HEALTH, SAFETY & ENVIRONMENTAL HANDBOOK

2015 Edition

This Health, Safety & Environmental (HSE) Handbook applies to all Southwestern Energy Company (SWN) employees and functions as a reference for minimum rules and standards at SWN facilities.

The guidance in this handbook is not all-inclusive. Area/local management may adopt more stringent rules and standards to meet specific needs. Additionally, many policies, procedures, and best practices have been developed for various SWN operations that provide more detailed information. These may be found on the HSE Intranet site located on SWNet.

Contractor rules and standards must meet or exceed the requirements of this handbook as well as any related regulatory requirements.
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HSE SLOGAN

“Health, Safety and Environmental is MY Responsibility.”

HSE MISSION

Create and sustain a culture where HSE is a core value and all actions lead to $V^+$.
Health, Safety and Environmental Policy

Southwestern Energy Company is committed to protecting people and the natural environment in all areas where it conducts business. Implementation of this policy is a core value and is the responsibility of every employee.

It is Southwestern Energy Company’s policy to:

- Comply with all health, safety and environmental laws and regulations.
- Cooperate with local, state and federal agencies in their inspection and enforcement activities.
- Incorporate health, safety and environmental considerations in the company’s planning and operational decisions.
- Develop and communicate health, safety and environmental objectives throughout the company so that all employees understand their individual responsibilities and are appropriately trained to carry out these objectives.
- Manage operations in a responsible manner and respond effectively to avoid and/or mitigate adverse health, safety and environmental impacts associated with operations.
- In the event of a safety or environmental event, report and disclose information to governmental authorities concerning the situation so as to facilitate a prompt and appropriate response to potential public inquiries.
- Conduct periodic assessments of operations to evaluate, measure and ensure health, safety and environmental performance and compliance.
- Participate in the formulation of prudent and responsible health, safety and environmental laws and regulations that may impact operations.
- Foster constructive working relationships with health, safety and environmental organizations and agencies.
- Commit the resources needed to implement HSE policy.
MANAGEMENT RESPONSIBILITIES

- Demonstrate the level of HSE excellence expected. Lead by example.
- Promote the concept that HSE receives equal consideration with production and profits by including HSE metrics in annual employee performance reviews and operational goals.
- Strive to provide all employees with a work environment free from unsafe conditions.
- Require that all injuries, vehicle collisions, spills/environmental releases, near hits, fires and any other unsafe conditions be promptly reported to supervision and investigated as necessary.
- Accompany injured SWN employees to the doctor for treatment. If management is not available, a SWN HSE representative shall accompany the injured SWN employee to the doctor.
- Provide employees with the appropriate tools and training to successfully complete each job safely.
- Verify that all employees and contractors are qualified to perform assigned job duties.
- Communicate to all employees and contract employees the SWN HSE policies and procedures.
- Require the use of necessary personal protective equipment (PPE) by all employees.
- Resolve and discuss unsafe behaviors as soon as they are observed.
- Analyze and appropriately incorporate HSE performance when evaluating service contracts.
- Require routine inspections and Job Safety Analyses (JSA) to evaluate and communicate potentially unsafe conditions prior to project commencement.
- Conduct routine contractor audits in accordance with the SWN HSE Contractor Management Program.
- Conduct and/or assign and document regularly scheduled safety meetings.
**EMPLOYEE RESPONSIBILITIES**

- Evaluate all activities before undertaking to verify that the operation will be safe (to employees and environment) and effective.
- Demonstrate responsibility by actively caring for the safety of fellow workers and the general public.
- **STOP WORK AUTHORITY** – Stop any task/job immediately if observing an unsafe act or being in the presence of unsafe conditions. There will be no retribution for any work stoppage that occurs due to HSE concerns.
- Report all injuries, vehicle collisions, spills/environmental releases, near hits, fires or unsafe conditions to supervision.
- Actively participate in regularly scheduled safety meetings and training classes appropriate to the business unit and job description.
- Wear the required PPE according to the job description and/or task.
- Assist in incident investigations as needed.
- Conduct Behavioral Safety Observations or JSA.
- Discuss any observed unsafe condition, behavior and/or practice with fellow workers and supervisor.
- Understand and comply with all HSE rules and policies that are applicable to the location and task.
- Follow Standard Operating Procedures (SOP) and/or JSA to safely complete the job.
- Advise supervisor of all prescription medication(s) and over-the-counter medications that may adversely affect the employee’s ability to do his or her job safely.
- Learn the location of all emergency equipment on the work site.
- Become familiar with all emergency response signals and plans.
**CONTRACTOR RESPONSIBILITIES**

- Evaluate all activities before undertaking to verify that the operation will be safe (to employees and environment) and effective.
- **STOP WORK AUTHORITY** – Stop any task/job immediately if an unsafe act or condition is observed. There will be no retribution for any work stoppage that occurs due to HSE concerns.
- Be in compliance with the Training Assurance Program.
- Be familiar with the respective company’s and/or SWN’s HSE requirements before starting any project on SWN facilities.
- Be responsible for the actions of employees by requiring them to be trained and to follow the rules that are applicable to the job and location.
- Immediately report all injuries, vehicle collisions, spills/environmental releases, near hits, fires and unsafe conditions to the SWN Job Representative.
- Hold pre-job safety meetings to discuss the project and anticipate HSE issues. Additionally, conduct regular safety meetings to review the project’s progress and HSE issues.
- Actively participate in crew pre-job safety meetings and review of JSA, noting hazards specific to working with contractor equipment and employees.
- Provide proof of training or other HSE documentation upon request.
- Conduct and document incident investigations and implement corrective measures.
- Participate in HSE reviews in accordance with the SWN HSE Contractor Management Program.
- Gain approval and/or appropriate training before operating company equipment.
- Verify that equipment is maintained in a safe working condition and properly rigged up prior to the start of any operation.
- Provide Safety Data Sheets (SDS) for all chemicals brought to a SWN work site to the SWN Supervisor or Person-In-Charge.
- Clean up work areas upon completion of job.
- Provide evidence of a comprehensive HSE system, suitable for Contractor’s approved scope of services, through ISNetworld or a similar review and verification service provider of SWN’s choosing. Contractor will maintain current HSE documentation, training, records, insurance and an accepted status on SWN’s approved vendor list. Failure to fulfill this responsibility will result in the Contractor being placed in a rejected status on SWN’s approved vendor list and may result in loss of work and restricted access to SWN locations.
SAFE WORK PRACTICES

General Safety Rules

The following general safety rules are the minimum required and are not all inclusive of every activity conducted by SWN employees or contractors:

• SWN will enforce compliance of HSE policies and practices.
• Report all injuries, vehicle collisions, spills/environmental releases, near hits, fires, unsafe condition and unsafe work practices, no matter how minor, to management.
• Hold a pre-job safety meeting to review procedures, equipment locations and emergency plans. Verify that all PPE needed is readily accessible for the project.
• Seat belts are required for all occupants during the operation of company vehicles or any vehicle being used for company business. It is the driver’s responsibility to require that all passengers fasten their seat belts before the vehicle is placed in motion.
• Use handrails when ascending or descending stairways.
• Operation of equipment having a “DANGER – DO NOT OPERATE” tag is prohibited.
• Under normal operations, all operating machinery and electrical switchgear is required to have all safety guards, switches and alarms in place and functional. Lockout tagout controls are required if safeguards are to be bypassed in accordance with applicable business unit energy isolation programs.
• All isolation valves upstream of pressure relief valves must be locked or sealed open.
• Jewelry, loose clothing, unsecured long hair (below collar), and other loose accessories shall not be worn when within arm’s length of rotating machinery.
• Always use correct tools and equipment for the job. Do not use damaged or incorrect tools to perform the task. Damaged tools are to be replaced, repaired or immediately discarded. Damaged tools shall be immediately tagged: “DANGER – DO NOT USE.”
• Erect barricades, flags or barricade tape around areas of hazardous work, holes, floor openings, overhead work zones and exposed energized circuits. Barricades shall have signage indicating the hazard present. Overhead protection may also be utilized when applicable. Excavations must be flagged or fenced when left unattended.
• Fire extinguishers, eyewash stations and self-contained breathing apparatuses should be inspected monthly or as required. Alarm boxes, fire doors, first aid kits and all other emergency equipment must be well maintained and readily accessible. Employees will be trained in the appropriate use of equipment.
• Smoking on company premises is restricted to designated areas only. Smoking is not permitted in any building or enclosed structure intended for employee occupancy. This includes but is not limited to the use of smoked tobacco, smokeless tobacco and any version of e-cigarette, e-cigar, e-pipes, vaporizers or other similar products under any other product name.

\[ \frac{R^2}{A} V^+ \]
• No smoking within 100 feet of any well, wellhead, tank battery, oil transfer pump, production facility or other area where combustibles, flammable vapors or liquids could reasonably exist.

• Do not walk or stand on storage tanks or piping unless they are equipped with properly designed walkways and fall-protection barriers.

• Do not stand in the “Line of Fire” when opening equipment (i.e. wellhead, electrical breaker, pig launcher/receiver, bull plug, valve, etc.).

• Do not use an air hose to blow particles off of clothing, boots, hair or skin.

• Employees and contractors will follow applicable sections of the Manual for Uniform Traffic Control Devices (MUTCD) to protect both workers and the public when SWN activities impact traffic flow on public roads.

• The use of locking style pressure washer guns or the tying of pressure washer triggers is prohibited.
Short Service Employees

A Short Service Employee (SSE) is an individual who has less than six months’ experience with the company or in a new job assignment that presents new potential hazards in the employee’s workplace. SWN has developed a program to verify that an individual is identified as new and/or new to a position while performing his or her job duties and/or roles and working on a SWN facility or location. This applies to any SWN and/or Contractor/vendor employee whose primary assignment is to Field Operations. Please refer to SWN’s SSE program for additional information.
Drug, Alcohol and Firearm Policy

It is the employee’s responsibility to be familiar and comply with the Drug, Alcohol and Firearm Policy specific to the individual’s respective business units. These policies are available through the Human Resources Department and via SWNet.

It is the responsibility of an employee of a contractor who works on SWN premises or operates or controls SWN equipment to be familiar and comply with the contractor’s drug and alcohol policies, which may be obtained from the contractor. Employees of contractors are also subject to SWN’s drug and alcohol testing policies while present on SWN premises or while operating or controlling SWN equipment.

The following policy is the minimum standard for all employees and contractors working for SWN:

- Work-related consumption or use of alcohol is not allowed while on company property or leases. Therefore, the use, possession, concealment, sale, transportation, promotion, purchase, distribution or testing positive for alcohol or drugs while working either on or off company premises, or in company vehicles, is prohibited, and subjects the employee in violation to discharge. **THIS IS A NO-TOLERANCE POLICY.**

- SWN Employees – As a condition of employment, each employee of SWN has the responsibility to be knowledgeable about the Anti-Drug and Alcohol Policy and to fully comply with the provisions of the plan. The company may require an employee to take a test to determine the presence of drugs or alcohol. Any employee’s refusal to submit to such a test is considered a presumption that the employee would have tested positive.

- Employees of contractors – As a condition of working on SWN premises and of operating or controlling SWN equipment, each employee of a contractor has the responsibility to be knowledgeable about the drug and alcohol policies of both the contractor and SWN. SWN may require an employee of a contractor who is present on SWN premises or who is operating or controlling SWN equipment to submit to a test to determine the presence of drugs or alcohol. Refusal to submit to such a test will result in that person being immediately removed and barred from SWN premises and equipment.

- An employee convicted of a criminal drug or alcohol offense will notify the company of that fact within 5 days after conviction. The conviction will result in disciplinary action up to and including discharge.

