material, etc.)

11.5.4. Inspections

11.5.4.1. PNT must determine that the Construction Contractor's Competent Person has performed inspections each day before PNT employees enter the excavation, after every rainstorm, as needed throughout the shift, and as soil conditions change.

11.5.4.2. The competent person's inspection will include:

- Adequacy of the protective system (e.g. shoring) for the soil classification and the external loads placed on the adjacent area;
- Hazardous atmospheres;
- Potential cave-ins;
- Indications of failure of a protective system;
- Cracks in the ground parallel to the top of the excavation; and
- Whether ladders or other means of access/egress are provided no more than 100 feet apart, with a maximum travel distance of 25 feet for trench excavations greater than 4 feet in depth.

11.5.5. Entering the Excavation

11.5.5.1. PNT employees shall NOT enter an excavation unless the on-site FTL/HSR has coordinated with the construction contractor/subcontractor/consultant's competent person to ensure the

excavation has been inspected and is deemed safe. PNT employees will NOT enter any excavation unless the task cannot be accomplished from above.

11.5.6. Employee Information and Training

11.5.6.1. PNT Construction Awareness training will include hazard recognition associated with entering excavations or trenches and emergency egress procedures.

11.5.7. Recordkeeping

11.5.7.1. The Construction Contractor's Competent Person should maintain copies of available Excavation Checklists and any Soil Analysis Checklists.

13.1 Purpose

Excavating is recognized as one of the most hazardous construction operations. OSHA recently revised Subpart P, Excavations, of 29 CFR 1926.650, 1926.651, and 1926.652 to make the standard easier to understand, permit the use of performance criteria where possible, and provide construction employers with options when classifying soil and selecting employee protection methods. PNT utilizes and enforces 29 CFR 1926.650, 1926.651, 1926.652 and the VOSH standard 16 VAC-25-170-10 as well as the Code of Maryland Regulation (COMAR) standard 29 1926.652 (requirements for protective systems). All contractors will be held liable to one of these standards, depending on what jurisdiction they are working in.

13..2 Scope

Employees shall comply with all established safety rules, regulations, procedures, and instructions which are applicable to your own actions and conduct.

13.3 Definitions

13.3.1 **Accepted Engineering Practices** are procedures compatible with the standards of practice required of a registered professional engineer.

13.3.2 **Adjacent Structures Stability** refers to the stability of the foundation(s) of adjacent structures whose location may create surcharges, changes in soil conditions, or other disruptions that have the potential to extend into the failure zone of the excavation or trench.

13.3.3 **Competent Person** is an individual who is capable of identifying existing and predictable hazards or working conditions that are hazardous, unsanitary, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate or control these hazards and conditions.

13.3.4 **Confined Space** is a space that, by design and/or configuration, has limited openings for entry and exit, unfavorable natural ventilation, may contain or produce hazardous substances, and is not intended for continuous employee occupancy.

13.3.5 **Excavation**. An **Excavation** is any man-made cut, cavity, trench, or depression in an earth surface that is formed by earth removal.

13.3.6 A **Trench** is a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth of a trench is greater than its width, and the width (measured at the bottom) is not greater than 15 ft (4.6 m). If a form or other structure installed or constructed in an excavation reduces the distance between the form and the

side of the excavation to 15 ft (4.6 m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

13.3.7 **Hazardous Atmosphere** is an atmosphere that by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen-deficient, toxic, or otherwise harmful may cause death, illness, or injury to persons exposed to it.

13.3.8 **Ingress and Egress** mean "entry" and "exit," respectively. In trenching and excavation operations, they refer to the provision of safe means for employees to enter or exit an excavation or trench.

13.3.9 **Protective System** refers to a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, and from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

13.3.10 **Registered Professional Engineer** is a person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer who is registered in any state is deemed to be a "registered professional engineer" within the meaning of Subpart P when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

13.3.11 **Support System** refers to structures such as underpinning, bracing, and shoring that provide support to an adjacent structure or underground installation or to the sides of an excavation or trench.

13.3.12 **Subsurface Encumbrances** include underground utilities, foundations, streams, water tables, transformer vaults, and geological anomalies.

13.3.13 **Surcharge** means an excessive vertical load or weight caused by spoil, overburden, vehicles, equipment, or activities that may affect trench stability.

13.3.14 **Tabulated Data** are tables and charts approved by a registered professional engineer and used to design and construct a protective system.

13.3.15 **Underground Installations** include, but are not limited to, utilities (sewer, telephone, fuel, electric, water, and other product lines), tunnels, shafts, vaults, foundations, and other underground fixtures or equipment that may be encountered during excavation or trenching work.

13.3.16 **Unconfined Compressive Strength** is the load per unit area at which soil will fail in compression. This measure can be determined by laboratory testing, or it can be estimated in the field using a pocket penetrometer, Torvane Shear Tester, by thumb penetration tests, or by other methods.

13.3.17 **Definitions That Are No Longer Applicable**. For a variety of reasons, several terms commonly used in the past are no longer used in revised Subpart P. These include the following:

13.3.17.1 **Angle of Repose.** Conflicting and inconsistent definitions have led to confusion as to the meaning of this phrase. This term has been replaced by **Maximum Allowable Slope.**

13.3.17.2 **Bank, Sheet Pile, and Walls.** Previous definitions were unclear or were used inconsistently in the former standard.

13.3.17.3 **Hard Compact Soil** and **Unstable Soil.** The new soil classification system in revised Subpart P uses different terms for these soil types.

13.4 Responsibilities

N/A.

13.5 Guidelines – Health & Safety Considerations

13.5.1 **Competent Person**. The designated competent person should have and be able to demonstrate the following:

13.5.1.1 Training, experience, and knowledge of:

- soil analysis;
- use of protective systems; and
- requirements of 29 CFR Part 1926 Subpart P.

13.5.1.2 Ability to detect:

- conditions that could result in cave-ins;
- failures in protective systems;
- hazardous atmospheres; and
- other hazards including those associated with confined spaces.

13.5.1.3 Authority to take prompt corrective measures to eliminate existing and predictable hazards and to stop work when required.

13.5.2 **Surface Crossing of Trenches**. Surface crossing of trenches should be discouraged; however, if trenches must be crossed, such crossings are permitted only under the following conditions:

13.5.2.1 Vehicle crossings must be designed by and installed under the supervision of a registered professional engineer.

13.5.2.2 Walkways or bridges must be provided for foot traffic. These structures shall:

- have a safety factor of 4;
- have a minimum clear width of 20 in (0.51 m);
- be fitted with standard rails; and
- extend a minimum of 24 in (.61 m) past the surface edge of the trench.

13.5.3 **Ingress and Egress**. Access to and exit from the trench require the following conditions:

13.5.3.1 Trenches 4 ft or more in depth should be provided with a fixed means of egress.

13.5.3.2 Spacing between ladders or other means of egress must be such that a worker will not have to travel more than 25 ft laterally to the nearest means of egress.

13.5.3.3 Ladders must be secured and extend a minimum of 36 in (0.9 m) above the landing.

13.5.3.4 Metal ladders should be used with caution, particularly when electric utilities are present.

13.5.4 **Exposure to Vehicles.** Procedures to protect employees from being injured or killed by vehicle traffic include:

13.5.4.1 Providing employees with and requiring them to wear warning vests or other suitable garments marked with or made of reflectorized or high-visibility materials.

13.5.4.2 Requiring a designated, trained flag-person along with signs, signals, and barricades when necessary.

13.5.5 **Exposure to Falling Loads.** Employees must be protected from loads or objects falling from lifting or digging equipment. Procedures designed to ensure their protection include:

13.5.5.1 Employees are not permitted to work under raised loads.

13.5.5.2 Employees are required to stand away from equipment that is being loaded or unloaded.

13.5.5.3 Equipment operators or truck drivers may stay in their equipment during loading and unloading if the equipment is properly equipped with a cab shield or adequate canopy.

13.5.6 **Warning Systems for Mobile Equipment.** The following steps should be taken to prevent vehicles from accident/incidentally falling into the trench:

13.5.6.1 Barricades must be installed where necessary.

13.5.6.2 Hand or mechanical signals must be used as required.

13.5.6.3 Stop logs must be installed if there is a danger of vehicles falling into the trench.

13.5.6.4 Soil should be graded away from the excavation; this will assist in vehicle control and channeling of run-off water.

13.5.7 **Hazardous Atmospheres and Confined Spaces.** Employees shall not be permitted to work in hazardous and/or toxic atmospheres. Such atmospheres include those with:

13.5.7.1 Less than 19.5% or more than 23.5% oxygen;

13.5.7.2 A combustible gas concentration greater than 20% of the lower flammable limit; and

13.5.7.3 Concentrations of hazardous substances that exceed those specified in the Threshold Limit Values for Airborne Contaminants established by the ACGIH (American Conference of Governmental Industrial Hygienists).

13.5.7.4 All operations involving such atmospheres must be conducted in accordance with OSHA requirements for occupational health and environmental controls (see Subpart D of 29 CPR 1926) for personal protective equipment and for lifesaving equipment (see Subpart E of 29 CFR 1926). Engineering controls (e.g., ventilation) and respiratory protection may be required.

When testing for atmospheric contaminants, the following should be considered:

13.5.7.5 Testing should be conducted before employees enter the trench and should be done regularly to ensure that the trench remains safe.

13.5.7.6 The frequency of testing should be increased if equipment is operating in the trench.

13.5.7.7 Testing frequency should also be increased if welding, cutting, or burning is done in the trench.

13.5.7.8 Employees required to wear respiratory protection must be trained, fit-tested, and enrolled in a respiratory protection program. Some trenches qualify as confined spaces. When this occurs, compliance with the Confined Space Standard is also required.

13.5.8 **Emergency Rescue Equipment.** Emergency rescue equipment is required when a hazardous atmosphere exists or can reasonably be expected to exist. Requirements are as follows:

13.5.8.1 Respirators must be of the type suitable for the exposure. Employees must be trained in their use and a respirator program must be instituted.

13.5.8.1.1 **PNT personnel will not enter an excavation of any depth where there is the chance of a hazardous atmosphere existing, unless:**

13.5.8.1.1.1 **There is sufficient cause**

13.5.8.1.1.2 **The individual has received necessary training in confined space, respirator use, and is included in a medical surveillance program.**

13.5.8.2 Attended (at all times) lifelines must be provided when employees enter bell-bottom pier holes, deep confined spaces, or other similar hazards.

13.5.8.3 Employees who enter confined spaces must be trained.

13.5.9 **Standing Water and Water Accumulation.** Methods for controlling standing water and water accumulation must be provided and should consist of the following if employees are permitted to work in the excavation:

13.5.9.1 Use of special support or shield systems approved by a registered professional engineer.

13.5.9.2 Water removal equipment, i.e. well pointing, used and monitored by a competent person.

13.5.9.3 Safety harnesses and lifelines used in conformance with 29 CFR 1926.104.

13.5.9.4 Surface water diverted away from the trench.

13.5.9.5 Employees removed from the trench during rainstorms.

13.5.9.6 Trenches carefully inspected by a competent person after each rain and before employees are permitted to re-enter the trench.

13.5.10 **Inspections.** Inspections shall be made by a competent person and should be documented. The following guide specifies the frequency and conditions requiring inspections:

13.5.10.1 Daily and before the start of each shift;

13.5.10.2 As dictated by the work being done in the trench;

13.5.10.3 After every rainstorm;

13.5.10.4 After other events that could increase hazards, e.g. snowstorm, windstorm, thaw, earthquake, etc.;

13.5.10.5 When fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom, or other similar conditions occur;

13.5.10.6 When there is a change in the size, location, or placement of the spoil pile; and

13.5.10.7 When there is any indication of change or movement in adjacent structures.

13.6 Soil Mechanics

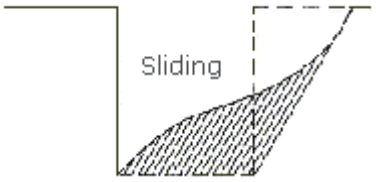
A number of stresses and deformations can occur in an open cut or trench. For example, increases or decreases in moisture content can adversely affect the stability of a trench or excavation. The following diagrams show some of the more frequently identified causes of trench failure (next page):

Tension Cracks. Tension cracks usually form at a horizontal distance of 0.5 to 0.75 times the depth of the trench, measured from the top of the vertical face of the trench. See the accompanying drawing for additional details.

FIGURE 5:2-1. TENSION CRACK.

13.6.1 **Sliding** or sluffing may occur as a **result** of tension cracks, as illustrated below.

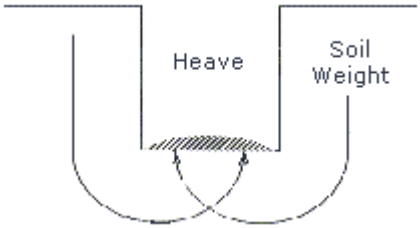
FIGURE 5:2-2. SLIDING.



(Continued next page)

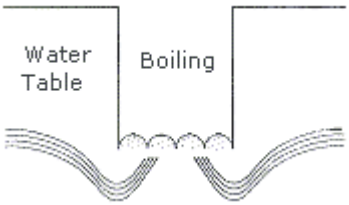
13.6.2 **Toppling.** In addition to sliding, tension cracks can cause toppling. Toppling occurs when the trench's vertical face shears along the tension crack line and topples into the excavation.

FIGURE 5:2-3. TOPPLING.



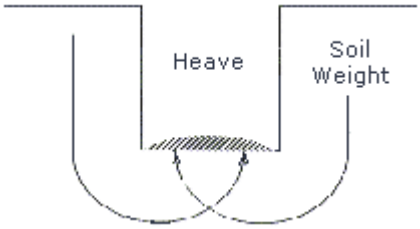
13.6.3 **Subsidence and Bulging.** An unsupported excavation can create an unbalanced stress in the soil, which, in turn, causes subsidence at the surface and bulging of the vertical face of the trench. If uncorrected, this condition can cause face failure and entrapment of workers in the trench.

FIGURE 5:2-4. SUBSIDENCE AND BULGING.



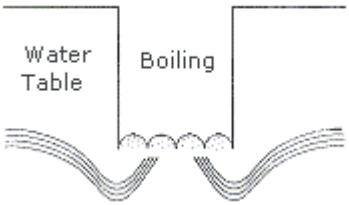
13.6.4 **Heaving or Squeezing.** Bottom heaving or squeezing is caused by the downward pressure created by the weight of adjoining soil. This pressure causes a bulge in the bottom of the cut, as illustrated in the drawing above. Heaving and squeezing can occur even when shoring or shielding has been properly installed.

FIGURE 5:2-5. HEAVING OR SQUEEZING.



13.6.5 **Boiling** is evidenced by an upward water flow into the bottom of the cut. A high water table is one of the causes of boiling. Boiling produces a "quick" condition in the bottom of the cut, and can occur even when shoring or trench boxes are used.

FIGURE 5:2-6. BOILING.



13.6.6 **Unit Weight of Soils** refers to the weight of one unit of a particular soil. The weight varies with type and moisture content. One cubic foot of soil can weigh from 110 to 140 Lbs. or more, and one cubic meter (35.3 cubic feet) can weight over 3,000 Lbs.

13.7 Determination of Soil Type

OSHA categorizes soil and rock deposits into the following classifications:

13.7.1 ***Stable Rock*** is natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed. It is usually identified by a rock name such as granite or sandstone. Determining whether a deposit is of this type may be difficult unless it is known whether cracks exist and whether or not the cracks run into or away from the excavation.

13.7.2 ***Type of Soils*** are cohesive soils with an unconfined compressive strength of 1.5 tons per square foot (tsf) (144 kPa) or greater. Examples of Type A cohesive soils are often: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. (No soil is Type A if it is fissured, is subject to vibration of any type, has previously been disturbed, is part of a sloped, layered system where the layers dip into the excavation on a slope of 4 horizontal to 1 vertical (4H:1V) or greater, or has seeping water.

13.7.3 ***Type B Soils*** are cohesive soils with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa). Examples of other Type B soils are: angular gravel; silt; silt loam; previously disturbed soils unless otherwise classified as Type C; soils that meet the unconfined compressive strength or cementation requirements of Type A soils but are fissured or subject to vibration; dry unstable rock; and layered systems sloping into the trench at a slope less than 4H:1V (only if the material would be classified as a Type B soil).

13.7.4 ***Type C Soils*** are cohesive soils with an unconfined compressive strength of 0.5 tsf (48 kPa) or less. Other Type C soils include granular soils such as gravel, sand and loamy sand, submerged soil, soil from which water is freely seeping, and submerged rock that is not stable. Also included in this classification is material in a sloped, layered system where the layers dip into the excavation or have a slope of four horizontal to one vertical (4H:1V) or greater.

13.7.5 ***Layered Geological Strata.*** Where soils are configured in layers, i.e., where a layered geologic structure exists, the soil must be classified on the basis of the soil classification of the weakest soil layer. Each layer may be classified individually if a more stable layer lies below a less stable layer, i.e., where a Type C soil rests on top of stable rock.

13.8 Test Equipment

OSHA categorizes soil and rock deposits into the following classifications:

13.8.1 **Pocket Penetrometer**. Penetrometers are direct-reading, spring-operated instruments used to determine the unconfined compressive strength of saturated cohesive soils. Once pushed into the soil, an indicator sleeve displays the reading. The

instrument is calibrated in either tons per square foot (tsf) or kilograms per square centimeter (kPa). However, Penetrometers have error rates in the range of ± 20-40%.

13.8.2 **Shearvane (Torvane).** To determine the unconfined compressive strength of the soil with a shearvane, the blades of the vane are pressed into a level section of undisturbed soil, and the torsional knob is slowly turned until soil failure occurs. The direct instrument reading must be multiplied by 2 to provide results in tons per square foot (tsf) or kilograms per square centimeter (kPa).

13.8.3 **Thumb Penetration Test.** The thumb penetration procedure involves an attempt to press the thumb firmly into the soil in question. If the thumb makes an indentation in the soil only with great difficulty, the soil is probably Type A. If the thumb penetrates no further than the length of the thumb nail, it is probably Type B soil, and if the thumb penetrates the full length of the thumb, it is Type C soil. The thumb test is subjective and is therefore the least accurate of the three methods.

13.8.4 **Dry Strength Test.** Dry soil that crumbles freely or with moderate pressure into individual grains is granular. Dry soil that falls into clumps that subsequently break into smaller clumps (and the smaller clumps can be broken only with difficulty) is probably clay in combination with gravel, sand, or silt. If the soil breaks into clumps that do not break into smaller clumps (and the soil can be broken only with difficulty), the soil is considered unfissured unless there is visual indication of fissuring.

13.8.5 **Plasticity or Wet Thread Test.** This test is conducted by molding a moist sample of the soil into a ball and attempting to roll it into a thin thread approximately 1/8 inch (3 mm) in diameter (thick) by 2 inches (50 mm) in length. The soil sample is held by one end. If the sample does not break or tear, the soil is considered cohesive.

13.8.6 **Visual Test**. A visual test is a qualitative evaluation of conditions around the site. In a visual test, the entire excavation site is observed, including the soil adjacent to the site and the soil being excavated. If the soil remains in clumps, it is cohesive; if it appears to be coarse-grained sand or gravel, it is considered granular. The evaluator also checks for any signs of vibration.

13.8.6.1 During a visual test, the evaluator should check for crack-line openings along the failure zone that would indicate tension cracks, look for existing utilities that indicate that the soil has previously been disturbed, and observe the open side of the excavation for indications of layered geologic structuring.

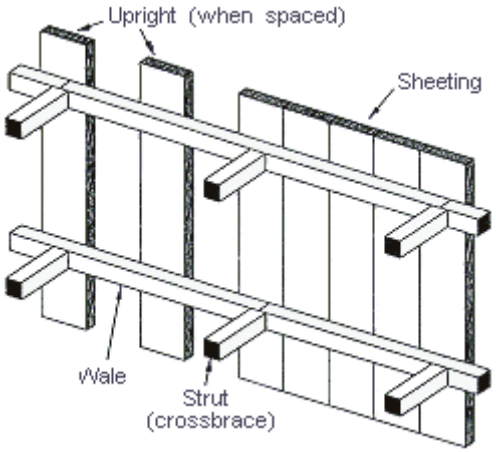
13.8.6.2 The evaluator should also look for signs of bulging, boiling, or sluffing, as well as for signs of surface water seeping from the sides of the

excavation or from the water table. If there is standing water in the cut, the evaluator should check for "quick" conditions, water infiltration into the bottom of the excavation from below that causes a boiling condition. In addition, the area adjacent to the excavation should be checked for signs of foundations or other intrusions into the failure zone, and the evaluator should check for surcharging and the spoil distance from the edge of the excavation.

13.9 Test Equipment

13.9.1 **Timber Shoring.**

FIGURE V:2-7. TIMBER SHORING.



13.9.2 **Hydraulic Shoring.** The trend today is toward the use of hydraulic shoring, a prefabricated strut and/or wale system manufactured of aluminum or steel. Hydraulic shoring provides a critical safety advantage over timber shoring because workers do not have to enter the trench to install or remove hydraulic shoring. Other advantages of most hydraulic systems are that they:

13.9.2.1 Are light enough to be installed by one worker;

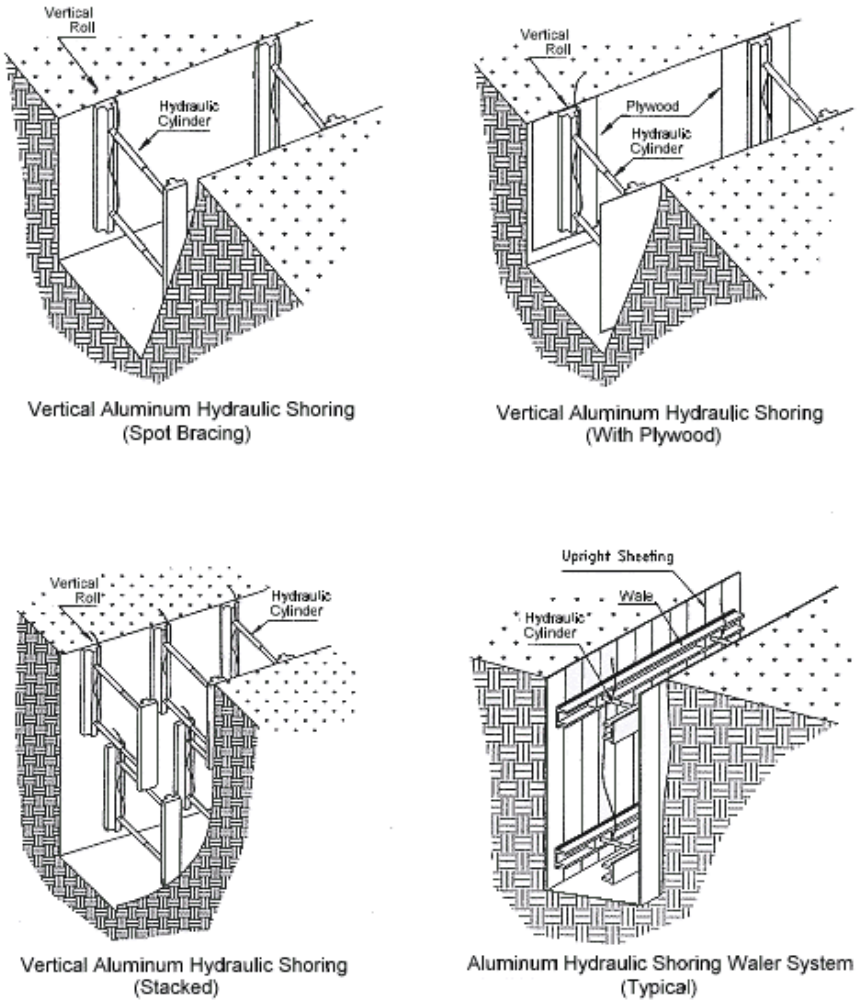
13.9.2.2 Are gauge-regulated to ensure even distribution of pressure along the trench line;

13.9.2.3 Can have their trench faces “pre-loaded” to use the soil’s natural cohesion to prevent movement;

13.9.2.4 Can be adapted easily to various trench depths and widths; and

13.9.2.5 Should be installed from the top-down and removed from the bottom-up. Hydraulic shoring should be checked at least once per shift for leaking hoses and/or cylinders, broken connections, cracked nipples, bent bases, and any other damaged or defective parts.

FIGURE V:2-8. SHORING VARIATIONS: TYPICAL ALUMINUM HYDRAULIC SHORING INSTALLATIONS.



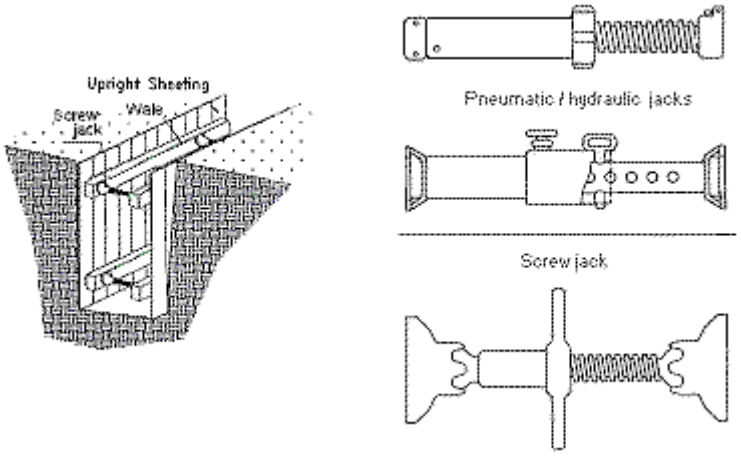
13.9.3 **Pneumatic Shoring** works in a manner similar to hydraulic shoring. The primary difference is that pneumatic shoring uses air pressure in place of hydraulic pressure. A disadvantage to the use of pneumatic shoring is that an air compressor must be on site.

13.9.4 **Screw Jacks**. Screw jack systems differ from hydraulic and pneumatic systems in that the struts of a screw jack system must be adjusted manually. This creates a hazard because the worker is required to be in the trench in order to adjust the strut. In addition, uniform "preloading" cannot be achieved with screw jacks, and their weight creates handling difficulties.

13.9.5 **Single-Cylinder Hydraulic Shores**. Shores of this type are generally used in a water system, as an assist to timber shoring systems, and in shallow trenches where face stability is required.

13.9.6 **Underpinning**. This process involves stabilizing adjacent structures, foundations, and other intrusions that may have an impact on the excavation. As the term indicates, underpinning is a procedure in which the foundation is physically reinforced. Underpinning should be conducted only under the direction and with the approval of a registered professional engineer.

FIGURE V:2-9. SHORING VARIATIONS.



13.10 Shielding Types

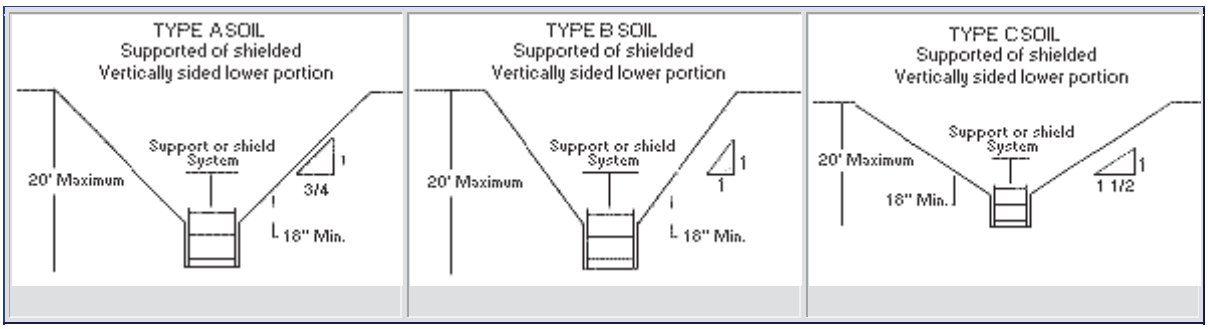
13.10.1 **Trench Boxes** are different from shoring because, instead of shoring up or otherwise supporting the trench face, they are intended primarily to protect workers from cave-ins and similar incidents. The excavated area between the outside of the trench box and the face of the trench should be as small as possible. The space between the trench boxes and the excavation side are backfilled to prevent lateral movement of the box.

Shields may not be subjected to loads exceeding those which the system was designed to withstand.

13.10.1.1 **Combined Use**. Trench boxes are generally used in open areas, but they also may be used in combination with sloping and benching. The box should extend at least 18 in (0.45 m) above the surrounding area if there is sloping toward excavation. This can be accomplished by providing a benched area adjacent to the box.

13.10.1.2 Earth excavation to a depth of 2 ft (0.61 m) below the shield is permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench and there are no indications while the trench is open of possible loss of soil from behind or below the bottom of the support system. Conditions of this type require observation on the effects of bulging, heaving, and boiling as well as surcharging, vibration, adjacent structures, etc., on excavating below the bottom of a shield. Careful visual inspection of the conditions mentioned above is the primary and most prudent approach to hazard identification and control.

FIGURE V:2-12. SLOPE AND SHIELD CONFIGURATIONS.



13.11 Sloping and Benching

13.11.1 **Sloping.** Maximum allowable slopes for excavations less than 20 ft (6.09 m) based on soil type and angle to the horizontal are as follows:

13.11.1.1 **TABLE V:2-1. ALLOWABLE SLOPES.**

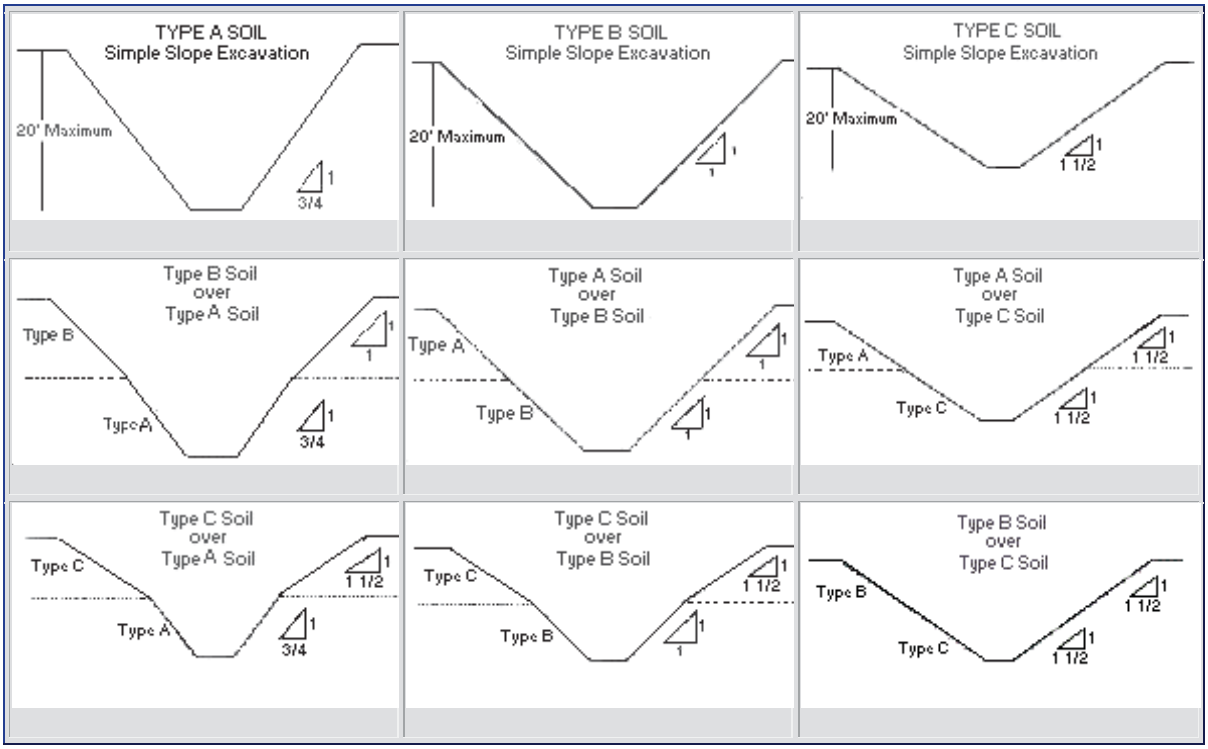
(Next Page)

Soil type	height/Depth ratio	Slope angle
Stable Rock	Vertical	90°
Type A	¾:1	53°
Type B	1:1	45°
Type C	1½:1	34°
Type A (short-term)	½:1	63°

(For a maximum excavation depth of 12 ft)

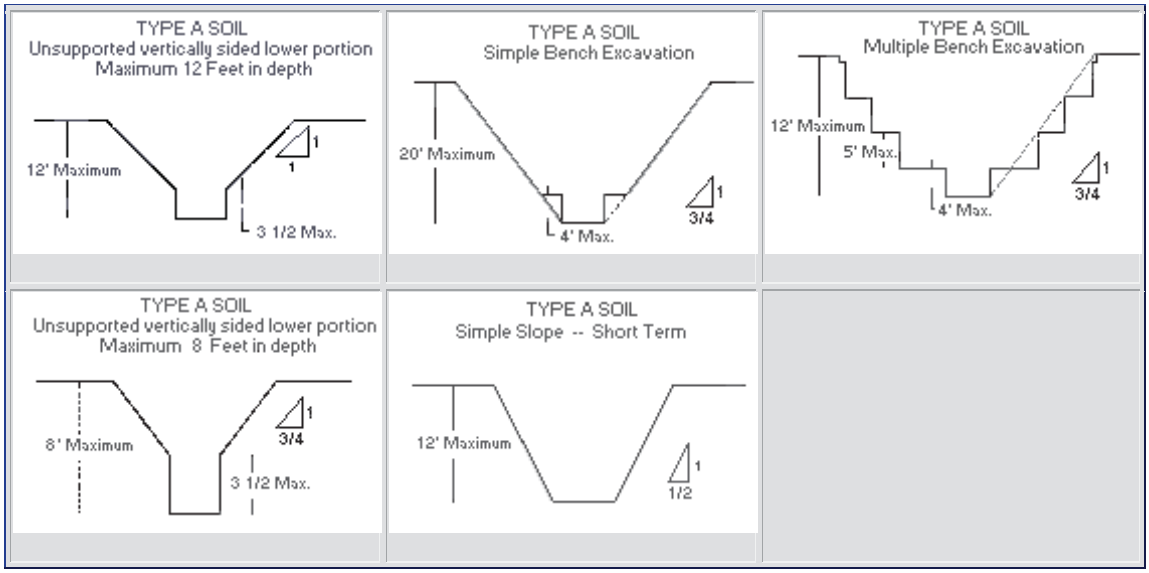
13.11.1.2

FIGURE V:2-13. SLOPE CONFIGURATIONS: EXCAVATIONS IN LAYERED SOILS.



13.11.1.3

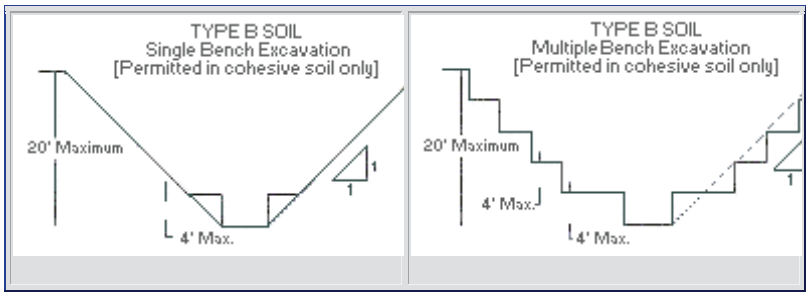
FIGURE V:2-13. SLOPE CONFIGURATIONS: EXCAVATIONS IN LAYERED SOILS.



13.11.2 **Benching.** There are two basic types of benching, simple and multiple. The type of soil determines the horizontal to vertical ratio of the benched side.

13.11.2.1 As a general rule, the bottom vertical height of the trench must not exceed 4 ft (1.2 m) for the first bench. Subsequent benches may be up to a maximum of 5 ft (1.5 m) vertical in Type A soil and 4 ft (1.2 m) in Type B soil to a total trench depth of 20 ft (6.0 m). All subsequent benches must be below the maximum allowable slope for that soil type. For Type B soil the trench excavation is permitted in cohesive soil only.

13.11.2.2 **FIGURE V:2-15. EXCAVATIONS MADE IN TYPE B SOIL.**



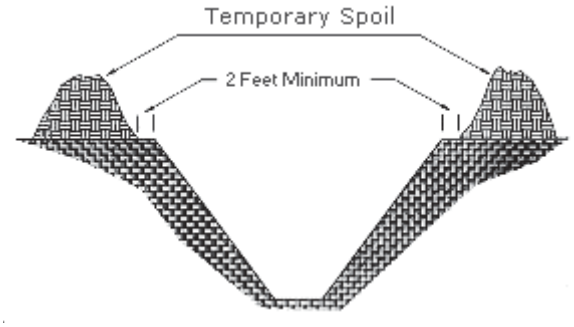
13.12 Spoil Storage

13.12.1 **Temporary Spoil.**

13.12.1.1 Temporary spoil must be placed no closer than 2 ft (0.61 m) from the surface edge of the excavation, measured from the nearest base of the spoil to the cut. This distance should not be measured from the crown of the spoil deposit. This distance requirement ensures that loose rock or soil from the temporary spoil will not fall on employees in the trench.

13.12.1.2 Spoil should be placed so that it channels rainwater and other run-off water away from the excavation. Spoil should be placed so that it cannot accident/incidentally run, slide, or fall back into the excavation.

FIGURE V:2-16. TEMPORARY SPOIL.



13.12.2 **Permanent Spoil**. Permanent spoil should be placed at some distance from the excavation. Permanent spoil is often created where underpasses are built or utilities are buried. The improper placement of permanent spoil, i.e. insufficient distance from the working excavation, can cause an excavation to be out of compliance with the horizontal-to-vertical ratio requirement for a particular excavation. This can usually be determined through visual observation. Permanent spoil can change undisturbed soil to disturbed soil and dramatically alter slope requirements.

13.13 APPENDIX V : ASSESSMENT FORM (Next Page)

APPENDIX V: 2-1. SITE ASSESSMENT QUESTIONS

During first and subsequent visits to a construction or facility maintenance location, the compliance officer (or the site's safety officer or other competent person) may find the following ***Useful Questions***

1. Is the cut, cavity, or depression a trench or an excavation?
2. Is the cut, cavity, or depression more than 4 ft (1.2 m) in depth?
3. Is there water in the cut, cavity, or depression?
4. Are there adequate means of access and egress?
5. Are there any surface encumbrances?
6. Is there exposure to vehicular traffic?
7. Are adjacent structures stabilized?
8. Does mobile equipment have a warning system?
9. Is a competent person in charge of the operation?
10. Is equipment operating in or around the cut, cavity, or depression?
11. Are procedures required to monitor, test, and control hazardous atmospheres?
12. Does a competent person determine soil type?
13. Was a soil testing device used to determine soil type?
14. Is the spoil placed 2 ft (0.6 m) or more from the edge of the cut, cavity, or depression?
15. Is the depth 20 ft (6.1 m) or more for the cut, cavity, or depression?
16. Has a registered professional engineer approved the procedure if the depth is more than 20 ft (6.1 m)?
17. Does the procedure require benching or multiple benching? Shoring? Shielding?
18. If provided, do shields extend at least 18 in (0.5 m) above the surrounding area if it is sloped toward the excavation?

19. If shields are used, is the depth of the cut more than 2 ft (0.6 m) below the bottom of the shield?

20. Are any required surface crossings of the cut, cavity, or depression the proper width and fitted with hand rails?

21. Are means of egress from the cut, cavity, or depression no more than 25 ft (7.6m) from the work?

22. Is emergency rescue equipment required?

23. Is there documentation of the minimum daily excavation inspection?

14.1 Purpose

To ensure the safe operation and the requirements for crane operations, including erection, dismantling, and usage on PNT job-sites.

14.2 Scope

All job sites requiring the use of a crane, tower or mobile.

14.3 Definitions

14.3.1. **Assembly/Disassembly Director**. Individual who meets OSHA requirements for an A/D director, irrespective of the individual's formal job title or whether the person is management or not.

14.3.2. **Competent Person**. One who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

14.3.3. **Critical Lift.** A hoisting operation in which:

14.3.3.1. The load item, if damaged or upset would result in a release into the environment of hazardous material.

14.3.3.2. The load item is unique and, if damaged, would be irreplaceable or not repairable.

14.3.3.3. The use of more than any one single piece of equipment is required to lift, stabilize, support, or be in close proximity to the load to facilitate installation.

14.3.3.4. The maximum anticipated load is at or above 75% of the crane's rated capacity for mobile cranes and 100% for tower cranes as configured according to the applicable lifting chart, for that particular lift unless otherwise stated in this policy. (Tower Cranes set-up above 75% capacity on a USACE and or NAVFAC Project will require a letter of variance from the client.

14.3.3.5. Personnel are being lifted.

14.3.3.6. Further site-specific criteria may be developed to supplement those listed above and may include loads which require exceptional care in handling because of size, weight,

close-tolerance installation, high susceptibility to damage, or at the discretion of the Person-In-Charge (PIC)

14.3.4. **Critical Item or Load**. A part, component, assembly, or piece of equipment ("item") that which dropping, upset, or collision could cause/result in any of the following:

14.3.4.1. The load item, if damaged or upset would result in a release into the environment of hazardous material.

14.3.4.2. The load item is unique and, if damaged, would be irreplaceable or not repairable.

14.3.4.3. The use of more than any one single piece of equipment is required to lift, stabilize, support, or be in close proximity to the load to facilitate installation.

14.3.5. **Engineered Lift**. Any critical lift requiring load lift sequencing, ground condition improvement, center of gravity calculations along with engineered weights, load lift path restrictions and multiple lifting devices.

14.3.6. **Master Rigger**. An individual who has met all of the requirements of Rigger II (MD) plus has accumulated 5 or more years of experience rigging loads and is authorized by the employer to take prompt corrective action to eliminate hazards.

14.3.7. **Person-in-Charge (PIC).** The key designated supervisor or manager (other than the equipment operator) responsible for the safe handling of a critical lift operation.

14.3.8. **Qualified Person**. One who by possession of a recognized degree, certificate, or professional standing, or by extensive knowledge, training, and experience has successfully demonstrated his/her ability and given the authority to solve or resolve problems relating to crane processes.

14.3.9. **Qualified Engineer/Qualified Engineering Organization.** An engineer or an engineering organization that is accepted by PNT and, if necessary, the Client.

14.3.10. **Qualified Inspector.** An individual whose crane inspection competence is recognized by the state in which the critical lift is to be conducted, the U.S. Department of Labor, or another agency authorized to certify inspection personnel.

14.3.11. **Qualified Operator**. An operator whose competence to operate equipment associated with a critical lift safely and effectively can be demonstrated to PNT. This demonstration may be by an operational test or by past first-hand knowledge of the operator's experience on similar lifts, or other means that allows PNT to assess the operator's competence. See section 9 of this program for operator qualifications.

14.3.7. **Qualified Rigger.** A person with rigging skill and competence demonstrated either by satisfactory and extensive past experience or by successfully completing a demonstration rigging test.

14.3.13. **Qualified and Authorized Signaler.** A person properly trained and possesses the skill and competence to direct the crane operator when moving loads. This person also must have the permission of their employer and the person in charge to complete signaling tasks.

14.3.14. **Rigger I. (MD)** An individual who works under the supervision of a competent person and on a routine basis performs rigging work engaged in lifting loads, other than rigging for special lifts, and the erection, dismantling, jumping, or reconfiguring of cranes.

14.3.15. **Rigger II. (MD)** An individual who has accumulated 2 or more years of experience working as a Rigger I and performs rigging work engaged in lifting loads for special lifts, or the erection, dismantling, jumping, or reconfiguring of cranes, or all of these.

14.3.16. **Signal Person**. A competent individual who is properly trained in giving signals to the crane operator via hand, audible, or voice per OSHA standards.

14.3.17. **Spotter.** A competent individual who is designated and must position themselves to watch for hazards for the operator, effectively communicate with the operator and have proper training per OSHA standards.

14.3.18. **Tandem Lift**. Any lift involving two cranes.

14.4 Responsibilities

See below.

14.5 Guidelines

14.5.1 A **tower crane** should only be erected or dismantled and tested by competent persons, i.e. an engineer and erection crew trained in the erection and dismantling of that type of tower crane.

14.5.2 Assembly and disassembly shall be performed per the crane manufacturers' specification.

14.5.3 A Activity Hazard Analysis (AHA) shall be completed by the erecting company and submitting to the PNT project team for review.

14.5.4 A **tower crane** should only be operated by a trained and competent operator who is physically fit, including eyesight and hearing, conversant with the type of crane, and able to cope with the conditions existing on site. The operator must comply with OSHA Subpart CC 1926.1400 in order to operate the crane.

14.5.5 Where the driver is required to move loads under the control of another person, a suitable signal person should be provided who is conversant with the lifting capabilities

of the crane and able to communicate clearly with the driver via hand or radio signals. The signal person must be in compliance with 1926.1419.

14.5.6 Any method of lifting other than the recommended vertical lifting of loads should be actively discouraged, as damage may be caused to the crane.

14.5.7 The **tower crane driver** or a competent person must be capable of carrying out an inspection at the beginning of each shift and a weekly inspection of the crane and should be given sufficient time in which to do this. A report of such an inspection must be made in an appropriate document. At least every 7 months, the crane must be inspected by a qualified person. A copy of the annual inspection must be kept with the crane documentation.

14.5.8 The **tower crane** will have a maximum service wind speed, usually about 72 kph (45mph). The wind speed and would have to be substantially reduced according to the area and weight of the load being handled by the crane. The crane operator must be given sufficient authority to decide when the crane should be put out of service because of high winds and his inability to control the load.

14.5.9 The **tower crane** must always be in a position to rotate (slew freely) when it is placed into the out of service condition. The slew brake should not be left on under normal conditions.

14.5.10 When the selection of a **tower crane** is being made against particular environmental considerations, the following are an example of what might have to be taken into account:

14.5.10.1 Overall area to be covered
14.5.10.2 The height of the building
14.5.10.3 The required speed of the lift
14.5.10.4 Weight of critical loads
14.5.10.5 The type of base or mounting
14.5.10.6 Existing ground conditions
14.5.10.7 All proximity hazards
14.5.10.8 Types of jib
14.5.10.9 Erection
14.5.10.10 Dismantling

14.5.11 **When two or more tower cranes** are employed on a site, each should be erected to a different working height to prevent the possibility of collision between the jibs. Although the jibs may over slew the load may still contact the lower crane. Rail tracks should be placed strategically to prevent the jib of one crane hitting the tower of another.

14.6 Cranes & Rigging

14.6.1 Only trained, competent, and qualified employees are permitted to operate/use any crane or rigging equipment. Training includes an in-depth review of the operating characteristics and limitations of the equipment. The operator must meet the requirements of 1926.1400.

14.6.2 The operator will be required to present his/her credentials prior to operating the crane on a PNT job-site.

14.6.3 The operator (Competent Person) must inspect his or her assigned machine before each shift (monthly documentation is required). This includes inspecting all safety devices, cables, sheaves and pulleys, booms and boom angles. The crane must also have a documented annual inspection by a qualified person.

14.6.4 For tower cranes, the foundation bolts to the crane from the concrete pad should also be checked for any signs of movement. The electrical box that provides power to the crane should also be checked to make sure it is locked after the power is turned on.

14.6.5 The tower crane operator should avoid swinging concrete buckets, rebar, etc. over individuals on the deck.

14.6.6 Equipment will be shut off before any repairs are made or lubricants are applied. Any removed guards must be properly reinstalled before the machine is used again.

14.6.7 Loads will not exceed equipment rated capacities.

14.6.8 Written approval from the manufacturer (or a Professional Engineer) must be obtained before modifying equipment if the changes may impact safe operation

14.6.9 Standard signals will be used to direct any moving crane. One designated person is to give signals at all times.

14.6.10 Cranes and rigging equipment are not permitted to work closer than ten (20) feet to any power line (unless deactivated or properly grounded by utility company).

14.6.11 Employees are to stay clear of the cranes swing radius and from underneath any suspended loads at all times. Never turn your back on any load. Cab portion of the crane is required to be properly blocked off (swing radius must be barricaded when unit is in use).

14.6.12 Loads will never be swung over any person.

14.6.13 A properly maintained fire extinguisher is to be kept in the crane's cab at all times.

14.6.14 All rigging devices will have permanently affixed identification stating size, grade, rated capacity, and manufacturer.

14.6.15 Any rigging not being used will be removed from the area.

14.6.16 "Shop-made" grabs, hooks, clamps, or other lifting devices are prohibited. A licensed engineer must inspect all lifting beams and spreader bars to make sure that they are the proper size for the capacity.

14.6.17 Slings will not be shortened by using knots, bolts, or other make-shift designs.

14.6.18 Wire rope slings will be padded to protect against damage from sharp corners.

14.6.19 Inspection records must be kept with all equipment.

14.6.20 Hard hats and proper personal protective equipment will be worn while operating or working close to a crane.

14.6.21 The operator is solely responsible for the safe operation of his or her assigned machine.

14.6.22 A copy of the manufacturer's operator manual must be located in the crane and followed at all times.

14.6.23 A copy of the load chart must be in the crane cab whenever it is being operated.

14.6.24 The swing radius of the counterweight must be barricaded at all times.

14.6.25 Crane outriggers must be leveled and fully extended when making a lift. If cribbing is required, it must be constructed of suitable materials and be placed in such a manner that it transmits the load on the outrigger to the ground.

14.6.26 Tie off the load so it does not swing and interfere with a tag line on the front of the load. Never use your hands or body to guide the load.

14.6.27 All rigging equipment shall be inspected by a Competent Person prior to each use.

14.6.28 Defective equipment shall be tagged out of service and removed from the job sit immediately.

14.6.29 All rigging equipment shall have legible identification tags detailing the manufacturer and capacities.

14.6.29.1 Load capacities shall not be exceeded.

14.6.30 All rigging equipment shall be properly stored when not in use to prevent damage.

14.6.31 All rigging hooks shall have safety latches.

14.7 *Mobile Crane Specifics*

14.7.1. Set Up

14.7.1.1. All mobile machines shall not be assembled or used unless ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the equipment manufacture specifications for adequate support and degree of level of the equipment are met. The operator will be informed of ground bearing pressure and hazards beneath the equipment set-up area such as voids, tanks, utilities, etc.

14.7.1.2. If the crane is equipped with outriggers, they must be extended per manufacturer's specifications and all of the crane wheels must be clear of the ground. Knowing the ground bearing pressure below the cribbing is required.

14.7.1.3. Adequate blocking cribbing/ mats must be used under all outrigger floats to spread the load and transmit the load without bending or breaking. Blocking cribbing/ mats must meet one of the following criteria:

14.7.1.3.1. Equal to three times the size in area of the outrigger float or,

14.7.1.3.2. Crane lift capacity (tons), divided by five equals the square footage of blocking needed under each outrigger float or,

14.7.1.3.3. Comply with manufacturer's recommendations or,

14.7.1.3.4. Designed by a professional engineer.

14.7.1.3.5. (Note: regardless of method, the cribbing shall be sufficient for the ground bearing pressure capabilities for that set-up)

14.7.1.4. Blocking must be rigid, level and tightly spaced.

14.7.1.5. Blocking must be centered and make full contact with the float. Never block under outrigger beams.

14.7.1.6. If the A/D director or the operator determines that the ground conditions do not meet the requirements listed above then that individual must bring the concerns to the controlling entity for resolution.

14.7.2. Use.

14.7.2.1. All mobile crane usage shall meet and/or exceed all standards, guidelines, and rules found in this program, per manufacture and all applicable city, state, and federal agency programs.

14.7.2.2. In the event of multiple standards, guidelines, and rules, the most stringent, based on the location of the crane, shall apply.

14.7.2.3. The crane operator is responsible for the safe use and operation of the crane at all times. Whenever there is a concern regarding safety, the operator has the authority to stop the operation and refuse to handle loads until a qualified person has determined that it is safe to resume operations.

14.7.3. Inspections and Checks.

14.7.3.1. Before a mobile crane is permitted to operate on a PNT project, a crane lift plan must be submitted and approved by the project team.

14.7.3.2. As mentioned previously, all operators shall visibly inspect (check) and document the crane prior to use on each shift.

14.7.3.3. Once a month, the crane shall be inspected by a competent inspector.

22.7.3.4. Once every twelve (7) months, the crane shall be inspected by a designated qualified third party inspector (see (d) 4. below).

14.7.3.5. Periodic inspections shall be completed for “heavy use” category cranes.

14.7.3.6. Applicable Consensus standards, manufacture and OSHA guidelines shall be followed for all inspections.

14.7.3.7. Equipment not in regular use or idle for 3 or more months shall be inspected prior to use by a qualified person following the monthly inspection guidelines.

14.7.3.8. A crane lift plan for each mobile crane brought onto a PNT project shall readily available in the PNT project office for review by authorized personnel. The packet shall include the following at a minimum:

14.7.3.8.1. Photocopy of Operator's license and physical certification (As required by locality).

14.7.3.8.2. Daily inspections (visual checks) (by crane operator using a 2 part form, or collected and copied on a weekly basis).

15.1 Purpose

Good housekeeping is the first rule of fire prevention.

15.2 Scope

Employees shall comply with all established safety rules, regulations, procedures, and instructions which are applicable to their own actions and conduct.

15.3 Definitions

None

15.4 *Responsibilities*

- ***15.4.1*** Promptly report all accidents, hazards, incidents, and near-miss occurrences to your immediate Superintendent, regardless of whether or not injury or property damage was involved.
- ***15.4.2*** Employees who are required to use fire extinguishers must receive annual training to ensure proper use.

15.5 *Guidelines*

- ***15.5.1*** Oily rags, paper shavings, trim, etc. will be cleaned up and placed in trash receptacles.
- ***15.5.2*** Any fire extinguisher located on a PNT job-site will be tagged to indicate the last annual service, and each monthly inspection.
- ***15.5.3*** Welding or cutting will not take place near locations where flammables or combustibles are present. When welding or cutting occurs, the area will be protected with fire resistant blankets. An approved fire extinguisher will also be located at each welding or cutting facility provided by the contractor. Refer to the Hot Work section for more information.
- ***15.5.4*** All flammable liquids will be stored in an approved manner and dispensed in approved safety containers. Welding gases will also be stored in an isolated area.
- ***15.5.5*** Liquefied Petroleum (LP) Gas presents special fire and explosion hazards. Only qualified persons are to handle LP gas. LP gas units will be inspected daily for leaks, etc.
- ***15.5.6*** Open fires of any kind are not permitted.
- ***15.5.7*** Combustible materials or equipment packaged in combustible containers will be stored properly. Fire extinguishers will be kept within close proximity to any combustible container.
- ***15.5.8*** Fire extinguishers will be recharged and inspected regularly (per NFPA 10 standards). A tag indicating the date of recharging will be affixed to each extinguisher.

15.5.9 Access to fire hydrants will be maintained at all times. Fire hydrants will never be blocked or obstructed in any way.

15.5.10 All combustible waste materials, rubbish, and debris will be disposed of daily.

15.5.11 Smoking is prohibited in any hazardous area and "No Smoking" signs will be posted in these areas.

15.5.12 Gas cylinders will be transported and stored in an upright position. During storage they must be kept at least twenty (20) feet from oxygen cylinders (or separated by a one half hour fire wall at least five (5) feet high).

15.5.13 No material will be stored within three (3) feet of an electrical panel, outlet, or fire suppression equipment (NEC 70 – National Electrical Code).

15.5.14 Portable power equipment must not be refueled while running or when hot. Attach a ground wire before refueling.

16.1 Purpose

All employees will contribute to a clean and sanitary environment, as well as provide for each other's well-being. Rules will apply to ALL employees/contractors.

16.2 Scope

Contractors shall be responsible for providing facilities and amenities necessary for the health and well-being of employees.

16.3 Definitions

None

16.4 Responsibilities

See below.

16.5 Guidelines

16.5.1 **Potable Water**

16.5.1.1 Each contractor will provide an adequate supply of drinking water at all construction sites.

16.5.1.2 The portable containers used to store drinking water will be closed tightly and have a dispensing tap. Employees will not dip cups directly into the container.

16.5.1.3 The container will only be used for storing the drinking water and it will be clearly marked as 'drinking water.'

16.5.1.4 Each employee will have his or her own cup. A 'community' cup will not be used.

16.5.1.5 Each contractor will supply single service cups that are stored in a sanitary dispenser. Trash receptacles will also be provided so that used cups can be discarded properly.

16.5.1.6 Employees are encouraged to drink lots of water during hotter temperature days or when working in heat-producing conditions to avoid heat stress or stroke.

16.5.2 **Toilets**

16.5.2.1 Toilets will be provided for employees based on the formula of 1 toilet seat and 1 urinal per 20 employees.

16.5.2.2 All facilities must be kept clean and sanitary at all times.

16.5.2.3 Hand cleaning/hand washing. Note, VOSH requires the availability of water and soap for handwashing. The OSHA and MOSH standards allow for waterless hand cleaner. Other state/municipality requirements will be determined and complied with by the project superintendent

16.5.3 Adequate washing facilities must be provided if employees are engaged in the application of paints, coatings, herbicides, or insecticides.

16.5.4 Material Use and Waste Management

16.5.4.1 Receptacles must be placed around the job site for collection of waste materials.

16.5.4.2 All hazardous waste must be stored and collected in special areas.

16.5.4.3 No hazardous material is to be abandoned on the job site.

16.5.4.4 No waste haulers, disposers, recyclers, or scavengers are allowed on the job site without PNT approval.

16.5.4.5 All hazardous waste removed from the job site must have the on-site PNT Superintendent's authorization. No outside waste is to be disposed of using PNT facilities. Dumpsters are to be inspected frequently and any potentially hazardous material is to be placed in the appropriate storage area.

16.5.4.6 No used oil or paint is to accumulate on the job site. All spills are to be cleaned up and disposed of immediately. PNT's Safety Director must be notified of the situation immediately. Any spill caused by a contractor's employee will be cleaned up and paid for by the contractor.

16.5.5 Environmental Impact Reduction

16.5.5.1 Vehicles shall not be left idling for more than 5 minutes in efforts to minimize the impact on the environment.

16.5.5.2 When applicable a soil erosion and sedimentation control plan must be submitted to the PNT project team.

16.5.5.3 It is the intent with the implementation of this plan that as much construction material as possible be diverted from landfill with a targeted minimum of 75%. All material salvaged and/or efficient use opportunities will be explored prior to disposal at a landfill.

16.5.5.4 Impact on the environment shall be taken into consideration when purchasing materials for the project. (ie- manufacturing, packaging, delivery, and installation).

16.5.5.5 Water usage shall be monitored by PNT project team members in prevention of excessive use/waste.

16.5.5.6 Each contractor shall implement an energy conservation plan.

16.5.5.7 Energy efficiency shall be taken into consideration when selecting equipment to be used on site.

17.1 Purpose

All employees are responsible for safety. Rules will apply to ALL employees operating vehicles or equipment on site..

17.2 Scope

Only authorized and licensed drivers are permitted to operate vehicles or equipment. Employees are required to obey all Local/State and company laws, rules, and regulations while operating vehicles or equipment.

17.3 Definitions

N/A

17.3 Responsibilities

17.3.1 On-site construction vehicles and equipment will be inspected and tested. Proper documentation must be available for the on-site PNT Superintendent to review prior to bringing such equipment on site. The on-site PNT Superintendent must issue all vehicle passes.

17.3.2 Accident/incidents must be reported to the on-site PNT Superintendent immediately.

17.3.3 All hauling vehicles, where payload is loaded by crane, power shovel, loader, or similar equipment must have a cab shield and/or canopy to protect the operator from shifting or falling materials. The operator of any vehicle will leave the cab and stand clear of the equipment while it is being loaded.

17.3.4 The Equipment Operator shall maintain wire rope safety and all safety factors in compliance with American National Standards Institute B30.5.

17.3.5 A certified agency must inspect all hoisting machinery on an annual basis. Records of dates and inspection results for all equipment must be readily available for review.

17.5 *Guidelines*

17.5.1 All motor vehicles (and equipment as applicable) must be equipped with the following:

17.5.1.1 Adequate braking system

17.5.1.2 Two headlights and tail lights

17.5.1.3 Brake lights
17.5.1.4 Horn
17.5.1.5 Seat Belts
17.5.1.6 Good tires
17.5.1.7 Windshields and powered wipers
17.5.1.8 Defrosters
17.5.1.9 Rear-view mirror
17.5.1.10 Fuel cap

17.5.2 Employees will not use motor vehicles or equipment that have an obstructed rear view unless:
17.5.2.1 All equipment is to have a working backup alarm audible above the surrounding noise level. When noise restrictions interfere with this requirement an alternate plan for managing backup procedures must be submitted for review by PNT Safety before operating the equipment.
17.5.2.2 The vehicle is backed up only when an observer signals that it is safe to do so.

17.5.3 When seatbelts are provided they are to be engaged prior to starting equipment and worn while in use.

17.5.4 No person will attempt to get on or off moving vehicles or equipment.

17.5.5 Heavy machinery and equipment which is suspended by slings, hoists, or jacks must be blocked before employees are permitted to work under or between them.

17.5.6 Engines must be shut off during all maintenance and fueling operations. Fuel hoses will maintain contact with the tank or be provided with alternative grounding procedures. No smoking near any fuel storage or equipment fueling opertations.

17.5.7 Trip handles of dump truck and heavy equipment tailgates must be positioned so that the operator will be clear of any danger during dumping procedures.

17.5.8 Employees are required to inspect their assigned vehicles/equipment at the beginning of each shift to assure that the vehicle is in safe operating condition and free of any apparent danger. Any defects must be addressed prior to use.

17.5.9 No passengers may ride on equipment unless the equipment is designed to accommodate passengers. Employees are not permitted to ride with arms or legs outside the truck body.

17.5.10 No heavy equipment is to be driven at speeds greater than 15 MPH.

17.5.11 Only approved standard hand signals for crane, derrick, and boom equipment are to be used. These hand signals must be posted near the driver's seat of all equipment.

17.5.12 Equipment will only be used in the manner it was designed for and all manufacturer specifications and limitations concerning the operation of cranes and other hoisting equipment are to be followed.

17.5.13 Rated load capacities, operating speeds and special hazard warnings must be posted near the driver's seat on all equipment.

17.5.14 All exposed belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, and other moving parts must be guarded.

17.5.15 The swing radius of any crane must be barricaded so as to prevent people from being struck or crushed by the crane.

17.5.16 Prior to any crane being moved, all swinging or hanging loads must be lowered and detached.

17.5.17 A fire extinguisher must be available in all cabs of equipment and vehicles.

17.5.18 Rollover protection (ROPS) as specified by OSHA is required for all applicable equipment operated on the project. Grandfather clauses are not acceptable.

17.5.19 The use of proper PPE is required. This includes safety glasses when cabs are not enclosed.

17.5.20 Personal cars are not to be used for company business unless authorized by the appropriate Superintendent. Passengers not employed by the company are also prohibited from riding in the company vehicle.

17.5.21 Any vehicle or equipment with material extending four (4) feet or more from the rear of the vehicle must have a red flag or cloth 12 inches square attached to the material.

17.5.22 Any vehicle over 25 hp operating in the District of Columbia must have an operator licensed by the District. Please contact Safety Director with any questions and/or the procedure for acquiring this license.

17.5.23 Equipment shall not be loaded beyond its established load limit and the load shall be secured for safe transport.

22.1 Purpose

A hazard analysis is used to assess risk. The result of an AHA is the identification of unacceptable risks and the selection of the means of controlling/eliminating the risk. Seldom does a single hazard cause an accident/incident. More often, the accident/incident occurs as part of a sequence of events. PNT strives to identify the hazards before they become the accident/incident.

22.2 Scope

All subcontractors are required to conduct AHAs prior to performing their work. PNT Superintendents are available, along with Safety Superintendents, to assist the subcontractor in the identification of potential hazards that could be associated with the desired work event.

22.3 Definitions

None

22.4 Responsibilities

22.4.1 All employees shall be trained on general hazard identification.

22.5 *Guidelines*

22.5.1 The Job Hazard Analysis (synonymous with Job Safety Analysis, or JSA) will be conducted for all tasks that contain steps, which may pose a hazardous risk to personnel.

22.5.2 The specific steps of the job that pose the hazardous risk will be analyzed, the hazards and risks evaluated, and controls proposed.

22.5.3 A JHA of specific jobs or operations is required for, but not limited to, the following:

22.5.3.1 High-risk jobs.

22.5.3.2 New jobs or tasks that present unspecified or unknown hazard.

22.5.3.3 Jobs or tasks involving new equipment, machinery, or procedures.

22.5.3.4 Major job categories that will be repeated frequently.

22.5.3.5 Jobs or tasks that have historically experienced a repeated or significant rate of accidents, injuries, exposures, or near misses.

22.5.3.6 Jobs involving environmental remediation of hazardous waste.

22.5.3.7 Jobs or tasks that, in the professional judgment of the responsible Supervisor, require a formal JHA.

22.6 Preparation of JHA

A JHA should be completed to help identify potential hazards and possible protective measures associated with tasks being performed on the jobsites. JHA should be done to identify hazards associated with one trade and one task. Jobs or tasks are broken down into a series of successive steps or activities. Required or anticipated tools and equipment for each step or activity are to be included. All potential hazards within each step or activity are identified.

When multiple trades and/or high-risk activities are going to commence, a pre-planning meeting should be conducted. The following is an example of a job task which was observed.

22.6.1 The 1st step to a JHA is breaking down job tasks into steps. Describe each action taken by the worker to complete the task. Here is an example sequence of basic job steps for Loading Zone Safety, in which each step of the job is listed in order of observed occurrence:
- *22.6.1.1* Worker removes the "removable" wooden guardrail to enter the loading zone.
- *22.6.1.2* Worker wearing a full body harness, ties off to the designated tie-off point.
- *22.6.1.3* Worker replaces the "removable" wooden guardrail.
- *22.6.1.4* Worker takes down the wire rope cable guardrail to receive a load.
- *22.6.1.5* Worker replaces wire rope cable guardrail.
- *22.6.1.6* Worker un-ties and removes the "removable" wooden guardrails.
- *22.6.1.7* Worker removes the load and replaces the "removable" wooden guardrail.

22.6.2 The 2nd step to a JHA is to identify any potential hazards/accidents associated with each step. For Example:
- *22.6.2.1* Outside wire rope cable guardrail is not in place.
- *22.6.2.2* Worker not properly wearing his PPE, and incorrectly tying-off to an anchor not suitable for 5000 lbs strength.
- *22.6.2.3* Worker does not replace "removable" wooden guardrail.
- *22.6.2.4* The bay used for the loading zone was not isolated from the rest of the floor.
- *22.6.2.5* Worker forgets to reconnect the wire rope cable.

22.6.3 The last step is to list the recommended protective measures or safe job procedures for each step. For Example:
- *22.6.3.1* Before removing the "removable" wooden guardrail, ensure wire rope cable guardrail is in place. Ensure the worker is tied off before the wooden "removable" guardrail is taken down.
- *22.6.3.2* Ensure worker is properly wearing his PPE, ensure the tie-off point meets the 5000-lb requirement.
- *22.6.3.3* Place signage with instructions indicating the step-by-step process for receiving a load.
- *22.6.3.4* The bay used for the loading zone needs to be dogged off prior to setting up the loading zone.
- *22.6.3.5* Make sure worker is aware of loading zone procedures.

22.7 Risk Level

The AHAs work by identifying the threat that a hazard can present. PNT utilizes the Risk Assessment Code Matrix to identify the probability of a hazard happening. The risk assessment table that PNT requires is set up as follows:

22.7.1 **Catastrophic** – Results in multiple fatalities and/or loss of system

22.7.2 **Critical** – Reduces the capability of the system or the operator ability to cope with adverse conditions to the extent that there would be:

22.7.2.1 Large reduction in safety margin or functional capability

22.7.2.2 Crew physical distress/excessive workload such that operators cannot be relied upon to perform required tasks accurately or completely

22.7.2.3 Fatal injury to ground personnel or general public

22.7.3 **Marginal** – Reduces the capability of the system or the operators to cope with adverse operating conditions to the extent that there would be:

22.7.3.1 Significant reduction in safety margin or functional capability

22.7.3.2 Significant increase in operator workload

22.7.3.3 Conditions impairing operator efficiency or creating significant discomfort

22.7.3.4 Physical distress to workers

22.7.4 **Negligible** – Does not significantly reduce system safety. Actions required by workers are will within their capabilities:

22.7.4.1 Slight reduction in safety margin or functional capabilities

22.7.4.2 Slight increase in workload such as a small change in the job

22.7.4.3 Some physical discomfort to workers (heat, cold, etc)

22.7.5 **Probability:**

22.7.5.1 Frequent

22.7.5.2 Likely

22.7.5.3 Occasional

22.7.5.4 Seldom

22.7.5.5 Unlikely

22.7.6 **Activity Hazard Analysis (AHA)** – See attached form.

RETURN-TO-WORK POLICY

25.1 Purpose

It is PNT's policy to return injured workers to productive work, although not necessarily to their pre-injury duties, as early as possible during their recovery. This type of work is often referred to as "modified or transitional" duty work.

25.2 Scope

PNT has adopted this policy because employees who remain away from work for long periods of time not only affect the company's productivity and workers' compensation costs, they often experience slow healing and a loss of self-esteem. Within the requirements of their treating medical providers, the limitations of the law, and the economic and physical limitations of our own properties, PNT will make every effort to provide meaningful work wherever and whenever possible. Any recovering employee who is offered a physician-approved, modified-duty position will be *asked (not required)* to accept the offer.

25.5 Guidelines

25.5.1 Any PNT employee injured while performing work related duties shall be offered modified or transitional duty work under the provisions of this policy provided they are otherwise eligible to work.

25.5.2 A copy of the tasks needed to complete the employee's regular duties will be provided to the treating physician, along with the following Job Physical Assessment form. PNT's Safety Director will request that the treating medical provider complete this form. PNT Safety and Site Supervision will identify a modified duty position to offer the employee that can be safely performed and is within their physician's restrictions.