- Employees of SWN and contractors who are taking prescription medications or over-the-counter medications will inform their supervisor of this fact and of any side effects or warnings associated with taking the medication (e.g., do not operate machinery). These side effects may result in the employee being relieved of his or her duties until he or she has completed taking the medication.

- Prescriptions must be in the name of the SWN or contractor employee in possession of the medication(s). Otherwise this will result in disciplinary action up to and including discharge or, in the case of a contractor, removal from the job site.
• Any person found possessing any firearms, weapons, ammunition, drugs or alcohol on company property will be subject to being removed from the job site.

• The company may and will conduct searches and inspection for unauthorized items for any reason at any time.
**Personal Protective Equipment**

The following rules identify required PPE for all employees and contractors. Loaner equipment may be provided for visitors at the location. The SWN onsite job representative should be consulted in advance to determine availability.

Additional information can be found in 29 CFR 1910.132 Subpart I.

**General Guidelines**

- SWN will provide non-prescription safety glasses/goggles, faceshields, hardhats, respirators and hearing protection to SWN employees.
- For employees, SWN will pay a subsidy toward the cost of protective footwear and prescription eyewear that meet the requirements of this section. Contact the HSE Department for dollar amounts and procedures.
- All PPE must meet applicable standards established by recognized governmental and/or industry groups.
- Employees handling chemicals or other agents must wear proper PPE as stated on the chemical’s SDS.
- Employees are responsible for the proper use, cleaning and storage of their assigned PPE.
- Proper training is required prior to use of any assigned PPE.

**Head Protection**

(29 CFR 1910.135 and MSHA Part 56.15002)

- Approved hardhats are to be worn in field operations and other designated areas.
- Newly acquired hardhats shall meet the minimum requirements set forth by ANSI Z89.1 1997 (Type 1 or 2 – Class E Hardhats).
- No modifications or alterations of the shell or support harness are permitted.
- All hardhats that are damaged or expired, according to the manufacturer’s recommendation, shall be immediately discarded.

**Eye Protection**

(29 CFR 1910.133 and MSHA Part 56.15004)

- Safety eyewear must meet or exceed ANSI Z87.1 and shall be worn in field operations and other designated areas.
- ANSI-approved eyewear is to be worn over non–ANSI-approved eyewear or those not having side shields.
- Avoid the use of contact lenses while working with chemicals. If contact lenses are worn, special precautions such as wearing goggles must be taken.
• Dark-tinted glasses specifically designed for cutting will be worn by the welder at all times when using an oxygen-acetylene torch. Dark-shaded safety glasses are not an acceptable alternative.

• Welding helmets fitted with #10 filtered lenses will be worn by the welder. The welder’s fire-watch or work assistant will wear welders #5 filtered cutting lenses at all times when electric arc welding.

• Splash-proof chemical goggles will be worn when handling hazardous chemicals liquids or powders or when exposed to chemical fumes. Examples include cleaning with chemical solutions or solvents and handling or mixing chemicals.

• Clear-lens safety glasses shall be worn while working inside buildings and during night-time operations (dusk – dawn).

• Although fogging is a known problem while wearing eye protection, employees are expected to stop the activity, clean their eye protection and then continue on with the activity. Fogging does not relieve the employee of the responsibility for wearing eye protection when appropriate.

**Face Shields**
(29 CFR 1910.133 and MSHA Part 56.15014)

• Face shields will be worn over safety glasses any time there is exposure of flying debris or splashing particles. Examples:
  ○ Changing tong dies
  ○ Hammering on high-tensile steel (like chain links)
  ○ Using bench grinders or portable disk grinders
  ○ Chipping, filing, buffing
  ○ Spraying with a high-pressure paint or water gun

• Although face-shield fogging is a known problem, employees are expected to stop the activity, clean the face shield and then continue on with the activity. Fogging does not relieve the employee of the responsibility for wearing the full face shield when appropriate.

• Face shields are not to be substituted for eye protection. Safety glasses must be worn in conjunction with face shields at all times.

**Hearing Protection**
(29 CFR 1910.95 and MSHA Part 62.160)

• Hearing protection must be worn in designated high-noise areas. (85 dBA or higher).

• If the high-noise area is determined to be 115 dBA or higher, dual protection (inserts and muffls) shall be worn.

• Hearing protection shall be worn properly to verify maximum decibel protection.
Hand Protection
(29 CFR 1910.138 and MSHA Parts 56.15006 and 15007)

- Employees must wear hand protection appropriate for the task when performing work that may cause injury to the hands. An example would be wearing rubber gloves when handling caustic soda, acids, soda ash and lime. Consult SDS for specific PPE requirements.
- Electrical lineman’s gloves are to be worn when working on energized electrical equipment that exposes the employee to voltages greater than 50 VAC, except during diagnostic testing. Gloves will be replaced or tested every six months by an approved independent laboratory. Wearers of the lineman’s gloves are to test for holes or leaks before each use. Defective or damaged gloves must not be used. Any glove found defective or damaged should be destroyed and replaced immediately.
- No rings, jewelry or other personal accessories may be worn while working around rotating machinery.

Foot Protection
(29 CFR 1910.136 and MSHA Part 56.15003)

- Protective footwear is required to be worn in field operations and other designated areas.
- Management may dictate the need for special requirements (i.e., defined heel, leather, canvas, etc.).
- The protective footwear must meet or exceed ASTM F2413.
- Foot protection shall cover the ankles and have appropriate steel or composite protecting the toes.
- Foot protection shall be maintained in safe-working conditions. For example, exposed steel on the toe presents an electrical hazard to the wearer.

Clothing
(29 CFR 1910.132 and MSHA Part 56.15007)

- Clothing will not be torn, baggy or ragged such that it may catch on machinery or create unnecessary exposure to the employee’s torso, arms or legs.
- Non–flame-resistant clothing must have a minimum of 4-inch sleeve covering the shoulder. The wearing of tank tops or sleeveless shirts, or wearing of overalls with no shirts, is prohibited.
- Pants will be full-length and made of sturdy material such as cotton.
- Pants will not be tucked inside of work boots while handling chemicals, mud mixing or welding activities.
- Short pants are prohibited unless authorized by management. Clothing should be washed frequently. Oil-saturated clothing irritates the skin and also poses a fire hazard.
• Flame-resistant clothing (FRC) will be required for all employees (SWN employee and contractors) working on SWN field locations where experience and/or hazard assessment has identified the risk of flash fire. FRC is not intended to be used in place of administration, engineering and work practice controls but to provide an added margin of protection. SWN’s FRC policy is available from the local HSE staff member or on SWNet.

• FRC shall be laundered according to NFPA 2113 requirements.

**Respiratory Protection**
(29 CFR 1910.134 and MSHA Part 56.15005)

SWN has established a written Respiratory Protection Policy and program. Respiratory protection will be provided to all employees based on hazard exposure. Any employee identified as needing respiratory protection for job responsibilities must be trained, have an annual fit test and medical evaluation and/or questionnaire reviewed by a physician. All employees wearing a respirator must be clean-shaven in the seal area of the respirator to verify a proper fit and seal.

• Respirators must be cleaned and disinfected after each use and stored in a sanitary container when not in use.

• Dust masks are NOT permitted as respiratory protection. Dust masks are NOT a suitable replacement for air-purifying, half-face respirators.

• Dual-cartridge respirators will be worn whenever spray-painting or by anyone working or exposed to atmospheres contaminated with harmful dusts, mists, smokes, sprays or vapors.

• Self-Contained Breathing Apparatuses (SCBA) will be used for entering areas contaminated with toxic gases or atmospheres that are oxygen deficient.

• Air-supplying respirator hoods will be used while sandblasting.

**Note:** If entering a confined space, the Confined Space Entry process must be followed.

**Personal Flotation Devices**
(29 CFR 1926.106 and MSHA Part 56.15020)

Appropriate Personal Floatation Devices (PFDs) shall be worn by all SWN employees engaged in work over water. To meet U.S. Coast Guard requirements, a boat must have a U.S. Coast Guard-approved Type I, II, III or V life jacket for each person aboard. Boats 16-ft. and over must have at least one Type IV throwable device as well.
Back/Lifting Safety

When lifting or moving loads, employee shall assess the weight, bulkiness of the item and the route of travel. Proper lifting techniques should be used. When the load is too heavy for one person to lift, the employee shall ask for assistance or use a mechanical lifting device. Below are proper lifting techniques for employees to utilize:

- Keep feet apart – one alongside and one behind the object to be lifted. Feet should be comfortably spread to give stability.
- Keep back arched. An arched back means the spine, back muscles and body are in correct alignment.
- Grip the object with the whole hand, both the palm and fingers
- Keep elbows and arms tucked to side of body. This reduces fatigue in chest and arm muscles and is the position where the most power can be generated for lifting. This position also helps control the center of gravity of the body.
- Keep head high and chin tucked in.
- Keep body weight (center of gravity) directly over feet. Start the lift with the thrust of the foot behind the object being lifted. Lift with legs and bring the load close to the body for the most efficient carrying position. Lift smoothly, without jerking or twisting.
- To raise an object above shoulder height, first lift to waist height.
- To change direction, turn the entire body, including the feet. DO NOT twist body at the waist while lifting.
- Do not carry an object that is too big to see over or around.
- For objects that are too large or bulky to be carried by one person, use proper moving equipment or get help.
Cable, Chain, Rope and Sling Safety

(29 CFR 1926.552 Subpart N, MSHA Part 56.16007, and SWN Lifting and Rigging Standard)

General Safe Working Practices

Employees should utilize these tips for proper cable, chain, rope and sling safety:

- Do not damage machines or any soft surfaces of the load with the lifting apparatus.
- Avoid sharp bends in slings and wire rope and protect slings from sharp edges and abrasions.
- Avoid sudden jerks when lifting or lowering loads.
- Set loads down on proper blocking – never directly on a sling.
- Do not side load.
- Maintain an angle between the sling and the horizontal greater than 45 degrees to reduce stress on the sling.
- Do not stand or walk under suspended loads.
- Never stand or step over any line that is under stress.
- Do not leave suspended loads unattended at any time. Use tag lines of sufficient length to control the lift.
- Slings not in use must be properly stored.
- Chain hoists and snatch blocks should not be fastened to girts because bending of the girts will weaken the derrick.
- Keep hands, fingers, feet and other body parts from between the load line or sling and the load. Do not attempt to guide a load with hands on the sling.

Inspection Process

- Operations supervisors will maintain manufacturer and third-party-load test records for all rigging materials in service requiring annual load tests.
- Only qualified employees shall make inspections.
- Inspect all rigging equipment before each use.
- Identification tags shall be on all slings. This tag will identify working load limits for the sling, along with other information pertinent to safe use.
- Cables, wire ropes, shackles, chains, slings, hooks and other devices that do not meet the inspection criteria shall immediately be removed from service. Frayed or damaged nylon slings shall be cut and discarded.
Rigging Equipment

- Know the safe carrying capacity of sling chains, wire rope, hoists and other lifting apparatus and do not overload them.
- Immediately destroy defective lifting equipment to prevent further use.
- Do not tie knots in sling chains, rope slings or wire cables to shorten them.
- Do not place bolts or other material between links of chain to shorten or splice it.
- Do not lift or hoist any object of unknown weight.

Shackles

- Never replace the shackle pin with a bolt. Use only the proper size fitting pin.
- Never use a shackle if the distance between the two eyes has spread to where the original pin can no longer be used (i.e., the shackle bolt cannot be threaded so that it makes contact with all thread surfaces provided in the eye).
- All pins must be straight and all screw pins must be completely seated.
- Do not side load the shackle.
- Destroy all shackles that are worn in the crown area or pin by more than 10% of the original diameter.
- Do not use a screw pin shackle if the pin can roll under the load, unscrew and release the load.
- Shackle pins should be secured with safety wire to prevent the pin from unscrewing, especially when in the derrick or in other overhead work.
- Bolt Type Anchor Shackles (BTAS) should be used to secure all overhead equipment such as hoist sheaves.