25.5.3 All employee medical records are to remain confidential. 25.5.4 All

incident related information will be retained by PNT.

25.55 All employees shall be informed of the company's Safe Return to Work (Modified Duty) program.

See **Job Physical Assessment** form on the next 2 pages.

Job Physical Assessment

Company Name: _____

Injured Worker: _____

Claim Number: _____

Superintendent: _____ **Phone:** _____

Modified Duty Job Available: _____

The Job Physical Assessment is an objective evaluation, completed by the treating physician. Please consider each category below and objectively circle the appropriate measurement for the activity by our injured employee. Our Company will then locate a modified-duty position that is within the restrictions detailed below. A copy of the duties required to complete this modified-duty position will be provided back to the physician.

Action	Total Hours								
Sitting:	0	1	2	3	4	5	6	7	8
Standing:	0	1	2	3	4	5	6	7	8
Walking:	0	1	2	3	4	5	6	7	8

Consecutive Hours								
0	1	2	3	4	5	6	7	8
0	1	2	3	4	5	6	7	8
0	1	2	3	4	5	6	7	8

Action	Repetitions					Time Limits
Bending:	0	1-15	16-30	31-60	61+	
Twisting;	0	1-15	16-30	31-60	61+	
Squatting:	0	1-15	16-30	31-60	61+	
Climbing:	0	1-15	16-30	31-60	61+	
Crawling:	0	1-15	16-30	31-60	61+	
Reaching:	0	1-15	16-30	31-60	61+	
Pushing:	0	1-15	16-30	31-60	61+	

Action	Weights (lbs)	Repetitions					Time Limits
Lifting:		0	1-15	16-30	31-60	61+	
Carrying:		0	1-15	16-30	31-60	61+	
Arm/both:		0	1-15	16-30	31-60	61+	
Left Arm:		0	1-15	16-30	31-60	61+	
Right Arm:		0	1-15	16-30	31-60	61+	
Hand/both:		0	1-15	16-30	31-60	61+	
Left Hand:		0	1-15	16-30	31-60	61+	
Right Hand:		0	1-15	16-30	31-60	61+	

Other restrictions:_____

_____

In consideration of the above restrictions, the patient is: (circle one)

Disabled **Released for restricted work** **Released for full regular work.**

Patient will be seen again for re-evaluation on :_____

Remarks:_____

_____

_____ _____ _____

Physician Name Physician Signature Date

33.1 Purpose

To establish a procedure to protect and prevent personnel from injury by 1) accident/incidental activation of any powered or damaged equipment, and 2) the uncontrolled release of electrical energy. Procedure is in compliance with OSHA regulations, 29 CFR 1910.147.

33.2 Scope

This procedure applies to all PNT personnel and contract employees. It will be enforced during installation, cleaning, servicing, maintenance, or inspection work is performed on any powered equipment and/or processes in which the activation of such could injure an employee or cause property damage. This procedure does not apply to adjustment or other activities which require the equipment be operating at the time of service, provided other protective measures are employed.

33.3 Definitions

33.3.1 **Lockout**: The application of a lock, chains, or other appropriate apparatus, and a danger identification tag to de-energize electrical equipment and/or process system to ensure that the equipment or system cannot be activated. Note: OSHA regulations require that locks be used to secure equipment whenever possible. Chains can be wrapped around valve handles and then locked in such a way that the valve cannot be operated. Tags alone can be used when it is not possible to use a lock.

33.3.2 **Tag-out**: The application of a danger identification tag when a physical lockout or de-energizing is not feasible or a lock has already been applied. Tags will bear the name of the employee applying the tag, the date of application, and a brief description of the work needed. It is always preferable to have a combination lock out /tag out system. A tag out system by itself is not acceptable.

33.3.3 **Energy Source**: The switch or valve through which energy is controlled to the unit (e.g. motor control center (disconnect) switches, (circuit) breaker panel switches, valves, locking pins, etc.). This energy may come by:

33.3.3.1 electric power,
33.3.3.2 mechanical power,
33.3.3.3 hydraulic power,
33.3.3.4 pneumatic energy,
33.3.3.5 chemical system, or
33.3.3.6 thermal energy.

33.3.4 **Authorized Employee**: A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment.

33.3.5 **Effected Employees**: An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under

lockout/tag-out, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed. An effected employee becomes an authorized employee when the effected employees' duties include servicing or maintenance.

33.4 Responsibilities

PNT's Safety Director is responsible for compliance. The Safety Director or designated Safety Superintendent shall train Superintendents on proper lockout/tag-out procedures, audit and/or oversee the application of the procedures, ensure corrective actions are taken when problems arise, and conduct an annual inspection/evaluation. Superintendents are responsible for training effected and authorized employees on the purpose and use of these procedures. The Safety Director will periodically monitor training activities and assist as required to ensure compliance with OSHA regulations and company goals. All affected and authorized employees involved in lockout/tag-out procedures must receive annual training. A list of authorized, trained individuals will be maintained by PNT's Safety Director and/or Training Department.

33.5 Lockout/Tag-Out Procedures

33.5.1 Each piece of equipment or system must be evaluated to identify all energy sources to be locked or tagged out. The evaluation will be done periodically by a Superintendent or an authorized employee with familiarity with the equipment/system, using the attached energy source determination checklist.

33.5.2 If the machine is determined by OSHA that formal lockout/tagout procedures are required, this will be done by an authorized employee and logged on the attached form titled "List of Lockout & Tagout Procedures." These procedures will then be followed. If no specific procedures are required, or provided by the equipment manufacturer, complete the following tasks:

33.5.2.1 Deactivate (turn off) and secure the equipment/system at the energy source. Relieve pressure, release stored energy from all systems, and restrain or block them. (Operators must tag the appropriate switches or controls inside the control room as part of this step).

33.5.2.2 Attach a lock to each isolation device and a tag to the lock. Sign and date the tag, and provide pertinent information.

33.5.2.3 Check to ensure that no personnel are exposed to the equipment or system, then attempt to activate the normal operating controls to ensure proper lockout/tagout.

CAUTION: Always return the operating control to the "neutral" or "off" position after completing this test.

33.5.2.4 The equipment/system is now locked and tagged out.

33.5.3 Lockout/Tag-out Removal Procedures

33.5.3.1 After installation, servicing, maintenance, inspection, or cleaning is complete, verify that all tools have been removed, all guards have been reinstalled, the area is clean and orderly, and the equipment is safe to operate.

33.5.3.2 Ensure that employees are not exposed to the equipment and all employees are aware of the removal of the lock and tag.

33.5.3.3 The locks and tags will be removed only by the employee who applied them, their Superintendent or the on-site PNT Superintendent. The Superintendent will only remove the locks and tags after a reasonable effort is made to contact the employee and notify him of the removal. The tags will be signed and dated and submitted to the on-site PNT Superintendent.

33.5.3.4 Activate energy source as required.

33.5.4 Procedures Involving More Than One Person

33.5.4.1 If more than one individual is required to lockout or tag-out equipment, each individual shall use his/her own assigned lockout/tag-out device on the energy source. When the energy source cannot accept multiple locks or tags, a multiple lockout/tag-out device (hasp) will be used. A single key will be used to lockout the equipment/system, with the key being placed in a lockout box or cabinet located on the job site.

33.5.4.2 This cabinet or lockout box must allow multiple locks to secure it. Each individual will then use his/her own lock to secure the box or cabinet. As each individual no longer needs to maintain the lockout protection, that individual will remove his/her lock from the cabinet. Proper removal procedures will be followed.

33.5.4.3 In the event that a shift change may occur while a piece of equipment is under LOTO an individual shall be assigned to be in charge of a group or shift change lockout operation.

33.6 FORMS

33.6.1 List of Authorized Lockout/Tag-out Individuals; 1st of next 7 pages:

33.6.2 Lockout/Tag-out Annual Inspection/Evaluation Report; 2nd of next 7 pages

33.6.3 Lockout/Tag-out Procedure Checklist (Energy Source Determination); 3rd, 4th, & 5th of the next 7 pages.

33.6.4 List of all Lockout/Tag-out Procedures; 6th of next 7 pages.

33.6.5 Training Documentation for Lockout/Tag-out Program; 7th of next 7 pages.

List of Authorized Lockout/Tag-out Individuals

Work Center	Lock Number	Name	Mechanical (yes/no)	Electrical (yes/no)

Lockout/Tag-out Annual Inspection/Evaluation Report

Date of Evaluation: _____

Evaluation was made by: _____
Policy has been reviewed: ☐ Yes ☐ No

Comments on policy: _____

The following procedures have been reviewed: _____

The following procedures were modified: _____

The following procedures were added: _____

A review of the OSHA log 300, associated accident/incident reports, and OSHA Form 101 were conducted? ☐ Yes ☐ No

The following injuries resulted from lockout/tag-out:

Injury	Procedure Number for Applicable Equipment	Process or Machinery

Comments:

_____ _____
Signature Date

Lockout/Tag-out Procedure Checklist
Energy Source Determination (Page 1 of 3)

Date: _____ Company Name: _____

Instructions: In order to determine all energy sources for each piece of equipment, all questions must be answered. If the question does not apply, write N/A.

Location: _____ Work Center: _____

Equipment Name: _____ Equipment #: _____

Serial: _____ Lockout/Tag-out Procedure #: _____

1. Does this equipment have?
   a. **Electric power** (including battery)? o Yes o No o N/A
      If yes, Motor Control Center (MCC) or power panel & breaker number: _____
      _____
      Does it have a lockout device? o Yes o No o N/A
      Battery location: _____
      Battery disconnect location: _____

   b. **Mechanical power**? o Yes o No o N/A
      Mark each type of energy source that applies:
      1. Engine driven o Yes o No o N/A
         If yes, switch or key location: _____
         Is lockout device installed? o Yes o No o N/A
         If no, method of preventing operation: _____

      2. Spring loaded? o Yes o No o N/A
         If yes, is there a method of preventing spring activation? o Yes o No
         If no, how can spring tension be safely released or secured? _____
         _____

      3. Counter weight(s)? o Yes o No o N/A
         If yes, is there a method of preventing movement? o Yes o No
         If yes, can it be locked? o Yes o No
         If no, how can it be safely secured? _____
         _____

      4. Flywheel? o Yes o No o N/A
         If yes, is there a method of preventing movement? o Yes o No
         If yes, can it be locked? o Yes o No
         If no, how can it be safely secured? _____

Lockout/Tag-out Procedure Checklist (page 2 of 3)

1. Does this equipment have (continued):
   c. **Hydraulic Power**? o Yes o No o N/A
   If yes, location of main control/shut-off valve: _____
   Can control/shut-off valve be locked in the "OFF" position? o Yes o No
   If no, location of closest manual shut-off valve: _____
   Does manual shut-off valve have a lockout device? o Yes o No
   If no, what is needed to lock valve closed? _____
   _____
   Is there a bleed or drain valve to reduce pressure to zero? o Yes o No
   If no, what will be required to bleed off pressure? _____
   _____

   d. **Pneumatic Energy**? o Yes o No o N/A
   If yes, location of main control/shut-off valve: _____
   Can control/shut-off valve be locked in the "OFF" position? o Yes o No
   If no, location of closest manual shut-off valve: _____
   Does manual shut-off valve have a lockout device? o Yes o No
   If no, what is needed to lock valve closed? _____
   _____
   Is there a bleed or drain valve to reduce pressure to zero? o Yes o No
   If no, what will be required to bleed off pressure? _____
   _____

   e. **Chemical System**? o Yes o No o N/A
   If yes, location of main control/shut-off valve: _____
   Can control/shut-off valve be locked in the "OFF" or closed position? o Yes o No
   If no, location of closest manual shut-off valve: _____
   Is there a bleed or drain valve to safely reduce system pressure and drain system of chemicals? o Yes o No
   If no, how can the system be drained and neutralized? _____
   _____
   What personal protective clothing or equipment is needed for this equipment? _____
   _____

   f. **Thermal Energy**? o Yes o No o N/A
   If yes, location of main control/shut-off valve: _____
   Can control/shut-off valve be locked in the "OFF" or closed position? o Yes o No
   If no, location of closest manual shut-off valve: _____
   Does manual shut-off valve have a lock valve? o Yes o No
   Is there a bleed or drain valve to safely reduce system pressure & temperature and drain system chemicals? o Yes o No
   If no, how can the system be drained and neutralized? _____
   _____

What personal protective clothing or equipment is needed for this equipment?

_____

Lockout/Tag-out Procedure Checklist (page 3 of 3)

Special precautions not noted above (i.e. fire hazards, chemical reactions, required cool down periods, etc.): _____

Recommendations or Comments: _____

Completed by: _____

Reviewed by: _____

Approved by: _____

List of all Lockout/Tag-out Procedures

Procedure Number	Equipment, Machinery or Process

Training Documentation for Lockout/Tagout Program

I have received training and understand all rules and regulations regarding PNT Consulting's lockout/tag-out program.

I understand that I am required to follow the necessary precautions outlined in the lockout/tag-out program.

I know the location of emergency phone numbers and communications systems, and the location of medical, fire, and other emergency supplies.

Employee Name: _____

Signature: _____ Date: _____

Job Location: _____

34.1 Purpose

The purpose of this Confined Space Entry Program (or "Program") is to protect the health and safety of employees who enter confined spaces on PNT Consulting, llc. (hence, "PNT") jobsites. This Program defines employee responsibilities, the project evaluation and communication protocol, and entry procedures to ensure employee safety and compliance with OSHA's Subpart AA – Confined Spaces in Construction regulation.

34.2 Scope

This program applies to:

34.2.1 All projects that have one or more confined spaces;
34.2.2 All employees who are authorized to enter a confined space; and
34.2.3 All employees assigned to serve as authorized entrants, attendants, entry supervisors or rescue and emergency services.

34.3 Definitions

34.3.1 **Entry permit ("Permit")**: - document provided by the employer who designates a permitted space to allow for and control entry into a designated space.
34.3.2 **Host Employer**: the employer that owns or manages the property where the construction work is taking place.
34.3.3 **Attendant** – an employee stationed outside a permit space who assesses the status of the authorized entrant.
34.3.4 **Lower flammable limit or lower explosive limit**: the minimum concentration of a substance in the air needed for an ignition source to cause a flame or explosion.
34.3.5 **Rescue service**: personnel designated to rescue employees from permit spaces.
34.3.6 **Retrieval system**: equipment (including a retrieval line, safety harness, a lifting device or anchor, etc.) used for non-entry rescue of persons from a permit space.
34.3.7 **Authorized entrant** – an employee authorized by the entry supervisor to enter a permit space.
34.3.8 **Entry supervisor** – qualified person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations; and for terminating entry as required.
34.3.9 **Non-entry rescue** – is the preferred method of emergency rescue (see *34.6.2*).

34.3.10 **Rescue service –** utilized where non-entry rescue is insufficient (see *34.6.3*).
34.3.11 **Employee rescue team –** the final option for permit space rescues (see *34.6.4*).

34.4 Responsibilities

34.4.1 The responsibilities of an authorized entrant are as follows:
34.4.1.1 Be familiar with and understand any atmospheric and physical hazards inside the permit space, including means, signs/symptoms, and consequences of exposure.
34.4.1.2 Properly use all equipment required for safe permit space entry.
34.4.1.3 Maintain communication with the attendant as necessary to allow attendant to monitor entrant's status and alert entrant of need to evacuate in an emergency.
34.4.1.4 Alert the attendant when a prohibited condition or warning signs or symptoms of exposure exist.
34.4.1.5 Exit the permit space immediately whenever:
34.4.1.5.1 The attendant or entry supervisor orders evacuation from the permit space;
34.4.1.5.2 A prohibited condition exists;
34.4.1.5.3 Warning signs or symptoms of exposure exist; or
34.4.1.5.4 An evacuation alarm is activated.

34.4.2 The attendant will be responsible for the following:
34.4.2.1 Be familiar with and understand any atmospheric and physical hazards inside the permit space, including means, signs/symptoms, and consequences of exposure.
34.4.2.2 Be familiar with the possible behavioral effects of hazard exposure in authorized entrants.
34.4.2.3 Continuously maintain an accurate count of authorized entrants in the permit space and identify entrants on the Permit.
34.4.2.4 Remain outside the permit space during entry operations until relieved by another attendant.
34.4.2.5 Responsible for a single permit space. Attendants are prohibited to be responsible for multiple spaces.
34.4.2.6 Maintain communication with the authorized entrant as necessary to monitor entrant's status and alert entrant of need to evacuate in an emergency.
34.4.2.7 Assess activities and conditions inside the permit space to determine if it's safe for entrants to remain in the space.
34.4.2.8 Alert the authorized entrant(s) to evacuate the permit space immediately whenever:
34.4.2.8.1 A prohibited conditions exists;
34.4.2.8.2 Behavioral effects of hazard exposure are observed in an authorized entrant;
34.4.2.8.3 A situation exists outside the space that could endanger an authorized entrant;
34.4.2.8.4 The attendant cannot effectively perform these responsibilities.

34.4.2.9 If an authorized entrant demonstrates the following they may need help evacuating a permit space:

34.4.2.9.1 Perform non-entry rescue, if available.

34.4.2.9.2 If non-entry rescue is NOT available, contract the emergency and rescue services listed on the Permit.

34.4.2.10 Keep unauthorized persons away from the permit space. Should unauthorized persons enter the permit space, advise them to exit immediately and inform the attendant and entry supervisor.

34.4.2.11 Perform no tasks that will interfere with their primary duty to monitor and protect the authorized entrants.

34.4.3 The responsibilities of the entry supervisor are:

34.4.3.1 Be familiar with and understand any atmospheric and physical hazards inside the permit space, including means, signs/symptoms, and consequences of exposure.

34.4.3.2 Require continuous atmospheric monitoring wherever possible.

34.4.3.3 Require continuous upstream engulfment hazard monitoring and alert wherever necessary.

34.4.3.4 Verifying the Permit has been completed in its entirety, all tests have been conducted, and all procedures and equipment specified on the permit are in place before allowing entry.

34.4.3.5 Terminates the entry and cancels or suspends the permit as required.

34.4.3.6 Verify rescue and emergency services are available and means for communicating with them are operable.

34.4.3.7 Removes unauthorized individuals who enter or attempt to enter the permit space during entry operations.

34.5 Guidelines

34.5.1 Project Evaluation & Communication

34.5.1.1.1 The Project Team and the Safety Department evaluate each PNT project for confined spaces prior to mobilization when creating the Site Specific Safety Plan. A Confined Spaces Competent Person must be present during the creation of this plan. In existing buildings, information from the owner, or *host employer*, regarding existing confined space locations and hazards must be obtained and incorporated into the Program.

34.5.1.1.1.1 If confined spaces are present on the project:

34.5.1.1.1.1.1 The Program binder is created;

34.5.1.1.1.1.2 Known confined spaces are recorded in the Project Confined Space Log; and

34.5.1.1.1.3 Contractors expected to enter confined spaces are sent the Subcontractor Confined Space Packet.

34.5.1.1.2 If confined spaces are NOT present, the Program and OSHA's Subpart AA do not apply.

34.5.1.2 All contractors entering confined spaces must perform a hazard evaluation of each confined space they enter using the Confined Space Hazard Assessment Form. This will determine the type and location of the space, the work being performed, actual or potential health and safety hazards, and its permit classification. One form can be used for multiple confined spaces with the same configuration and hazards.

34.5.1.3 The following methods are used to communicate the presence of confined spaces to employees:

34.5.1.3.1 The Project Confined Space Log is maintained up-to-date in the Program, which is available for all employees to review in the PNT field office.

34.5.1.3.2 Confined Spaces and the Program are discussed with all employees working on the project during Project Safety Orientations.

34.5.1.3.3 Confined Spaces and the Program are discussed in Pre-Task and Pre-Installation planning meetings with PNT personnel and subcontractors.

34.5.1.3.4 Known confined spaces are marked on-site with Danger signage.

34.5.1.4 Upon completion of the project:

34.5.1.4.1 Copies of all cancelled permits and other information pertaining to the project's confined spaces must be given to the owner, or *host employer,* per OSHA's information exchange requirements.

34.5.1.4.2 Hard copies of the entire Program must be kept with all other project-related information for permanent storage.

34.5.2 Entry Procedures

34.5.2.1 Prior to entry, the entry supervisor obtains a Permit from PNT's Project Superintendent or Safety Supervisor in the PNT field office. In addition: *34.5.2.1.1* All information previously generated regarding the confined space and previous entries must be reviewed; and

34.5.2.1.2 The Permit must be kept posted at or near the confined space entrance.

34.5.2.2 Designated employees with the proper training shall have an active role in the entry operation. The roles of authorized entrant(s), attendant(s), the entry supervisor, and rescue/emergency services personnel must be assigned.

34.5.2.3 Prior to removing the confined space entrance cover, eliminate any hazards making removing the entrance cover unsafe.

Note: A hazardous atmosphere creating high pressure inside the space is one example. Under high-pressure conditions, check the cover to determine if it's hot. If so, loosen cover while fastened in place to release any residual pressure.

34.5.2.4 Once an entrance cover is removed, immediately guard the opening with a railing, a cover, or another barrier to prevent accidental falls into the opening and to protect employees inside the space from falling objects. Vehicular protection must be installed as necessary.

34.5.2.5 Prior to entering the space, evaluate the space for engulfment hazards and provide an early-warning system to monitor upstream engulfment hazards and alert authorized entrants and attendants in sufficient time to safely exit the space.

34.5.2.6 Prior to entering the space, assess the space for physical hazards and eliminate or isolate them to control the hazard wherever possible.

34.5.2.7 Prior to entering the space and before mechanical ventilation is used, sample the internal atmosphere with a calibrated direct-reading air monitor to determine if acceptable entry conditions exist with natural ventilation.

34.5.2.7.1 Below are acceptable entry conditions. A deficiency in any of these categories at any time is a prohibited condition and confined space entry is not allowed until a safe atmosphere can be achieved.

34.5.2.7.1.1 Oxygen level between 19.5% and 23.5%.

34.5.2.7.1.2 Flammable gas concentration below 10% of its lower flammable limit.

34.5.2.7.1.3 Carbon monoxide (CO) levels below 35 parts per million (PPM)

34.5.2.7.1.4 Hydrogen sulfide (H_2S) levels below 10 PPM.

34.5.2.7.1.5 Toxic air contaminants less than the OSHA permissible exposure limit (PEL). If no PEL exists, use the threshold limit value (TLV) established by the American Conference of Governmental Industrial Hygienists.

34.5.2.7.2 Authorized entrants and their representatives may observe all testing and results. If the authorized entrant or their representative has reason to believe the evaluation of the space was not adequate, the confined space shall be re-tested.

34.5.2.7.3 If acceptable entry conditions exist with natural ventilation, there is no need to setup forced air ventilation.

34.5.2.7.4 If acceptable entry conditions DO NOT EXIST, ventilate all areas inside the space where employees will be working with a continuous forced air ventilation system.

34.5.2.7.4.1 **Note:** Forced air ventilation must be directed to ventilate the immediate areas where employees will be working and must continue until all employees have left the space.

34.5.2.7.4.2 If ventilation stops working, all authorized entrants must leave the space immediately and may not re-enter the space until ventilation resumes and the air has been verified safe to breath.

34.5.2.8 Record initial air monitoring results on the Confined Space Entry Permit.

34.5.2.9 Ensure safe access and egress into and out of the space using ladders or other safe method.

34.5.2.10 Set up Emergency Rescue (see Emergency Rescue section of this Program for details).

34.5.2.11 Prior to entering the space, set up the communication system between the authorized entrant and attendant. Authorized entrants and attendants must maintain contact with each other for the duration of the entry.

34.5.2.12 If all entry procedures and permit requirements have been met, the entry supervisor may authorize entry into the permit space.

34.5.2.13 Continuously monitor the atmosphere in the authorized entrant's immediate area during the entire entry operation. Air monitoring equipment must have an alarm to notify all entrants if a hazardous atmosphere is detected.

34.5.2.14 In the event of an audible alarm within the confined space that indicates a prohibited condition, the following must occur:

34.5.2.15 Any problems that arose during the entry operation must be documented on the Permit. Examples of problems include, but are not limited to, the following:

34.5.2.16 Upon completion of the entry operation, the entry supervisor must cancel the Permit and return it to the PNT Project Superintendent or Safety Supervisor for filing with the Program. Any problems that arose during entry must be discussed with PNT.

34.6 Emergency Rescue

34.6.1 There are 3 options for rescuing an employee from a confined space. Emergency rescue is mandatory for all permit space entries.

34.6.2 Non-entry rescue – is the preferred and quickest rescue method, as it's quite easy to implement. Non-entry rescue utilizes a retrieval system connected to the authorized entrant's safety harness that can be used to hoist an injured or unresponsive employee

from the confined space without entering it. The following requirements pertain to non-entry rescue situations.

34.6.2.1 Required for permit space and alternate space entries unless retrieval equipment increases hazards or is not feasible, as in the following conditions:

34.6.2.1.1 Obstruction or turns prevent pull on the retrieval line.

34.6.2.1.2 Projections inside the permit space would injure the employee in a retrieval situation.

34.6.2.2 The following are requirements of retrieval systems:

34.6.2.2.1 Entrants use a harness with a retrieval line attached to the back d-ring or another point that will allow for successful removal.

34.6.2.2.2 Wristlets or anklets may be used if harness presents safety or feasibility problems and are the safest alternative.

34.6.2.2.3 Retrieval line must be attached to a mechanical device (winch / hoist) outside the space that can be used as soon as rescue is necessary.

34.6.2.3 Rescue services – are utilized in situations where non-entry rescue is infeasible or creates a greater hazard and/or when conditions immediately dangerous to life and health (IDLH) exist within an occupied confined space. Rescue teams may be local fire departments or 3rd-party rescue services that are either on site at the permit space or are summoned by the entry supervisor or attendant.

34.6.2.3.1 Rescue services may be used provided they have the following:

34.6.2.3.1.1 Ability to respond to a rescue summons in a timely manner.

Note: Timeliness is based off the hazards inside the space. Typically, rescue from an atmospheric hazard needs to occur much quicker than rescue from physical hazards, and may require a rescue team to be on site.

34.6.2.3.1.2 Skills and equipment necessary for rescue-related tasks.

34.6.2.3.2 Rescue service must be alerted of hazards they will encounter when performing a rescue.

34.6.2.3.3 Rescue service must be provided access to all permit spaces they may enter so they can develop appropriate rescue plans.

34.6.2.4 Employee rescue team – employee rescue teams are the last option for permit space rescues due to the added cost of equipment and training. Be sure to evaluate a rescue service prior to selecting this option.

34.6.2.4.1 All necessary equipment will be provided at no cost to employees:

34.6.2.4.1.1 Atmospheric testing and monitoring equipment

34.6.2.4.1.2 Ventilation equipment

34.6.2.4.1.3 Communication equipment

34.6.2.4.1.4 Respirators and other PPE as necessary
34.6.2.4.1.5 Lighting equipment
34.6.2.4.1.6 Ladders for access and egress
34.6.2.4.1.7 Rescue and emergency equipment

34.6.2.4.2 Each employee will receive training to perform rescue duties and be an authorized entrant.
34.6.2.4.3 One member of the rescue team will have first aid and cardiopulmonary resuscitation (CPR) training.
34.6.2.4.4 Practice rescue:
34.6.2.4.4.1 Prior to entry, employees on rescue teams must perform a practice rescue from the permit space that will be entered. If the permit space is not available for practice, a representative space must be used.
34.6.2.4.4.2 Practice rescues must simulate rescues with dummies or mannequins.

34.7 Training

All employees required to perform duties under this Program will be trained to ensure they have the skills and knowledge necessary for a safe entry operation.

34.7.1 Training will be provided to each affected employee:
34.7.1.1 At no cost to the employee;
34.7.1.2 In both a language and vocabulary the employee can understand;
34.7.1.3 Before the employee is first assigned duties under this Program;
34.7.1.4 Before there is a change in assigned duties;
34.7.1.5 Whenever there is a change in permit space entry operations that presents a hazard about which an employee has not previously been trained; and
34.7.1.6 Whenever an employee deviates from or shows lack of knowledge of safe entry procedures.

34.7.2 Training topics include, but are not limited to, the following areas:
34.7.2.1 Atmospheric and physical hazards of the permit space;
34.7.2.2 Duties of authorized entrant, attendant, and entry supervisor;
34.7.2.3 Methods to isolate, control, and protect employees from these hazards;
34.7.2.4 Dangers performing entry rescues by non-authorized personnel; and
34.7.2.5 Proper use of all equipment, including personal protective equipment (PPE), necessary for a safe entry operation.

34.7.3 All training will be documented on sign-in sheets and entered into Halogen's eLearning module for tracking.

34.8 Permit Space Reclassification

34.8.1 Permit-required confined spaces can be reclassified as non-permit spaces under these conditions:

34.8.1.1 There is no actual or potential atmospheric hazards; and

34.8.1.2 All physical hazards inside the space are eliminated or isolated without entering the space.

34.8.2 Reclassification must be documented on the Confined Space Entry Permit.

34.8.3 If hazards arise during entry into one of these reclassified spaces, all entrants must exit the space immediately and the space must be reevaluated and reclassified back to a permit space.

34.9 Alternate Entry Procedures

34.9.1 Alternate Entry Procedures may be used in the following situations:

34.9.1.1 All physical hazards inside the permit space have been eliminated or isolated through engineering controls;

34.9.1.2 The only hazard in the space is actual or potential hazardous atmosphere; and

34.9.1.3 The hazardous atmosphere can be controlled through continuous ventilation and monitoring.

34.9.2 The entry supervisor obtains a blank Alternate Entry Certificate from PNT's Project Superintendent or Safety Supervisor in the PNT field office. All information previously generated regarding the confined space and previous entries must be reviewed.

Note: The Alternate Entry Certificate is posted at or near the confined space entrance.

34.9.3 Prior to removing the confined space entrance cover, eliminate any hazards making removing the entrance cover unsafe.

34.9.4 Once an entrance cover is removed, immediately guard the opening with a railing, a cover, or another barrier to prevent accidental falls into the opening and to protect employees inside the space from falling objects. Vehicular protection will be installed as necessary.

34.9.5 Prior to entering the space, verify that all physical hazards have been eliminated or isolated.

34.9.6 Prior to entering the space, ventilate all areas inside the space where employees will be working with a continuous forced air ventilation system.

34.9.6.1 **Note:** Forced air ventilation must be directed to ventilate the immediate areas where employees will be working with a continuous forced air ventilation system.

34.9.6.2 If ventilation stops working, all authorized entrants must leave the space immediately and may not re-enter the space until ventilation resumes and the air has been verified safe to breathe.

34.9.7 Prior to entering the space, sample the internal atmosphere with a calibrated direct-reading air monitor for oxygen content, flammable gases and vapors, and potential toxic air contaminants.

34.9.7.1 Below are acceptable entry conditions. A deficiency in any of these categories at any time is a prohibited condition and confined space entry is not allowed until a safe atmosphere can be achieved.

34.9.7.1.1 Oxygen level between 19.5% and 23.5%

34.9.7.1.2 Flammable gas concentration below 10% of its lower flammable limit

34.9.7.1.3 Carbon monoxide (CO) levels below 35 parts per million (PPM)

34.9.7.1.4 Hydrogen sulfide (H_2S) levels below 10 PPM

34.9.7.1.5 Toxic air contaminants less than the OSHA permissible exposure limit (PEL). If no PEL exists, use the threshold limit value (TLV) established by the American Conference of Governmental Industrial Hygienists.

34.9.7.2 Authorized entrants and their representatives may observe all testing and results. If the authorized entrant or their representative has reason to believe the evaluation of the space was not adequate, the confined space shall be re-tested.

34.9.8 Record initial air monitoring results on the Alternate Entry Certificate.

34.9.9 Ensure safe access and egress into and out of the space using a ladder or other safe method.

34.9.10 Set up non-entry rescue (see Emergency Rescue section of this Program for details).

34.9.11 Continuously monitor the atmosphere in the entering employee's immediate area during the entire entry operation. Air monitoring equipment must have an alarm to notify all entrants if a hazardous atmosphere is detected.

34.9.12 In the event of an audible alarm within the confined space that indicates a prohibited condition, the following must occur:

34.9.12.1 Each employee must leave the space immediately;

34.9.12.2 The space must be evaluated to determine how the hazard developed; and

34.9.12.3 Measures must be implemented to protect employees from hazard before any subsequent entries.

34.9.13 Any problems that arose during the entry operation must be documented on the Alternate Entry Certificate. Examples of problems include, but are not limited to, the following:

34.9.13.1 Unauthorized entry of a permit space

34.9.13.2 Detection of a prohibited condition

34.9.13.3 An injury or near-miss during entry

34.9.13.4 A change in use or configuration of a permit space

34.9.13.5 Employee complaints about the effectiveness of the Program

34.9.14 Upon completion of the entry operation, the entry supervisor must cancel the Alternate Entry Certificate and return it to the PNT Project Superintendent or Safety Supervisor for filing with the Program. Any problems that arose during entry must be discussed with PNT.

34.10 Annual Program Review

This program is reviewed for deficiencies annually and updated as necessary. Cancelled permits must be referenced when performing this review. If major deficiencies are noted prior to the annual review, the program will be updated as soon as possible to ensure we are adequately protecting employees.

34.11 Compliance Guides

34.11.1 Owner Compliance Guide (next pages)

34.11.2 Subcontractor Compliance Guide

34.12 FORMS

34.12.1 Evaluation Form

34.12.2 Confined Space Entry Form

34.12.3 Training Documentation for Confined Space

OWNER COMPLIANCE GUIDE

CONFINED SPACES IN CONSTRUCTION

BACKGROUND

In August 2015, OSHA issued the Subpart AA – Confined Spaces in Construction regulation. This Guide will assist a property owner, or **host employer** as defined by OSHA, with their obligations under this standard in order to enhance employee safety and ensure compliance.

WHAT IS A CONFINED SPACE?

OSHA defines a **confined space** as *a space that:*

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

Examples of confined spaces on a construction site include, but are not limited to, the following: bins, boilers, pits, manholes, tanks, ducts, sewers, storm drains, etc.

CONFINED SPACE HAZARDS

Confined spaces present special hazards not found in normal spaces due to the configuration and contents of the confined space. Confined spaces may be poorly ventilated creating a hazardous atmosphere in the form of insufficient oxygen or hazardous levels of toxic gases, in addition to atmospheric hazards, confined spaces, and present physical hazards from a variety of sources ranging from mechanical and electrical equipment inside the space to fall exposures in and around the space.

Due to the extreme and unique hazards of a confined space, employers must evaluate each project for the existence of confined spaces and determine the hazards of each. Confined spaces containing actual or potential hazards that could cause death, injury or acute illness, incapacitation, entrapment, or which could otherwise interfere with a worker's ability to leave the space in an emergency are considered **permit-required confined spaces.** Employers must take special precautions when entering these permit spaces including defining entry procedures, ensuring employees are properly-trained, and planning rescue procedures.

OSHA defines a **permit-required confined space** as a *confined space that:*

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

WHAT IS THE OWNER'S ROLE?