Rigging of Wire Rope Clips

- Be sure to use the proper number of wire rope clips when attaching, and make sure they are placed so that the U-bolt is on the short or “dead” end. The saddle should be placed on the long or “live” end. (“NEVER SADDLE A DEAD HORSE”)

Refer to Figure I.

- Wire rope removed from service will be destroyed to prevent further use. Used wire rope will only be used for stripping drill pipe when it is placed inside of a bolstered tubulars basket. Used wire rope will not be used on standard drill pipe racks.
- Wire-rope clamps or factory-poured swedges will be used to create an eye in wire rope rigging.
- Wire-rope clamps should be properly sized, torqued and spaced for the diameter of the wire rope used.
- Flemished, plaited eyes will not be used on any wire rope rigging.
• Protruding tails or bitter ends of wire rope strands on slings and bridles will be taped or blunted.

• Wire rope will be removed from service and not be used if there are (10) broken wires in (1) rope lay or (5) broken wires in any (1) strand.

• Wire rope will not be used if it shows signs of excessive wear, corrosion or defect.

<table>
<thead>
<tr>
<th>Diameter of Rope (Inches)</th>
<th>Number of Clips</th>
<th>Distance Between Clips</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/16” or less</td>
<td>2</td>
<td>2-3”</td>
</tr>
<tr>
<td>1/2” - 5/8”</td>
<td>3</td>
<td>3-4”</td>
</tr>
<tr>
<td>3/4” - 1”</td>
<td>4</td>
<td>5-6”</td>
</tr>
<tr>
<td>1-1/8” - 1 - 1/4”</td>
<td>5</td>
<td>7-8”</td>
</tr>
<tr>
<td>1 3/8” or larger</td>
<td>6</td>
<td>9”</td>
</tr>
</tbody>
</table>

Application of Wire Rope Clips

Correct Method – U-bolts of clips on short end of rope
(No distortion on live end of rope).

Wrong Method – U-bolts on live end of rope
(This will cause mashed spots on live end of rope).

Wrong Method – Staggered clips: Two correct and one wrong
(This will cause a mashed spot on live end of rope).

Figure I
Compressed Gas Cylinders

(29 CFR 1910.101 Subpart H and MSHA Part 56, Subpart L)

All compressed gas cylinders shall be handled, used and stored in accordance with the HSE Handbook and state and local regulations.

Employees should utilize these tips for proper handling of compressed gas cylinders:

• Do not accept damaged cylinders.
• Keep protective caps on cylinders when not in use.
• When moving cylinders, protective caps must be in place.
• Keep cylinders away from direct flame, heat and sources of ignition.
• Properly secure cylinders at all times. During movement, avoid rough handling, the striking of cylinders and observe all USDOT requirements (i.e., labeling, manifest documentation, etc.).
• Cylinder contents must be properly labeled. Reject cylinders and return to vendor if not properly labeled.
• Close all valves when not in use.
• Cylinder valves must have a handle or other shutoff mechanism in place while in use.
• Regulators are to be removed from cylinders when not in use unless the regulator is designed to be capped or the cylinders are in an approved welding cart.
• Discharge leaking cylinders outdoors by opening the discharge valve slowly one fourth of a turn.
• Use proper lifting methods/devices (i.e., cradles) for cylinders. Do not lift by the valve or protective cap. Ropes and slings are not to be used for lifting cylinders.

Using Cylinders

• Never use a cylinder of compressed gas without a pressure-reducing regulator connected to the cylinder valve.
• Always close the cylinder valve before attempting to stop leaks.
• Do not use oil or grease as a lubricant on valves or attachments to oxygen cylinders.
• Threads on fittings must correspond to cylinder valve outlets.
• Check valves/flame arrestors are to be utilized on fuel gas/oxygen systems.

Storing Cylinders

• Store cylinders in an upright position at all times. Secure cylinders with chain.
• Do not store oxygen cylinders within 20-ft. (6 m) of combustible materials or fuel gases unless divided by a 5-ft. (1.75 m) fire-resistant wall rated for one half hour.
• Store empty and full cylinders separately.
Fire Prevention and Protection
(29 CFR 1910.155 Subpart L and 1926.150 Subpart F and MSHA Part 56, Subpart C)

Fire Prevention Guidelines

- Class A fire materials (paper, wood, rags, etc.) should be minimized in process areas.
- Buildings in which flammable or combustible liquids are being used must be well ventilated at all times.
- Any fire extinguisher found discharged during monthly inspections will be tagged as unsafe, removed from service and replaced immediately.
- The supervisor will be notified immediately upon a fire extinguisher being discharged.
- Access to fire detection and firefighting equipment will be kept clear at all times. Equipment will not be obstructed with pallets, tarps, mud sacks, tools, etc.
- Smoke detectors will be present and in good working order in every living quarter/trailer. Detectors will be tested every 6 months.
- Perform required atmospheric monitoring prior to and during operations that involve opening hydrocarbon vessels or tanks.
- Use “snoop” suds or intrinsically safe gas detection meters when testing for gas leaks on connections. Never use an open flame.
- Use only approved cleaning solvents.
- Transport of Class II flammable liquids (such as gasoline, diesel fuel or mixed fuel) shall be done in approved safety cans or Department of Transportation–approved containers with the contents clearly labeled.
- A safety can is an approved container of not more than 5 gallons capacity, having a spring-closing lid and spout cover, that is designed to safely relieve internal pressure when subjected to heat or flame.
- A safety can also must be listed or approved by a nationally recognized testing laboratory such as Factory Mutual Engineering Corp. or Underwriters’ Laboratories, Inc., or Federal agencies such as Bureau of Mines or U.S. Coast Guard, which issue approvals for such equipment.
- Never place portable safety cans inside passenger compartments of vehicles.
- When transferring flammable or combustible liquids from barrel, tank, line or vessel to another container, the source container and the receiving container must be electrically bonded to prevent ignition due to static electricity. Plastic cups/buckets must not be used for collection of hydrocarbon samples.
- Flammable liquid containers or aerosol cans are to be stored in flammable storage cabinets. If opened containers will not fit in the flammable storage cabinet, then remaining product must be used or appropriately discarded.
Fire Response Procedures
In the event of fire, the following procedures must be used:

• The first two minutes of a fire are the most critical for extinguishment. Assess the situation and SUMMON HELP.

• Initiate emergency shutdown (ESD) and/or activate alarm systems if available, evacuate and then secure the area. If working on a rig, the Driller or Tool Pusher will sound the rig alarm/horn to notify everyone on location of a fire.

• Only trained employees are qualified to operate fire extinguishers and equipment.

• Never fight a fire if the cause or source is not known, or if it is beyond the initial stage.

• Give direction to third-party firefighting agencies.

Firefighting Procedures

• Locate the firefighting equipment.

**Note:** When activating a cartridge-type fire extinguisher, an employee should point the fill cap away from self or others.

• With the wind at the employee’s back, approach the fire and discharge the extinguisher at the base of the fire, sweeping the blaze while advancing.

• After the fire is extinguished or if unable to extinguish, back away facing the fire. An employee should never turn his or her back on a fire. Stand by – at a safe distance – to verify that an extinguished fire remains extinguished and there are no flashbacks.

• After discharging or using a fire extinguisher, return it for maintenance and recharging.

Iron Sulfide

• Iron sulfide is a material capable of spontaneous combustion when exposed to air. Often combustion occurs on the ground or inside structures such as columns, vessels, tanks, piping, and exchangers. Iron sulfide fires commonly occur during shutdowns or construction activities when equipment and piping are opened for inspection or maintenance. Iron sulfide can ignite nearby flammable hydrocarbon–air mixtures.

• Deposits of iron sulfide are formed from corrosion products and may accumulate throughout a structure. Before carrying out any maintenance, construction or similar work activities, a safe work procedure addressing iron sulfide shall be developed, communicated and implemented where iron sulfide is likely to occur. This procedure may be addressed as part of the JSA. Procedures shall address:
  ○ Removal of the combustibles (if possible); and,
  ○ Removal, neutralization or wetting of iron sulfide deposits; or,
  ○ Removal of oxygen, so that fire is unsustainable (i.e., nitrogen purging).
• Steaming, water washing; blinding and chemical injections (i.e., acid cleaning, chelating solutions or oxidizing chemicals) are all control methods that should be evaluated prior to the start of work. Scraps and debris (such as filters) collected from structures must be kept wet or otherwise controlled to prevent fire during transportation.

**Note:** Introducing fresh air into a vessel/piping via air movers may enhance the combustion process, thus igniting flammable hydrocarbons. An evaluation for iron sulfide shall be made and a Hazard Analysis should be completed prior to the start of maintenance, construction or similar activities in areas known to contain iron sulfide.
Hand Tool and Power Tool Safety
(29 CFR 1910.242 Subpart P and 1926.300 Subpart I and MSHA Part 56, Subpart M)

- Tools will be used for their intended use only. Employees are expected to take the time necessary to get the correct tools.

- Tools will be inspected before use. Tools that are in an unsafe condition will be tagged as unsafe and taken out of service. Unsafe tools will be reported to a supervisor immediately for timely repair or replacement. Only tools that are clean and in good condition will be used.

- Hammers, chisels, derrick pins, bars or similar “driving”-type tools will not be used if mushroomed or cracked. Striking tools will not be used on mushroomed hammer unions until cleaned up with a file or until the hammer union is removed from service.

- Any tool with a cracked handle will be immediately removed from service. The handle will be replaced prior to returning the tool to service.

- Purpose-built pail lid removers will be used for removing lids from 5-gallon containers. Pocketknives and utility knives will not be used for this purpose.

- Pipe wrenches with worn heels or jaws and/or bent handles will not be used. Worn heels and jaws will be replaced prior to returning the tool to service.

- Power tools with cut or damaged cords/plugs will not be used until the cord or plug is repaired or replaced.

- Power tools will be properly grounded or manufactured with double-insulated casing.

- Power tools with trigger-locking devices that provide continuous operation are permitted, provided turnoff can be accomplished by a single motion of the same finger used to turn power on. This applies to portable drills and grinders with disks greater than a 2-inch diameter.

- If fitted with an “on/off” switch, a power tool will not be plugged into its power source until the switch is first verified to be “off.”

- Guards will not be removed from portable grinders. Handheld disk grinders without manufacturer-installed guards will not be used. Grinders shall not be used if guards are missing.

- Grinders will be fitted with disks rated at proper speeds. The rated speed of the grinder must not exceed the speed of the grinding disk.

- Grinder disks must be suited for the material to be ground. Do not grind wood with disks intended for metal objects.

- Handheld grinder disks should be a quarter inch or thicker. Worn or damaged disks will be replaced immediately.

- Clamps or vises will be used to hold all work dressed by handheld power tools. Employees will not attempt to hold the work using their free hand or a foot.
• Bench grinders without protective shields and adjustable tool rests will not be used.

• Bench grinder tool rests will be adjusted to one eighth inch from the face of the grinding wheel.

• Grinding on the side of a bench-mounted grinding wheel is prohibited. The side of a grinding wheel shall not be used for grinding unless the equipment and wheel are designed for such use.

• A face shield will be worn over standard safety glasses by anyone operating or standing near the flying debris from a portable or bench-mounted grinder.

• All adjustments to a portable grinder or other hand tool will be made before plugging the tool to its power source. No adjustments will be made without first unplugging the cord (i.e., to install a new grinding disk or to replace a drill bit in a hand drill).

• Electrical power tools will be secured by unplugging from the power supply, then wrapping up the cable. An energized extension cord or cable shall not be wrapped up.