OSHA defines the **host employer** as *the employer that owns or manages the property where the construction work is taking place.* The host employer's duty under the confined spaces standard is to share information it has about permit space hazards with the controlling contractor. This information will be used by PNT when evaluating confined space hazards and disseminated to contractors entering the confined spaces to ensure all necessary precautions are taken.

WHAT INFORMATION MUST BE PROVIDED TO PNT?

If you know of any confined spaces on this project that may be permit-required, please provide the following information to PNT:

1. Completed Confined Space Hazard Evaluation Form for each space. This is a PNT form that will be sent separately from this Guide; and
2. Any precautions that the host employer or any previous contractor implemented for the protection of employees in the permit space.

If there are no confined spaces on this project that may be permit-required, please let us know in writing via email, letter, etc.

QUESTIONS?

If you have additional questions after reviewing this guide, please contact PNT's Project Manager for assistance.

SUBCONTRACTOR COMPLIANCE GUIDE

CONFINED SPACES IN CONSTRUCTION

BACKGROU ND

In August 2015, OSHA issued the Subpart AA – Confined Spaces in Construction regulation. This Guide will assist you with your obligations under this standard and walk you through PNT's new communi-cation protocol. OSHA has directed us, the controlling contractor, to facilitate the communication and coordination required under the new standard and the items contained herein are not optional.

This Guide is not a full review of OSHA's new regulation. For information on this standard, please contact your Safety Department or visit www.osha.gov.

WHAT IS A CONFINED SPACE?

OSHA defines a **confined space** as *a space that:*

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

Examples of confined spaces on a construction site include, but are not limited to, the following: bins, boilers, pits (including elevator pits), manholes, tanks, ducts, sewers, storm drains, etc.

CONFINED SPACE HAZARDS

Confined spaces present special hazards not found in normal spaces due to the configuration and contents of the confined space. Confined spaces may be poorly ventilated creating a hazardous atmosphere in the form of insufficient oxygen or hazardous levels of toxic gases. In addition to atmospheric hazards, confined spaces present physical hazards from a variety of sources ranging from mechanical and electrical equipment inside the space to fall exposures in and around the space.

Due to the extreme and unique hazards of a confined space, employers must evaluate each project for the existence of confined spaces and determine the hazards of each. Confined spaces containing actual or potential hazards that could cause death, injury or acute illness, incapacitation, entrapment, or otherwise interfere with a worker's ability to leave the space in an emergency are considered **permit-required confined spaces.** Employers must take special precautions when entering these permit spaces including defining entry procedures, ensuring employees are properly-trained, and planning rescue procedures.

OSHA defines a **permit-required confined space** as *a space that:*

1. *Is large enough and so configured that an employee can bodily enter it;*
2. *Has limited or restricted means of entry and exit; and*

3. *Is not designed for continuous employee occupancy*

Examples of confined spaces on a construction site include, but are not limited to, the following: bins, boilers, pits (including elevator pits), manholes, tanks, ducts, sewers, storm drains, etc.

CONFINED SPACE HAZARDS

Confined spaces present special hazards not found in normal spaces due to the configuration and contents of the confined space. Confined spaces may be poorly ventilated creating a hazardous atmosphere in the form of insufficient oxygen or hazardous levels of toxic gases. In addition to atmospheric hazards, confined spaces present physical hazards from a variety of sources ranging from mechanical and electrical equipment inside the space to fall exposures in and around the space.

Due to the extreme and unique hazards of a confined space, employers must evaluate each project for the existence of confined spaces and determine the hazards of each. Confined spaces containing actual or potential hazards that could cause death, injury, or acute illness, incapacitation, entrapment, or otherwise interfere with a worker's ability to leave the space in an emergency are considered **permit-required confined spaces.** Employers must take special precautions when entering these permit spaces including defining entry procedures, ensuring employees are properly-trained, and planning rescue procedures.

OSHA defines a **permit-required defined space** as *a confined space that:*

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

WHAT INFORMATION MUST BE PROVIDED TO PNT?

The following information must be on file with PNT PRIOR TO ENTRY. Failure to provide any of this information will delay the confined space entry until paperwork is complete, which includes:

1. Completed Hazard Evaluation Forms for each confined space to be entered. This is a PNT form that will be sent separately from this Guide.
2. Written Confined Space Entry Program.
3. Employee Confined Space Training Records.

Please send all information to PNTT's Project Team for review.

COMMUNICATION AND coordination

Once all the required documentation is on file, confined space entry may begin. The process for entering confined spaces on PNT job-sites is as follows:

1. Prior to entry, email the Confined Space Entry Notification Form to PNT's Confined Space Point-of-Contact. Entry may not be allowed if another entrant is already in the confined

space or if there are activities outside the space that may introduce hazards. In these instances, a Pre-Entry Briefing will be held to determine if entry is possible.

2. Complete entry based on your own hazard evaluation to determine confined space classification, and complete all necessary permits/certificates.

3. Upon conclusion of the entry, email all paperwork to PNT's Confined Space Point-of-Contact, alerting them of any issues that arose during entry including, but not limited to, the following. If any of these issues arise, a Post-Entry Briefing will be held to discuss the issue.

    a. Unauthorized entry of a permit space
    b. Detection of a prohibited condition
    c. An injury or near-miss during entry
    d. A change in use or configuration of a permit space
    e. Employee complaints about the effectiveness of the Program

QUESTIONS?

If you have additional questions after reviewing this guide, please contact PNT's Project Manager for assistance.

Confined Space Evaluation Form

Confined Space # If yes, space must be labeled.

Complete this form for each confined space you enter to help identify the hazards and determine classification. Work must be evaluated prior to entry, as the status may change based on new conditions or the activity.

Confined Space Information

Evaluation Type:	☐ Initial ☐ Re-Evaluation
Confined Space:	Click here to enter text.
Location:	Click here to enter text.
Description:	Click here to enter text.
Work Performed:	Click here to enter text.
Evaluating Employer:	Click here to enter text.

Hazard Identification *(If YES, enter a description of the hazard and check the appropriate space classification)*

	YES	NO
Oxygen Levels: Rusting; biological decomposition; combustion; oxygen displacement; etc.	☐	☐
Describe: Click here to enter text.		
Flammable Atmosphere: Combustible gases; vapors; particulate; solvents or fuels; etc.	☐	☐
Describe: Click here to enter text.		
Toxic Atmosphere: Hydrogen sulfide; carbon monoxide; hot work; hazardous chemicals; etc.	☐	☐
Describe: Click here to enter text.		
Engulfment: Loose granular material; water or sewage flow; flooding; water table; etc.	☐	☐
Describe: Click here to enter text.		

Environmental: Heat / Cold Stress; illumination; noisy equipment; slippery surfaces; etc.	☐	☐
Describe: Click here to enter text.		
Ignition Sources: Hot work; heat sources; sparks; static discharge; grinding; etc.	☐	☐
Describe: Click here to enter text.		
Electrical: Live electrical outside conduit; high-voltage; switch gear; exposed terminals; etc.	☐	☐
Describe: Click here to enter text.		
Physical: 6' falls; access; entrapment; unguarded parts; pedestrian / vehicle protection; etc.	☐	☐
Describe: Click here to enter text.		
Process Hazards: contaminant producing activities; chemicals used; lasers; welding flash; etc.	☐	☐
Describe: Click here to enter text.		
Other: Any hazards not listed above	☐	☐
Describe: Click here to enter text.		

☐Permit Required Confined Space ☐Non-permit Space ☐Alternate Space ☐Re-classified Space

Evaluated By: Click here to enter text. **Date:** Click here to enter text.

Confined Space Evaluation Form

Complete this form for each confined space you enter to help identify the hazards and determine classification. Work must be evaluated prior to entry, as the status may change based on new conditions or the activity.

Confined Space Information

Evaluation Type:	☐ Initial ☐ Re-Evaluation
Confined Space:	Click here to enter text.
Location:	Click here to enter text.
Description:	Click here to enter text.
Work Performed:	Click here to enter text.
Evaluating Employer:	Click here to enter text.

Hazard Identification *(If YES, enter a description of the hazard and check the appropriate space classification)*

	YES	NO
Oxygen Levels: Rusting; biological decomposition; combustion; oxygen displacement; etc. Describe: Click here to enter text.	☐	☐
Flammable Atmosphere: Combustible gases; vapors; particulate; solvents or fuels; etc. Describe: Click here to enter text.	☐	☐
Toxic Atmosphere: Hydrogen sulfide; carbon monoxide; hot work; hazardous chemicals; etc. Describe: Click here to enter text.	☐	☐

Engulfment: Loose granular material; water or sewage flow; flooding; water table; etc. Describe: Click here to enter text.	☐	☐
Environmental: Heat / Cold Stress; illumination; noisy equipment; slippery surfaces; etc. Describe: Click here to enter text.	☐	☐
Ignition Sources: Hot work; heat sources; sparks; static discharge; grinding; etc. Describe: Click here to enter text.	☐	☐
Electrical: Live electrical outside conduit; high-voltage; switch gear; exposed terminals; etc. Describe: Click here to enter text.	☐	☐
Physical: 6′ falls; access; entrapment; unguarded parts; pedestrian / vehicle protection; etc. Describe: Click here to enter text.	☐	☐
Process Hazards: contaminant producing activities; chemicals used; lasers; welding flash; etc. Describe: Click here to enter text.	☐	☐
Other: Any hazards not listed above Describe: Click here to enter text.	☐	☐

☐Permit Required Confined Space	☐Non-permit Space	☐Alternate Space	☐Re-classified Space

Evaluated By: Click here to enter text. **Date:** Click here to enter text.

Training Documentation for Confined Space

I have received training and understand all details concerning the confined space requirements.

I understand that I am required to follow the necessary precautions outlined in PNT's Confined Space Program.

I know the location of emergency phone numbers and communications systems, and the location of medical fire, and other emergency supplies.

Employee Name: _____

Signature: _____ Date: _____

Job Location: _____

	PNT Consulting Safety and Health Manual	Doc No:	SOP-P-34
		Initial Issue Date	2/15/16
		Revision Date:	4/1/17
CONFINED SPACE ENTRY		Prepared by:	Todd Harvey
		Document Location:	

4.1. PURPOSE

4.1.1. The purpose of this SOP is to provide safety guidelines for PNT personnel working near welding, cutting or hotwork operations at PNT field sites.

4.2. SCOPE

4.2.1. This SOP applies to field locations and activities that may expose PNT employees to hazards associated with welding, cutting and hotwork operations.

4.3. DEFINITIONS

4.3.1. Hot Work – Work involving electric or gas welding, cutting, brazing, or similar flame or spark-producing operations.

4.3.2. Hot Work Permit – A permit required to conduct hot work operations on or near a covered process (involving highly hazardous chemicals). This permit is a means of documenting that the fire prevention and protection requirements in 29 CFR 1910.252(a) have been implemented prior to beginning the hot work operations.

4.3.3. Hot Work Operator – Any qualified operator of electric or gas welding and cutting equipment or other hot work equipment.

4.4. RESPONSIBILITIES

4.4.1. Vice President of Safety – Responsible for periodic review and updating of the guidelines in this SOP as needed.

4.4.2. Human Resources (HR) – HR is responsible for the maintenance of training records.

4.4.3. Foreman/Site Supervisor– An individual who is assigned the leadership role for the safety of employees in the field. Every field project should have an assigned a foreman/site supervisor or designee to assume these responsibilities. For projects where there has been no leader identified, the employee with the most relevant experience will become the foreman/site supervisor. They also have the authority to stop work conducted by PNT employees and subcontractors if they believe a dangerous condition is present.

4.4.4. Employees – Employees are responsible for observing the requirements of this program.

4.5. GUIDELINES

4.5.1. These guidelines are provided to assist PNT in recognizing and protecting PNT personnel from hazards associated with hot work activities. PNT personnel will not conduct hot work activities.

Hot Work Equipment

4.5.2. Welding and cutting equipment must be kept in safe operating condition. Equipment will be

4.5.2.1. inspected and maintained in accordance with the manufacturer's recommendations and regulatory requirements. Equipment found to be damaged, defective, or otherwise incapable of reliable safe operation will be removed from service immediately and reported to management. The equipment will be repaired by qualified personnel prior to being returned to service or replaced, as appropriate.

Designated Areas

4.5.3. A designated area is a location designed and/or approved for hot work. This may include a

4.5.3.1. maintenance shop, welding shop, or other location that is constructed of noncombustible or fire- resistant materials, essentially free of combustible and flammable contents, and suitably segregated from other work areas. Designated areas are also typically equipped with ventilation systems to remove hazardous fumes, gases, and dust that may be produced during hot work. Whenever possible, hot work operations should be conducted in designated areas.

Permit Required Areas

4.5.4. If the object to be welded or cut cannot be moved to a designated area, a permit required area

4.5.4.1. can be established providing that the area can be made fire safe. Hot work conducted in these areas will require a Hot Work Permit be completed and posted prior to beginning hot work.

Work Area Preparation

4.5.4.2. Prior to issuance of a hot work permit or beginning hot work, permit required areas must be

4.5.4.2.1. made fire safe. This includes but is not limited to:

- Verifying appropriate, fully charged and operable fire extinguishing equipment is immediately available in the hot work area
- Removal of combustible materials to at least 35 feet (11 meters) from the hot work
- Using metal or fire-retardant guards or curtains to protect/shield combustibles that cannot be removed

- Wetting down or otherwise protecting floors constructed of combustible materials
- Removal of flammable liquids
- Tightly covering ducts and wall and floor openings within 35 feet (11 meters) of the hot work with fire-retardant or noncombustible material
- Shutting down or tightly covering ducts or conveyor systems that may carry sparks to distant combustibles
- Assignment of fire watch(es)
- Use of an explosimeter to verify % L.E.L.
- Use of other monitoring equipment to verify safe levels of hazardous fumes and/or gases

4.5.4.2.2. If hot work will be conducted on or near noncombustible partitions, walls, ceilings, or roofs confirm that areas adjacent to the opposite side of the partitions, walls, ceilings, or roofs:

- Are free of flammable and combustible materials or
- Flammables are removed and combustibles are properly protected to prevent ignition

4.5.4.2.3. Permit required areas must also be properly secured to protect other personnel from hot work hazards. This may include but may not be limited to erecting barricades, temporarily installing welding curtains, posting signs or notices, or utilizing temporary ventilation measures.

4.5.4.3. Hot Work Permits

4.5.4.3.1. Hot work permits will be issued by the supervisor having jurisdiction over the area where hot work will be conducted. The permit must be posted in the work area or posted on the equipment being worked on. The permit must designate the type of hot work (i.e., burning, cutting, etc.), personnel conducting the work, duration of work, and precautions to be followed. A separate permit is required for each work area and work group.

4.5.4.4. Fire Watch

4.5.4.4.1. A fire watch is required for hot work conducted where more than a minor fire may develop or when any of the following exists:

- Appreciable combustible materials, in building construction or contents, are closer than 35 ft (11 m) to the point of operation;
- Combustibles are more than 35 ft (11 m) away but are easily ignited by sparks;
- Wall or floor openings within a 35 ft (11 m) radius expose combustible material in adjacent areas including concealed spaces in wall or floors; or
- Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.

- Additional fire watches are required if combustible materials that could be ignited by the hot work operation cannot be directly observed by one fire watch.

4.5.4.5. Fire watches will:

- Be present during the hot work operation
- Remain at the hot work site for at least 30 minutes after the hot work operation is completed 1 hour for occupied and 4 hours for hot roof work in occupied buildings
- Verify that safe conditions are maintained during hot work operations
- Be allowed to perform additional tasks only if those tasks do not interfere with fire watch duties
- Have appropriate fire extinguishing equipment readily available
- Watch for fires and/or smoldering in all exposed areas and:
    - Attempt to extinguish them only when the fires are obviously within the capacity of the equipment available or
    - Activate the fire alarm immediately if the fire is beyond that capacity of available fire extinguishing equipment

4.5.4.6. Conduct monitoring as required Fire watches will be trained in the:

- Hazards of the work site and the hot work being conducted Procedures to activate the fire alarm
- Proper use of fire extinguishing equipment
- Proper use of monitoring equipment (if applicable)

4.5.5. Prohibited Areas and Conditions

4.5.5.1. Hot work is prohibited in:

Areas not authorized by facility management

Sprinklered facilities where the sprinkler system is impaired

Locations with an explosive atmosphere

The vicinity of uncleaned or improperly prepared drums, tanks, or other containers and/or equipment that have previously contained materials that could result in an explosive atmosphere

Areas where large quantities of readily ignitable material are stored

Any other area, location, or situation where hot work cannot be conducted safely

4.5.6. Welding and Cutting Safe Operating Guidelines

4.5.6.1. General

4.5.6.1.1. The following general safety guidelines will to be observed by welding/cutting operators when conducting hot work:

- Operators will be thoroughly instructed in the safe use of welding equipment and fuel gas
- Conduct hot work only in areas with adequate ventilation to minimize exposure to hazardous fumes, gases, and dusts that may be produced during hot work activities. If ventilation in the work area is not adequate, additional ventilation must be provided in the form of either general mechanical ventilation systems or local exhaust systems. The ventilation system(s) should remove potentially contaminated air from the work area and introduce clean, respirable air
- Check the preservative coatings on the surface to be welded for flammability and toxicity. Remove a sufficient amount of preservative coating from the area to be heated to check that the temperature of the metal will not be appreciably raised. Artificial cooling of the metal surrounding the heating area may be used to limit the size of the area required to be cleaned. If the preservative coating contains substances which may affect a worker's health, the worker may have to wear a respirator if other exposure control methods are not feasible
- Place welding and cutting equipment (cylinders and/or welding machines) far enough away from the actual welding or cutting operation so that sparks, hot slag, or flame will not reach them. When this is impractical, the equipment must be protected
- Verify suitable fire extinguishing equipment is maintained in a state of readiness for immediate use. Such equipment may consist of pails of water, buckets of sand, and hose or portable extinguishers depending upon the nature and quantity of the combustible material exposed
- When operational safety needs require supplementary fire protection, additional personnel must be assigned to guard against fire in the form of a fire watch. Fire watchers must be instructed as to the specific anticipated fire hazards and how the fire fighting equipment provided is to be used. Fire watchers must be present while the actual welding, cutting, or heating operation is being performed, and for a sufficient period of time after completion of the work to confirm that no possibility of fire exists
- Adequate eye protective equipment to prevent exposure of personnel must meet the test for transmission of radiant energy prescribed in ANSI Z87.1-1968. This equipment

must be provided to employees at no cost to them. The table on the following page contains selection criteria for various welding operations

- Welding, cutting, or other hot work must not be performed on used drums, barrels, tanks or other containers until they have been cleaned so thoroughly as to make absolutely certain that there are no flammable materials present or any substances such as greases, tars, acids, or other materials which when subjected to heat, might produce flammable or toxic vapors. Any pipe lines or connections to the drum or vessel must be disconnected or blanked

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

NOTE: In gas welding or oxygen cutting where the torch produces a high yellow light, it is desirable to use a filter or lens that absorbs the yellow or sodium line in the visible light of the operation.

4.5.6.2. Oxygen-fuel Gas Welding and Cutting

4.5.6.2.1. The following safety guidelines are to be observed by employees when conducting oxygen-fuel gas welding and cutting operations:

- Confirm fuel gas and oxygen manifolds are labeled (painted or on a permanently attached sign) with the name of the substance they contain in letters at least 1-inch high

- Verify fuel gas and oxygen hoses are easily distinguishable from each other and must not have more than one passage. The contrast may be made by different colors or by surface characteristics readily distinguishable by the sense of touch
- Oxygen and fuel gas hoses must not be interchangeable
- Whenever practicable, arc welding and cutting operations must be shielded by noncombustible or flameproof screens which will protect employees and other persons working in the vicinity from the direct rays of the arc
- Confirm oxygen-fuel gas systems meet OSHA design standards

4.5.6.3. Arc Welding and Cutting

4.5.6.3.1. The following safety guidelines are to be observed by employees when conducting arc welding and cutting operations:

- Shield arc welding and cutting operations with noncombustible or flameproof screens to protect other persons in the vicinity from direct arc rays
- When electrode holders are to be left unattended, the electrodes must be removed and the holder must be placed or protected so that they cannot make electrical contact with employees or conducting objects
- All arc welding and cutting cables must be completely insulated and be capable of handling the maximum current requirements for the job. There must be no repairs or splices within 10 feet (3.048 meters) of the electrode holder, except where splices are insulated equal to the insulation of the cable. Defective cable must be repaired or replaced
- Arc welding and cutting cables must be of the completely insulated, flexible type, capable of handling the maximum current requirements of the work in progress, taking into account the duty cycle under which the arc welder or cutter is working.
- Grounding of the welding machine frame must be checked. Special attention must be given to safety ground connections of portable machines
- Cables with damaged insulation or exposed bare conductors must be replaced
- Pipelines containing gases or flammable liquids, or conduits containing electrical circuits, must not be used as a ground return. For information on welding on natural gas pipelines, refer to 49 CFR Part 192
- Only cable free from repair or splices for a minimum distance of 10 feet from the cable end to which the electrode holder is connected must be used, except that cables with

standard insulated connectors or with splices whose insulating quality is equal to that of the cable are permitted

- Confirm welding systems meet OSHA construction standards and all required precautions and support equipment is readily available before conducting arc- welding or cutting

4.5.6.4. If welding must be performed under unusual conditions, specialized equipment must be used. Examples of unusual conditions include but may not be limited to exposure to:

- Unusually corrosive fumes Steam or excessive humidity
- Excessive oil vapor
- Flammable gases
- Abnormal vibration or shock
- Excessive dust
- Weather
- Unusual seacoast or shipboard conditions

4.5.6.5. The following voltage limits must not be exceeded:

- Alternating-current machines
    - Manual arc welding and cutting - 80 volts
    - Automatic (machine or mechanized) arc welding and cutting - 100 volts
- Direct-current machines
    - Manual arc welding and cutting - 100 volts
    - Automatic (machine or mechanized) arc welding and cutting - 100 volts

4.5.6.5.2. When special welding and cutting processes require values of open circuit voltages higher than the above, means will be provided to prevent the operator from making accidental contact with the high voltage by adequate insulation or other means.

4.5.6.6. Resistance Welding

4.5.6.6.1. The hazards associated with this type of welding are similar to those of arc welding. As such, operators will follow the safety guidelines established in the general and arc welding sections. The following guidelines are to be observed when conducting resistance welding operations:

- All welders and cutters designated to use resistance welding equipment must have been properly instructed and judged competent to operate such equipment
- Controls of all automatic or air and hydraulic clamps must be arranged or guarded to prevent the operator from accidentally activating them. Movable holders must have

sufficient clearance to prevent the shearing of fingers carelessly placed on the operating movable holder

- All press welding machine operations, where there is a possibility of the operator's fingers being under the point of operation, must be effectively guarded by the use of a device such as an electronic eye safety circuit, two hand controls or protection similar to that prescribed for punch press operation. All chains, gears, operating bus linkage, and belts must be protected by adequate guards, in accordance with the machine guarding section of this package and OSHA's machine guarding guidelines
- Ignition tubes must be equipped with a thermal protection switch
- All portable welding guns, transformers and related equipment that is suspended from overhead structures, eye beams, trolleys, etc. must be equipped with safety chains or cables. Safety chains or cables must be capable of supporting the total shock load in the event of failure of any component of the supporting system
- Two or more safety emergency stop buttons must be provided on all special multispot welding machines, including 2-post and 4-post weld presses. On large machines, four safety pins with plugs and receptacles (one in each corner) must be provided so that when safety pins are removed and inserted in the ram or platen, the press becomes inoperative
- All doors and access panels of all resistance welding machines and control panels must be kept locked and interlocked to prevent access to live portions of the equipment by unauthorized persons
- OSHA's electrical and installation guidelines for resistance welding must be followed. These standards can be found in 29 CFR 1910.255

4.6. TRAINING

4.6.1. PNT Personnel

4.6.1.1. PNT personnel working in areas where they may be exposed to the hazards associated with hot work will be trained on:

- Health and safety issues and hazards related to hot work PPE requirements
- Facility/site emergency response procedures

4.6.2. Hot Work Personnel

4.6.2.1. Hot Work Operator Supervisor Training:

- Health and safety issues and hazards related to hot work Types of hot work operators conduct
- Permit requirements
- Emergency response procedures

4.6.2.2. Operator Training (including welders/cutters):

- Health and safety issues and hazards related to hot work Safe operation of equipment
- Safe use of the process
- Emergency response procedures
- Proper use of and reasons for PPE and other protective equipment Confined space procedures (if applicable)

4.6.2.3. Fire Watch Training:

- Hazards of the work area/site
- Health and safety issues and hazards related to hot work
- Emergency response procedures, including procedures to activate the fire alarm
- Proper use of and reasons for PPE and other protective equipment
- Proper use of portable fire extinguishing equipment, in accordance with OSHA 1910.14(g):
    - To be conducted:
        - Initially
    - At least annually thereafter o Including information on:
        - Hazards involved with incipient stage fire fighting
        - Use of fire extinguishing equipment Proper use of monitoring equipment (if applicable)

Hot Work Permit

Permit #	Permit Expires	Date/Time Job Began	Date/Time Job Finished

Building	Department

Employee Completing Job	Superintendent

Fire Watch Inspector	Hot Work Coordinator

Location of work to be completed

Description of work to be completed

Equipment Required: ☐ Fire Extinguisher☐☐☐☐☐ Hand hose☐☐☐☐☐☐☐☐ SCBA☐☐☐☐☐☐☐ ABA☐☐☐☐☐☐☐☐ Coveralls

☐ Gas Detection Instrument☐☐☐☐☐☐☐ Safety Goggles☐☐☐☐☐☐☐☐ Face shield☐☐☐☐☐☐☐☐☐ Welding Hood☐☐☐☐☐☐☐☐ Welding Jacket

Safety Precautions

☐ Job can be completed in the maintenance shop	☐ Floor/Wall openings within 35 feet are tightly covered
☐ Job can be completed mechanically	☐ Surrounding floors swept clean & wet down (if needed)
☐ Flame/Spark-producing equipment inspected	☐ Personnel protective equipment worn as required
☐ Sprinklers operable & will not be taken out of service	☐ Fire watch assigned for at least ½ hour after job is completed
☐ Work confined to area/equipment specified in permit	☐ Fire extinguishers recharged after job is completed

Combustibles

☐ There are no combustible fibers, dusts, vapors, gases, or liquids in the area.

☐ A combustible gas detection instrument was used to verify the absence of gases or vapors

☐ Combustibles relocated 35 feet from operation and protected with noncombustible shields or flame-proofed curtains/covers

☐ Continuous monitoring of surrounding pipes, equipment, and tanks which may leak during

Signature of Hot Work Coordinator

Signature of Fire Watch Inspector

Training Documentation for Hot Work

I have received training and understand all details concerning PNT's hot work requirements.

I understand that I am required to follow the necessary precautions outlined in PNT's Hot Work Program.

I know the location of emergency phone numbers and communications systems, and the location of medical, fire, and other emergency supplies.

Employee Name: _____

Signature: _____ Date: _____

Job Location: _____

36.1 Purpose

To ensure that information about the dangers of all hazardous materials used by the Contractors are known to all affected employees. Procedure is within requirements of the OSHA Hazard Communication Standard and corresponding state laws.

36.2 Scope

This policy covers container labeling, safety data sheets, employee training and information, hazardous non-routine tasks, contractors, list of hazardous chemicals, chemicals in unlabeled pipes and safety procedures.

36.3 Definitions

None

36.4 Responsibilities

All employees of PNT (including subcontractors and their employees) will participate in the hazard communication program and comply with all provisions of this policy. This includes, but is not limited to, fully understanding and following all precautions listed on Safety Data Sheets (SDS)/ for materials they will use, be exposed to, or handle while on the job site. PNT's Safety Director is responsible for maintaining this program and ensuring compliance with all local, state, and federal laws.

36.5 Guidelines

36.5.1 Container Labeling

36.5.1.1 The Contractor Superintendent will verify that all containers received for use will be clearly labeled with the following standardized 1 6-section format of the SDS:

36.5.1.1.1 Identification, which includes elements found on the label such as product identifier and contact information.

36.5.1.1.2 Hazard identification of the label elements, including the signal word, hazard and precautionary statements and pictogram.

36.5.1.1.3 Ingredient composition and information, which for substances includes the chemical name and its synonyms; for mixtures the same details as required for substances, but also must specify the concentration of each ingredient.

36.5.1.1.4 First Aid measures.

36.5.1.1.5 Firefighting measures.

36.5.1.1.6 Accidental release measures, including instructions for evacuations, containment methods and cleanup procedures.

36.5.1.1.7 Handling and storage guidance.

36.5.1.1.8 Exposure controls and personal protection, including permissible exposure limits, engineering controls and recommended personal protective equipment.

36.5.1.1.9 Physical and chemical properties, including its appearance, odor, flammability or explosive limits, and melting or freezing points.

36.5.1.1.10 Stability and reactivity of the chemical.

36.5.1.1.11 Toxicological information, which addresses the likely routes of exposure and a description of exposure effects.

36.5.1.1.12 Non-mandatory sections that might include ecological information, disposal considerations, transportation information and regulatory information.

36.5.1.2 All materials onsite are to be stored in their original container with the label attached.

36.5.1.3 Any material with a label missing or illegible will be reported to the Superintendent immediately for proper labeling.

36.5.1.4 Stationary, secondary, or portable containers will be clearly labeled with either an extra copy of the original manufacturer's label or with tile "central stores" generic labels which have a block for identification and blocks for the hazard warning.

36.5.1.5 Signs, placards, or other written materials that convey specific hazard information may be used in place of individual container labels if there are a number of stationary process containers within a work area which store similar contents.

36.5.1.6 Portable containers do not need to be labeled if the chemicals are transferred to labeled containers and used by the employee making the transfer during that shift. No unmarked containers of any size shall be left unattended in the work area.

36.5.1.7 SAMPLE LABEL (Next Page)

SAMPLE LABEL

PRODUCT IDENTIFIER

CODE
Product Name

SUPPLIER IDENTIFICATION

Company Name
Street Address
City State
Postal Code Country
Emergency Phone Number

PRECAUTIONARY STATEMENTS

Keep container tightly closed. Store in cool, well ventilated place that is locked.
Keep away from heat/sparks/open flame. No smoking.
Only use non-sparking tools.
Use explosion-proof electrical equipment.
Take precautionary measure against static discharge.
Ground and bond container and receiving equipment.
Do not breathe vapors.
Wear Protective gloves.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
Dispose of in accordance with local, regional, national, international regulations as specified.

In Case of Fire: use dry chemical (BC) or Carbon dioxide (CO_2) fire extinguisher to extinguish.

First Aid
If exposed call Poison Center.
If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.

HAZARD PICTOGRAMS

SIGNAL WORD

Danger

HAZARD STATEMENT

Highly flammable liquid and vapor.
May cause liver and kidney damage.

SUPPLEMENTAL INFORMATION

Directions for use

Fill weight: Lot Number
Gross weight: Fill Date:
Expiration Date:

36.5.2 Safety Data Sheets (SDS)

36.5.2.1 Any product having a hazardous warning on its label requires an SDS.

36.5.2.2 The manufacturer, distributor, or vendor shall provide the SDS for the hazardous product.

36.5.2.3 All SDSs shall be forwarded to PNT's on-site Superintendent and reviewed by the Superintendent, Contractor's Superintendent and employees using the product to determine safe work practices and personal protection, as needed. The SDSs shall be maintained by CHEMTREC and shall be accessible to all employees via the phone number 703-253-4256 on a 24/7 basis. The sheets can be faxed or emailed to the work site that needs/requests them.

36.5.3 Pictograms

36.5.3.1 Hazard pictograms are one of the key elements for the labeling of containers under the GHS, along with:

36.5.3.2 An identification of the product.

36.5.3.3 A signal word – either DANGER or WARNING where necessary.

36.5.3.4 Hazard statements, indicting the nature and degree of the risks posed by the product.

36.5.3.5 Precautionary statements, indicating how the product should be handled to minimize risks to the user.

36.5.3.6 The identity of the supplier.

36.5.3.7 PICTOGRAM DIAGRAMS such as:

36.5.3.7.1 Explosive Usage

EXPLOSIVE USAGE

- Unstable explosives
- Explosives, divisions 1.1,1.2,1.3,1.4
- Self-reactive substances and mixtures, types A & B
- Organic Peroxides, types A, B

35.5.2.1.1 Flammable Usage (Next Page)

FLAMMABLE USAGE

- Flammable gases, category 1
- Flammable aerosols, categories 1, 2
- Flammable liquids, categories 1,2,3
- Flammable solids, categories 1, 2
- Self-reactive substances and mixtures, types B,C,D,E,F
- Pyrophoric liquids, category 1
- Pyrophoric solids, category 1
- Self-heating substances and mixtures, categories 1,2
- Substances and mixtures, which in contact with water , emit flammable gases, categories 1,2,3
- Organic peroxides, types B,C,D,E,F

35.5.2.1.2 Oxidizing Usage

OXIDIZING USAGE

- Oxidizing gases, category 1
- Oxidizing liquids, categories 1,2,3
- Oxidizing solids, categories 1,2,3

35.5.2.1.3 Compressed Gases Usage (Next Page)

COMPRESSED GASES USAGE

- Compressed gases
- Liquefied gases
- Refrigerated liquefied gases
- Dissolved gases

35.5.2.1.4 Corrosive Usage

CORROSIVE USAGE

- Corrosive metals, category 1
- Skin corrosion, categories 1A, 1B, 1C
- Serious eye damage, category 1

35.5.2.1.5 Health Hazard Usage

HEALTH HAZARD USAGE

Acute toxicity (oral, dermal, inhalation, categories 1,2,3

36.5.2.1.1 Irritant Usage

IRRITANT USAGE

- Acute toxicity (oral dermal, inhalation, category 4
- Skin irritation, categories 2,3
- Eye irritation, category 2A
- Skin sensitization, category 1
- Specific target organ toxicity following single exposure, category 3
    - Respiratory tract irritation
    - Narcotic effects

36.5.2.1.2 Health Hazards Usage

HEALTH HAZARDS USAGE

Respiratory sensitization, category 1
Germ cell mutagenicity, categories 1A, 1B, 2
Carcinogenicity categories 1A, 1B, 2
Reproductive toxicity categories 1A, 1B, 2
Specific target organ toxicity following single exposure categories 1,2
Aspiration hazard, categories 1,2

36.5.2.1.3 Environmentally Damaging Usage

ENVIRONMENTALLY DAMAGING USE

Acute hazards to the aquatic environment, category 1
Chronic hazards to the aquatic environment, categories 1, 2

36.6 Employee Training & Information

36.6.1 PNT's Safety Director, and/or PNT Training Institute will provide training to employees when hired and routinely thereafter on the hazardous nature of chemical products. Training will include:

36.6.1.1 The Hazard Communication Policy.
36.6.1.2 Where to find information on new GHS-formatted SDS and labels.
36.6.1.3 How to interpret GHS information, including an understanding of pictograms, signal words, hazard and precautionary statements, and revised product classifications.
36.6.1.4 Chemicals present in their workplace operations.
36.6.1.5 Physical and health effects of the hazardous chemicals.
36.6.1.6 Appropriate work practices and controls when using chemicals.

36.6.1.7 Emergency and first-aid procedures.

36.6.1.8 How to read labels and review an SDS to obtain appropriate hazard information.

36.6.1.9 The SDS files will be located and stored at CHEMTREC and will be accessible via a telephone call to CHEMTREC. The proper SDS can then be electronically sent and/or faxed to a jobsite as requested.

36.6.2 After attending the training class, each employee will sign a form to verify that they attended the training, received the written materials, and understand PNT's policies on Hazard Communication.

36.7 Hazardous Non-Routine Tasks

36.7.1 Periodically, employees are required to perform hazardous non-routine tasks. Examples of non-routine tasks performed by employees of PNT are as follows: Confined space entry, tank cleaning, and painting reactor vessels.

36.7.2 Prior to starting work on such projects, each affected employee will be given information by the PNT's onsite Superintendent regarding the hazardous chemical he/she may encounter. This information will include specific chemical hazards, protective safety measures the employee can use, and measures the company has taken to lessen the hazards including ventilation, respirators, presence of other employees, and emergency procedures.

36.8 Informing Contractors and Others

36.8.1 PNT's onsite Superintendent shall advise Contractors and other clients of our Hazard Communication Program.

36.8.2 Copies of the SDS for all materials brought onto the site will be made available upon request to each Contractor from PNT's onsite Superintendent.

36.8.3 The Superintendent will also obtain chemical information from Contractors that may expose any employee to hazardous chemicals which they bring into the workplace.

36.8.4 PNT's on site Superintendent shall inform employees of hazardous chemicals they may perform while completing non-routine task and will ensure the necessary precautions are taken

36.9 List of Hazardous Chemicals – PNT's maintains a list of all known hazardous substances presently being used. This list is outlined in PNT's Hazard Communication Program. Further information on each chemical can be found by reviewing the SDSs.

36.10 Chemicals in Unlabeled Pipes

36.10.1 Work activities are often performed by employees in areas where chemicals are transferred through unlabeled pipes.

36.10.2 Prior to starting work in these areas, the employee shall contact his/her Superintendent or PNT's onsite Superintendent for information regarding:

36.10.2.1 Chemicals in the pipes.

36.10.2.2 Potential hazards.

36.10.2.3 Safety precautions.

36.11 Safety Procedures & Recommendations

36.11.1 Work Habits

36.11.2 Chemicals come in various forms and can affect those exposed in different ways. A chemical can take the form of a mist, vapor, liquid, dust, fume or gas. The type of chemical, the way it is used, and the form that it takes determine its effect and what will be done to avoid harmful exposure. Some basic safety precautions will be understood and followed including:

36.11.3 Know what to do in an emergency. CHEMTREC can be called for advice in an emergency situation.

36.11.4 If there is a leak or spill, keep away from the area, unless you know what the chemical is and how to safely clean it up. Know where emergency protective equipment and supplies are kept and how to use them.

36.11.5 Use appropriate protective clothing and equipment (glasses, aprons, boots, gloves, etc.) as required or as necessary.

36.11.6 If clothing becomes contaminated by the chemical, shower or wash the skin areas exposed. Change and decontaminate clothing (or dispose of clothing if it is designed for single use).

36.11.7 Do not take contaminated clothing home to be laundered. By doing so, it could expose family members to the contaminant.

36.11.8 When working with chemicals, always wash hands thoroughly before eating, drinking, or smoking. If necessary, shower and change clothes before going home.

36.11.9 Never take food into the work area where chemicals are being used or stored.

36.11.10 If work will be done in an area where there is a possibility of exposure to toxic substances, use a buddy system or establish an emergency communication system. A worker can be dangerously exposed or overcome by a chemical and need immediate assistance.

36.11.11 Keep the workplace clean to reduce the risk of contamination.

36.11.12 Where possible, wipe up and absorb the contaminant, using proper protective equipment as required.

36.11.13 Clean up spills immediately and dispose of contaminated material properly.

36.11.14 With some chemicals, a vacuum is recommended for clean- up rather than a broom or compressed air. The idea is to collect and confine the contaminant, not just spread it around.

36.11.2 Safety Wear

36.11.2.1 ANSI approved eye or face protection will be worn continuously.

36.11.2.2 Gloves will be worn which will resist penetration by the chemical being handled and have been checked for pin holes, tears, or rips.

36.11.2.3 Wear protective coveralls or apron.

36.11.2.4 Footwear will cover feet completely (NO open-toe shoes or sandals).

36.11.3 Jobsite & Equipment

36.11.3.1 Have separate container for trash and broken glass.

36.11.3.2 Never block any escape routes, and plan alternate escape routes.

36.11.3.3 Never block a fire door open.

36.11.3.4 Never store materials in aisles.

36.11.3.5 All moving belts and pulleys will have safety guards.

36.11.3.6 Instruct personnel in the proper use of the eye-wash fountain, emphasizing rolling of the eyeballs, and turning eyelids "inside-out."

36.11.3.7 Ensure that eye-wash fountains will supply at least fifteen (15) minutes of water flow.

36.11.3.8 Sample breathing air space for measurement of possible contaminants, and keep good records.

36.11.3.9 Regularly inspect fire blankets for rips and holes and keep good records of the inspections. Regularly inspect safety showers and eye-wash fountains and keep records of inspections.

36.11.3.10 Keep up-to-date emergency phone numbers posted next to the phone.

36.11.3.11 Place fire extinguishers near an escape route, not in a "dead end."

36.11.3.12 Regularly maintain fire extinguishers, maintain records, and train personnel in the proper use of extinguishers through actual fire situations. See NFPA 10 requirements.

36.11.3.13 Acquaint personnel with the meaning of "Class A fire", "Class B fire", etc., and how they relate to fire extinguisher use.

36.11.3.14 Regularly check hood for proper draft also verify that exhaust air from an external hood vent is not redrawn into room air.

36.11.3.15 Secure all compressed gas cylinders and transport them securely on a hand truck. Install chemical storage shelves with lips, and never use stacked boxes in lieu of shelves.

36.11.3.16 Have appropriate equipment and materials available for spill control replaced when it becomes dated.

36.11.4 Chemical Storage

36.11.4.1 Do not store materials on the floor.

36.11.4.2 Separately store Organic and Inorganic chemicals.

36.11.4.3 No top shelf or above eye level chemical shelve storage.

36.11.4.4 Shelf assemblies are firmly secured to walls, preferred material is wood.

36.11.4.5 Store acids, poisons, and flammable liquids in separate dedicated cabinets.

36.11.5 Purchasing, Use, & Disposal

36.11.5.1 If possible, purchase chemicals in class-size quantities only. Label all chemicals accurately with date of receipt, or preparation, initialed by the person responsible, and pertinent precautionary information on handling.

36.11.5.2 Follow all directions for disposing of residues and unused portions of reagents.

36.11.5.3 Properly store flammable liquids in small quantities in containers with a provision for bonding to receiving vessel when the liquid is transferred.

36.11.5.4 Never open a reagent package until the label has been read and completely understood. Have a Material Safety Data Sheet on hand before using a chemical.

36.11.5.5 Prepare a complete list of chemicals of which you wish to dispose.

36.11.5.6 Classify each of the chemicals on the disposal list into a hazardous or non-hazardous waste chemical. (Check with the local environmental agency office for details.)

36.11.5.7 Unlabeled bottles (a special problem) must be identified to the extent that they can then be classified as hazardous or non-hazardous wastes. Some landfills will analyze a mystery bottle for a fee, if it is shipped to the landfill in a separate package, labeled as a sample, and accompanied by a letter also identifying it as a sample, with instructions to analyze the contents sufficiently to allow proper disposal.

36.11.6 Substitutions

36.11.6.1 Reduce risk by diluting substances instead of using concentrates.

36.11.6.2 Use films, videotapes, and other methods rather than experiments involving hazardous substances.

36.11.6.3 Undertake all substitutions with extreme caution.

36.11.7 FORMS – **Training Documentation for Hazard Communication Program** (next page)

Training Documentation for Hazard Communication Program

I have received training and understand how to read the Safety Data Sheets/SDS and container labels regarding hazardous products.

I have received general training on the hazardous chemicals in which I might be exposed.

I understand that I am required to review SDSs for any material I am using for the first time.

I know where the SDSs are for my work area are kept and understand that they are available for my review. CHEMTREC is the official library for all of the chemicals in use by PNT

I understand that I am required to follow the necessary precautions outlined in PNT Contracting's Hazard Communication Policy and SDSs, including use of personal protective equipment and/or apparel.

I know the location of emergency phone numbers CHEMTREC 703-253-4256) and communications systems, and the location of medical, fire, and other emergency supplies.

I am aware of my right to obtain copies of the Hazardous Chemical list, written PNT Contracting's Hazard Communication Policy, and SDSs at my request.

Employee Name:_____

Signature:_____ Date: _____

Job Location:_____

37.1 Purpose

37.1.1 To provide guidelines concerning the proper use of Personal Protective Equipment and to comply with OSHA standards outlined in Title 29, Code of Federal Regulations (CFR), parts 1900-1999.

37.2 Scope

None

37.3 Definition

37.3.1 Personal Protection Equipment (PPE) includes clothing and other accessories designed to create a barrier between the user and workplace hazards. It will be used in conjunction with engineering, work practice and/or administrative controls to provide maximum employee safety and health in the workplace.

37.4 Responsibility

37.4.1 All Contractors are responsible for providing and insuring the use of required personal protective equipment. Employers shall ensure that the provided PPE is of the proper fit for each employee. All employees will use protective equipment described by local, state, federal, PNT and Construction Management's rules and regulations to control or eliminate any hazard or other exposure to illness or injury. Employees must receive approval from PNT Contracting Inc. if they obtain their own PPE.

37.4.2 Training: Proper employee training on the correct usage of PPE will likely eliminate many accident/incidents and injuries from occurring. Before performing any work that requires the use of PPE, PNT's Vice President of Safety, or his/her delegate, must train employees on the following:

37.4.2.1 When and what types of PPE are necessary
37.4.2.2 How the PPE is to be used
37.4.2.3 What the PPE's limitations are
37.4.2.4 Proper storage, care, maintenance, and cleaning procedures

37.4.3 In many cases, more than one type of PPE will provide adequate protection. In such cases, employees will have their choice of which type of approved protection they would like to use. Defective equipment shall be removed from service immediately.

37.4.4 PNT is required to document in writing that training has been performed and that employees understand all training materials. Written certifications will contain the names of all employees trained, the date(s) of training, and the PPE requirements. Training records will be filed with PNT's Safety Director and/or Training Department. Training shall be re-administered when deemed necessary.

37.4.5 The following 2 documents shall be completed and submitted to the PNT project team for review prior to beginning work.

Hazard Assessment Form

Facility:	Assessor:
Area:	Date of Assessment:
Task or Job Function:	

SECTION 1. Hazards (Check the appropriate box)			SECTION 2. Describe Specific Eye Hazards	SECTION 3. Identify type of PPE required For those eye hazards outlined in Section 2
Eye Hazard	YES	NO		
Impact				
Penetration				
Chemical				
Heat				
Light/Radiation				

SECTION 1. Hazards (Check the appropriate box)			SECTION 2. Describe Specific Head Hazards	SECTION 3. Identify type of PPE required for Those hazards outlined in Section 2. Check one.
Head Hazard	YES	NO		No head protection is needed
Burn				Class A
Electric Shock				Class B
Impact				Class C
Penetration				
Chemical				

SECTION 1. Hazards (Check the appropriate box)			SECTION 2. Describe Specific Foot Hazards	SECTION 3. Identify type of PPE required For those foot hazards delineated in Section 2.
Foot Hazard	YES	NO		
Chemical				
Compression				
Impact				
Puncture				
Penetration				

SECTION 1. Hazards (Check the appropriate box)			SECTION 2. Describe Specific Hand Hazards	SECTION 3. Identify type of PPE required For those hand hazards delineated in Section 2.
Hand Hazard	YES	NO		
Burn				
Electric Shock				
Impact				
Penetration				
Chemical				

SECTION 1. Hazards (Check the appropriate box)			SECTION 2. Describe Specific Respiratory Hazards	SECTION 3. Type of Respirator Needed Circle One
Respiratory Hazard	YES	NO		Half Face
Gas				Full Face
Vapor				Quarter Face
Fumes				Powered Air
Dust				Purifying (PAPR)
Mist				Air Line
Asphyxia				Escape Pack
Particulates				None Needed

SECTION 1. Other Hazards (Fill in those that apply)	SECTION 2. Describe Other Hazards	SECTION 3. Identify type of PPE needed for other hazards.

Training Documentation for Personal Protective Equipment

I have received training on the details of PNT Consulting's Personal Protective Equipment Program.

I understand that I am required to follow all necessary precautions outlined in the Personal Protective Equipment Program.

I know the location of emergency phone numbers and communications systems, and the location of medical, fire, and other emergency supplies.

Employee Name: _____

Signature: _____ Date: _____

Job Location: _____

37.5 *Guidelines*

37.5.1 **Head Protection:** The wearing of approved non-conductive safety hats is mandatory in all construction areas **100% of the time**. Refer to ANSI Z89.1 Safety Requirements for Industrial Head Protection. **NO EXCEPTIONS!**

37.5.1.1 Helmet Selection: Proper helmet selection is critical in preventing head injuries from occurring. Each type and class of helmet is intended to protect against specific hazards. PNT's on-site Superintendent or his/her delegate is responsible for making sure employees wear the proper helmet.

37.5.1.1.1The following types and classes of protective helmets are available:

37.5.1.1.1.1 Type I – helmets with full brim, not less than 1 ¼ inches wide.

37.5.1.1.1.2Type 2 – brimless helmets with a peak extending forward from the crow.

37.5.1.1.2 For industrial purposes, 3 classes are recognized:

37.5.1.1.2.1 Class A- general service, limited voltage protection

37.5.1.1.2.2 Class B - utility service, high-voltage protection

37.5.1.1.2.3 Class C - special service, no voltage protection

37.5.1.1.2.1.1 Class A – helmets are intended for protection against impact hazards. They are predominately used in manufacturing, construction, shipbuilding, tunneling, lumbering and mining industries.

37.5.1.1.2.2.1 Class B – utility service helmets protect against impact and penetration from falling objects and from high-voltage shock and burn. They are used mostly by electrical workers.

37.5.1.1.2.3.1 Class C – helmets are designed specifically for lightweight comfort and impact protection. They are typically manufactured from aluminum and offer no dielectric protection. Class C helmets are often used in construction and manufacturing occupations, oil fields, refineries, and chemical plants.

37.5.1.2 Helmet Fit: Proper helmet selection is critical in preventing head injuries from occurring. Each type and class of helmet is intended to protect against specific hazards. PNT's onsite Superintendent or his/her delegate is responsible for making sure employees wear the proper helmet.

37.5.1.2.1 Helmet Inspection & Maintenance

37.5.1.2.1.1 Manufacturer's specifications will be followed with regard to the proper cleaning methods. Helmets will be cleaned by dipping them in hot, soapy water. They will then be scrubbed and rinsed in clear, hot water. After rinsing, the shell will be carefully inspected for signs of damage. It is the employee's responsibility to keep their helmet clean.

37.5.1.2.1.2 All components, shells, suspensions, headbands, sweatbands, and accessories will be inspected daily for dents, cracks, penetration, or any other damage that might reduce the original degree of safety. Damaged helmets will be replaced immediately.

37.5.2 Eye and Face Protection

37.5.2.1 Safety glasses with side shields will be provided by the employees Superintendent/Foreman/Company and **are mandatory at all times**.

37.5.2.2 All **construction areas require 100% eye protection at all times**. Minimum eye protection includes approved safety glasses with side shields or mono-goggles meeting the standards specified in ANSI Z87.1-1968.

37.5.2.3 Additional eye and face protection will be used by employees when:

37.5.2.3.1 Welding, burning, or using cutting torches
37.5.2.3.2 Using abrasive wheels, grinders, or files
37.5.2.3.3 Chipping concrete, stone, or metal
37.5.2.3.4 Working with any materials subject to scaling, flaking, or chipping
37.5.2.3.5 Drilling or working under dusty conditions
37.5.2.3.6 Sanding or water blasting
37.5.2.3.7 Waterproofing
37.5.2.3.8 Using explosive actuated fastening or nailing tools
37.5.2.3.9 Working with compressed air or other gases
37.5.2.3.10 Working with chemicals or other hazardous materials
37.5.2.3.11 Using chop, chain, or masonry saws
37.5.2.3.12 Working near any of the above named operations
37.5.2.3.12

37.5.2.4 To protect from injurious light radiation, all affected employees will use equipment with filter lenses. The following chart outlines appropriate shade numbers for various operations. (Next Page – Filter Lenses for Protection Against Radiant Energy)

Filter Lenses for Protection Against Radiant Energy

Operation	Electrode Size (1/32)	Amps	Minimum Protective Shade*
Shielded metal arc welding	Less than 3/32	Less than 60	7
	3/32-5/32	60-160	8
	5/32-8/32	160-250	10
	More than 8/32	250-500	11
Gas metal and flux cored arc welding		Less than 60	7
		60-160	10
		160-250	10
		250-500	10
Gas tungsten arc welding		Less than 50	8
		50-150	8
		150-500	10
Air carbon	Light	Less than 500	10
Arc cutting	Heavy	500-1000	11
Plasma arc welding		Less than 20	6
		20-100	8
		100-400	10
		400-800	11
Plasma arc cutting	Light**	Less than 300	8
	Medium**	300-400	9
	Heavy**	400-800	10
Torch soldering			2
Torch brazing			3
Carbon arc welding			14
Gas Welding:			
Light	Under 1/8	Under 3.2	4
Medium	1/8-1/2	3.2-150	5
Heavy	Over 1/2	Over 12.7	6
Oxygen Cutting:			
Light	Under 1	Under 25	3
Medium	1-6	25-50	4
Heavy	Over 6	Over 50	5

*In selecting eye and face protection, start with a shade that is too dark to see the weld zone. Then, without going below the minimum, go to a lighter shade which gives sufficient view of the weld zone. In oxyfuel gas welding or cutting where the torch produces a bright yellow light, it is recommended that a filter lens be used to absorb the yellow or sodium line in the visible light of the (spectrum) operation.

**These values apply where the actual arc is clearly seen. Experience has shown that lighter filters might be used when the arc is hidden by the workpiece.

37.5.2.5 Selection

37.5.2.5.1 There are different types of eye and face protection designed for particular hazards. In selecting protection, consider type and degree of hazard. Where a choice of protection is given, worker comfort will be the deciding factor in selecting eye protection.

37.5.2.5.2 Employees who use corrective eye glasses will wear face shields, goggles, or spectacles of one of the following types:

37.5.2.5.2.1 Spectacles with protective lenses providing optical correction.

37.5.2.5.2.2 Goggles or face shields worn over corrective spectacles without disturbing the adjustment of the spectacles.

37.5.2.5.2.3 Goggles that incorporate corrective lenses mounted behind the protective lenses.

37.5.2.6 Fit

37.5.2.6.1 Skilled Persons will fit all employees with goggles or safety spectacles. Prescription safety glasses will be fitted by qualified optical personnel.

37.5.2.6.7 Inspection and Maintenance

37.5.2.6.7.1 Eye protection lenses will be kept clean at all times. Continuous vision through dirty lenses can cause eye strain. Daily inspection and cleaning of eye protection with hot, soapy water is also recommended. Pitted lenses will also be replaced immediately as they can be a source of reduced vision. Deeply scratched or excessively pitted lenses are also more likely to break Employees are responsible for taking care of their eye protection. They are also responsible for turning in eye protection that is in poor shape to their immediate Superintendent.

37.5.3 Respiratory Protection

37.5.3.1 Respiratory protection devices approved by the U.S. Bureau of Mines will be provided by the Contractor and worn by employees exposed to hazardous concentrations of toxic or noxious dust, fumes or mists as required by OSHA. The Hazard Communications Program will include respiratory protection programs. Refer to the Respiratory Protection Program of this manual for more information.

37.5.4 Hearing Protection

37.5.4.1 Exposure to high noise levels can cause hearing loss or impairment and can create physical and psychological stress. There is no cure for noise-induced hearing loss, so the prevention of excessive noise exposure is the only way to avoid hearing damage. Specifically designed protection is required, depending on the type of noise encountered and the auditory condition of each employee.

37.5.4.2The Contractor Superintendent, or his/her delegate, is responsible for providing appropriate hearing protection to employees. Pre-formed or molded earplugs are the best form of hearing protection. They will be individually fitted by a professional. Waxed cotton, foam, or fiberglass wool earplugs can also be used as hearing protection. When used properly, they work as well as most molded earplugs. Disposable earplugs will be discarded after each usage. For proper protection, non-disposable earplugs will be cleaned after each use. Plain cotton will not be used as it does not effectively protect against hazardous noises.

37.5.5 Foot & Leg Protection

37.5.5.1Work shoes/boots are to be worn by all field employees. Tennis shoes, sandals, flip-flips, dock-siders, hush puppies, steel toed sneakers & bare feet are prohibited. In addition to safety shoes, canvas or leather leggings and spats will be worn by welders, metal lancers, or anyone working around molten metal. Hard sole dress shoes with leather uppers are also acceptable to be worn by office personnel that may have to visit a jobsite on occasion. Open toed shoes are not acceptable and will not be allowed. High heel shoes will not be allowed under any circumstances.

37.5.6 Glove & Hand Protection

37.5.6.1Gloves provided by the Contractor will be worn when handling objects or substances that could cut, tear, burn, or otherwise injure the hand. Gloves will not be used when operating drill presses, power saws, or similar rotating machinery.

37.5.7 Clothing

37.5.7.1 Wear safe and practical working apparel. Be sure that any clothing you wear is not highly flammable. Neckties and loose, torn, or ragged clothing will not be worn while operating lathes, drill presses, reamers and other machines with revolving spindles or cutting tools. Jewelry of any kind will not be worn when working around machinery or exposed electrical equipment.

37.5.8 Hair

37.5.8.1Employees wearing long hair, beards, or mustaches will not work with rotating machinery or equipment, or use respiratory equipment, if their hair, beard, or mustache constitutes a potential hazard. Judgment will be made by the onsite Contractor Superintendent and reviewed by PNT's onsite Superintendent.

37.5.9 Other Personal Protective Equipment

37.5.9.1Other required equipment to be used under unusual circumstances such as high temperature work, handling corrosive liquids, etc., not specifically covered in this section will be reviewed by PNT's Safety Department and furnished by the Contractor when required.

39.1 Purpose

To establish guidelines to protect PNT's employees who, in response to medical emergencies, may be potentially exposed to blood and/or body fluids.

39.2 Scope

39.2.1 This policy covers the employees' qualification, compliance methods, vaccinations, training, and recordkeeping.

39.2.2 All PNT Consulting employees will follow the precautions provided in this policy. Some employees may have more potential for exposure. These employees must take additional precautions, such as wearing personal protective equipment.

39.3 Definitions

None

39.4 Responsibilities

PNT's Safety Director is responsible for compliance. The Safety Director or designated Safety Superintendent shall train Superintendents on proper lockout/tag-out procedures, audit and/or oversee the application of the procedures, ensure corrective actions are taken when problems arise, and conduct an annual inspection/evaluation. Superintendents are responsible for training effected and authorized employees on the purpose and use of these procedures. The Safety Director will periodically monitor training activities and assist as required to ensure compliance with OSHA regulations and company goals. All affected and authorized employees involved in lockout/tag-out procedures must receive annual training. A list of authorized, trained individuals will be maintained by PNT's Safety Director and/or Training Department.

39.5 Guidelines

Three compliance methods will be observed in order to prevent contact with blood or other potentially infectious materials. All blood or other potentially infectious material (i.e. body fluids) will be considered infectious regardless of the perceived status of the source individual.

39.5.1 Each piece of equipment or system must be evaluated to identify all energy sources to be locked or tagged out. The evaluation will be done periodically by a Superintendent or an authorized employee with familiarity with the equipment/system, using the attached energy source determination checklist. These compliance methods include:

39.5.1.1 Engineering & work practice controls,

39.5.1.2 Housekeeping, and

39.5.1.3 Personal protective equipment.

39.5.2 Engineering & Work Practice Controls

39.5.2.1 Controls will be in place to minimize or eliminate exposure (i.e. sharps disposable containers, self-sheathing needles, etc.). Contaminated sharps will be placed immediately or as soon as possible after use, into appropriate containers. The containers are closable, puncture resistant, leak proof, and labeled with a biohazard label. Contaminated needles will not be bent, recapped, removed, sheared, or intentionally broken.

39.5.2.2 All employees will wash hands using soap, running water, and friction if potential exposure exists. Hand washing facilities are readily accessible to employees and are located throughout the facility. Hand washing will be done (at a minimum):

39.5.2.2.1 At the beginning and the end of a work shift

39.5.2.2.2 Prior to physical contact with an employee, patient, etc.

39.5.2.2.3 Immediately after or as soon as feasible following contact with blood or potentially infectious materials.

39.5.2.2.4 Immediately after or as soon as feasible after removal of gloves or other personal protective equipment.

39.5.2.3 Procedures involving blood or other potentially infectious materials will be performed as to minimize splashing, spraying, spattering, aero-solization, and generation of droplets.

39.5.2.4 In work areas where there is a reasonable likelihood or potential exposure to blood or other infectious materials, employees are not to eat, drink, smoke, apply cosmetics or lip balm, handle contact lenses, or use hand lotions. Food and beverages are not to be kept in refrigerators, freezers, shelves, cabinets, or on counter or bench tops where blood or other infectious materials are present.

39.5.2.5 Specimens of blood or other infectious materials will be placed in a container which prevents leakage during the collection, handling, processing, storage, and transport of the specimens. The containers will be labeled and color coded in accordance with OSHA standards. The container must be closed prior to storage, transport, and shipping. If outside contamination of the primary container occurs, the primary container shall be placed within a secondary container which prevents leakage during the handling, processing, storage, transport, and/or shipping of the specimen. The secondary container may be a zip-lock or other sealable plastic bag.

39.5.2.6 Equipment which has become contaminated with blood or other infectious materials shall be examined prior to servicing or shipping and shall be decontaminated as necessary unless the decontamination of the equipment is not feasible.

39.5.3 Housekeeping:

39.5.3.1 Contaminated work surfaces will be decontaminated with an appropriate disinfectant immediately or as soon as feasible. An appropriate disinfectant is registered with the EPA as HIV- and HBV-effective (i.e. a solution of 5.25% sodium hypochlorite (household bleach) diluted between 1:10 and 1:100 = 1 cup bleach per 2 gallons of water).

39.5.3.2 A blood and body fluid spill kit will be retained at each PNT Consulting, llc. Superintendent's office for use in the case of a spill of blood or other potentially infectious material. The kit will contain: 1) a pair of vinyl or latex gloves, 2) two pieces of absorbent material, such as a cloth or paper towel, 3) a small bucket or spray bottle, 4) two plastic bags, 5) disinfectant.

39.5.3.3 If the floor or other surfaces have been contaminated with blood or other potentially infectious materials, the employee will do the following:

39.5.3.3.1 Put on gloves.

39.5.3.3.2 Lay out a bag in an open fashion.

39.5.3.3.3 Dampen first piece of absorbent material and mop up spill.

39.5.3.3.4 Deposit material in bag and avoid touching outside of bag.

39.5.3.3.5 If outside of bag is contaminated, put contaminated bag into second bag.

39.5.3.3.6 Dampen second piece of absorbent material and clean floor or surface. Deposit into bag.

39.5.3.3.7 Tie bag snugly.

39.5.3.3.8 Dispose of bag in common waste container.

39.5.3.3.9 Return buck or spray bottle to storage area. Restock used items in spill kit.

39.5.3.3.10 Wash hands after removing gloves.

39.5.3.4 Regulated waste shall be placed in approved properly labeled containers and disposed according to established regulatory procedures.

39.5.3.5 Laundry, which includes linens and reusable personal protective equipment, will be handled as little as possible and with minimum agitation, bagged, and containerized.

39.5.3.6 Contaminated laundry will not be sorted or rinsed in the location of use. Whenever laundry is wet, the laundry shall be placed and transported in bags/containers designed to prevent soak through and/or leakage. Employees handling soiled laundry shall wear disposable or utility gloves and gowns. The facility shall wash contaminated laundry according to recommendations outlined by the Center for Disease Control (i.e. wash with detergent and water at 160°F for 25 minutes).

39.5.4 Personal Protective Equipment:

39.5.4.1 Personal protective equipment will be provided to PNT employees, based on anticipated exposures. The protective equipment will be considered.

39.5.4.1.1 Disposable gloves, gown/apron, shoe covers, surgical mask/cap, and breath-saver resuscitator.

39.5.4.1.2 Eye/Face protection device.

39.5.4.1.3 Lab coats, clinic jacket.

39.5.4.2 Gloves, gowns, shoe covers, and masks/caps must be worn when it is reasonably anticipated that the employee may have direct contact with blood or other potentially infectious materials. Disposable breath-saver resuscitators provide emergency breathing capability to the victim without direct mouth-to-mouth contact. Eye/face protection devices, such as surgical masks and caps, goggles, glasses with solid side shields, or chin-

length face shields, must be worn whenever splashes, spray, spatter, droplets of blood, or other potentially infectious materials may be generated.

39.6 Vaccinations & Evaluations

39.6.1 All PNT employees who have been identified as having exposure to blood or other potentially infectious materials will be offered the Hepatitis B vaccine, at no cost to the employee. The vaccine will be offered within ten (10) working days of their initial assignment, involving the potential for occupational exposure to blood or other potentially infectious materials. Employees who previously had the vaccine may submit to anti-body testing which shows the employee to have sufficient immunity.

39.6.2 Post-exposure evaluations and follow-ups are provided for an employee who has been exposed to an incident involving the release of blood or potentially infectious materials. *39.6.3* The Maintenance Record Form (at the end of this Program) includes a record of vaccinations, evaluations, and follow-ups, or an employee's signed statement declining these services. The completed form shall be retained by PNT's Safety Director. *39.6.4* All medical records must be kept for the duration of employment plus 30 years.

39.7 Training

39.7.1 All applicable PNT employees shall be trained in conjunction with applicable requirements for certification (CPR, and First Aid). Where independent training is not available, company-sponsored training will be offered. Annual retraining will also be made available in accordance with OSHA standards. A record of training shall be included on the Maintenance Record Form.

39.7.2 Training records must be kept for 3 years or more.

39.7.3 Additional training will include:

39.7.3.1 OSHA standards for blood-bourne pathogens.

39.7.3.2 Exposure Control Plan review.

39.7.3.3 Procedures at this jobsite which may cause exposure to blood or other potentially infectious materials.

39.7.3.4 Control methods which will be used at the jobsite.

39.7.3.5 Personal Protective Equipment available.

39.7.3.6 Hepatitis B Vaccination program.

39.7.3.7 Post exposure evaluation & follow-up.

39.7.3.8 Signs and labels used at the jobsite.

39.8 Recordkeeping

39.8.1 The Maintenance Record Form maintains the following information in accordance with OSHA requirements.

39.8.1.1 Employee Name & Social Security Number (SS #)

39.8.1.2 Company Name, Department, & Location

39.8.1.3 Hepatitis B Vaccination Record

39.8.1.4 Employee Signature
39.8.1.5 Record of Post-Exposure Evaluations & Follow-ups
39.8.1.6 Personal Protective Equipment Provided
39.8.1.7 Training Record

39.8.2 The completed form shall be maintained by PNT personnel. PNT's Safety Director shall maintain a summary log of employees' training, vaccinations, and issued Personal Protective Equipment. A sample is provided following the Maintenance Record Form.

39.8.3 FORMS (next 2 pages)

39.8.3.1 **Blood-bourne Pathogen Exposure Control Maintenance Report**
39.8.3.2 **Blood-bourne Pathogen Summary Log**

Blood-borne Pathogen Exposure Control Maintenance Record

Distribution: o Copy to Personnel o Copy to Employee o Copy Superintendent o Copy _____
Employee Name: _____ SS #: _____
Company Name: _____
Dept: _____ Location: _____

Hepatitis B Vaccination Record*
Date: _____ Physician: _____
Date: _____ Physician: _____
Date: _____ Physician: _____
Post-Exposure Evaluation/Follow-up
Date: _____ Incident: _____
Date: _____ Incident: _____
Date: _____ Incident: _____
*I have been offered the opportunity to receive a Hepatitis B vaccination and hereby decline this opportunity. Signature: _____

Personal Protective Equipment Record
I have received the following equipment and maintain it in good condition:

	Date of Issue and Reissue		
Disposable Gloves			
Surgical Mask & Cap			
Eye/Face Protection			
Gown, Apron, Shoe Cover			
Breathsaver Respirator			
Other:			

Training Record

Type(s) of Certification: _____
Initial Training:
Subject: _____ Date:_____By Whom: _____
Annual Retraining:
Subject: _____Date: _____By Whom: _____
Subject: _____Date: _____By Whom: _____
Subject: _____Date: _____By Whom: _____

Confirmation of Policy Receipt and Review

I have received a copy of PNT Consulting Blood-borne Pathogen Exposure Control Plan. I have reviewed the Plan, understand it, and agree to abide by it.

Employee's Signature: _____ Date: _____
Superintendent's Signature: _____ Date: _____

Bloodborne Pathogen Summary Log

Completed and Maintained by the Safety Director

Instructions: Enter the appropriate information for each employee participating in the Bloodborne Pathogen Exposure Control Plan. Revised dates for retraining and recertification shall be entered upon completion of applicable requirements.

Employee	Certification	Training	Vaccination	PPE

	PNT Consulting Safety and Health Manual	Doc No:	SOP-MSFT-40
		Initial Issue Date	2/15/16
		Revision Date:	4/1/17
Cold Weather Safety/Cold Stress		Prepared by: Todd Harvey	
		Document Location:	

5.1. PURPOSE

5.1.1. To establish procedures for the implementation and monitoring cold weather safety/cold stress prevention program and to describe symptoms that characterizes excessive exposure cold environments.

5.2. SCOPE

5.2.1. These guidelines also apply to all employees who may be exposed to cold working environments with an ambient temperature of 30 degrees Fahrenheit or less. This may also depend on the work environment, for example working in water.

5.3. DEFINITIONS

5.3.1. Acclimatization – Acclimatization is the process of the body becoming accustomed to extremes in temperature.

5.3.2. ACGIH Cold Stress Threshold Limit Values (TLVs) – Limits intended to protect workers from the most severe effects of cold stress and cold injury and to describe exposures to cold working conditions under which it is believed that nearly all workers can be repeatedly exposed without adverse health effects. The TLV objective is to prevent the deep body core temperature from falling below 36 oC (96.8 oF) and to prevent cold injury to body extremities.

5.3.3. Deep Body Temperature – The core temperature of the body as determined by rectal temperature measurements. For a single, occasional exposure to a cold environment, a drop in core temperature to no lower than 35 oC (95 oF) is permissible.

5.3.4. Equivalent Chill Temperature (ECT) – ECT is an index describing the effect of the cooling power of moving air on exposed flesh. The effect of wind velocity at a certain temperature is expressed as the equivalent cooling effect of a lower temperature with still air.