• Pneumatic tools with trigger-locking devices that provide continuous operation are permitted, provided the hand tool is also fitted with a positive holding accessory. If the hand tool does not have the handhold device, the tool must be fitted with a constant pressure control switch that will shut off when pressure is released.

• Air pressure will be bled off any air-powered tool prior to disconnecting the hose.

• Air supply hoses will be properly pinned with a keeper pin at all crow’s foot connections and safety cable between hose and air supply.

• Air supply hoses will have a safety whip check (lanyard) on all quick-connect lines that is properly sized to prevent the hose from whipping in the event a quick-connect parts.

• All power tools will be unplugged or removed from their air supply upon completion of work.

• All power tools will be unplugged or removed from their air supply prior to making any adjustments to the tool.

• Tools connected to a power source will not be left unattended.

• Compressed air outlets and hoses for air-powered (pneumatic) tools will not be pointed at another person or used to clean off boots or clothing while they are being worn.

• Maintain high standards of orderliness by returning tools to their proper storage place. Tools shall not be left lying about.
Job Safety Analysis
(29 CFR 1910.132 Subpart I)

JSA is a way of studying a job in order to identify the hazards or potential accidents associated with each step of the job and to develop solutions that will eliminate, nullify or prevent such hazards. A JSA can help identify and eliminate potential accident causes. It is the responsibility of operations to develop and maintain JSA lists.

JSA Steps
There are four steps to doing a JSA:

1. Select the job to be analyzed.
2. Break the job down into steps.
3. Identify the hazards or potential accidents that could happen.
4. Develop measures to eliminate hazards.

Select the job to analyze
There are many jobs or tasks that can be hazardous to perform. To determine which jobs or tasks require a JSA, consider the following:

- Job accident frequency – jobs that have a history of many accidents are good candidates for a JSA. It is a good assumption that if a job has produced many accidents in the past 5 years, it is going to continue to do so.

- Job injury severity – jobs that have provided serious injuries are potential JSA candidates.

- Potential injury severity – some jobs have no injury history but have the potential to produce severe or crippling injuries or death.

- Newly established jobs – changes in tools, equipment and new machinery create new hazards, and as such are natural candidates for a JSA. The JSA will document the hazards and safe procedures before anyone has an accident.

Break the job down into steps
The major reason for breaking the job down into steps is so that each step can be examined for hazards and the potential for accidents. It permits the analysis to be done systematically, one step at a time, in the order the job is done. Each step in the job process tells generally what must be done. (Use active verbs – remove, position, tighten, etc.). The details are omitted. Hazards are not listed in this process, nor are any safety precautions.
Identify the hazards (potential accidents)

Once the job is broken down into steps, each step is studied for hazards or potential accidents. The job is to identify all the hazards, whether they are part of the job environment or surroundings, or one of the worker’s own doing. Record those hazards that are present or may occur as the job is performed. One of the best ways to identify job hazards is to observe the jobs as they are done.

Employees should ask questions similar to these as the task is being observed (this is a partial list, each situation may suggest others):

1. Could the worker be struck or make contact with anything?
2. Could the worker strike something or fall in any way?
3. Could an exposure or overexposure occur to any condition such as gas, heat, fumes, etc.?
4. Could a strain or overexertion occur?

Develop measures to eliminate hazards

Once all the known or observed hazards are noted, a solution should be developed for each hazard. Solutions may take any one of the following forms:

1. Job procedure solution – spell out exactly what workers are to do to accomplish the task safely.
2. Job environment solution – change some aspect of the environment to make the job safer.
3. Radical solution – a combination of the two above, but an entirely new way to do the job.
4. Reduced frequency solution – find a way to reduce the amount of repair, cleanup, wear, etc., to reduce the amount of times the task is done.
5. Assign the measures to a specific person.
Radiation Safety

- Any employee who is to operate a radioactive device requires radiation safety training and must be familiar with and have access to SWN’s Radiation Safety Program.

- All employees working with densitometers are required to take a Radiation for Authorized User course.

- All employees who work in proximity to a densitometer are required to take a Radiation Awareness Course.

- A Radiation Safety Officer (RSO) will conduct radiation device inspections by leak testing.

- Qualified RSOs are the only individuals permitted to ship or receive radioactive devices.
Sandblasting


- Employees must follow the Respiratory Protection policy.
- Hose operators will wear blasting hoods with an outside air supply. Keep the eye shield clean and free of dust, fog, etc.
- Gloves, long-sleeve shirts and proper foot protection with foot guards must be worn while sandblasting.
- Never use a sandblaster without an assistant to watch the valves and hoses.
- Workers assisting with sandblasting must also wear proper protection.
- If sandblasting where a fall hazard exists, safety harnesses and lanyards must be worn and used.
- Before using sandblasting equipment, employees must make certain that air hose couplings are safety-clipped together. Air supply hoses will have a safety whip check (lanyard) on all quick-connect lines that is properly sized to prevent the hose from whipping in the event a quick-connect parts.
- Point the nozzle at the object to be blasted. Bleed the air pressure off the lines before breaking the hose.
- The nozzle shall have a fully functional dead-man switch that has not been disabled.
- Protect rotating equipment from sand intrusion.
Weather Conditions

Severe Weather

- The SWN Supervisor, or his or her designee, will monitor weather conditions and will shut down normal operations when the threat of severe weather is imminent per the Field Severe Weather Emergency Action Plan.
- All employees will secure normal operations and leave the work area, i.e., rig floor, to take cover in the lowest area possible (ditches) upon seeing an approaching tornado. Employees will stay out of trailers or other temporary buildings.
- Upon notification of a severe storm and/or tornado, all normal operations will be suspended and the work area will be made ready for severe weather.
- If the employee is required to respond to an emergency situation during adverse operational or weather conditions, he or she will exercise due caution and maintain communications with supervisory employees or control center.
- All office employees should refer to the office emergency action plan for exit routes, muster points and additional policies regarding severe weather.

Hot Weather Environments

To reduce the risk of heat illness, the following procedures should be followed:

- Regular consumption of water and clear fluids. When possible, provide cooled water (50°F to 60°F) to promote voluntary consumption. Do not wait until thirsty to replenish fluids (especially when working in hot environments or performing strenuous work).
- Take frequent small drinks of water since they are more effective than drinking a large amount of water all at once. Larger individuals need more water.
- The use of salt tablets for replacement of salt lost through sweating is not recommended. An adequate salt intake is best achieved by eating three salt-seasoned meals per day.
- When possible, schedule heavy workloads for the cooler hours of the day, such as early morning or late evening.
- Give frequent rest periods.
- Lower the work rate and workloads as the heat condition increases.
- When possible, workloads and/or duration of physical exertion should be less during the first days of exposure to heat; workloads should gradually increase to allow acclimatization.

Signs and Symptoms of Heat-Related Illnesses

Fainting – Immobile employees who stand in hot environments may lose consciousness due to blood pooling.

Heat Cramps – Muscle cramps of the abdomen, legs or arms.
**Heat Exhau**t**stion** – Profuse sweating with pale, moist and cool skin; weakness; loss of appetite; dizziness. May also have heat cramps, nausea, urge to defecate, chills, rapid breathing, tingling of the hands or feet and confusion.

**Heat Rash** – Red bumpy rash with severe itching.

**Heat Stroke** – Headache, dizziness, stomach pains, confusion, weakness and sudden loss of consciousness; may have seizures; skin is hot and may be dry; pulse and respiration are rapid and weak. Heat stroke is a medical emergency.

**Cold Weather Environments**

Overexposure to cold can cause frostbite and hypothermia. To reduce exposure to cold:

1. Use shielding from cold.
2. Rotate employees and/or take rest breaks.
3. Drink warm fluids.
4. Work during the warmest times of the day.
5. Use correct PPE, including gloves, insulated coveralls, head and face protection, layered clothing and insulated footwear.
6. Adjust workload to prevent sweating.

Frostbite is the freezing of body tissues. Symptoms of frostbite include skin discoloration (white to grayish-yellow) along with cold and numb extremities. Treatment for frostbite is as follows:

1. Cover the frostbitten area with a warm hand or woolen material. Do not rub the area. If the fingers or hands are affected, have the victim put the hand under the armpit.
2. Place the affected area in lukewarm water.
3. Let circulation re-establish itself naturally. When the frostbitten area has warmed up, gently exercise it.
4. Give victim warm, nonalcoholic beverage.
5. Never rub the affected area with snow or ice.
6. Never use hot water or heat to thaw frostbite.

Hypothermia results from prolonged exposure to a cold and wet environment and is a condition where the entire body cools and the core body temperature drops. Hypothermia can be fatal without medical help. Symptoms include severe shivering, slow irregular pulse and numbness. Treatment for hypothermia is as follows:

1. Wrap the victim in blankets or other available insulating materials.
2. Slowly warm the victim by applying heat sources such as heating pads. Be careful to avoid burns, and do not apply heat source directly.
Office Safety

In addition to other procedures/precautions in this manual, the following safety precautions should be followed when working in an office environment. There may be other site-specific procedures or requirements, so check with the HSE Department or Facility Operations.

Precautions

- Each employee shall be familiar with the location of the fire alarm pull station nearest their workstation.

- Each employee must become familiar with the appropriate evacuation route for his or her workstation. Evacuation routes for each floor and building area are clearly marked in prominent locations.

- During fire alarms, Emergency Wardens (listed in the Emergency Action Plan on SWNet) should make last-minute searches of their assigned areas to verify that all employees are evacuated. Employees are expected to help the Emergency Wardens by clearing the area quickly. **If an Emergency Warden requests employees to leave an area, they must do so!**

- During evacuations, **DO NOT USE ELEVATORS!** Employees must use the stairwells, following the nearest exit signs and evacuation drawings. Check closed doors for temperature and smoke before opening.

- All passageways, entryways, aisles, storerooms, service rooms and work areas must be kept clean, orderly, sanitary and well maintained with no obstructions.

- Aisles and hallways shall remain unobstructed for evacuation and immediate access for fire response personnel and equipment.

- Flammable and combustible materials or residue in buildings or operational areas must be kept to a minimum. These materials should be stored in metal safety cans or storage cabinets that meet Underwriters Laboratories, Inc. or Factory Mutual standards.

- Material/boxes (limited in height) must be stacked without blocking sprinkler heads, fire exits, fire extinguishers, electrical control panels, etc.

- File drawers and desk drawers shall not be left open. Do not overload top drawers such that cabinets may tip over.
Workstation Ergonomics

Employees should utilize these tips to prevent stress-related injuries:

- Adjust chair height so that upper legs are horizontal and feet are flat on floor.
- Adjust chair to sit up straight and obtain proper back support.
- Avoid tilting or turning head to view the computer monitor.
- Avoid tilting head to hold the telephone receiver between head and shoulder.
- Verify that forearms and wrists are level.
- Avoid resting hands, wrists or arms on hard or sharp edges.
- Verify that computer table is just below forearm/wrist height.
- Verify that the workstation provides adequate legroom.
- Keep arms resting comfortably at sides and shoulders relaxed.
- Place keyboard and mouse at comfortable distance from the body.
- Place frequently used items within easy reach.
- Place document holders at the same height and distance as the computer monitor.
- Alternate tasks to break up extended periods on the computer.
Confined Space Entry

This standard establishes procedures necessary for preparation, entry and restoration of a confined space to be entered by employees. Examples of confined spaces may include, but are not limited to, tanks, vessels, underground meter boxes and valve boxes.

Excavations greater than 4 ft. deep may meet the definition of a confined space if they are to be entered by employees. These excavations shall be entered in accordance with the Excavating and Trenching Safety Standard.

Definitions

**Attendant** – An individual who is stationed outside a permit-required confined space. An attendant is required whenever a physical hazard cannot be eliminated and/or a hazardous atmosphere cannot be controlled through ventilation. The purpose of an attendant is to monitor and be in communication with the entrant in the event of an emergency or if evacuation is required.

**Confined space:**

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

**Entrant** – An individual who is authorized by the company to enter a confined space.

**Entry** – Begins when any part of the entrant’s body breaks the plane of the entryway. Opening hydrocarbon vessels/tanks for gauging and inspections, without breaking this plane, will not require the completion of a Confined Space Entry Permit (providing the plane is not broken).

**Entry Supervisor** – An individual responsible for determining if acceptable entry conditions are present, for authorizing entry, overseeing entry operations and for terminating entry into a permit-required confined space.

**Non-Permit Confined Space** – A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

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

1. Contains or has a 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;
4. Contains any other recognized serious safety or health hazard.
**SWN Person-In-Charge**—A SWN company representative who is responsible for overseeing the entry into a confined space at a SWN facility and/or location. If an individual works directly for SWN he or she may represent both the Entry Supervisor as well as the SWN Person-In-Charge.

**The Duration of the Permit is:**

- Crew change, end of shift or end of job, whichever occurs first;
- Emergency conditions will cancel the permit.

**Preparation for Entry**

In preparation for entry, a Confined Space Entry Permit shall be initiated and completed according to the following procedure:

1. Each space must be inspected and evaluated by a qualified individual, prior to entry, to determine potential hazards within the space. An evaluation will include atmospheric monitoring and a thorough assessment of physical hazards.

2. Atmospheric monitoring for oxygen, explosive gases/vapors and toxic gases/vapors shall be performed during the initial assessment and the results must be recorded on the Confined Space Entry Permit. At a minimum, the following tested atmospheric hazards shall be within these acceptable levels:
   - Oxygen = 19.5% – 23.5%
   - Lower Explosive Limit (LEL) = < 10%
   - Suspected toxic air contaminants (i.e., hydrogen sulfide, carbon monoxide, etc.)

**Note:** Oxygen content must be tested first
- Lower Explosive Limit (LEL) = < 10%
- Suspected toxic air contaminants (i.e., hydrogen sulfide, carbon monoxide, etc.)

3. If a potential atmosphere is the only hazard within the space and continuous forced air ventilation alone is sufficient to maintain the space safe for entry, then following 1910.146(c)(5) the SWN Person-In-Charge may utilize *Alternate Entry* and reclassify the space as a Non-Permit Confined Space; all supporting information must be documented. Depending on the task being performed, the SWN Person-In-Charge will determine the frequency and procedural intervals of when re-testing should occur.

4. If explosive gases or vapors are present within the confined space, an explosion-proof blower or air mover is required and all practical efforts shall be made to reduce these flammable gases or vapors (% LEL) to as close to zero as possible.

**Note:** Forced air may present a hazard if iron sulfide is present (see Fire Safety).

5. If a confined space does NOT pose an actual or potential atmospheric hazard and if all non-atmospheric hazards within the space are eliminated without entry into the space, then following 1910.146(c)(7) the SWN Person-In-Charge may *Reclassify* the space as a Non-Permit Confined Space; all supporting information must be documented. Examples of eliminating potential hazards without entering the space may include LOTO, blind flanges, line disconnects, double block and bleed, etc.
6. Signs, barricades, and/or personnel shall be posted outside confined spaces to notify unauthorized personnel when entry is in progress.

7. All electrical equipment utilized inside of a confined space must have a ground fault circuit interrupter (GFCI).

8. A minimum of two individuals must be present when entering a confined space.

9. If the confined space atmospheric tests are not within the acceptable limits or the physical hazards cannot be eliminated, the space is classified as a PERMIT-REQUIRED CONFINED SPACE.

**Note:** Only properly trained personnel can work as an Entrant, Attendant or Entry Supervisor. Entry into a permit-required confined space requires verbal notification to the HSE Department.

10. Rescue equipment including lifelines, harnesses, air supply systems and hoists must be in use when entering all Permit Required Confined Spaces. A trained rescue team is to be available onsite along with a site specific rescue plan.

11. If lighting equipment is required where flammable or combustible gases or liquids are present then lighting must be intrinsically safe.

**Entry**

Authorized personnel may make entry only after preparation requirements have been met and a Confined Space Entry Permit has been reviewed and signed by all personnel involved with the entry.

The confined space atmosphere shall be RE-TESTED as often as necessary during entry to identify any atmospheric changes.

**Restoration**

When work is complete and the confined space is ready to be returned to service, the permit shall be used as a checklist for proper restoration of the space. Additional items to consider include:

- Are all personnel out of the space?
- Are all blinds removed, vents closed, etc., per the list compiled during preparation?
- Are all equipment and tools removed?
- Are all entryways and flanges closed and sealed?
- Have start-up procedures been reviewed?

**Program Review**

Completed confined space entry permits must be reviewed no less than annually and maintained at the site office for a minimum of one year.
**Electrical Safety**


This section contains basic electrical safety practices to help prevent injuries associated with hazards arising from the use of electricity and to comply with regulatory standards applicable to electrical systems.

In addition to following the general electrical safety rules presented in this section, each business unit shall implement and document an overall electrical safety program that directs activity appropriate for the electrical hazards, voltage, energy level and circuit conditions according to the SWN Electrical Safety Policy (SWN-HSE-706), which can be found on SWNet.

Safety programs used by contractors must meet or exceed all applicable guidelines of SWN's established HSE policies/procedures.

**Definitions**

**Arc Flash Boundary** – When an arc flash hazard exists, an approach limit as a distance from a prospective arc source within which a person could receive a second degree burn if an electrical arc flash were to occur.

**Limited Approach Boundary** – An approach limit as a distance from an exposed energized electrical conductor or circuit part within a shock hazard.

**Qualified Electrical Worker** – A qualified person trained, knowledgeable and with demonstrated competency in the construction and operation of equipment or a specific work method who is trained to recognize and avoid the electrical hazards that might be present with respect to that equipment or work method. **Note:** A person can be considered qualified with respect to certain equipment and methods but be unqualified for others.

**Important:** A Qualified Electrical Worker is the only one permitted to perform equipment modifications, repairs and installations involving exposure to energized parts.

**Unqualified Person** – Persons who operate electrically powered equipment but are not trained to perform any operation or maintenance on electrical equipment or components.

**Working On** – Intentionally coming into contact with energized electrical conductors or circuit parts with the hands, feet or other body parts with tools, probes or test equipment, regardless of the PPE a person is wearing. There are two categories of “working on”:

- Diagnostic
- Repair

**Safety Training Requirements**

Specific training associated with safety-related work practices and procedural requirements are presented in the SWN Electrical Safety Program. The degree of training will be determined by the job task(s) performed by the employee.
Electrical Safety Rules

- The most important principle of electrical safety is to assume that all electrical circuits are energized unless each involved worker verifies that they are not.

- Only Qualified Electrical Workers shall perform tasks such as testing, troubleshooting and voltage measuring within the limited approach boundary of energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists.

- All employees are to be trained in the hazards of working on or near energized electrical equipment.

- A SWN-approved Energy Isolation LOTO program must be utilized to isolate the energy source.

- The process of de-energizing is “live” work and can result in an arc flash due to equipment failure.

- Energized work shall be permitted only when it can be demonstrated that de-energizing introduces additional hazards or increased risk.

- If energized work is required within the limited approach boundary or the arc flash boundary of exposed energized electrical conductors or circuit parts that are not placed in an electrically safe work condition, work to be performed shall be considered energized electrical work and shall be performed by written work permit only. Required elements of a work permit and exemptions are presented in the SWN Electrical Safety Program.

- Electrical tools and protective equipment must be specifically approved, rated and tested for the levels of voltage to which the employee may be exposed.

- PPE shall conform to the results of the incident arc flash hazard analysis or standards presented in NFPA 70E.

- Un-insulated metallic items, such as rings, neck chains, watches, eyewear, etc., are not to be worn while working on or near exposed energized electrical circuits.

- Electrical equipment that is likely to require examination, adjustment, servicing or maintenance while energized shall be labeled according to the requirements presented in the SWN Electrical Safety Program.

- Barricades shall be used in conjunction with safety signs where it is necessary to prevent or limit employee access to work areas containing energized conductors or circuit parts.

- Sufficient access and working space shall be provided and maintained around all electric equipment to permit ready and safe operating and maintenance of such equipment.

- Illumination shall be provided for all working spaces around electrical equipment.
• Electrical interlocks must not be rendered inoperative by removal, modification or destruction. Electrical interlocks may be defeated only temporarily during the performance of a specific task and must be returned to working condition immediately thereafter.

• Blown fuses shall be replaced with equal type and interrupting rating using the appropriate fuse tool and PPE.

• Fuse pullers will be used for changing electrical fuses.

• Non-conductive ladders must be used when working on or near electrical equipment or conductors. The use of metal ladders and stools is prohibited.

• Defective electrical equipment and extension cords are to be inspected and immediately removed from service if found to be unsafe until repairs or replacement can be performed.

• Portable cord and plug-connected equipment shall be inspected prior to each use and be equipped with a cord that has ground fault protection or is double insulated.

• Lighting fixtures will be kept in working order. Broken or burned out bulbs will be replaced promptly. Vapor-proof globes and guards will be placed over lights where necessary.

• Electrical equipment (including lights, radios, pagers, blowers, etc.) used within a 5-ft. radius of the well bore, shale shakers or mud pits will be explosion-proof.

• Drop cords will NOT be lowered into the well bore for light.

• Extension cord sets are not permanent installations.

• Secure extension cords to prevent tripping hazard.

• GFCIs are to be tested prior to use.

• An assured grounding program shall be established and followed if GFCI devices are not used.

• Safety grounds shall be used when working on electrical circuits and equipment.

• Non-conductive mats will be placed in front of electrical switchboards in Motor Control Centers (MCCs) and maintained in clean condition.

• All equipment will be properly grounded per manufacturer specifications.

**Power Lines**

• All power lines should be considered energized.

• When power lines are de-energized, they shall have safety grounds attached.

No part of a crane, boom, mast, gin pole or machinery should be permitted within 10 ft. (3 m) of the power lines rated 50 kV or below. For energized lines rated above 50 kV, the minimum distance between power lines and the boom, mast, crane or its load must be 10 ft. (3 m) plus one half inch (1 cm) for each kV over 50 kV.
Working on Energized Electrical Equipment

Energized work shall be permitted only when it can be demonstrated that de-energizing introduces additional hazards or increased risk. If work requires that the electrical equipment be worked on while energized, the following procedures apply:

- Work on energized electrical equipment of 600 volts or more will only be conducted by a Qualified Electrical Worker with a safety observer present.

- The safety observer (certified in first aid/CPR) shall maintain direct communication with worker(s) during troubleshooting and/or adjustments to exposed energized equipment.

- Work on energized electrical equipment between 50 and 600 volts shall require a hazard identification and a risk assessment procedure that may include identifying when a safety observer is required and the training and equipment that person should have.

- Affected personnel shall be notified of the activities being performed, the location, equipment affected and duration of work.

- Use established special precautionary techniques, PPE, insulating and shielding materials and insulated tools.

- All affected personnel shall be notified when work is completed.

Batteries and Battery Charging

Batteries of the unsealed type shall be located in enclosures with outside vents or in well-ventilated rooms and shall be arranged so as to prevent the escape of fumes, gases or electrolyte spray into other areas.

- Ventilation shall be provided to ensure diffusion of the gases from the battery and to prevent the accumulation of an explosive mixture.

- Racks and trays shall be substantial and shall be treated to make them resistant to the electrolyte.

- Floors shall be of acid-resistant construction unless protected from acid accumulations.

- Face shields, aprons and rubber gloves shall be provided for workers handling acids or batteries.