5.3.5. Frostbite – Local tissue damage caused by exposure to cold temperatures. Severe occurrence may lead to deep tissue damage, gangrene, or possible loss of the affected area.

5.3.6. Hypothermia – Lowering of the body core temperature due to exposure to cold. Severe hypothermia may result in death.

5.3.7. Personal Protective Equipment Levels (A, B, C, D) – Personal protective equipment (PPE) levels are defined in the OSHA Hazardous Waste Operations and Emergency Response standard

(1910.120). Level D PPE is equivalent to normal working clothing and PPE needed on a construction site (i.e. Hardhat, safety shoes, safety glasses, and work clothing). Level C provides minimal protection from chemicals with a protective suit (Tyvec® or chemical coated suit) and an air-purifying respirator. Level B provides a higher level of protection for respiratory hazards by the addition of an air-supplied respirator. Level A provides the highest amount of respiratory and skin contact protection with supplied air respirator and a fully encapsulated outer suit.

5.3.8. Work-Rest Regimen – Defined as a ratio of time spent working versus time spent resting. The ratio applies to one-hour periods. For example, a work-rest regiment of 75% work, 25% rest corresponds to 45 minutes work and 15 minutes of rest each hour.

5.4. RESPONSIBILITIES

5.4.1. Vice President of Safety – Responsible for periodic review of the guidelines in this policy.

5.4.2. Foreman/Site Supervisor – Responsible for assessing cold weather conditions to determine which employees or activities are at risk for cold weather exposure and establishing procedures to prevent cold stress conditions. The foreman/site supervisor determines if work-rest regime is needed and will enforce prevention methods outlined in this SOP. The Foreman/Sit Supervisors shall also inform employees of dangers associated with working around unstable snow and ice build ups.

5.4.3. Employees – Responsible for keeping alert to signs and symptoms of cold stress for themselves and their co-workers. Employees must also be aware of emergency actions to take in the event of harmful exposure to hot or cold environments.

5.5. GUIDELINES

5.5.1. Frostbite

5.5.1.1. Local injury resulting from the cold is called frostbite. Frostbite of the extremities can be categorized by degrees of damage:

5.5.1.1.1. Frost nip or incident frostbite – this is a condition characterized by a sudden blanching or a whitening of the skin.

5.5.1.1.2. Superficial frostbite – the skin has a waxy or white appearance and is firm to the touch, but the tissue beneath is resilient.

5.5.1.1.3. Deep frostbite – tissues are cold, pale, and solid; extremely serious injury.

5.5.1.2. Factors that contribute to frostbite include handling solvents, tight footwear, use of alcohol, wet clothing, high altitudes, and race. African-Americans are three to six times more likely to get frostbite than Caucasians.

5.5.1.3. Frostbitten or potentially frostbitten skin should never be rubbed. The rubbing action can result in permanent tissue damage. For frostnip, the skin should be warmed by applying firm pressure with a hand or other warm body part.

5.5.1.4. Professional medical help should be sought for frostbite cases since it is difficult to assess the degree of frostbite. First-Aid responders can begin to warm the affected part by skin-to-skin contact or by submerging in 108 to 110 degree water. Care should be taken, because the skin is easily burned due to loss of feeling in the affected part. It is important to note that pain will occur when the thawing begins.

5.5.2. Hypothermia

5.5.2.1. Hypothermia is the general lowering of the body temperature. It can occur from exposure to conditions well above freezing. This condition can occur when a worker is immersed in cold water or is exposed to cool, high winds. Individuals who are in a state of physical exhaustion, or have had insufficient food are particularly susceptible to hypothermia.

5.5.2.2. The first symptoms of hypothermia are uncontrollable shivering and the sensation of cold. The heartbeat then slows and sometimes becomes irregular, the pulse weakens and the blood pressure changes. Other symptoms are slurred and slow speech, memory lapses, incoherence, drowsiness, poor judgment, mental confusion, and apparent exhaustion. See table below for additional clinical symptoms of hypothermia.

Core		
C	F	**Clinical Signs**
37.6	99.6	"Normal" rectal temperature
37	98.6	"Normal" oral temperature
36	96.8	Metabolic rate increases in an attempt to compensate for heat
35	95.0	Maximum shivering
34	93.2	Victim conscious and responsive, with normal blood pressure
33	91.4	Severe hypothermia below this temperature
32 31	89.6 87.8	Consciousness clouded; blood pressure becomes difficult pupils dilated but react to light; shivering ceases
30 29	86.0 84.2	Progressive loss of consciousness; muscular rigidity and blood pressure difficult to obtain; respiratory rate
28	82.4	Ventricular fibrillation possible with myocardial irritability
27	80.6	Voluntary motion ceases; pupils nonreactive to light; deep tendon and superficial reflexes absent
26	78.8	Victim seldom conscious
25	77.0	Ventricular fibrillation may occur spontaneously
24	75.2	Pulmonary edema
22 21	71.6 69.8	Maximum risk of ventricular fibrillation
20	68.0	Cardiac standstill
18	64.6	Lowest accidental hypothermia victim to recover

**2002 ACGIH TLV Thermal Stress*

5.5.2.3. When a person is mildly hypothermic, he/she should be moved indoors where it is warm, wet clothing removed, and a warm beverage provided. The body must be warmed slowly. In more severe cases emergency medical services needed immediately. While transporting the person or awaiting the arrival of the emergency unit the following steps should be taken to try to prevent further heat loss:

5.5.2.3.1. Actions to take:

- Keep the person dry, remove wet clothing
- Apply external warmth
- Have person breathe warm moist air
- Handle the person gently
- Remain alert of any complications.

5.5.2.3.2. Actions to avoid:

- Give hot liquids
- Allow person to exercise.

5.5.3. Cold Weather Injury Prevention

5.5.3.1. The best protection against hypothermia and frostbite is prevention. Prevention includes proper work practices, protective clothing, and proper diet. The following is recommended to prevent cold related injuries:

- Temperature and wind monitoring at the site
- Work periods with frequent breaks for warming
- Supply of beverages
- Bare skin should not contact metal objects
- The buddy system should always be used
- Clothing that becomes damp or wet should be changed immediately
- Provide shelter when working outside for prolonged periods
- Does the program address that regularly used walkways and travel ways shall be sanded, salted, or cleared of snow and ice as soon as practicable
- Inspect and restock cold weather supplies when necessary.

5.5.3.2. If work is performed continuously at 20oF ECT or below, heated warming shelters should be made available for employee use during warm-up breaks. A work-warming regimen can be established using the ACGIH guidelines. These guidelines assume that workers are properly clothed for periods of work at temperatures below freezing.

5.5.3.3. For work at or below 10o F ECT the following should apply

- The worker should be under constant protective observation (buddy system or other direct supervision)
- The work rate should not be so vigorous as to cause sweating that will result in wet clothing; if heavy work must be done, all rest periods be taken in heated shelters and the opportunity for changing into dry clothing will be provided.
- Provisions will be made to allow employees to become accustomed to the required protective clothing as well as to their working environment. The working conditions as well as the weight and bulkiness of clothing will be included in estimating the required work rate or lifting requirements.

5.5.3.4. The work will be arranged in such a way that sitting still or standing still for long periods is minimized. Unprotected metal chair seats will not be used. The worker should be protected from drafts to the greatest extent possible.

5.5.4. Clothing Requirements

5.5.4.1. Clothing should be worn loosely, in layers, and selected for the type of work to be performed. The loose clothing and layers provide maximum protection because layers of warm air are trapped between the clothing layers. This method of dressing also allows the outer layer to be removed during heavy manual work, or if there is an increase in temperature. The layer closest to the skin should keep the skin dry and allow the perspiration to escape.

5.5.4.2. The outer layers of clothing are for insulation and should be made of wool, goose down, or synthetic fiber-filled materials. Wool absorbs significant amount of body moisture before losing its ability to insulate, making it preferable to cotton. Gore-Tex and polypropylene are often recommended for use next to the skin.

5.5.4.3. If clothing becomes damp or wet from the work activity or perspiration, it should be changed. Waterproof outerwear should be worn if there is precipitation.

5.5.4.4. Up to 50 percent of heat loss occurs through the head, ears and back of the neck. Appropriate head coverings are an important clothing item. Hands should be protected since hands and fingers are susceptible to frostbite.

5.5.4..5. Footwear should be waterproof. Waterproof boots should be worn when working outside in snow or wet areas. The soles and upper part of the boots should provide good insulation. A combination of working boots and rubber overboots is a cost-effective method of providing insulation. The footwear should not be too constricting and the socks should allow evaporation of perspiration.

5.6. TRAINING

5.6.1. PNT employees, who may be exposed to cold conditions, will receive training conducted as part of discipline specific training in safe work practices for cold stress. The training will include the following:

5.6.1.1. Supervisors shall be instructed in cold weather procedures. The training program shall include at a minimum instruction in:

- Assessment of cold weather conditions and identification of at risk work types and activities.
- Best practices for cold weather injury prevention.
- Topics listed in 5.6.1.2 of this section

5.6.1.2. The workers shall be instructed in cold weather procedures. The training program shall include at a minimum instruction in:

- Proper warming procedures and appropriate First-Aid treatment
- Proper clothing practices
- Proper eating and drinking habits
- Recognition of frostbite
- Recognition of signs and symptoms of hypothermia
- Safe work practices.

5.6.2. Refresher training will be repeated annually or any time that procedures are updated. Workers that demonstrate a lack of understanding of these procedures may also require retraining.

5.7. ADDITIONAL PREVENTIVE MEASURES

5.7.1. The presence of icy/and or snowy conditions increase the risk of injury to workers. Foreman/Supervisors are responsible for planning for such conditions and implementing preventive measures such as:

5.7.1.1. Regularly used walkways and travel ways shall be sanded and salted (if permissible) or cleared of snow as soon as practicable. This includes any public spaces and pedestrian or tenant walkways PNT is responsible for as part of our work.

5.7.1.2. Foreman/Supervisors shall monitor upcoming weather conditions to determine when conditions are not suitable for driving. When conditions impact safe driving for workers, workers should be dismissed from the site with adequate time to reach their destination. A system for worker notification during off hours shall be established to inform workers when conditions warrant site closures.

6.1. PURPOSE

6.1.1. This guideline provides necessary information to establish safe procedures for employees who may be exposed to hazards associated with high noise levels.

6.2. SCOPE

6.2.1. This procedure applies to all project locations where the potential exists for exposure to high noise levels. It is designed to protect the hearing of those working at PNT locations and project sites. This procedure applies to all employees who may be subjected to an 8-hour Time-Weighted Average (TWA) of 85 decibels (dBA) or greater.

6.3. DEFINITIONS

6.3.1. Action Level (AL) – A dose of 50% of the PEL (TWA of 85 dBA for an 8-hour workday). An effective written hearing conservation program (HCP) must be developed and implemented, and hearing protection devices must be made available to workers exposed to noise at this level.

6.3.2. CAOHC – Council of Accreditation in Occupational Hearing Conservation.

6.3.3. dBA – Unit of measurement for sound intensity based on a frequency weighted average that best simulates the sensitivity of the human ear (the A scale).

6.3.4. Decibel (dB) – Unit of measurement for sound intensity (sound pressure level) that is a logarithmic scale.

6.3.5. Dose – The percent of allowable noise a worker is exposed to over a period of time.

6.3.6. Hearing protection devices (HP) — PPE designed to reduce the intensity of sound reaching the worker's ear. These devices may be inserted in the ear canal or worn enclosing the ear. HP is rated by the amount of noise reduction the wearer may expect, Noise Reduction Rating (NRR).

6.3.7. Occupational Safety and Health Administration (OSHA) – Federal authority that develops and enforces regulations protecting worker health and safety.

6.3.8. Noise Reduction Rating (NRR) – A Noise Reduction Rating is given to all HP based on the amount of noise, in dB, that proper use of the equipment is expected to provide the wearer. These ratings are determined by laboratory tests and usually provide only 50% actual reduction as stated by the NRR.

6.3.9. Permissible Exposure Level (PEL) – Established by OSHA. A TWA of 90dBA measured over an 8-hour period; equivalent to a noise dose of 100% as defined in 29 CFR 1910.95. The PEL is adjusted for shorter or longer periods of exposure.

6.3.10. Personal Protective Equipment (PPE) – Equipment designed to be worn by a worker to protect against workplace hazards when engineering and administrative controls are inadequate or not feasible.

6.3.11. Standard Threshold Shift (STS) – A change in hearing acuity relative to a baseline audiogram that indicates an average of 10 dB or more at 2000, 3000, and 4000 Hertz in either ear.

6.3.12. Time-Weighted Average (TWA) – Cumulative exposure to hazardous agents in the workplace averaged over the duration of the work shift (usually an 8-hour time period).

6.4. RESPONSIBILITIES

6.4.1. Vice President of Safety – Responsible for periodic review and updating of the guidelines in this SOP as needed.

6.4.5. Foreman/Site Supervisor – Has the responsibility for the implementation of this policy, as required at each project site. They should be able to identify different types of project activities that are associated with high noise levels. They are also responsible for making appropriate hearing protection devices available to employees during high noise exposure activities and to enforce the correct use of these devices when required.

6.4.6. Employees – Observe all safety guidelines and wear hearing protection devices properly whenever required.

6.5. GUIDELINES

6.5.1. Exposure to high levels of sound can negatively impact the hearing of workers and put stress on other parts of the body. The two major factors influencing hearing loss are intensity (or loudness) and duration. OSHA limits worker exposure to noise to less than 90 dBA for an 8-hour day (PEL). As loudness increases, OSHA shortens the duration that workers can be exposed to that level of sound, as listed below in Table 1. When workers have to raise their voices to be heard over noise by someone 3 feet away, sound levels are likely to be over 85dBA.

6.5.2. Noise is classified as continuous, intermittent, or impact. Continuous noise has a constant level with duration of greater than one second. Intermittent noise may be the result of periodic

equipment operation or traveling in and out of high noise areas. Impact noise has a short duration, one second or less, with an interval greater than one second. Examples of impact noise are hammer blows (jackhammer, pile-driver) or explosions.

6.5.3. Initial hearing loss may be temporary. However, repeated noise exposure over a substantial length of time can produce permanent hearing loss. A person may not be aware of this noise-induced hearing loss since it occurs slowly over many years. Noise-induced hearing loss occurs due to the destruction of organs of the inner ear. This destruction cannot be corrected. To prevent hearing loss in workers, excessive noise sources must be removed or isolated, or exposure to the intensity or duration must be limited.

6.5.4. For PNT employees, exposure to high noise areas are currently only expected to occur on construction sites, at soil drilling or boring sites, during mechanical evaluations of facilities owned by others in conjunction with an engineering assignment, or during in-house building maintenance.

6.6. NOISE LEVEL EXPOSURES

6.6.1. OSHA Standard 29 CFR 1910.95 and 196.52 to protect employees working in conditions of excessive noise. The Standard specifies that:

6.6.1.1. Protection against the effects of noise exposure shall be provided when the sound levels and duration exceed those shown in Table 1.

6.6.1.2. When employees are subjected to sound levels exceeding those listed in Table 1, feasible engineering and/or administrative controls shall be utilized. If such controls fail to reduce sound levels to within the levels of the table, personal protective equipment shall be provided and used to reduce sound level exposures within the levels of the table.

6.6.2. Table 1 lists the OSHA Permissible Noise Levels for continuous and intermittent noise. Exposures at or above the limits require implementing engineering controls administrative controls and/or hearing protection.

Table 1
OSHA Permissible Exposure Limits (PEL) for Noise

Hours/day	DBA
12	87
10	88
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
□□0.25	115

6.7. NOISE MEASUREMENTS

6.7.1. Existing mechanical equipment maintained by PNT will have the adjacent noise levels identified utilizing an approved Sound Level Meter (SLM) and the results analyzed to determine if the requirements of this SOP apply. If regular exposure will occur, a dosimeter should be worn by affected employee during a full work shift to determine their noise dose, or the exact amount of noise they were exposed to which is averaged over time. While the SLM is best to identify areas or equipment where noise levels are high, the dosimeter is used to determine if an employee's exposure exceeds the OSHA PEL for noise.

6.7.2. Any records of noise measurements will be maintained for a minimum of 2 years.

6.7.3. If workers have to raise their voices over the surrounding noise to be heard by someone 3 feet away, it is an indication that sound levels are likely to be over 85 dBA. When this is observed, initial monitoring of the work area must be conducted and corrective action shall be implemented.

6.8. PARTICIPATION IN THE HEARING CONSERVATION PROGRAM

6.8.1. Workers who are exposed to noise equal to or exceeding the OSHA Action Level of 85 dBA (8- hour TWA) must be included in the Hearing Conservation Program. PNT employees who regularly work in the following operations or conditions would be included in this program:

- Working on construction sites, in close proximity to drilling, pile driving, or boring equipment

- Working on or near mechanical equipment identified as producing high noise levels

6.8.2. Employees who visit sites with the above operations or conditions on an infrequent basis or for short durations are less likely to be exposed to noise exceeding the OSHA AL. However, this does not prevent these employees from wearing hearing protectors to reduce their exposures.

6.9. AUDIOMETRIC TESTING PROGRAM

6.9.1. Participating employees will have a baseline audiogram established within six months of the employee's first exposure at or above the AL. Subsequent annual audiograms are compared to the baseline audiogram to determine if a standard threshold shift (STS) has occurred. Audiograms must be given after at least 14 hours without exposure to high noise levels.

6.9.2. The audiograms must be performed by a licensed or certified audiologist, otolaryngologist, physician or technician certified by the CAOHC. The results of the audiograms must be evaluated by an audiologist, otolaryngologist, or physician who will determine whether there is a need for further hearing evaluation.

6.9.3. If an annual audiogram indicates an STS has occurred, the employee shall be notified in writing within 21 days of the determination. A retest may be performed within 30 days to confirm the STS. When an STS occurs and is determined to be occupationally related, the employee must:

- Wear hearing protection and be trained in their use and care if not already wearing hearing protection
- Be refitted and retrained in the use of hearing protection offering greater attenuation if already using hearing protection.
- Be referred for further examination or additional testing, if appropriate, or if employer thinks ear pathology is related to wearing hearing protection.

6.9.4. An STS is considered an OSHA recordable incident.

6.9.5. PNT will offer audiometric testing free of cost to participating employees who perform the above identified risk job assignments. Audiometric testing records will be maintained by HR for the length of employment.

6.10. ENGINEERING AND ADMINISTRATIVE CONTROLS

6.10.1. OSHA requires that methods to reduce the noise through engineering controls must be considered first. Engineering controls for noise should be designed to reduce the production of noise at the source, interrupt the transmission of noise along a pathway from the source to the receiver, or attenuate the intensity at the receiver. Since most noise sources are equipment that is not owned or under the control of PNT and because of the nature of PNT fieldwork,

engineering controls are usually not feasible. PNT will consider noise reduction engineering controls for any equipment owned and operated by PNT.

6.10.2. Administrative controls are measures taken to limit the amount of time that an employee is exposed to high noise levels. This typically is done by rotating or moving employees between areas of high and low noise exposure, and/or controlling the operating duration of equipment producing excessive noise levels. This may be considered on some projects where PNT employees are available and are authorized.

6.10.3. Employees are also encouraged to distance themselves from noise producing equipment since this will reduce noise exposures.

6.11. HEARING PROTECTION DEVICES (HP)

6.11.1. When feasible engineering and administrative controls fail to reduce an employee's noise exposure to acceptable levels, the employee is inspecting high noise construction operations (pile driving or blasting), or as required by the FTL or Supervisor, personal protective equipment in the form of hearing protection (HP) devices must be used.

6.11.2. PNT will provide, at no cost to employees, a variety of HP for employees who may be exposed to high noise levels. At least one foam earplug, one pre-formed earplug, and one muff should be available for employees. Employees are encouraged to wear HP whenever they are in areas of high noise levels. Employees required to wear hearing protectors will be notified by the FTL/HSR or Supervisor for each project and it will be identified on the project H&S Checklist or HASP.

6.11.3. The goal is to select hearing protectors that will reduce the noise level below 90dBA. The effectiveness of hearing protection can be evaluated from its noise reduction rating (NRR). To determine the noise reduction a worker should receive from an earplug, divide the labeled NRR by 2 (i.e. earplug with NRR of 30dB, has a working attenuation of 15dB). Earmuffs provide a working attenuation approximately 75% of the labeled NRR (i.e. ear muff with NRR of 45 dB, has a working attenuation of 33dB). Hearing protection shall be re-evaluated in the event of a standard threshold shift.

6.12. TRAINING

6.12.1. Participating PNT employees will receive annual Hearing Conservation training as part of discipline specific training. This training shall be updated to be consistent with changes in the PPE and work process and will include the following:

- The effects of noise on hearing

- The purpose of hearing protection devices, various types available, selection, fitting, use, and care of hearing protection devices
- The purpose of audiometric testing and an explanation of test procedures
- Typical noise levels of various equipment and operations and identifying high noise environments

6.13. RECORDKEEPING

6.13.1. Audiometric testing records will be maintained by as medical records for the length of employment.

6.13.2. Hearing Conservation Training records will be maintained by for a minimum of three years. Noise measurement records will be maintained for a minimum of two years.

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Heat Illness Prevention		Prepared by: Todd Harvey	
		Document Location:	

7.1. PURPOSE

7.1.1. To establish procedures for the implementation and monitoring of a heat stress prevention program and to describe symptoms that characterizes excessive exposure to heat environments.

7.2. SCOPE

7.2.1. These guidelines apply to all PNT employees who may be exposed to warm environments exceeding 70 degrees Fahrenheit while performing work in impervious personal protective equipment (Level C and B) or in hot environmental conditions exceeding 80 degrees Fahrenheit for normal (Level D) work. The heat index (combination of heat and humidity) is more effective at determining the true heat load on the body.

7.3. DEFINITIONS

7.3.1. Acclimatization – Acclimatization is the process of the body becoming accustomed to extremes in temperature.

7.3.2. ACGIH Heat Stress Threshold Limit Values (TLVs) – Limits intended to protect workers from the most severe effects of heat stress and heat injury and to describe exposures to hot working conditions under which it is believed that nearly all workers can be repeatedly exposed without adverse health effects. The TLV objective is to prevent the deep body core temperature from exceeding 38C (100.4F).

7.3.3. Personal Protective Equipment Levels (A, B, C, D) – Personal protective equipment (PPE) levels are defined in the OSHA Hazardous Waste Operations and Emergency Response standard (1910.120). Level D PPE is equivalent to normal working clothing and PPE needed on a construction site (i.e. Hardhat, safety shoes, safety glasses, and work clothing). Level C provides minimal protection from chemicals with a protective suit (Tyvec® or chemical coated suit) and an air-purifying respirator. Level B provides a higher level of protection for respiratory hazards by the addition of an air-supplied respirator. Level A provides the highest amount of respiratory and skin contact protection with supplied air respirator and a fully encapsulated outer suit.

7.3.4. Work-Rest Regimen – Defined as a ratio of time spent working versus time spent resting. The ratio applies to one-hour periods. For example, a work-rest regiment of 75% work, 25% rest corresponds to 45 minutes work and 15 minutes of rest each hour.

7.4. RESPONSIBILITIES

7.4.1. Vice President of Safety – Responsible for periodic review of the guidelines in this policy.

7.4.2. Foreman/Site Supervisor– Responsible for establishing procedures to identify and prevent heat stress conditions. They will determine if work-rest regime is needed and will enforce prevention methods outlined in this SOP. They shall take personal factors into consideration before assigning a task.

7.4.3. Employees – Employees will be alert to signs and symptoms of heat stress for themselves and their co-workers. Employees must also be aware of emergency actions to take in the event of harmful exposure to hot environments.

7.5. GUIDELINES

7.5.1. Control Strategies for Heat Stress

7.5.1.1. Acclimatization to heat involves a series of physiological and psychological adjustments that occur in an individual during the first week of exposure to hot environmental conditions. The work – rest regimen in this procedure is valid for acclimated workers who are physically fit.

7.5.2. Effects of Heat Stress

7.5.2.1. Hot weather can cause physical discomfort, a decrease in work efficiency, and personal injury. Wearing personal protective equipment may put a worker at considerable risk of developing heat stress due to the decrease in natural body ventilation.

7.5.2.2. A number of interacting factors, including environmental conditions, clothing, workload, and the individual characteristics of the worker cause heat stress. Heat stress is one of the most common (and potentially serious) illnesses at hazardous waste sites. Therefore, heat stress evaluation procedures, including regular monitoring and preventive measures, are essential to the health and safety of personnel conducting fieldwork

7.5.2.3. Early symptoms of heat stress may include fatigue, irritability, anxiety, and decreased concentration, dexterity, or movement. If not recognized or treated, heat stress may become a serious medical condition.

7.5.2.4. Heat related problems include:

- Heat Rash is caused by continuous exposure to hot and humid air and aggravation of the skin by chafing clothes. This decreases the ability to tolerate heat as well as being a nuisance.
- Heat Cramps are caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts). Signs and symptoms of heat cramps include muscle cramps and pain in the extremities and abdomen.
- Heat Exhaustion is caused by increased stress on various organs to meet increased demands for body cooling. Signs and symptoms of heat exhaustion include shallow breathing; pale, cool, moist skin; profuse sweating; dizziness; or fatigue.
- Heat Stroke is the most severe form of heat stress. Heat stroke is considered an Immediately Dangerous to Life or Health (IDLH) condition and must be treated as an emergency. Any person suffering from heat stroke must be cooled down immediately and brought to a hospital. Signs and symptoms of heat stroke include red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; or coma.

7.5.2.5. It is important to note that individuals vary in their susceptibility and their reactions to heat related conditions. Factors that may predispose someone to a heat stress condition include:

- Lack of physical fitness
- Lack of acclimatization
- Age
- Dehydration
- Obesity
- Alcohol and drug use
- Infection
- Sunburn
- Diarrhea
- Chronic disease

7.5.3. First-Aid/Medical Treatment

7.5.3.1. The following first aid and medical treatments are recommended.

- Heat Rash – Apply mild drying lotions and recommend wearing clean, dry clothing between heat exposures.
- Heat Cramps – Administer commercially available electrolyte-balanced liquids (e.g. Gatorade) or water. Increase rest breaks until acclimatized. Seek medical attention if serious

- Heat Exhaustion – Remove to cooler environment, rest in reclining position. Drink plenty of fluids. Seek medical attention if no improvement.
- Heat Stroke – Immediate and rapid cooling by immersion in water (not ice) with massage, or wrapping in a wet sheet and fanning. Avoid overcooling. These steps are to be taken while waiting for emergency response to arrive, or while transporting the victim to an emergency medical facility. This is a LIFE-THREATENING situation.

7.5.4. Heat Stress Prevention

7.5.4.1. One or more of the following can help prevent or reduce heat stress

- Drinking water will be available to the workers to encourage frequent small drinks, i.e., one cup every 15-20 minutes (about 150 ml or 1⁄4 pint).
- The water should be kept reasonably cool (55-60 F) and be stored outside any suspected or identified contaminated areas.
- Workers will be encouraged to maintain well balanced diets. If workers are notacclimatized, a commercially available product such as Gatorade or Exceed maybe used for electrolyte replacement.
- Cooling devices may be used to aid natural body ventilation. These devices, however, add weight, and their use should be balanced against worker efficiency.
- Long cotton underwear should be worn. It acts as a wick to help absorb moisture and protect the skin from direct contact with heat absorbing protective clothing.
- Provide air-conditioned shelter or shaded areas to protect personnel during rest periods.
- Install mobile showers and/or hose down facilities to reduce body temperature and cool protective clothing
- Conduct operations in the early morning or evening.
- Rotate shifts of workers. Add additional personnel to work teams to allow for breaks in extreme heat conditions. Work-rest regimens should be instituted.
- Mandate work slowdowns in extreme heat conditions.
- Good hygienic standards must be maintained by recommending frequent change of clothing and daily showering. Clothing should be permitted to dry during rest periods.

7.5.5. Heat Stress Monitoring

7.5.5.1. In some extreme cases where employees may be required to wear PPE that will increase the potential for heat related illnesses, biological monitoring may be needed. In these cases, a heat

alert will be developed and written into the site-specific HASP for the project. The specifics of the plan will be described in the HASP since each site will have specific needs.

7.6. TRAINING

7.6.1. Supervisors shall be trained in preventing heat related illnesses prior to supervising employees.

7.6.2. PNT employees, who may be exposed to heat conditions, will receive training conducted as part of discipline specific training in safe work practices for heat stress. The training will include the following:

7.6.2.1. Supervisors shall be trained in hot weather procedures. The training shall include as a minimum, instruction in:

- Proper emergency response procedures and appropriate first aid treatment.
- Proper clothing practices.
- Proper eating and drinking habits.
- Recognition of impending heat exhaustion.
- Recognition of signs and symptoms of impending heat stroke.

  Safe work practices.

	PNT Consulting Safety and Health Manual	Doc No:	SOP-MSFT-43
		Initial Issue Date	2/15/16
		Revision Date:	4/1/17
AERIAL & BOOM LIFT SAFETY		Prepared by: Todd Harvey	
		Document Location:	

1. *Purpose*
2. Application of professional and safety principles regarding compliance with workplace rules and regulations and codes as set at the Local/State/Federal level.
3. *Scope*
4. Safe operating procedures and training requirements for operation of aerial and boom lifts on all PNT projects.
5. *Definitions*
6. None.
7. *Responsibilities*
8. Employees
9. *Before Operating an Aerial & Boom Lift:*
   - *9.1. Employees shall be trained and authorized to operate the equipment.*
   - *9.2. Check operating and emergency controls, both in the bucket and on the unit itself.*
   - *9.3. Check safety devices such as alarms, outriggers and guardrails*
   - *9.4. Check that personal fall protection in good condition and can properly connect to the designated anchor point within the basket.*
   - *9.5. Check the wheels and tires for proper inflation and/or other damage.*
   - *9.6. Check for possible leaks (hydraulic, air, fuel) NEVER check for hydraulic leaks with your hand.*
   - *9.7. Check where the lift will be used. Look for a level surface that will not shift. Check the slope of the ground or floor.*
   - *9.8. Check for hazards such as holes, drop-offs, bumps, and debris and overhead power lines.*
10. *Set outriggers, brakes and chock wheels even if you are working on a level surface.*
11. *Using the Aerial Lift*
    - *11.1.Always close lift platform chains or doors.*
    - *11.2.Stand on the floor of the bucket or lift platform. DO NOT climb or lean over the guardrails.*
    - *11.3.Do not exceed the manufacturer's load capacity limits.*
    - *11.4.Non electrical workers working in the aerial lift MUST stay a minimum of 10' away from any electrical line/hazard.*
    - *11.5.Modifications to the equipment shall not be made without written approval from the manufacturer.*
12. *D. Preventing falls*
13. *OSHA requires either a full body harness or a positioning device on aerial boom lifts. PNT requires the full body harness for all lifts inclusive of boom, aerial and scissors lifts.*
14. *E. To Prevent Tipovers*
15. *Always read/review manufacturer's instructions pertaining to prevention of tipovers of the aerial lift.*
16. *Do not drive with the lift platform elevated.*
17. *Do not exceed vertical or horizontal reach limits or the specified load capacity of the lift.*
18. *On an elevated lift, avoid too much pushing/pulling.*

19. *F. Training*
20. *OSHA requires a qualified person must train all users of the aerial lift. (OSHA defines a qualified person as having extensive knowledge, training, and experience can solve problems related to the subject matter.).*
21. *The training must include*
22. *Any electrical, fall , and falling-object hazards*
23. *Procedures for dealing with hazards*
24. *How to operate the lift correctly (including maximum intended load and load capacity).*
25. *The user MUST demonstrate that he/she knows how to use the lift.*
26. *Manufacturer requirements*
27. *If the hazards change or the type of aerial lift changes, or a worker is not operating the lift properly, workers must be retrained.*
28. *The aerial lift must be inspected as the manufacturer requires (every 3 months or after 150 hours of use, whichever comes first).*
29. *The owner must do a detailed annual detailed inspection as required by the manufacturer.*
30. *G. Rental Lifts (The rental company should)*
    30.1.Be sure the lift is properly inspected and serviced by the rental company before taking possession.
    30.2.Provide operator and maintenance manuals and maintenance history
    30.3.Make sure the operator controls are easy to reach and properly marked.
31. *H. NEVER modify an aerial lift without the permission of the manufacturer.*
    31.1.1. ONLY use the aerial lift under the conditions in which the manufacturer says it can be operated in safely
32. *J. ALWAYS wear proper fall protection when operating any lift on a PNT job.*

	PNT Consulting Safety and Health Manual	Doc No:	SOP-MSFT-44
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Hand and/or Power Tools		Prepared by: Todd Harvey	
		Document Location:	

8.1. PURPOSE

8.1.1. The purpose of this guideline is to provide safe procedures for the use of hand and power tools.

8.2. SCOPE

8.2.1. This SOP applies to PNT personnel who may be required to use hand or power tools for work activities.

8.3. DEFINITIONS

8.3.1. Ground Fault Circuit Interrupter (GFCI) – A Ground Fault Circuit Interrupter (GFCI) is a device to protect against electric shock should someone come in contact with a live wire and a path to ground which would result in a current through his/her body. The GFCI operates by sensing the difference between the currents in the hot and neutral conductors.

8.3.2. Hand Tool – A tool that is manually powered.

8.3.3. Power Tool – A tool that is powered electrically, pneumatically, hydraulically, solid fuel or by liquid fuel. Power tools may be portable or permanently installed.

8.4. RESPONSIBILITIES

8.4.1. Corporate Safety Advocate (CSA) – The CSA is responsible for periodic review of the guidelines in this SOP and updating them as needed.

8.4.2. Human Resources (HR) – HR is responsible for maintaining training records

8.4.3. Foreman/Site Supervisor – The Foreman/Site Supervisor is responsible for coordinating training and personal protective equipment in compliance with this program. Foreman/Site Supervisors must maintain awareness of, and enforce, safety procedures and are responsible for implementing or recommending disciplinary action, if warranted. They also have the authority to stop work conducted by PNT employees and subcontractors if they believe a dangerous condition is present.

8.4.3.1. The Foreman/Site Supervisor will support field activities by providing local authority and reporting structure. The Foreman/Site Supervisor may not be on a site but can provide guidance and assistance with assessing hazards and resources for controlling those hazards. Foreman/Site Supervisor is responsible for orienting new employees to the PNT H&S Program, scheduling refresher training, reporting accidents, and documenting safety complaints and actions taken.

8.4.3.2. The Foreman/Site Supervisor will be responsible for the review of H&S Checklists and Site-Specific HASP on a periodic basis and will provide assistance in determining required controls. The Foreman/Site Supervisor is responsible for reviewing Field Inspections and documented identified deficiencies including corrective action plans.

8.4.4. Employees – PNT employees are responsible for complying with the requirements of this program, using required PPE properly, and following applicable safety procedures.

8.5. GUIDELINES

8.5.1. In general, PNT employees will:

- Be trained in the proper use of tools
- Maintain tools in good, safe working condition
- Use the right tool for the job
- Inspect tools for damage/defects prior to use
- Immediately remove damaged/defective tools from service. Tag the damaged/defective equipment as such and cut power cord if it is not possible to lock out the controls.
- Verify that safety mechanism/guards are in place prior to use
- Operate tools in accordance with manufacturer's' instructions
- Use required PPE properly

8.5.2. Hand Tools

8.5.2.1. PNT employees may be required to use a variety of hand tools, including but not limited to hammers, screwdrivers, machetes, and brush axe and box knives. Hand tools will be inspected regularly for damage and defects.

8.5.3. Cutting Tools

8.5.3.1. Inspection

- Handle (securely attached to blade, free of splintering or cracks)
- Blade (sharp, free of nicks)

8.5.3.2. Use & handling

- Cut away from oneself and other people
- Cover cutting blades during transport
- Do not carry unprotected cutting tools in pockets or backpacks
- Store cutting tools with blade points/edge down or in leather sheaths

8.5.4. Impact Tools

8.5.4.1. Inspection

8.5.4.1.1. Handle (securely attached to head, free of splintering or cracks)

8.5.4.1.2. Head (not mushroomed, free of cracks)

8.5.4.2. Use

8.5.4.2.1. Keep hands and fingers clear of the strike area

8.5.4.2.2. Check that the swing is clear

8.5.4.2.3. Gloves and glasses are required to be worn during use of impact tools

8.5.5. Hand tools with special safety properties may be required in some situations.

8.5.5.1. Non-sparking hand tools in potentially flammable atmospheres

8.5.5.2. Electrically insulated tools when working on or near energized electrical equipment

8.5.6. Electric Power Tools

8.5.6.1. Portable Electric Power Tools

8.5.6.1.1. Portable electric power tools must be double insulated or grounded. Only power tools approved by an accredited testing laboratory such as UL, ETL, or CSA are permitted. Equipment that does not meet these requirements must be tagged as such with the controls locked – if it is not possible to lock out the controls, the power cord to this equipment must be cut.

8.5.6.1.2. Inspection

8.5.6.1.2.1. Damaged or defective power tools will be removed from service immediately and disposed of or repaired, as appropriate. Tag the damaged/defective equipment as such and cut power cord if it is not possible to lock out the controls.

8.5.6.1.2.2. Housings will be inspected for cracks, holes, or other damage

8.5.6.1.2.3. Check power cords for loose parts, damaged plugs including missing ground pins, damaged insulation, and pinched or crushed outer jacket which may indicate internal damage.

8.5.6.1.3. Use

8.5.6.1.3.1. Power cords will be handled to prevent damage during use, transportation, or storage.

8.5.6.1.3.1.1. Power cords are not to be used for raising, lowering or carrying equipment or tools

8.5.6.1.3.1.2. Do not secure cords with staples or by any means that may result in damage to the cord

8.5.6.1.3.1.3. Do not run cords in areas with pedestrian or vehicle traffic; across or through doorways; under carpets; or through windows. If cords must be placed in any of these locations, they must be protected from damage with an appropriate cord runner or other safety device

8.5.6.1.3.1.4. Do not knot, crush, or kink cords

8.5.6.1.3.1.5. Do not place cords in contact with hot or sharp objects.

8.5.6.1.3.1.6. When equipment is in use, cords should not be covered, coiled, or compressed in any way

8.5.6.1.3.1.7. Disconnect equipment by grasping and pulling the plug, not the cord

8.5.6.1.4. Prior to connection, check power cord plugs and receptacles to confirm compatibility. Incompatible plugs and receptacles will not be connected. Altering incompatible plugs (e.g. removing ground pins) or receptacles or using adapters is strictly prohibited

8.5.6.1.4.1. Power tools and extension cords used in wet areas must be approved for use in those locations and must have GFCI protection

8.5.6.1.4.2. Workers' hands must be dry when connecting or disconnecting power tools.

8.5.6.2. Permanently Wired Electric Power Tools

8.5.6.2.1. Electric power tools that are permanently wired are typically used for routine industrial tasks. This may include but are not limited to:

- Lamps and measuring instruments
- Drill presses

8.5.6.2.2. In all instances, connecting equipment and tools to power mains must be performed by a licensed electrician.

8.5.6.2.3. Permanently wired equipment and tools will be inspected prior to use. If equipment is found to be defective or damaged, it should be tagged as out of service and not used until repaired or replaced. Repair and maintenance of permanently wired equipment should be conducted using appropriate lockout methods by trained individuals.

8.5.6.3. Ground Fault Circuit Interrupters (GFCIs)

8.5.6.3.1. GFCIs are required when power tools are operated:

- Within three feet of a water source or in wet conditions
- Connected to extension cords
- Used outdoors
- On construction sites

8.5.6.3.2. GFCI equipment will be tested on a periodic basis (i.e. monthly) and replaced if defective.

8.5.7. Gasoline Powered Tools

6.5.7.1. Gasoline powered tools may include brush clearing and demolition equipment (chainsaws, jackhammers). Some gas powered tools use gasoline, while others use a gasoline/oil mixture. Consult the manufacturer for fuel requirements prior to fueling.

8.5.7.2. Gas powered tools should be used in well ventilated areas only due to potential buildup of exhaust gases (i.e. carbon monoxide). If a gas powered tool must be used in an enclosed space, air monitoring and/or respiratory protection may be required.

8.5.7.3. Prior to making adjustments, cleaning, or performing maintenance or repairs, gas powered tools will be powered off.

8.5.7.4. Gas powered tools can generate a high level of noise. Hearing protection should be worn when operating these tools.

8.5.7.5. Gas powered tools can also vibrate, which can lead to injury over time. To minimize vibration exposure, PNT FP should:

- Choose tools with effective, proven anti-vibration features
- Keep tools properly maintained
- Limit the amount of time using the tool
- Take frequent breaks
- Grip the handles only as tightly as necessary to control the tool
- Avoid using tools on the highest speed or throttle

8.5.7.6. Fuel Storage and Handling

8.5.7.6.1. Gasoline will be stored in approved containers and will be handled and transported according to proper procedures for flammable liquids. Containers should be equipped with a funnel or flexible hose for fueling operations.

8.5.7.6.2. Fueling operations will be conducted in well ventilated areas at least 10 feet from any source of ignition. Smoking is prohibited during fueling operations.

8.5.7.6.3. During fueling operations, gasoline powered tools will be:

- Powered off and cool
- Properly grounded and bonded to the fuel container

8.5.7.6.4. After fueling is completed, wipe any spilled fuel from the tool.

6.5.7.6.5. Move to a different location prior to starting the tool.

8.5.7.7. Maintenance and Servicing

8.5.7.7.1. Gas powered tools will be serviced and maintained in accordance with the manufacturer's requirements. Services and repair will be conducted by manufacturer authorized personnel.

8.5.7.8. Chainsaws

8.5.7.8.1. Operating a chainsaw is an inherently highly dangerous activity and it is unlikely that PNT personnel will be required to do so. Only PNT personnel who have the approval of the CSA and BU Manager and who have been properly trained in safe work practices and requirements are authorized to operate a chainsaw.

8.5.7.8.2. PPE is required when operating a chainsaw, including but not limited to:

- Hardhat
- Hearing protection
- Face shield

- Safety glasses
- Hand protection
- Safety shoes
- Chaps added

8.5.7.8.3. Before starting a chainsaw:

- Inspect it for damage
- Verify that required safety guards and equipment are installed and functioning properly
- Check controls, chain tension, bolts, and handles for proper functioning and adjustment, per the manufacturer's requirements
- Check that handles are clean and firmly attached
- Verify that the chain is sharp and properly lubricated
- Clear away dirt, debris, small tree limbs, and rocks from the cutting path
- Check trees for nails, spikes, or other metal objects
- Make sure you have well fitted (not loose) clothing

8.5.7.8.4. The specific safe operating requirements vary based on the model and features of a chainsaw. For full operating instructions, consult the manufacturer or the user's operators manual. In general, when operating a chainsaw:

- Never drop start a chainsaw
- Maintain secure footing and balance
- Keep both hands on the saw's handles at all times
- Stand out of the plane of the cutting chain and guide bar
- Keep the saw at or below shoulder height
- Keep body parts clear of the saw
- Do not allow other people in the work area
- Do not force or put excess pressure on the saw
- Avoid cutting branches that are under tension
- Engage the chain brake or shut the saw off when carrying it

8.5.7.8.5. Safety Features

8.5.7.8.5.1. Chainsaws should be equipped with at least two separate anti-kickback features. Keep in mind that while these features greatly reduce the risk of kickback they cannot completely eliminate it. Proper handling and use of the chainsaw also helps reduce the risk.

8.5.7.8.5.2. Chainsaws should also be equipped with:

- Front hand guard/Chain brake

- Chain catcher
- Safety throttle

8.6. TRAINING REQUIREMENTS

8.6.1. PNT employees who will use hand and/or power tools will receive training in their proper use. The training will include PPE requirements, inspection procedures, safe use and procedure for removing a tool from service.

	PNT Consulting Safety and Health Manual	Doc No:	SOP-MSFT-45
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Subcontractor Management Plan		Prepared by: Todd Harvey	
		Document Location:	

9.1. PURPOSE

9.1.1. The purpose of this Subcontractor Policy is to ensure that all subcontractors working on behalf of PNT on PNT projects are meeting or exceeding the policies, procedures and training requirements outlined in the PNT Corporate Safety Manual.

9.2. SCOPE

9.2.1. This procedure applies to subcontractors who have contracted with PNT to perform services on PNT project sites.

9.3 PRE-QUALIFICATION

9.3.1 To be considered a bid candidate all subcontractors shall submit the following information to the PNT Project Team for review:

- Safety Program
- Safety Training documents
- Safety/Insurance statistics
    - TRIR
    - EMR
    - DART
    - Previous OSHA citations

9.3.2 PNT may request additional information at any time from the subcontractor in order to comply with information requests from other entities involved in the project.

9.4 RESPONSIBILITIES

9.4.1. Vice President of Safety – Responsible for periodically reviewing these guidelines and updating this SOP as needed.

9.4.2. Human Resources (HR) – Human Resources is responsible for administrating the medical surveillance program required by this SOP in accordance with PNT Corporate Health and Safety Program. HR is also responsible for maintaining some of the required records including training records.

9.4.3. Safety Manager – The Safety Managers are responsible for providing appropriate resources in personnel and equipment required to complete these operations safely. They are also responsible for making available required training to affected employees.

9.4.4. Foreman/Site Supervisor – Has the primary responsibility for implementing and enforcing the elements of this SOP and the Site- Specific Safety Plan on any PNT site designated as a hazardous waste site. Due to the complexity of the safety requirements on most hazardous waste sites, it is recommended that an HSR be designated to handle coordination of the PNT Safety Plan with other contractors on the site and the daily safety responsibilities. This individual will verify that all employees working on hazardous waste sites have been trained in accordance with this SOP prior to assignment to these duties.

9.4.5. Employees – All employees working at a hazardous waste site and PNT visitors must comply with the requirements of this SOP including: site zones, decontamination, air monitoring, proper PPE use, and training.

GUIDELINES

9.5 SUBCONTRACTOR RESPONSIBILITIES

9.5.1 All subcontractors are required to participate in pre-construction/ kick-off meetings in which the PNT project team will review the follow; safety, logistics, and scope of work.

9.5.2 All subcontractors shall conduct weekly toolbox talks and submit sign in sheets to the PNT Superintendent.

9.5.3 All subcontractors shall submit a Job Hazard Analysis (JHA) to the PNT Superintendent prior to performing any unique and/or non-routine tasks.

9.5.4 All Subcontractors shall perform at least one documented safety inspection per week.

9.5.5 All subcontractors shall participate in a post job performance review meeting prior to de-mobilizing from the project.

9.6. GENERAL

9.6.1. It shall be the responsibility of all Subcontractors and its lower tier sub-subcontractors to initiate and maintain such programs as may be necessary to comply with requirements set forth by the Occupational Safety and Health Administration and any other local, state and federal regulations.

9.6.2. Subcontractors shall be required to designate in writing, on company letter head and signed by an authorized company representative qualified and competent persons to supervise the work.

An onsite safety representative will also be designated to administer its own site safety program. These competent persons shall be knowledgeable in safety, health, environmental protection, fire protection and must have a thorough knowledge of the trade activity and equipment, either through years of experience in the designated field, formal education and/or specialized training. These individuals shall be on site at all times the Subcontractor is performing work. The term "competent person" for purposes of this document means a person who is capable of recognizing and evaluating employee exposure to hazardous substances or to other unsafe conditions, has the authority and is capable of specifying the necessary protection and precautions to be taken to ensure the safety of employees as required by the particular regulation under the condition to which it applies.

9.6.3. Prior to commencement of work on the project, the Subcontractor shall submit, for review and acceptance, the history of experience and qualifications for the persons who will supervise the Subcontractor's site safety functions.

9.6.4. Prime Subcontractors with more than 15 personnel assigned to the project will be required to provide the following:

9.6.4.1. An on site competent person (supervisor) with five (5) years construction experience (as a minimum), and

9.6.4.2. An on site safety representative with five (5) years construction experience, has completed the OSHA 10 hour construction safety course, and maintains a current certification in first aid.

9.6.5. Frequent and regular inspections of the jobsite shall be made by a competent, onsite, safety representative designated by the Subcontractor. Unsafe acts and/or conditions noted during inspections shall be corrected immediately. The Subcontractor's safety representative shall be responsible for holding weekly safety meetings including pre-task planning with his employees and subcontractors. These weekly meetings shall be documented, with copies maintained at the project and a copy forwarded to the Contractor's site Superintendent.

9.6.6. The Subcontractor shall instruct each employee onsite in the recognition and avoidance of unsafe acts and/or conditions applicable to their work environment to control and/or eliminate injury or illness. Subcontractors shall insure that each of their employees working on the site has been informed about, and understands, all of Contractor's safety warnings, signs, policies, and procedures. In the event that any of the Subcontractor's employees cannot speak or understand English, the Subcontractor shall be responsible for providing an interpreter, who will be available at all times while such non-English speaking employees are on the site. In order to insure the safety of such employees, Contractor shall have the right to restrict the work of the

non-English speaking employee until the Subcontractor's interpreter is present. Every person working on a Contractor site must attend a site-specific orientation meeting. Each Subcontractor must provide a translator at the orientation for its non-English speaking employees.

9.6.7. The Subcontractor is responsible for providing, requiring the use of, and training of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions (i.e., gloves for handling material). All records shall be made accessible to Contractor upon request.

9.6.8. The Subcontractor is responsible for notifying Contractor of any hazardous chemicals or substances that they bring or cause to have brought onsite. The Subcontractor shall maintain a copy of all chemical MSDS's in their on site files and provide Contractor with a copy of the Material Safety Data Sheet of chemicals they anticipate bringing on site. MSDS's shall be forwarded for review prior to any chemicals being brought to the site. The legal storage, use, and disposal of waste of any hazardous chemicals or substances are the sole responsibility of the Subcontractor.

9.6.9. The Subcontractor shall comply with all fire and safety rules and regulations established on the Project and is responsible for a fire protection and prevention program conforming to OSHA and NFPA standards for all its work (i.e., hot work). The project is requiring adequate fire watch protection provided by the hazard-creating Subcontractor. At a designated time in the project, (when open flames or sparks are present) the PNT Consulting llc. Superintendent will require the Subcontractors to participate in a hot work permit program.

9.6.10. OSHA standards will serve as the minimum safety requirements for the project. Any site safety regulation that exceeds the minimum standards established by OSHA shall be incorporated in the individual Subcontractor's on-site safety program.

9.6.11. Clothing Requirements

9.6.11.1. Shirts with a minimum of a 4" sleeve shall be worn at all times. Sleeveless shirts and tank tops are not permitted.

9.6.11.2. Long work pants are required. Nylon warm-up suits are not allowed in the construction areas.

9.6.11.3. Sandals, tennis shoes, or any other soft cloth, and nylon shoes will not be permitted. Substantial work boots are required.

9.6.11.4. Loose fitting clothes or jewelry shall not be worn around moving machinery, grinding operations, etc.

9.6.11.5. Hair that could come in contact with, or be caught in machinery shall be protected by a hard hat or hair net.

9.6.11.6. Jewelry shall not be worn around live electrical circuits or during testing of energized equipment.

9.6.12. Personal Protective Equipment

9.6.12.1. Approved hard hats meeting specifications contained in American National Standards Institute, Z89.2-1971, shall be worn with the bill to the front.

9.6.12.2. Employees shall wear approved ANSI Z87.1-1979 safety glasses with side shields in all work areas except offices. Additional eye and/or face protection, such as goggles, face shields, and welding shields will be required at all times when engaged in operations such as welding; burning; grinding; chipping; handling chemicals, corrosive liquids, or molten materials; drilling; and pouring concrete.

9.6.12.3. OSHA approved hearing and respiratory equipment shall be worn when required. The Subcontractor shall ensure the selection, fitting, and maintenance requirements of OSHA are in compliance.

9.6.12.4. All employees shall wear safety harnesses when working six feet or more above the ground, when no other type of fall protection is provided. The lanyard shall be securely attached 100% of the time and shall allow a maximum fall distance of six feet. Safety harnesses shall also be worn when working out of extensible and articulating boom platforms or suspended scaffolding. Subcontractors planning to use a fall protection system that will not comply with the 100% fall protection rule must submit a detailed fall protection plan for review prior to starting work on site.

9.6.12.5. Safety nets shall be provided when work places are more than six (6) feet above the ground, where the use of other fall protection devices is impractical.

9.6.13. Signs, Signals, Impalement Protection and Barricades

9.6.13.1. Signs, signals, impalement protection and barricades shall be erected by the contractor that created the hazard and be visible at all times, where a hazard exists.

9.6.13.2. Signs, signals and barricades shall be removed when the hazard no longer exists.

9.6.14. Hand and Power Tools

9.6.14.1. All hand and power tools, whether furnished by the employer or by the employee, shall be maintained in a safe condition and inspected monthly by a competent person.

9.6.14.2. Subcontractors shall not issue nor permit the use of unsafe hand or power tools.

9.6.14.3. Electric power tools shall be either double insulated or grounded.

9.6.14.4. Pneumatic power tools shall be secured to the hose or whip by some positive means.

9.6.14.5. Only properly trained employees shall operate powder-actuated tools. Training records/cards, or equivalent documentation shall be maintained by the Subcontractor on site for each employee using powder-actuated tools.

9.6.14.6. All grinding machines shall conform to all OSHA and ANSI requirements. Side grinders shall be used with the guards in place.

9.6.14.7. Cords, leads and hoses shall not be placed in paths of egress. If this cannot be avoided, they shall be placed along the edge of the egress or kept off the ground at least seven (7) feet or whatever height is necessary to avoid an egress hazard.

9.6.15. Compressed Gas Cylinders

9.6.15.1. Compressed gas cylinders shall be secured in an upright position at all times. Location of cylinder storage areas will be reviewed with Contractor Superintendent prior to storage.

9.6.15.2. When transporting, moving, and storing gas cylinders, valve protection caps shall be in place and secured.

9.6.15.3. Cylinders shall not be hoisted by magnets or choker slings. Valve protection caps shall not be used for hoisting cylinders.

9.6.15.4. Cylinders shall be kept away from sparks, hot slag, and flames or otherwise be adequately protected.

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

9.6.15.6. Cylinders shall be labeled as to the nature of their contents.

9.6.15.7. Oxygen cylinders in storage shall be separated from fuel gas cylinders or combustible materials a minimum of 20 feet, or by noncombustible barrier at least five (5) feet high having a fire resistant rating of at least one-half hour. Empty cylinders shall be segregated from full cylinders.

9.6.15.8. "No Smoking" signs shall be posted at storage areas and signs shall clearly indicate contents of cylinders.

9.6.15.9. Anti-flash back valves are required on all oxygen and acetylene lines.

9.6.16. Scaffolds

9.6.16.1. All scaffolds will be erected, used, and dismantled under the supervision of a trained and competent person. Evidence of all training must be available on site. All Subcontractors will strictly adhere to CFR 1926 subpart L, Scaffolds. Scaffolds must be inspected daily and appropriately tagged.

9.6.17. Rigging Equipment

9.6.17.1. Rigging equipment shall be inspected by a designated competent Subcontractor employee prior to initial use on the project and monthly thereafter to ensure that it is safe. Records shall be kept onsite of each of these inspections by the Subcontractor, and shall be made available to Contractor upon request.

9.6.17.2. Damaged rigging equipment shall be removed from service and tagged immediately.

9.6.17.3. Only trained and experienced personnel will perform rigging.

9.6.17.4. Subcontractor shall provide its competent employee's name's to Contractor along with their qualifications and training.

9.6.18. Cranes and Derricks

9.6.18.1. All cranes and derricks brought on site will have a current annual inspection (in the rig) with all defects corrected, including up-to-date inspections of all hooks as may be appropriate per OSHA standards. A copy of the equipment's annual inspection will be provided and reviewed by the Contractor's Project Safety Manager prior to use on the site.

9.6.18.2. These records shall be maintained on site and made available to Contractor prior to the employee starting work on site.

9.6.18.3. The swing radius of the crane counterweight shall be barricaded.

9.6.18.4. Hand signals prescribed by ANSI shall be posted at the operator's station.

9.6.18.5. Manufacturer's specifications shall be observed.

9.6.18.6. Equipment shall not be operated where any of the equipment or load will come within 10 feet of electrical distribution or transmission lines of 125,000 volts and 25 feet for greater than 125,000 volts.

9.6.18.7. Equipment shall not be refueled or lubricated while in use.

9.6.18.8. Rated load capacities, recommended operating speeds, specific hand signal diagram and special instructions shall be visible to the operator while he is at the control.

9.6.18.9. Employees shall not be allowed to work under the load of cranes. The boom swing radius shall be barricaded or a flag person posted to prevent swinging loads over personnel.

9.6.18.10. Cranes and derricks will be inspected prior to use and at monthly intervals. The Subcontractor will maintain inspection records onsite and copies shall be made available to Contractor by the Subcontractor upon request.

9.6.18.11. Subcontractor to review procedures for critical lifts with Contractor prior to the lift. Critical lifts exist when one or more of the following occur: a lift requires more than one crane; a lift is over 75% of the manufacturer's recommended lift capacity, or anytime the lift will be outside the manufacturer's recommended operation.

9.6.19. Equipment and Motor Vehicles

9.6.19.1. All equipment must be inspected daily before use by the operator. Formal inspections must also be made at 30-day intervals with proper documentation maintained onsite by the Subcontractor and copies shall be made available to Contractor upon request.

9.6.19.2. Defective equipment shall be repaired or removed from service immediately.

9.6.19.3. All rubber-tired, self-propelled scrapers, rubber-tired, front-end loaders, rubber-tired dozers, wheel-type agricultural and industrial tractors, crawler tractors, crawler-type loaders and motor graders shall be equipped with rollover protective structures and seat belts. Seat belts must be used at all times while operating this equipment.

9.6.19.4. All operators of construction equipment must be a designated competent person to operate equipment. Copies of the competent person's documents evidencing his/her certification to operate such machinery, shall be maintained onsite by the Subcontractor and made available to Contractor upon request.

9.6.19.5. All equipment with an obstructed view to the rear must have a reverse signal alarm, audible above the surrounding noise level or must have a flagman.

9.6.19.6. All cracked and broken glass shall be replaced before bringing vehicles on the jobsite. If glass is broken or damaged onsite and if damage is severe enough to cause a potential safety problem, the machine will be stopped until such damage has been repaired. Equipment glass will be repaired as soon as possible.

9.6.19.7. Vehicles used to transport employees shall have seats firmly secured (with seat belts) and adequate for the number of employees to be carried and all passengers should be properly seated. Standing on the side or back of moving vehicles is prohibited.

9.6.19.8. Locations for storage of all fuels, lubricants, starting fluids, etc. shall be reviewed with Contractor Superintendent prior to placement.

9.6.20. Electrical

9.6.20.1. All electrical work, installation and wire capacities shall be in accordance with the pertinent provisions of the National Electrical Code, ANSI, OSHA, and local codes.

9.6.20.2. Each Subcontractor shall use the projects GFCI system, which will be provided by the Electrical Subcontractor. 9.6.20.3. When project electrical power is not available or the project is in the finish stages and permanent power is

being used, Subcontractors will utilize a GFCI plug between the electrical source and the hand tool.

9.6.20.4. Subcontractor will check on a daily basis, all tools, cords, etc. for hazards prior to use.

9.6.20.5. Subcontractors will provide and utilize an OSHA compliant lockout and tag out procedure. It will be the responsibility of each Subcontractor to strictly adhere to the use of this procedure.

9.6.20.6. All temporary and permanent hot power panels shall have covers installed at all times. All open or exposed breaker spaces shall be covered as outlined in the NEC.

9.6.20.7. Electrical hot work shall not be performed.

9.6.21. Ladders

9.6.21.1. The use of ladders with broken or missing rungs or steps, broken or split rails or other defective construction is prohibited. If ladders are found to be unserviceable they shall be tagged immediately.

9.6.21.2. Ladders shall extend no less than 36 inches above landing and be secured to prevent displacement.

9.6.21.3. Portable ladders must be equipped with safety shoes.

9.6.21.4. Wooden ladders shall not be painted.

9.6.21.5. Metal ladders shall not be used where they can become part of an electrical circuit.

9.6.22. Floor and Wall Openings and Stairways

9.6.22.1. Wall openings shall be guarded by a standard guardrail and toeboarded.

9.6.22.2. Guardrails must be of sufficient strength to support 200 pounds of pressure when applied at mid-span of the guardrail parallel with the floor and perpendicular to the guardrail.

9.6.22.3. Floor covers must be adequately secured to prevent displacement and have the word "HOLE" or "COVER" to provide warning of the hazard. Floor opening covers shall also be of proper strength and thickness to carry the maximum intended working load or protection capacity requirements.

9.6.22.4. Hole means a gap or void 2 inches (5.1 cm) or more in its least dimension, in a floor, roof, or other walking/working surface. Floor openings covers shall not exceed 36 inches in its least dimension. Floor openings exceeding 36" shall have a hand rail system installed unless approved in writing by the jobsite Superintendent.

9.6.22.5. Every flight of stairs, having four or more risers, shall be equipped with standard stair railings. Stairs are not to be used until risers and railings are securely installed and the treads have been poured (when applicable) or filled with wood blocking.

9.6.22.6. Debris and other loose materials shall not be allowed on or to accumulate in stairways or at access point's.

9.6.23. Excavations and Trenching

9.6.23.1. Prior to opening any excavation or trench, each Subcontractor's excavation competent person must notify Contractor's Superintendent. In addition, each Subcontractor shall contact a utility locator service and any other personnel to determine whether underground installations (i.e., sewer, telephone, fuel, electrical lines, etc.) may be encountered and where they are located.

9.6.23.2. Excavations and trenches shall be inspected by a competent person daily, and after every rainfall, to determine if they are safe. All excavations, four (4) feet or more in depth, shall be tested at least daily to determine that the atmosphere within the excavation is safe and excavation/trench remains without hazard.

9.6.23.3. All banks, five (5) feet high or more, shall be sloped to the angle of repose (the greatest angle above the horizontal plane at which a material will lie without sliding), or shall be adequately shored. The protection system used for the excavation shall be determined by classifying the soil, selecting the protection system, and subsequent inspections of the excavation shall be documented and maintained onsite, and made available to Contractor upon request.

9.6.23.4. Ladders or steps shall be provided in all trenches three (3) feet or more in depth. Ladders or steps shall be located to require no more than 25 feet of lateral travel before having access or egress.

9.6.23.5. Material excavated shall be stored at least two (2) feet from the edge of the excavation or trench and shall be protected as required to prevent material from falling into the excavation.

9.6.23.6. All trenches and excavations shall be properly protected to prevent persons from walking into them.

9.6.23.7. All walkways or ramps crossing over excavations shall be securely fastened and equipped with standard guardrails.

9.6.24. Steel Erection

9.6.24.1. A mandatory pre-erection meeting shall be held and conducted by Contractor Project Safety Manager and Superintendent prior to any erection. The Subcontractor's site Superintendent, Project Manager, and Safety Representative will be required to attend. The Subcontractor shall submit the name or names of all competent persons and qualified persons who will work on site.

9.6.24.2. The Subcontractor shall provide to Contractor written verification that all OSHA-required training has been conducted. This verification shall include fall protection for all employees, specialized training for connectors and employees working in the controlled decking zone and other applicable controlled access zones.

9.6.24.3. A site-specific erection plan shall be developed by a qualified person when it is necessary to develop alternate means and methods that provide employee protection in accordance with 1926.753(c)(5), "deactivating safety latches on hooks when hoisting purlins and single joists', 1926.757(a)(4), "steel joists more than 60 feet long not set in tandem with all bridging installed", and 1926.757(e)(4), "setting bundles of decking on steel joists when not all of the bridging is installed and anchored and/or joist bearing ends attached".

9.6.24.4. At no time shall there be more than two (2) floors or 24 feet of unfinished bolting or welding above the foundation or uppermost permanently secured floors. Trusses 40' and over shall be field bolted or welded at each end and the required amount of bridging.

9.6.24.5. A temporary and/or permanent floor shall be maintained within two (2) stories or 30 feet, whichever is less, below and directly under that portion of each tier of beams on which any work is being performed.

9.6.24.6. Planking or metal decking in temporary floors shall be of proper strength and thickness to carry the working load. Decking shall be secured to prevent movement.

9.6.24.7. Standard guardrails and toeboards shall be installed approximately 42 inches high, recessed into the interior of the floor around all temporary floors, and maintained.

9.6.24.8. Where fall distance exceeds six (6) feet, 100% fall protection is required. Safety harness with lanyards attached to lifelines or other substantial objects shall be used. If the use of these is impractical, safety nets shall be provided. In structures and buildings not adaptable to flooring, safety nets are required. Connector fall protection must be reviewed with Contractor personnel prior to erection.

9.6.24.9. Tag lines of appropriate length shall be used for controlling loads.

9.6.24.10. Bolt bags, not bolt buckets, shall be provided for storing or carrying bolts or rivets. When bolts, driftpins, or rivet heads are being removed, a means shall be provided to prevent accidental displacement.

9.6.24.11. During the final placing of solid web structural members, the load shall not be released from the hoisting line until the members are secured with not less than two bolts, or equivalent, at each connection.

9.6.24.12. The Subcontractor will not allow any employee to walk the steel without proper fall protection.

9.6.24.13. A safe means of access to the level being worked shall be maintained. Climbing and sliding columns are not considered safe access and will not be allowed.

9.6.25. Confined Space Operations

9.6.25.1. All Subcontractors shall develop an entry procedure to be used when employees are required to enter confined areas or spaces. Such areas include storage tanks, process vessels, bins, boilers, ventilation or exhaust ducts, sewers, underground utility vaults, tunnels, pipelines, open-topped pits, basements and temporary wood framing covered with plastic.

9.6.25.2. All employees required to enter confined areas of space shall be instructed as to the nature of hazards involved, necessary precautions to be taken, and in the use of protective and emergency equipment required.

9.6.25.3. Before employees are permitted entry into any confined area or spaces, the atmosphere within the space shall be tested to determine the oxygen level and concentrations of flammable vapors, gases, and toxic contaminants. The Subcontractor needing access to the confined area will furnish the testing equipment and a person competent in the use of the testing equipment. Permit required confined spaces will be operated in accordance with OSHA regulations and the worker atmosphere will be continuously monitored.

9.6.25.4. When welding, cutting or heating in confined areas or spaces, ventilation shall be provided. When sufficient ventilation cannot be provided without blocking the means of access, employees shall be protected by airline respirators and an employee shall be stationed outside the confined area to maintain communication with those working within and to aid them in an emergency.

77.6.25.5. The Contractor superintendent shall be notified before any confined space work begins.

9.6.26. Housekeeping

9.6.26.1. During the course of construction, work area must remain broom swept.

9.6.26.2. Materials shall be neatly stacked at all times.

9.6.26.3. The Subcontractor shall notify Contractor Construction of any hazardous waste it will generate while on the project. The Subcontractor has the direct responsibility of maintaining proper storage of these wastes while on site and will verify to Contractor in writing that the wastes have been disposed of in a legal manner.

9.6.26.4. The Subcontractor will not pour, bury, burn, or in any way dispose, of a chemical on the work site.

9.7. SUBCONTRACTOR RESPONSIBILITIES – MEDICAL SERVICES

9.7.1. Ensure the availability of medical personnel for advice and consultation.

9.7.2. Prior to commencement of work at the project, make provisions for prompt medical attention in case of serious injury.

9.7.3. Ensure that at least one company employee on the project has a valid certificate in first aid training from the U.S. Bureau of Mines, the American Red Cross or equivalent training that can be verified by documentary evidence and is available at the work site to render first aid.

9.7.4. Ensure that appropriate first aid supplies shall be easily accessible when required.

9.7.5. Provide adequate number of first aid kits and supplies. First aid kits shall be in a weatherproof container with individually sealed packages for each type of item. Contents of the first aid kits shall be checked by the Subcontractor at least weekly to ensure the expended items are replaced.

9.7.6. Provide proper equipment for prompt transportation of the injured person to a physician or hospital, or a communication system for contacting necessary ambulance service.

9.7.7. Telephone numbers and addresses of the physicians, hospital, and ambulances shall be conspicuously posted.

9.7.8. Notify Contractor immediately in the event of any injuries or incidents occurring on the project. The Subcontractor shall complete an "Employer's First Report of Injury" and submit a copy to Contractor within twenty-four (24) hours of knowledge or notice of an injury. All accidents and/or incidents shall be investigated and documented by the Subcontractor, with a copy of the investigation forwarded to Contractor within twenty-four (24) hours of the incident.

9.7.9. A daily record must be kept on all employees requiring first aid treatment.

9.7.10. It shall be the responsibility of each Subcontractor to ensure that each of his lower-tier Subcontractors meets these same requirements.

9.8. SUBCONTRACTOR RESPONSIBILITIES – SUBSTANCE ABUSE POLICY

9.8.1. Subcontractors must have a written policy on substance abuse to assure compliance with Contractor's policy and requirements. The Subcontractor's policy must include procedures for pre-employment screening, testing for cause, and post-accident tests. The Subcontractor's policy must include provisions for testing for alcohol to be included in the testing for-cause, and post accident testing.

9.8.2. The Subcontractor will not assign or reassign any employee to Contractor or Owner's property unless the employee has undergone chemical screening and the screening has proven negative for those drugs identified below. Chemical screening will be required of any Subcontractor employee for reasonable cause of suspicious behavior or activity, including accidents and/or incidents. Any employee who receives a confirmed positive result without a legitimate medical reason will be removed from the property immediately.

9.8.3. Contractor prohibits the use, possession, sale, and distribution of alcohol or controlled substances by a contractor or an employee of the contractor on any of our property or that of the owner. In addition, Contractor's policy prohibits any prescribed substances used without a prescription. Violators of this policy will be banned from the property.

9.8.4. Entry into Contractor property or that of the Owner constitutes consent to a search of the Subcontractor employee's personal property, including automobiles, while entering, while on, or upon leaving such property. Any Subcontractor employee who is found in violation of the policy or who refused to permit inspection may be removed and banned from the property at the discretion of Contractor or the owner.

9.8.5. Drug test requests should be contracted through laboratories that are NIDA certified. Drug tests shall be a minimum of 5 panels. Positive drug tests must be confirmed with automatic GC/MS confirmation tests (GC = Gas Chromatography / MS = Mass Spectroscopy) and a medical review officer.