- Facilities for quick drenching of the eyes and body shall be provided within 25 feet (7.62 m) of battery-handling areas.

- Facilities shall be provided for flushing and neutralizing spilled electrolyte and for fire protection.

- Battery-charging installations shall be located in areas designated for that purpose.

- Charging apparatus shall be protected from damage by trucks.

- When batteries are being charged, the vent caps shall be kept in place to avoid electrolyte spray. Vent caps shall be maintained in functioning condition.
Energy Isolation – Lockout/Tagout (LOTO)

(29 CFR 1910.147 Subpart J and MSHA Parts 56.12016, 12017 and 14105)

This standard establishes minimum requirements for controlling energy sources during the service, repair or maintenance of machinery and equipment. These requirements will aid in preventing injury to personnel, damage to property and damage to the environment due to the unexpected energizing, start-up or release of stored energy. Sources of stored energy include electrical, mechanical (pumping units, mud pumps), hydraulic, pneumatic, compressed natural gas lines, natural gas flow lines and any other source of stored energy.

Note: Oil and gas well drilling and servicing are exempt from LOTO according to 1910.147(a)(1)(ii)(E) but are still required by SWN to implement sufficient programs to prevent unexpected energization or startup of machines or equipment or the release of stored energy that could harm personnel.

Procedures

Detailed written LOTO procedures shall be developed by each operating area. It is the responsibility of Operations personnel to develop and maintain all site-specific LOTO procedures.

Note: Supervisors are responsible for performing and documenting an annual audit of the Energy Isolation program at each operating area.

Locks and Tags

- Locks, tags and other LOTO hardware required by this standard must be available to workers at all times. Contractors must provide their own locks, tags and other hardware when performing LOTO.
- LOTO locks and tags must not be used for any purpose other than LOTO.
- Tags must include the following information:
  - Condition or reason for tagging
  - Date
  - Equipment being tagged
  - Name of person applying tag
  - “DANGER – DO NOT OPERATE” or similar warning

Preparation and Installation

- The work area and equipment should be surveyed to identify isolation points and the proper methods of energy isolation.
- The machine, equipment or process must be shut down.
- Any stored hazardous energy must be isolated and relieved by closing valves, de-energizing switchgear, opening vents, disconnecting, restraining or blinding. Reviewing the most current flow or equipment diagram will assist in locating all isolation points. Blinds shall be installed when the release of combustible or toxic liquids, vapors or gases into the work area cannot be controlled.
• **The energy source should be locked out through the use of** locks, blinds, chaining of valves, double block and bleed systems, disconnecting pipe or by other means that prevent the release of energy.

**Note:** Double block and bleed is a method used on process piping where block valves are closed, locked and tagged and the bleed valve located between the two block valves is locked open to vent to atmosphere. A closed valve with a body bleed does not constitute a double block and bleed.

• The lockout device should be tagged with a “DANGER – DO NOT OPERATE,” or other appropriate tag designed to conform to the company’s LOTO program.

**Note:** Each person doing the work shall install a lock and tag. There must be only one key for a lock or set of locks, and that one key will be held by the locking personnel until completion. The “group lockout” method (defined as using a single lock for the group) is acceptable only where it is defined in a written document and approved by HSE.

• The area must be cleared of personnel and tools before attempting to relieve any stored energy remaining in the equipment prior to beginning the work.

• The equipment should be energized (by starting and stopping before beginning the work). Verify that start/jog switches will activate equipment prior to being de-energized.

**Restoration and Removal**

• Only the person(s) originally attaching the lock and tag is authorized to remove the lock and tag. If this person is unavailable, the supervisor or his or her designee, after complete inspection of the affected area, may assume responsibility for removal of the lock and tag and notification of all parties.

• Only qualified personnel are allowed to start up machinery or equipment after it has been determined that no personnel are exposed to any hazards and all safety checks have been completed.

**Note:** In the event that shift or personnel changes occur during maintenance or repair activities, the designated SWN site supervisor must take necessary steps to maintain the continuity of the LOTO protection. This shall verify the transfer of LOTO devices between affected employees is correctly accomplished.

**Restoring Equipment to Service**

• All guards must be reinstalled.

• All electrical wiring must be returned to conform to electrical code requirements.

• All blind flanges or skillets must be removed and piping properly connected.

• Tools, materials and other nonessential items should be removed.

• All machine or equipment components should be inspected and verified they are operationally intact.

• Employees in the area should be notified that LOTO devices are ready to be removed.

• Personnel should verify that all employees are safely positioned or removed from the area.

• Each lock and tag from each energy-isolating device should be removed.
Excavating and Trenching

(29 CFR 1910.650 Subpart P and MSHA Parts 56.3400, 3401and 3430) This standard applies to all excavations 5 ft. (1.5 m) in depth or more and intended for worker occupancy. In addition to the following steps, a Confined Space Entry Permit may be required for personnel entry into such excavations that have the potential for hazards (i.e., atmospheres, cave-ins) that cannot be controlled, or serious safety hazards that cannot be eliminated. All excavations must meet or exceed OSHA requirements found in 29 CFR Part 1926 – Subpart P – Excavations, or MSHA Part 56 (for mining activities).

Definitions:

**Benching** – A method of protecting employees from cave-ins by excavating the sides of a trench to form one or a series of horizontal levels, or steps, usually with vertical or near-vertical surfaces between levels.

**Competent Person** – One who is formally trained and capable of identifying existing and predictable hazards, soil types in the surroundings or working conditions that are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them.

**Excavation** – Any man-made hole, cavity, trench or depression in an earth surface formed by earth removal.

**Shoring/Trench Box** – A structure such as a metal, hydraulic, mechanical or timber shoring system that supports the sides of an excavation and is designed to prevent cave-ins.

**Sloping** – A method of protecting employees from cave-ins by excavating to form sides of an excavation that is inclined away from the excavation. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure and application of surface loads.

**Soil Classification System** – Denotes classification used by the National Bureau of Standards (Exhibit III).

**Classifications include:**

- **Stable Rock** – Natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

- **Type A Soil** – A cohesive soil with an unconfined compressive strength of 1.5 tons/ft (14.6 Mg/m²) or greater. Examples: clay, silty clay, sandy clay, clay loam, silty clay loam, sandy clay loam, caliche and hardpan. (If a soil is fissured, subject to vibration or previously disturbed, it is considered Type B or C.)

- **Type B Soil** – A less cohesive soil with an unconfined compressive strength greater than 0.5 tsf (4.9 Mg/m²) but less than 1.5 tsf (14.6 Mg/m²). Examples: angular gravel or crushed rock, silt, silt loam, sandy loam and dry rock that is not stable.

- **Type C Soil** – The least cohesive soil with an unconfined compressive strength of 0.5 tsf (4.9 Mg/m²) or less. Examples: gravel, sand, loamy sand, submerged soils or freely seeping soils and submerged rock that is not stable.
**Note:** The thumb penetration test can be performed by a Competent Person to estimate the unconfined compressive strength of cohesive soils.

- Type A soils can be readily indented by thumb only with great effort.
- Type B soils can be penetrated by thumb approximately halfway.
- Type C soils can be easily penetrated several inches by the thumb and can be molded by light finger pressure.

**Excavation and Trenching General Safety Rules**

Excavations more than 4 ft. (1.2 m) deep may be considered confined spaces and may require a permit in accordance with the Confined Space Entry section of this handbook. The following provisions shall be reviewed:

- Excavated soil, materials or equipment that could pose a hazard by falling or rolling into an excavation shall be stored and/or retained at least 2 ft. (0.61 m) from the edge of the excavation. If excavations endanger the stability of adjacent structures (building, walls, or other structures), support systems shall be provided.
- Soils can become unstable from heavy equipment operation in the vicinity of the excavation.
- Guardrails or barricades should be used to mark the limits of the work area. Any time a trench is left unattended in populated areas, use guardrails or barricades sufficient in size to prevent unintentional entry.
- An employee shall not be directly underneath the operating equipment while it is being lowered or raised in an excavation or trench.
- Employees exposed to public vehicular traffic must wear reflective/high-visibility warning vests.

**Procedure**

1. Each excavation must have someone formally trained and designated as a competent person; that person will conduct and document daily inspections (more often if needed) if personnel will be required to enter the excavation.

Additional inspections are required after significant rainfall or freeze/thaw occurrences.

2. No individual(s) will be permitted to enter an excavation unless it is deemed necessary.

3. Before opening any excavations, personnel shall:
   - Determine the location of utility installations, such as sewer, telephone, fuel, power lines, water lines, pipelines or any other underground installations.
   - Utilize the “one-call” or appropriate notification system to contact utility companies and other affected parties. Advise of proposed work prior to the start of actual excavation. Municipalities or other regulatory agencies may require permits.

4. Excavations, 4 ft. deep or greater involving entry require ladders, steps or ramps located so that no more than 25 ft. (7.6 m) of lateral travel is required to exit the excavation.
5. The walls of the excavation are to be protected from caving-in by one of the following:
   - Shoring
   - Sloping or benching (Note: Benching is only allowed on A and B Soil.)
   - Trench boxes (shields) – If used must extend a minimum of 18 inches above the vertical side of any excavation.
   - Some other equivalent means approved by a registered professional engineer from the state where the excavation is located. Note: Sloping or benching for excavations greater than 20 ft. (6 m) deep must be designed by a Registered Professional Engineer.

**Note:** If the excavation requires a person’s head to be below ground level, appropriate precautions shall be in place to address hazardous atmospheres. If the excavation is less than 5 ft. in depth and personnel entry is necessary, cave-in protection may be required if the soil exhibits unstable soil characteristics.

### Maximum Allowable Slopes for Excavations

<table>
<thead>
<tr>
<th>Soil or Rock Type</th>
<th>Horizontal/ Vertical</th>
<th>Less than 20-ft. (6 m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable Rock</td>
<td>3/4:1</td>
<td>(90 degrees)</td>
</tr>
<tr>
<td>Type A</td>
<td>1:1</td>
<td>(53 degrees)</td>
</tr>
<tr>
<td>Type B</td>
<td>1.5:1</td>
<td>(45 degrees)</td>
</tr>
<tr>
<td>Type C</td>
<td></td>
<td>(34 degrees)</td>
</tr>
</tbody>
</table>
Fall Protection
(29 CFR 1910.23 Subpart D and 19260.501 Subpart M and MSHA Part 56.15005)

Drilling, completions and production operations are subject to the requirements of OSHA’s general industry fall protection standard of 4 ft. [29 CFR 1910.23]. Construction of well pads, compressor stations, installation of pipeline and compression equipment, as well as the construction of impoundments and ponds, are subject to the requirements of OSHA’s construction industry fall protection standard of 6 ft. [29 CFR 1926.502]. Fall Arrest Systems are to be used when other fall protection systems are impractical or insufficient (i.e., scaffold work requiring top and midrails to be removed).

General Requirements

- 100% fall protection must be maintained at all times while performing elevated work, to include the use of two lanyards if needed to allow the employee to remain anchored to one point while moving to the next point. This requirement does not apply to work being performed from portable ladders.

- The use of waist belts for fall arrest and non-locking snap hooks is prohibited.

- The double-locking hook on a self-retracting lifeline will be hooked directly into the dorsal D-ring on the back of the full body harness. The retractable spool will not be hooked into a shock-absorbing lanyard.

- Self-retracting lifelines that have been subjected to a load will be removed from service and forwarded to a manufacturer’s approved repair facility for overhaul and/or inspection.

- Self-retracting lifelines will be inspected every other year by the manufacturer or his or her designated representative. Maintenance and inspection will be documented and maintained on site.

- To minimize fall distance, the tie-off or anchor points should be at the height of the D-ring or higher.

- To minimize swing falls, tie-off or anchor points should be as close as possible to directly above the head.