9.8. 6. "Detectable Levels", "Identifiable Trace Quantities" – The measurable presence, as determined by a Gas Chromatography or Mass Spectrometry (GC/MS) confirmation test, of an illegal, prohibited or unauthorized drug or substance found in the body fluids at levels of detection above the lowest cutoff levels as established by analytical methods used by the testing laboratory.

9.8.6.1. The following are examples of levels above these cutoffs that will result in a positive reading:

Amphetamines	1000 ng/mL

Cocaine	300 ng/mL
Marijuana (THC)	50 ng/mL
Opiates	2000 ng/mL
Phencyclidine (PCP)	25 ng/mL

9.8.7. It is understood and agreed upon that the implementation, monitoring, testing and cost of the above safety and drug program is the responsibility of this Subcontractor.

1. Purpose

1.1. Accident investigation is a device for preventing future accidents. An investigation must be fact finding and not fault finding. Eliminating one or more causes can prevent most accidents. Accident investigations determine not only what happened, but also how and why.

1.2. All accidents and Near Misses should be investigated. The depth and complexity of the investigation will vary with the circumstances and seriousness of the incident. The PNT Project Team Members responsible for operations involved in an accident should ensure that an investigation is conducted and that when appropriate, corrective actions are taken.

2. Scope

2.1. This program details the procedures that should be taken in the event of an accident on any PNT Project.

3. Roles/Responsibilities

3.1. Everyone shares the responsibility for the success of the Accident Investigation Program.

3.2. During the investigation of any accident all employees shall take the necessary measures to ensure that collection, preservation, and security of evidence is maintained.

3.3. Specific groups and their respective duties are as follows:

3.4. **Corporate Leadership Team (CLT) -** Receives updates of results from Accident Investigations from Director of Safety.

3.5. **Vice President of Safety -** Supervises the Accident Investigation process. Releases incident notice documents to the applicable PNT parties. Determines the severity of each incident, and approves Red Alerts to be released company-wide. Schedule, organize, and participate in Project Team Follow Up meetings as needed. Receives reports from completed project team follow up meetings in which attendance was not necessary.

3.6. Lead Investigator – The Lead Investigator is appointed by the Director of Safety. The role of the Lead Investigator is to oversee the investigation steps, interact with regulatory officials, interact with the witnesses and project team members. This role is to ensure a thorough and complete investigation is conducted to determine root cause.

3.7. **Safety Manager-** Responsible for ensuring that both Field Accident Investigation forms and the appropriate PNT Incident Forms are completed within the necessary time periods. Determine severity of incident and communicate to Director of Safety. Schedule, organize, and participate in Project team follow up meetings (if necessary); communicate results to Director of Safety.

3.8. **Vice President (VP) -** Participate in project team follow up meeting based of the severity of the incident.

3.9. **Project Executive-** Participate in project team follow up meeting based of the severity of the incident.

3.10. PNT **Project Team Member-** Responsible for reporting the incident to Safety Department as soon as possible, and begin recording information by completing a Field Accident Report. Assist Safety Manager with Scheduling, organizing, and participating in Project Team Follow Up Meeting (if necessary).

3.11. **Subcontractor Project Manager-** Participates in Project Team Follow Up meeting when invited by PNT.

3.12. **Subcontractor Field Supervisor-** Participates in Project Team Follow Up meeting when invited by PNT.

4. OSHA/Client Reporting Procedures

4.1. All subcontractors are required to notify OSHA when an employee is killed on the job or suffers a work-related hospitalization, amputation, or loss of an eye.

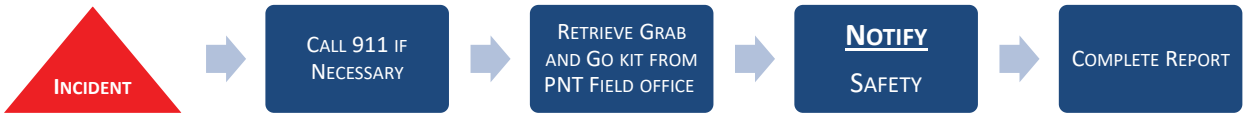
4.2. A fatality must be reported within 8 hours.

4.3. An in-patient hospitalization, amputation, or eye loss must be reported within 24 hours.

4.4. All incidents are to be reported to the Owner within 24 hours.

5. Investigation Flowcharts

On-Site Accident Investigation Flowchart



Auto Accident Flowchart

6. Incident Level Procedures and Responsibilities

Level 1 Incidents		
Type of Incident	**Investigation Procedures**	**Investigation Personnel and Responsibilities**
Workers Compensation of a PNT employee requiring an ambulance Workers Compensation of a subcontractor employee requiring an ambulance General Liability incidents involving tenants, pedestrians or vehicle traffic that require 911 response Builders Risk Major Item such as fire requiring 911 response, flood of occupied or completed floors requiring outside assistance	The PNT Project Team Member must obtain the "Grab and Go" accident investigation kit to begin the investigation. Director of Safety must be notified immediately. Director of Safety will designate PNT Safety Manager(s) and Lead Investigator to begin the investigation immediately along with the site superintendent. The accident report must be completed by the assigned Safety Manager and PNT Project Team Member.	The PNT Project Team Member must gather witness statements and contact information. The PNT Project Team Member will also collect contact information from any involved authorities. Witnesses must be interviewed individually. The PNT Project Team Member must take photographs of the scene as soon as possible and must isolate or barricade the scene throughout the investigation. The Lead Investigator will review the report, documents, and photographs for accuracy. The PNT Project Team Member must ensure that all areas are safe for work to resume

Level 2 Incidents		
Type of Incident	**Investigation Procedures**	**Investigation Personnel and Responsibilities**
Workers Compensation of a PNT employee requiring clinic visit General Liability incidents involving tenants not requiring 911 response	The PNT Project Team Member must obtain the "Grab and Go" accident investigation kit to begin the investigation. The assigned Safety Manager must be contacted immediately.	The PNT Project Team Member must gather witness statements and contact information. The site superintendent/project team member will also collect contact information from any involved authorities. Witnesses must be interviewed individually. The PNT Project Team Member must take photographs of the scene as soon as possible and must isolate or barricade the scene throughout the investigation. The PNT Project Team Member must ensure that all areas are safe for work to resume

Level 3 Incidents		
Type of Incident	**Investigation Procedures**	**Investigation Personnel and Responsibilities**
Workers Compensation of a subcontractor employee requiring clinic/hospital visit General Liability incidents involving pedestrians or vehicle traffic not requiring 911 response Builders Risk Minor Item not requiring 911 or outside assistance	The PNT Project Team Member must obtain the "Grab and Go" accident investigation kit to begin the investigation. The assigned Safety Manager must be contacted immediately.	The PNT Project Team Member must gather witness statements and contact information. The PNT Project Team Member will also collect contact information from any involved authorities. Witnesses must be interviewed individually. The PNT Project Team Member must take photographs of the scene as soon as possible and must isolate or barricade the scene throughout the investigation. The PNT Project Team Member must ensure that all areas are safe for work to resume.

7. Follow Up Procedure:

7.1. Level 1 Incidents

7.2. Level 1 incidents and investigation findings must be reviewed within 24 hours with the following:

- Director of Safety and/or PNT Safety Manager/Lead Investigator assigned to project
- Superintendent on Site
- Project Manager of Project
- Project Executive of Project
- VP of Project Sector
- Applicable Subcontractor Supervisors

7.3. The review can be done in person or by conference call if necessary.

7.4. Ensure that subcontractor's incident reports are submitted to PNT within 24 Hours.

7.5. Level 2 Incidents

7.5.1. Level 2 incidents and investigation findings must be reviewed within 72 hours with the project team and subcontractor.

7.5.2. The review may be done in person or by conference call if necessary.

7.5.3. If subcontractor or tenant is involved, all reports must be submitted to PNT within 24 hours.

7.6. Level 3 Incidents

7.6.1. Level 3 incidents and investigation findings must be reviewed within 72 hours.

8. Near Miss Incidents

8.1. All employees are required to report any accident or near miss to their immediate supervisor and/or PNT field supervision. The PNT field supervisor must immediately notify the assigned PNT Safety Manager of the accident or near miss. Immediately after being notified of the incident, the PNT Safety Manager must complete and submit an Incident Notice document to the Director of Safety, who then determines the perceived severity of the incident.

9. Root Cause

9.1. Through investigation, witness statements, and upper management review, root cause(s) must be determined. The root cause(s) must be identified and corrective actions must be put in place to prevent recurrence. Once the root cause(s) are identified, the hazard must be eliminated, administration controls developed, and training must be conducted.

10. Training

10.1. All employees shall receive training on their specific company's accident investigation procedures and employee responsibilities.

	PNT Consulting Safety and Health Manual	Doc No:	SOP-MSFT-48
		Initial Issue Date	2/15/16
		Revision Date:	4/1/17
Fall Protection		Prepared by: Todd Harvey	
		Document Location:	

1. Purpose
   1.1. To establish guidelines to prevent employees from sustaining serious injury if they fall on the job.

2. Scope
   2.1. These policies cover all construction workers except those inspecting, investigating, or assessing workplace conditions prior to the actual start of work or after all work has been completed.

   2.2. These policies identify areas where fall protection is needed. These areas include ramps, runways, walkways, excavations, hoist areas, holes, formwork and reinforcing steel, leading edge work, unprotected sides and edges, overhand bricklaying, roofing, pre-cast concrete erection, wall openings, and residential construction. These policies set a uniform threshold height of six (6) feet, thereby providing consistent protection. This means that the Contractor must protect employees from fall hazards and falling objects whenever an employee is six (6) feet or more above a lower level. PNT has adopted the (6) foot height as the height where fall protection will be required.

3. Definitions
   3.1. None

4. Responsibilities
   4.1. All employees shall utilize an approved means of fall protection when working above 6 feet. This rule applies to all employees on any PNT job-site.
   4.2. Prior to beginning work an assessment of the workplace must be conducted by each contractor to determine the need and/or feasibility of fall protection.
   4.3. The contractor shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards.
      4.3.1. This training must be documented and be made available upon request.
      4.3.2. If an employee is observed violating the PNT fall protection policy and/or demonstrates failure of understanding fall protection requirements, retraining shall be administered.
   4.4. Contractors shall submit a site specific fall protection plan which has been developed by a qualified person to the PNT project team for review prior to beginning work.
   4.5. Fall protection equipment used on any PNT jobsite must be engineered for its intended use and meet or exceed all applicable regulatory and/or industry standards.
   4.6. In the event that an employee experiences a fall an investigation will be conducted by the PNT project team along with the Contractor involved to determine a root cause and implement any preventative actions.

5. Guidelines
   5.1. Controlled Access Zones
      5.1.1. A controlled access zone is a work area designated and clearly marked in which certain types of work may take place without the use of conventional fall protection systems to protect the employees working in the zone.
      5.1.2. These are used to keep out workers other than those authorized to enter work areas from which guardrails have been removed. Where there are no guardrails, masons are the only workers allowed in controlled access zones.
      5.1.3. Controlled access zones, when created to limit entrance to areas where leading edge work and other operations are taking place, must be defined by a control line or by any other means that restricts access. Control lines will consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions. Each must be:
      5.1.4. Flagged or clearly marked at not more than six (6) foot intervals with high-visibility material
      5.1.5. Supported so that the lowest point is not less than thirty-nine (39) inches from the walking/working surface and the highest point is not more than forty-five (45) inches from the walking/working surface
      5.1.6. Strong enough to sustain stress of at least two hundred (200) pounds. Control lines will extend along the entire length of the unprotected or leading edge and will be parallel to this edge; and
      5.1.7. Control lines also must be connected on each side to a guardrail system or wall.

      5.1.8. When control lines are used, they will be erected not less than six (6) feet nor more than twenty-five (25) feet from the unprotected or leading edge, except when precast concrete members are being erected. With precast concrete member erection, the control line will be at least six (6) feet but less than sixty (60) feet from the leading edge.

      5.1.9. Controlled access zones, when used to determine access to areas where overhead bricklaying and related work are taking place, are to be defined by a control line erected at least ten (10) feet but not more than fifteen (15) feet from the working edge. Additional control lines must be erected at each end to enclose the controlled access zone. Only employees engaged in overhand bricklaying or related work is permitted in the controlled access zones.

      5.1.10. On floors and roofs where guardrail systems are not in place prior to the beginning of overhand bricklaying operations, controlled access zones will be enlarged as necessary to enclose all points of access, material handling areas, and storage areas. On floors and roofs where guardrail systems are in place, but need to be removed to allow overhand bricklaying work or leading edge work to take place, only that portion of the guardrail necessary to accomplish that day's work will be removed.

   5.2. Excavations
      5.2.1. Each employee at the edge of excavation six (6) feet or more deep will be protected from falling by a guardrail system, fence, barricade, or cover. Where walkways are provided to permit employees to cross over excavations, guardrails are required on the walkway if it is six (6) feet or more above the excavation.

5.3. Hoist Areas

5.3.1. Each employee in a hoist area will be protected from falling six (6) feet or more by guardrail systems or personal fall arrest systems. If guardrail systems must be removed to facilitate hoisting operations, as during the landing of materials, and a worker must lean through the access opening or out over the edge of the access opening to receive or guide equipment and materials, that employee must be protected by a personal fall arrest system.

5.4. Leading Edges

5.4.1. Employees constructing a leading edge six (6) feet or more above lower levels will be protected by guardrail systems, safety net systems, or personal fall arrest systems. If the Contractor's Superintendent can demonstrate that it is infeasible or creates a greater hazard to implement these systems, he or she must develop and implement a fall protection plan that meets the requirements of 29 CFR 1926.502(k).

5.5. Roofing

5.5.1. Low-Slope Roofs (≤ 4/12 slope) - Employees engaged in roofing activities on low-slope roofs with unprotected sides and edges six (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 guardrail system, warning line system and safety net system, warning line system and personal fall arrest system, or warning line system and safety monitoring system. On roofs fifty (50) feet or less in width, the use of a safety monitoring system without a warning line system is permitted.

5.5.2. Steep Roofs (≥ 4/12 slope) - Employees on a steep roof with unprotected sides and edges six (6) feet or more above lower levels will be protected by a guardrail system with toeboards, safety net systems, or personal fall arrest systems.

5.6. Fall Protection Systems Criteria and Practices

5.6.1. Guardrail Systems must meet the following criteria:

5.6.2. Top-rails and mid-rails must be at least one-quarter inch thick to prevent cuts and lacerations.

5.6.3. If wire rope is used for top-rails, it must be flagged at not more than six (6) foot intervals with high visibility materials.

5.6.4. Steel or plastic binding cannot be used as top-rails or mid-rails.

5.6.5. The top edge height of top-rails or guardrails must be forty-two (42) inches plus or minus three

5.6.5.1.1.1. (3) inches above the walking/working level.

5.6.6. When workers are using stilts, the top edge height of the top-rail, or equivalent member, must be increased by an amount equal to the height of the stilts.

5.6.7. Screens, mid-rails, mesh, intermediate vertical members, or equivalent intermediate structural members must be installed between the top edge of the guardrail system and the walking/working surface when there are no walls at least twenty-one (21) inches high.

5.6.8. When mid-rails are used, they must be installed at a height midway between the top edge of the guardrail system and the walking/working level.

5.6.9. When screens and mesh are used, they must extend from the top rail to the walking/working level and along the entire opening between top rail supports.

5.6.10. Intermediate members, such as balusters, when used between posts, will not be more than nineteen (19) inches apart.

5.6.11. Other structural members will be installed so that there are no openings in the guardrail system more than nineteen (19) inches.

5.6.12. The guardrail system must be capable of withstanding a force of at least two hundred (200) pounds applied in any outward or downward direction.

5.6.13. Mid-rails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members will be capable of withstanding a force at least one-hundred and fifty (150) pounds applied in any downward or outward direction at any point along the mid-rail or other member.

5.6.14. Guardrail systems will be surfaced to protect workers from punctures or lacerations and to prevent clothing from snagging.

5.6.15. The ends of top-rails and mid-rails must not overhang terminal posts, except where such overhang does not constitute a projection hazard.

5.6.16. When guardrail systems are used at hoisting areas, a chain or gate must be placed across the access opening between guardrail sections when hoisting operations are not taking place.

5.7. Personal Fall Arrest Systems

5.7.1. These consist of an anchorage, connectors, and full body harness and may include a decelerator device, lifeline, or suitable combinations. If a personal fall arrest system is used for fall protection, it must do the following:

5.7.2. Limit maximum arresting force on an employee to 1,800 pounds when used with a body harness

5.7.3. Be rigged so that an employee cannot free fall more than six (6) feet or contact any lower level

5.7.4. Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to three and a half (3 ½) feet

5.7.5. Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of six (6) feet or the free fall distance permitted by the system, whichever is less

5.7.6. Personal fall arrest systems must be inspected prior to each use for wear damage and other deterioration. Defective components must be removed from service. Dee-rings and snaphooks must have a minimum tensile strength of 5,000 pounds. Dee-rings and snaphooks will be proof- tested to a minimum tensile load of 3,600 pounds without cracking, breaking, or suffering permanent deformation.

5.7.7. Snaphooks will be sized to be compatible with its connecting member or will be of a locking configuration. Unless the snaphook is a locking type and designed for the following connections, they shall not be engaged (a) directly to webbing, rope or wire rope; (b) to each other; c) to a dee-ring to which another snaphook or other connector is attached; (d) to a horizontal lifeline; or (e) to any object incompatible in shape or dimension relative to the snaphook, thereby causing the connected object to depress the snaphook keeper and release unintentionally.

5.7.8. On suspended scaffolds or similar work platforms with horizontal lifelines that may become vertical lifelines, the devices used to connect to a horizontal lifeline will be capable of locking in both directions on the lifeline. Horizontal lifelines will be designed,

installed, and used under the supervision of a qualified person, as part of a complete personal fall arrest system that maintains a safety factor of at least two. Lifelines will be protected against being cut or abraded.

5.7.9. Self-retracting lifelines and lanyards that automatically limit free fall distance to two (2) feet or less shall be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in the fully extended position. Self-retracting lifelines and lanyards that do not limit free fall distance to two (2) feet or less, rip-stitch lanyards, and tearing and 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. Ropes and straps used in lanyards, lifelines, and strength components of body belts and body harnesses will be made of synthetic fibers.

5.7.10. Anchorages will be designed, installed, and used under the supervision of a qualified person, as part of a complete personal fall arrest system that maintains a safety factor of at least two (2). Anchorages used to attach personal fall arrest systems will be independent of any anchorage being used to support or suspend platforms and must be capable of supporting at least 5,000 pounds per person attached. Lanyards and vertical lifelines must have a minimum breaking strength of 5,000 pounds.

5.8. Positioning Device Systems

5.8.1. These body belt or body harness systems will be set up so that a worker can free fall no farther than two (2) feet. They will 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 snaphooks, dee-rings, and other connectors used with a positioning device must meet the same criteria as those for personal fall arrest systems.

5.9. Safety Monitoring Systems

5.9.1. When no other alternative fall protection has been implemented, the Contractor Superintendent will implement a safety monitoring system (IT IS CRITICAL TO NOTE THAT THIS IS A LAST RESORT SOLUTION TO FALL PROTECTION). Employers must appoint a competent person to monitor the safety of workers and the Contractor Superintendent must ensure that the safety monitor:

5.9.1.1. Is competent in the recognition of fall hazards

5.9.1.2. Is capable of warning workers of fall hazard dangers and in detecting unsafe work practices

5.9.1.3. Is operating on the same walking/working surfaces of the workers and can see them

5.9.1.4. Is close enough to communicate with workers

has no other duties to distract from the monitoring function

5.10. Safety Net Systems

5.10.1. The following precautions must be taken when using a safety net system:

5.10.2. Safety nets must be installed as close as possible under the walking/working surface on which employees are working and never more than thirty (30) feet below such levels.

5.10.3. Safety nets will be inspected at least once a week for wear, damage, and other deterioration.

5.10.4. The maximum size of each safety net mesh opening will not exceed thirty-six (36) square inches or be longer than six (6) inches on any side.

5.10.5. The openings, measured center-to-center, will not exceed six (6) inches.

5.10.6. All 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.

5.10.7. Connections between safety net panels will be as strong as integral net components and be spaced no more than six (6) inches apart.

5.10.8. Safety nets will be installed with sufficient clearance underneath to prevent contact with the surface or structure below.

5.10.9. When nets are used on bridges, the potential fall area from the walking/working surface to the net will be unobstructed.

5.10.10. Items that have fallen into safety nets must be removed as soon as possible or before the next work shift.

5.10.11. Safety nets will extend outward from the outermost projection of the work surface as follows:

Vertical distance from working level to horizontal plane of net.	**Minimum required horizontal distance of outer edge of net from the edge of the working surface.**
Up to 5 feet	8 feet
More than 5 feet up to 10 feet	10 feet
More than 10 feet	13 feet

5.11. Warning Line Systems

5.11.1. Warning line systems consist of ropes, wires, or chains, and will be set up as follows:

5.11.2. Flagged at no more than six (6) foot intervals with high-visibility material

5.11.3. Rigged and supported so that the lowest point (including sag) is no less than thirty-four (34) inches from the walking/working surface and its highest point and is no more than thirty-nine (39) inches from the walking/working surface

5.11.4. The rope, wire, or chain will have a minimum tensile strength of 500 pounds and after being attached to the stanchions must support the load applied to the stanchions (upright post or support)

5.11.5. 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

5.11.6. Warning lines will be erected around all sides of roof work areas. When mechanical equipment is being used, the warning line will be erected no less than six (6) feet from the roof edge parallel to the direction of mechanical equipment operation, and no less than ten (10) feet from the edge perpendicular to the direction of mechanical equipment operation. When mechanical equipment is not being used, the warning line must be erected no less than six (6) feet from the roof edge.

5.12. Toeboards

5.12.1. The following precautions and procedures must be followed when using toeboards:

5.12.2. When toeboards are used as protection from falling objects, they must be erected along the edges of the overhead walking/working surface for a distance sufficient to protect persons working below

5.12.3. Toeboards will be capable of withstanding a force of at least fifty (50) pounds applied in any downward or outward direction at any point along the toeboard

5.12.4. Toeboards will be a minimum of three and a half (3 ½) inches tall from their top edge to the level of the walking/working surface, have no more than one quarter (1/4) inches clearance above the walking/working surface, and be solid or have openings no larger than one (1) inch in size

5.12.5. When tools, equipment, or materials are piled higher than the top edge of a toeboard, paneling or screening must be erected from the walking/working surface or toeboard to the top of a guardrail system's top-rail or mid-rail for a distance sufficient to protect employees below.

5.13. Rescue plan

5.13.1. A rescue system must be in place that provides for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves.

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FIRST AID PROCEDURES		Prepared by: Todd Harvey	
		Document Location:	

1. Purpose
   1.1 To establish guidelines to prepare workers for the proper response to injuries that require first aid care and provisions for addressing conditions beyond first aid level injuries. This section is not a substitute for the PNT Crisis Management Manual.

2. Scope
   2.1 These guidelines cover all PNT construction projects where work is actively performed.

3. Definitions
   3.1 First Aid / CPR Provider: Individuals that are deemed to be a First Aid / CPR provider are to have a current certification from the American Red Cross, National Safety Council or equivalent organization. The Safety Department can assist in evaluating equivalency issues.

4 Responsibilities
   4.1 None.

5 Guidelines
   5.1 General Provisions
      5.1.1 Each PNT project will have adequate first aid supplies and certified, trained personnel available for the treatment of personnel injured on the job.
      5.1.2 The Project Team shall document all first aid treatments at the project.
      5.1.3 Prompt medical attention should be sought for any serious injury or if there is doubt of a worker's condition.

   5.2 Accident Procedures
      5.2.1 Render First Aid as promptly as possible.

      5.2.2 In an emergency or life threatening situation immediately call 911 then call the office and/or Safety Department as soon as possible. Refer to the Crisis Management manual for additional directions.

      5.2.3 In medical cases requiring more than First-Aid applied at the job site First-Aid station, but not an injury that you would classify as an emergency or life threatening situation, PNT's Director of Insurance or Safety Department can assist in determining where to send an injured worker for evaluation and treatment.

      5.2.4 If the victim must be transported to a hospital or doctor's office, assign a fellow PNT worker to accompany the victim. Make arrangements for this person's return to the project site after disposition of the victim.

5.1.4 In the case of any injury which will probably involve hospitalization of a worker, please call the office with full details as soon as you can. The written report can come later in the day. It is very important that we notify our insurance carrier quickly in the case of the severe injury so they can contact the individual within 24 hours and assure him that they are "on top" of this claim. Our insurance carrier feels that it is vital that they give the injured worker this assurance quickly so they will understand our concern for their welfare.

6 First Aid Supplies

6.1 First-aid supplies will be available and in serviceable condition on each PNT construction project. Items which must be kept sterile in the first-aid kit shall be contained in individual packaging.

6.2 Kits shall be selected based on project size, type, and special conditions. ANSI 308.1 provides voluntary guidelines for first aid kit contents.

6.3 All first aid kits are to include eye wash for rinsing dust or debris from the eye. In cases where the eyes may be exposed corrosive or caustic materials, suitable facilities for drenching/flushing of the eyes shall be provided for immediate use.

6.4 First Aid kits are to be inspected on a regular basis to ensure that any expended or expired contents are promptly replaced.

7 Jobsite First Aid Log

7.1 A first aid log should be maintained by the PNT Project Team for each project. This log should reflect the following information:

- Injured worker's name
- Immediate Supervisor
- Date and time of injury
- Nature of the injury
- Injured worker's craft
- Treatment rendered and disposition of the worker (returned to work or sent for medical attention)

8 Emergency Procedures

8.1 Each PNT project will determine the location of nearby medical services. Emergency phone numbers will be posted on the jobsite for workers to call in the event of a serious injury or accident on the jobsite. Addresses for the nearest clinic and hospital should be posted on site as well.

8.2 All workers will have access to first aid supplies and be provided with the locations of the first aid stations on each construction project. Instructions for using first aid equipment are located in each station. In the event of an emergency, workers are should contact any supervisor or individual who is trained in first aid.

9 Additional Emergency Preparedness

9.1 Fire

9.1.1 Fire is one of the most hazardous situations encountered on a construction project because of the potential for large losses. Prompt reaction to and rapid suppression of any fire is essential. The Project Team will develop a fire protection program for each construction jobsite where unique procedures are necessary. The program shall provide for effective firefighting equipment to be available without delay and designed to effectively meet all fire hazards as they occur. In addition each fire protection program shall require:

- All firefighting equipment must be conspicuously located and readily available at all times.
- All firefighting equipment must be inspected and maintained in operating condition.
- All fire protection equipment must be inspected no less than once monthly.
- Discharged extinguishers or damaged equipment be immediately removed from service and replaced with operable equipment.
- All supervisors and workers seek out potential fire hazards and coordinate their abatement as rapidly as possible.
- Each individual assigned safety responsibilities receive the necessary training to properly recognize fire hazards, inspect and maintain fire extinguishers and the proper use of each

9.1.2 Some emergencies may require company personnel to evacuate the jobsite. In the event of an emergency that requires evacuation from the jobsite, all workers are required to go to an area adjacent to the project that would be considered as a "safe area." An evacuation plan shall be developed by the project team. All workers shall receive instruction on evacuation signals and “safe area” locations.

Fleet Safety Program

Motor Vehicle Rules

Only employees authorized by PNT may drive a PNT owned vehicle. All employees who drive a PNT Consulting vehicle or their own personal vehicle on company business must abide by the following safety rules:

1. Employees are required to inspect their assigned PNT vehicle (before taking it on the road) to ensure that it is in safe working condition. This includes properly working brakes, horns, back-up alarms, and unobstructed glass. The attached inspection form will be used.
2. Defects in the company vehicle will be reported promptly to PNT's Equipment Manager.
3. Vehicles must be of the correct size and type for the intended use.
4. Employees are required to obey all Local/State and company traffic regulations.
5. Engines are to be stopped and ignition keys removed when parking, refueling, or leaving the company vehicles.
6. Passengers not employed by the company are not permitted unless authorized by PNT management.
7. Employees will drive safely. Defensive driving must be practiced by all employees.
8. Seat belts and harnesses are to be worn at all times.
9. Vehicles must be locked when unattended to avoid criminal misconduct.
10. Vehicles must be parked in legal spaces and must not obstruct traffic.
11. Employees will park their personal/company vehicles in well-lighted areas at or near entrances to avoid criminal misconduct.
12. Employees will keep their headlights on at all times when driving a vehicle.
13. All loads shall be secured and within the designated hauling capacity of the vehicle. A vehicle when loaded with any material extending 4 feet or more beyond its rear shall have a red flag or cloth 12 inches square attached by day, or a red light visible for 300 feet by night, on the extreme end of the load.
14. Articles, tools, equipment, etc. placed in truck cabs are to be hung or stored in such a manner as not to impair vision or in any way interfere with proper operation of the vehicle.
15. When you cannot see behind your vehicle (truck), the driver will walk behind the truck prior to backing.
16. Personal use of company vehicles is not permitted without approval of management. Children are prohibited from riding in company vehicles.
17. Operating a PNT vehicle while under the influence of alcohol and other drugs is prohibited. Violators are subject to disciplinary action up to and including termination of employment.
18. Every accident/incident (no matter how small) will be reported to PNT's Safety Director

and/or Equipment Manager. The Safety Director (or designated Safety Superintendent) will then investigate all accident/incidents and review them with the employee.

19. All Contractors' personal vehicles must be parked in areas designated as Contractor Parking.
20. When operating vehicles on the job site, speeds must not exceed 10 M.P.H.
21. Employees driving their own vehicles on PNT company business must exercise the same care and diligence as would be expected if they were operating a PNT owned vehicle.
22. Drivers must exercise care in avoiding distractions while driving. Texting is not allowed while driving. While hands-free cell phone use is permitted, It is preferable to safely pull to the side of the road to utilize a mobile device.

Motor Vehicles Records (MVR)

1. All prospective and current employees will undergo annual motor vehicle record checks.
2. Persons hired, for positions that will require them to drive their personal vehicles or a PNT vehicle will have their MVR reviewed on an annual basis.
3. It is the responsibility of each employee to notify the Director of Safety if/when his/her status to operate a motor vehicles changes (ex. Speeding tickets, wrecks, etc).
4. A list of drivers that are restricted to drive or cannot drive a motor vehicles any longer will be maintained by the Safety Department.
5. Violations (gathered from MVRs) are categorized as follows:

   TYPE A VIOLATION: Includes, but is not limited to, DWI/DUI/OWI/OUI, refusing a drug/alcohol test, reckless driving, manslaughter, hit and run, eluding a police officer, any felony, drag racing, license suspension, and driving while under license suspension, driving with open alcoholic container in vehicle. Any driver with these types of violations is a major concern and could be subject to removal of driving privileges and/or termination of employment.

   TYPE B VIOLATION: Includes all vehicle accident/incidents, regardless of fault.

   TYPE C VIOLATION: Includes all moving violations not classified as Type A or B (i.e. speeding, improper lane change, failure to yield, running red lights or stop signs, to include traffic enforcement cameras, etc.).

   TYPE D VIOLATION: Includes all non-moving violations (i.e. parking, vehicle defects).

6. The following disciplinary action will apply for each violation listed or any appropriate combination listed as determined by Director of Safety or his designee.

Termination of employment, refusal to hire, suspension/probation or reassignment to a non-

driving position (if available):

- ☐ 1 Type A violation in preceding 24 months
- ☐ 2 Type B violations in preceding 24 months
- ☐ 2 Type C violations in preceding 24 months
- 3 Type D violations in preceding 36 months

Any Combination of Type A, Type B or Type C violation in past 24 months.

Driver Qualification File

- Any employee driving/operating any fleet and/or personal vehicle to perform work related task shall have a valid and current license to operate the vehicle.
- PNT will maintain the appropriate qualification files for each regularly employed driver.

Accident/incident Reporting

Driver Conduct at the Scene of the Accident/incident

1. Take immediate action to prevent further damage or injury.
   - Pull onto the median or side of the road if possible.
   - Activate hazard lights (flashers) and place warning signs promptly (if available)
   - Assist any injured person, but do not move them unless they are in danger of further ..... injury.
2. Call the Police
   - If someone is injured, request medical assistance.
   - If you are near a phone, write a note giving the location and seriousness of the accident/incident and give it to a "reliable" motorist and ask him/her to contact the police.
3. The vehicle shall not be left unattended, except in an extreme emergency.
4. Exchange identifying information with the other driver. **Make no comments about assuming responsibility.**
5. Secure names, addresses, and phone numbers of all witnesses, or the first person on the scene if no one witnessed the accident/incident.
6. Call immediately and report the accident/incident to PNT's Safety Director and/or Equipment Manager.

Complete the Vehicle Accident/incident Report Form

1. Complete the Vehicle Accident/incident Report Form (a copy can be obtained from the Safety Director) and provide it to PNT's Safety Director. Write legibly and answer all questions completely or mark "not known." Use additional sheets of paper as needed to

provide pertinent information.

	PNT Consulting Safety and Health Manual	Doc No:	SOP-MSFT-51
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Construction Waste Management		Prepared by: Todd Harvey	
		Document Location:	

POLICY

This policy sets goals and procedures for the recycling of construction waste generated by PNT job-sites.

SCOPE

The scope of this policy includes all PNT projects nationwide.

INTRODUCTION

PNT Consulting llc. is committed to minimizing our environmental impacts and will make an effort to recycle all construction waste possible; tracking that which is recycled and that which is landfilled.

GOAL

PNT has a goal of diverting at least 50% of total construction waste by weight, preferably over 75%. As PNT's program evolves, and the secondary market matures, the expectation is that the corporate diversion rate will increase over time.

ADMINISTRATION

In an effort to streamline implementation for projects within the Washington, DC metro area, PNT has identified a corporate waste hauler/processor that meets our financial and environmental goals. IDS/Broad Run (hauling/recycling) was selected through a competitive bid process in spring 2016. Broad Run has a 3rd party certified recycling facility that diverts over 60% of waste processed annually. IDS/Broad Run is our incumbent provider, and will be reassessed every two years. A similar structure will follow in PNT's Regional Offices.

For projects outside of the Washington, DC metro area, measures shall be taken to address segregation of wastes and opportunities for recycling. These measures shall be communicated to all employees on site.

Within the Washington, DC metro area, all projects that directly procure waste hauling and processing will use PNT's corporate waste hauler/processor except in cases where the location, service hours, or other project requirements cannot be met by IDS as outlined in the current IDS Broad Run Pricing & Terms Summary. This includes PNT dump trucks. Project teams unable to use IDS/Broad Run for the reasons stated above may be asked for diversion rate and waste tracking records for their projects.

PNT is committed to recycling efforts beyond what PNT directly procures, and therefore urges subcontractors make a best effort to recycle construction waste and track diversion rates using weight tickets for each project. Project teams are encouraged to add contractual language in Exhibit B requesting project specific waste tracking on all jobs with a total contract value over $1,000,000.

All employees shall be made aware of the proper method(s) to dispose of waste specific to their project.