Fall Arrest Systems

Fall Arrest Systems shall include:

- A full-body harness with D-ring in the middle of the back situated between the shoulders and a double EZ-Stop lanyard (2 lanyards)

- An appropriate anchorage attachment capable of supporting at least 5,000 lb. static load

- Connectors

The system may include a lanyard deceleration device, lifeline or suitable combination of these.
Before donning the fall arrest system, the employee shall:

- Inspect Fall Arrest components prior to each use.
- Remove from service and destroy damaged components or equipment that has experienced a fall.
- Verify that Fall Arrest equipment is not to be used to hoist equipment/materials.

If an employee is working in an area where they could fall into and be submerged in water, an approved type 1 or type 2 life jacket or buoyant work vest must be worn, and at least one life-saving skiff or boat should be immediately available.
Ladder Safety
(MSHA Part 56.11003)

- When climbing up or down any ladder, personnel should face the ladder and maintain a 3-point contact with hands free of materials.
- Personnel should keep body centered between the ladder side rails (or within the width of the cleats) when climbing and while working. Personnel should not overreach or lean while working from a ladder.
- All ladders must be inspected before each use. Damaged ladders should be tagged as unsafe and removed from service.
- If work from a ladder is long-term in nature or requires heavy physical exertion, other methods such as scaffolds or personnel lifts should be used.
- Metal ladders must not be used for electrical work.

Non–Self-Supporting Ladder (Portable Extension Ladder)

- Ladder shall be positioned at a safe angle, which is typically a 4:1 vertical to horizontal ratio.
- The ladder shall be secured at the point of support to prevent movement. To accomplish this, a person will stabilize the ladder at the bottom while the climber climbs and secures the ladder at the top. If a ladder cannot be secured at the top, outriggers or another employee must stabilize the ladder while it is in use.
- A portable extension ladder must extend 3 ft. (1 m) past the point of support when accessing a working surface (i.e., roof).

Self-Supporting Ladders (Portable Step Ladders)

- A stepladder must be used with the spreader bars in the locked-down position.
- A stepladder shall never be used as a straight ladder.
- Do not stand on the top two steps of a self-supporting ladder.

Personnel Lifts

- Employees in a man-lift basket will maintain 100% tie-off to the basket.
- Employees working in a man-lift basket desiring to transfer from the basket to any other elevated surface or substructure will first tie off to the next object before removing their lanyards from the man-lift basket.
- Employees must work with both feet securely on the floor of the platform. Working with feet on a rail or working from a ladder placed in the personnel lift is prohibited.
- All entrance gates or chains must be in their fully closed position before moving the lift.
- Lift controls and the structural integrity of the lift shall be inspected/tested each day prior to use.
- Employees should never tie off to an adjacent pole, structure or equipment while working from within the personnel basket.
Scaffolds
(MSHA Part 56.11027)

• A Competent Person must be appointed to oversee scaffolding erection and disassembly.

• Only heavy-duty pole-and-tube and coupler scaffolds should be used.

• Scaffolding will be kept clean and in good condition. It will be inspected prior to each rig-up for cracks or other damage.

• Footing shall be sound, rigid and capable of carrying the maximum intended load. Unstable objects such as bricks, blocks or boxes must not be used.

• Scaffold heights greater than 4 times the base must be properly secured to the working structure unless otherwise noted by the manufacturer.

• When working under a scaffold, overhead protection is required.

• Working from portable ladders on the scaffold platform is prohibited.

• Appropriate guardrails shall be utilized on all scaffolds. Toe boards must be installed on platforms that are 10 ft. (3.05 m) above ground level or walkways that are 6 ft. (1.8 m) above ground level.

• Fixed or secured portable extension ladders must be used to access scaffolding if no built-in ladders are present.

BOP Scaffolding

• Metal-type scaffolding will be used around the BOP stack to provide a stable, non-slip working surface unless other appropriate means of fall protection are provided.

• Scaffolding will be tied on both ends to the hangers/ladders that support it to prevent side movement or vibration.

Stairs

• Employees will keep one hand on the handrail at all times while climbing up or down stairs. Employees will not carry things up or down stairs that require more than one hand to hold. One hand will be kept free and on the handrail at all times.

• Sliding down handrails, skipping steps or running on steps is prohibited.

• Stairs, steps and walkways will be kept free of obstructions. Stairs, steps, walkways and handrails will be kept clean of mud, grease, dirt or other slippery materials. Stairs or steps will be utilized whenever they are provided.

• Stair landings will be kept clear of slip, trip or fall hazards.

• Stairs will be bolted down or securely pinned with a pin and keeper combination so as to prevent any movement.
Walkway/Mud Pit Guarding and Grating/Cellar Covers

- Walkways and mud pit tops will be kept clear of obstructions (hoses, tools and equipment) and slip hazards at all times.

- All grating or floor plating will be kept in its proper position and secured to prevent slip, trip or fall hazards. All holes larger than 2 inches will be covered.

- All grating will be properly supported with braces.

- Sections of grating that cannot be returned to the correct position will be barricaded and flagged with caution/danger tape to re-route normal traffic until properly repaired.

- Shortcuts around fixed walkways are prohibited. All employees will take the time necessary to use established walkways.

- Employees will not climb outside of handrails bordering normal traffic areas to perform work or repairs unless secured with proper fall protection.

- Cellar cover will be constructed of expanded metal and placed over the top of the cellar at the start of each new well to reduce potential fall hazards.

- Wood pallets should not be used as elevated walking/working surfaces as they may contribute to slips/trips/falls and ankle injuries.
Hot Work
(29 CFR 1910.252 Subpart Q)

A Hot Work Permit is required for the following maintenance/construction operations:

- Hot work within 100 ft. of an area where combustible, flammable vapors or liquids could reasonably exist. Hot work sources may include:
  - Open flame
  - Welding or burning
  - Grinding
  - Use of electrical tools

- Welding on lines in service, hot cuts or hot-tapping requires Hot Work Permit(s).

- A Hot Work Permit is not required if the work is performed in a designated Hot Work area. Designated Hot Work areas on drilling locations should be no less than 100 ft. from the well bore and not less than 50 ft. from vegetation or other combustible materials.

General Hot Work Requirements

- Cutting or welding should only be performed by qualified welders.

- Proper fire prevention equipment should be on hand before cutting or welding begins.

- When welding or cutting in a hazardous area, one person should be designated as a Fire Watch. This person should stand by with a fire extinguisher and be trained in its use.

- Cutting or welding on any derrick or load-bearing rig structure is prohibited without appropriate approval.

- No field welding is permitted on tongs, elevators, bails, blowout preventers, choke manifold or other heat-treated equipment.

- LEL monitors must be approved and properly calibrated.

The Duration of the Permit is:

- Crew change, end of shift or end of job, whichever occurs first;

- Emergency conditions will cancel the permit.

Hot Work with Gas/Air Atmosphere in Vessel

Hot Work such as flame cutting, welding, grinding and sandblasting may be done on a vessel or pipe when atmospheric gas concentrations do not exceed 10% of LEL. The atmospheric measurements will be taken with the gas monitor’s probe in the vessel or pipe (or as close to the vessel or pipe as possible). Employees shall not enter the vessel or pipe to perform monitoring (see the Confined Space Standard).
Procedure

1. Employee initiates permit and submits to the SWN Supervisor or Job Representative for approval.

2. The SWN Supervisor or Job Representative reviews the job, adds precautions such as a Fire Watch, O2 levels, % LEL and qualifications of welders.

   **Note:** The Hot Work Permit requires that employees monitor for O2 and % LEL levels (other gases may apply) before the job begins. Periodic or continuous monitoring must be performed to verify that levels remain safe.

3. The SWN Supervisor or Job Representative then signs the permit.

   **Note:** Workers cannot be in a vessel when the LEL is above 10%.

4. LEL levels in excess of 10% will cause all hot work to be discontinued immediately. The permit will be cancelled and declared null and void. A new permit must be reissued prior to the restart of work.

5. A copy of the Hot Work Permit is to be posted at the work site; other copies are maintained in the office for at least 30 days.

6. The area should be checked for changing conditions as the job is performed. This should include O2, % LEL and toxic materials.

   **Note:** A Hot Work Permit is not required for non-open flame hot work if continuous use of a four-gas air monitoring device takes place and the unit stores the data and can be retrieved if needed. A Fire Watch is not required for non-open flame hot work.
Cutting and Welding
(29 CFR 1910.252 Subpart Q and 1926.350 Subpart J and MSHA Parts 56.4600, 4603, 4604, 14213 and 15007)

- All cutting and welding equipment will be inspected prior to use.
- All ground connections should be securely made and kept in good condition to eliminate arcing.
- Oxygen and acetylene hoses should be inspected for leaks, damaged fittings, etc., on a job-to-job basis.
- Cylinders should be handled carefully. They must not be handled roughly, dropped or knocked around. They should be secured upright at all times.
- Protective caps should be placed on both full and empty cylinders while they are being moved or transported.
- The proper regulator should always be attached before using gas from the cylinder.
- Oxygen cylinder fittings should be kept free of oil and grease.
- Main oxygen and acetylene valves must always be closed and bled down after completing cutting operations.
- Welding leads are to be inspected daily by the welder for insulation breaks.
- Cutting torches must not be left unattended in tanks or void spaces because leaks could cause an explosion.
- When welding drive pipe or any object connected or supported by the block, a ground wire must be attached to prevent electrical arching of the drilling line, crown, block bearings, drawworks, etc.

Remember: Oxygen and oil or grease products DO NOT MIX – such a combination could result in a spontaneous fire or explosion. Oxygen is not to be used to clean work area or clothes.

Note: Refer to Business Unit Operations Manual for specific Hot Tapping Procedures.
Tagging and Flagging
(29 CFR 1910.147 Subpart J)

Danger tags indicate that a hazard exists and a “DANGER – DO NOT OPERATE” tag or similar wording shall be used in the following situations:

- Valves not in normal operating position
- Defective valves, equipment or tools
- Safety or emergency equipment unfit for use

Note: For equipment undergoing maintenance, employees should refer to the Energy Isolation Safety Standard in the handbook and local Energy Isolation Procedures.

Procedure

1. The items listed above shall be tagged in the following manner to verify proper attention.

2. The following shall be noted on the tag:
   - Condition or reason for tagging
   - Date
   - Equipment being tagged
   - Signature of person applying the tag

3. Tagging should be documented in the operations log or LOTO Log.

4. Tag should be properly attached with a nylon tie-rap.

5. If the tag is not readily visible, a flag (bright-colored ribbon) must also be attached. Flags never substitute for a tag.

6. Local personnel/supervision should be notified upon completion of the work.

7. Tags and flags should be removed after normal operating conditions are restored.
VEHICLE AND MOTORIZED EQUIPMENT

Workers who operate motorized equipment on behalf of the company are responsible for the safe operation of that equipment. Motorized equipment can include forklifts, cranes, backhoes, bulldozers, etc. The company has established the following minimum requirements for the operation of motorized equipment.

General Precautions

• Whenever there is a safety concern, the operator will have the authority to stop and refuse to handle loads or continue operations as safety dictates.

• Only qualified employees shall operate motorized equipment. The individual training will be specific to the type of equipment and the applicable regulatory agency requirements.

• All affected utilities are to be identified and notified using the OneCall system before beginning any excavation work or use of heavy equipment.

• An operator must perform a 360-degree walk-around before operating equipment.

• No equipment shall be operated when any part of that equipment can encounter overhead lines. Employees must maintain a minimum of 10 ft. clearance from lines. (See Electrical Safety section of this handbook.)

• Before moving tall equipment, employees should review travel route for low-hanging power lines and other low-clearance structures.

• Ground employees should maintain a safe distance from operating equipment and establish eye contact with the operator before approaching.

• When climbing onto or down from any piece of equipment, the operator must maintain 3 points (e.g., 2 hands and 1 foot) of contact with the equipment or with the equipment and the ground. The operator should not jump from the equipment to the ground.

• Employees shall not be allowed to ride on or work off any part of the equipment unless specifically designed for personnel.

• Ground employees shall be notified when the operator’s visibility is obstructed in any direction. Spotters should be used to assist the operator in such cases.

• No employee shall move or allow construction equipment and/or vehicles to be moved on any access roadway or grade unless that roadway or grade is constructed and maintained to safely accommodate the movement of the equipment and/or vehicles involved.

• All equipment shall be operated in a manner that will not cause injury to the operator or fellow workers. If conditions are present which may injure or harm a worker (i.e., muddy conditions, lightning, mechanical problems, etc.) equipment operation must be suspended until the problem is resolved.

• Wheels of trucks and rubber-tired heavy equipment must be chocked when parked on inclined grades.
• All powered or motorized equipment shall be left in a zero-energy state during breaks and at the end of the shift. All hydraulic and auxiliary power systems shall be de-energized. Buckets, lifts, forks, blades, etc., shall be lowered to the ground before being left unattended.

• No machinery or equipment shall be stored or left temporarily near a highway-grade crossing in such a manner as to interfere with the sight distances of people approaching the crossing.

• Prior to beginning work, contractors must establish a designated equipment storage area that meets company and local authority approval.
Work Zone Safety
(23CFR Subchapter 924 and 49 CFR Subchapter 571 and MSHA Part 56.9100)

Employees in field operations are sometimes required to set up work zones near public roads. Drivers are to position vehicles as far off the road as possible before setting up the work zone.

These work zones shall be set up in accordance with the appropriate local, state and federal regulations. Refer to the Department of Transportation Federal Highway Administration Manual for Uniform Traffic Control Devices (MUTCD) on procedures for obtaining basic uniformity of traffic control devices. These precautions typically include setting up cones and warning signs, proper communications systems and flagging signals, reflective worker’s vests and strobe lights on vehicles. The following signs(flagging signals (Exhibit II) should be used when directing traffic in work zones.

![Diagram of traffic control devices]

Figure II
Vehicle Safety

SWN and its subsidiaries have established the following policy to govern the safe and responsible operation of motor vehicles. It applies to vehicles owned, controlled or leased by SWN (“company vehicles”) and, except where noted, to personal vehicles or rental cars while being used for company business.

Compliance with this policy is a condition of employment; violation of this policy can result in disciplinary action up to and including termination. Supervisors will provide drivers the SWN Driving Standards and additional policies and programs as applicable. **Drivers must obey federal, state and local laws and regulations and are expected to exercise due care and good judgment.** In the event of a conflict between laws and this policy, laws take precedence over SWN policy, procedure or process.

Drivers must also:

- Drive defensively – plan for distracted drivers, road hazards, dangerous conditions, etc.
- Adjust speed for road conditions.
- Check mirrors frequently.
- Maintain safe following distance.
- In the case of field-related activities, apprise your supervisor of your route according to your department’s journey management practices.
- Properly maintain vehicle to include safety features and emergency equipment.
- Be fully fit to drive and follow company work hour policy.

Drivers are REQUIRED to:

- Be authorized by SWN to operate company vehicles and trained in a SWN approved driving program.
- Enforce correct seat and shoulder belt use among the driver and all passengers AT ALL TIMES when vehicle is in motion.
- Secure transported materials inside and outside of the vehicle.
- Obey posted speed limits and road instructions.
- Report vehicle damage to your supervisor, no matter how minor; report incidents to authorities as required by law.
- Perform a pre-trip 360-degree walk-around inspection on company and rented vehicles.
- Report to your supervisor all traffic citations received while operating a company vehicle.
- Report to your supervisor all incidents that occur while operating any vehicle covered by this policy.
- Report to your supervisor immediately any drug- or alcohol-related citations.
Drivers are PROHIBITED from:

- Using company vehicles for personal use outside of incidental errands.
- Tampering with or attempting to bypass a vehicle safety feature such as proper seat and shoulder belt positioning, supplemental restraint system, seat and shoulder belt indicators, in-vehicle driver feedback systems, etc.
- Being under the influence of alcohol or drugs, to include drugs that contain warnings regarding driver impairment, while driving.
- Smoking in company or rental vehicles.
- Transporting alcohol, illegal drugs or firearms in company vehicles.
- Manipulating phone, laptop, GPS, or other electronics devices while driving a vehicle covered by this policy, other than responsible hands-free cell phone or two-way radio use.*
- Using company-issued electronics, other than responsible hands-free cell phone use*, while driving any vehicle.

* SWN drivers shall avoid using cell phones devices while driving. If a cell phone must be used, it must be in a limited, hands-free, responsible and safe manner that does not distract the driver. Passengers shall also avoid cell phone use that distracts the driver. Under no condition are drivers required to use electronic communication devices while driving.

**Safety and Emergency Equipment for Company Vehicles**

The following emergency and safety devices are required as minimum equipment to be carried in company vehicles and maintained in an operable condition at all times. All equipment will be properly installed and secured. Supervisors may increase such equipment in accordance with driver and equipment exposure, such as tire chains, hydraulic jacks and flashlights.

**Automobiles:**
1 – First aid kit and related supplies
1 – 5-lb. ABC fire extinguisher

**P/U or Trucks:**
1 – First aid kit and related supplies
1 – 5-lb. ABC fire ext. (Minimum)*
 Recommend 20-lb. fire ext. or greater
3 – 12” x 12” red flags – (Min. size)*
3 – Reflective triangles*

* Required on certain DOT Commercial Motor Vehicles.
Forklifts
(29 CFR 1910.178 Subpart N and MSHA Part 56.16016)

Although forklifts are indispensable tools for moving heavy objects, their operation and proper maintenance require special precautions and training. The use of forklifts is restricted to trained employees that have been authorized by their supervisor to operate the forklift.

Forklift operators must be certified through training and have a skills evaluation test at least every three years. Refresher training is also required whenever one of the following occurs:

- The operator is involved in an incident or a near hit.
- The operator has been observed operating the equipment in an unsafe manner.
- The operator has been determined in an evaluation to need more training.
- There are changes in the workplace that could affect safe operation (i.e., different types of paving, reconfigured storage racks, new layout with narrower aisles or restricted visibility).

Forklift Standards

- Employees must complete an inspection checklist before each use. This includes checking for warning and safety devices. Any deficiency must be reported to supervision.
- Seat belts shall be used when operating forklifts.
- To prevent movement, brakes should be set and the wheels blocked on a trailer or truck that is being loaded or unloaded.
- When the forklift is not in use, the forks must be resting on the ground.
- Only loads within the rated capacity of the forklift should be handled.
- Loads should be carried low, with forks just off the ground and tilted back.
- Do not allow any person to stand or walk under elevated forks, whether loaded or empty.
- 55-gallon drums should be moved on pallets, a drum rack, in a basket or with a drum-handling extension. Drums shall not be moved by “sandwiching” them between forks.
- Do not use a forklift to raise people for overhead work without an approved, load-rated platform equipped with forklift-compatible attachments.
- Forklift shall be properly shut off before an operator exits the equipment.
Gin-Pole, Winch Truck and Crane Operations

Gin-Pole and Winch Truck Safety

- The surroundings must be surveyed for power lines and other obstructions prior to initiating gin-pole, crane or lifting operations.
- Gin-pole truck drivers will not drive within 10 ft. of a power line. In the event a driver contacts a power line with his gin-pole, the driver will remain in the truck and avoid touching any metal objects until power lines have been de-energized. No one in the vicinity of the truck will touch the vehicle until the power lines have been de-energized
- All employees will maintain a safe buffer zone of 10 ft. from any load that is lifted or tail-boarded on a truck or trailer.
- The winch truck operator will take signals from one designated flagger at all times.
- Anyone may signal an emergency stop during winch truck operations.
- Winch truck operators will minimize the height of suspended loads during transport. Loads will be kept close to the ground.
- Winch truck operators and swamper will not lift any load with lifting slings or rigging that creates a 45-degree or lesser angle with the load. All loads will be properly rigged prior to lifting.
- Employees will not walk or position themselves under suspended loads or between the load and the tailboard of the truck.
- Winch truck operators will not leave the winch controls while a load is suspended.
- Winch truck operators will wear the proper PPE anytime they leave the cab of the winch truck.
- Cotton or leather gloves will be worn by anyone handling a winch line or wire rope sling.
- Employees will stand to the side and out of the “line of fire” when releasing chain binders.
- Only ratchet-type binders will be used by SWN trucking operations.
- Employees releasing chain binders will verify that the object secured by the binder is stable before releasing the load. If the load is unstable, the employee will verify that the crane or gin-pole truck is tied off to the object before releasing the binders.
- Winch truck lines should not be knotted on the end.
- All loads will be tied down properly prior to transport by truck, train, boat or barge.
- All winch hooks and headache balls will be inspected daily prior to use. Hooks without a properly working positive safety latch will be removed from service.
- Truck drivers will comply with speed limits posted on highways and lease roads.
Crane Safety

These guidelines apply to all employees who erect, use, operate and disassemble cranes. All employees that work in the vicinity of cranes shall abide by the policies and procedures set in this handbook or by the Business Unit.

- Crane operations must be supervised by a competent and qualified person.
- Cranes will only be operated by certified and licensed employees.
- The site where cranes will be operated will be evaluated for hazards, including electrical hazards, ground conditions, pinch points and other conditions within the swing radius of the crane that may be operated.
- A JSA must be completed and communicated with employees that are working around crane operations before any crane may be operated.
- Only qualified riggers and signal persons may be used.
- Cranes will be inspected daily, monthly and annually according to manufacturer’s specifications.
- Critical and engineered lifts must have a documented lift plan in place.
- Lifts must not be made until the weight of the lift is identified and the weight is confirmed to be within the crane and rigging capacity.
- Taglines are required on every pick where controlled pivoting could occur.

Taglines

(29 CFR 1926.550 Subpart N and MSHA Part 56.16007)

- Employees involved in material handling will work all loads with a tagline.
- Taglines will be attached to the end or corner of a load before it is lifted.
- Taglines will be constructed of sash cord, half-inch rope or 1-inch nylon strap and free of knots or hooks. Sisal rope or soft line is prohibited.
- Chains, cables and fall-protection lanyards will not be used for taglines.
- Taglines will not be wrapped around the hand, wrist, waist or any part of the body.
- Taglines will be of sufficient length such that no part of the person’s body will be under the load at any time.
- Employees will not stand on or in the eye of a tagline.
- A snub line from the load to the tail of the truck may be used in lieu of a handheld tagline to minimize swinging while transporting a load across location.
- Employees are considered to be standing under a suspended load if close enough to touch the suspended object with their hand while it is above the waist.
Fuel Supply and Transfer  
(29 CFR 1910.178 Subpart N)

- All bulk fuel supply trucks will be fitted with a bonding/grounding strap between the truck and the fuel storage tank. The truck will be chocked and grounded prior to fuel transfer. A catch bucket will be placed under the transfer pump and hose connections.

- All fuel supply equipment, including hoses, fittings and valves, will be inspected prior to transfer. Only matching fittings with good rubber gaskets will be used. Tank vent plugs will be clear.

- Fuel truck drivers will comply with all PPE standards to include wearing of hard hat, safety glasses, shirts, long pants and foot protection.

- A safety observer (SWN employee or the fuel truck driver) will be positioned near fuel transfer operations with a fully charged fire extinguisher for emergency response until the fuel transfer is complete. A safety observer will not leave the fuel transfer until the transfer is completed, secured or relieved by a qualified replacement.

- Tank readings will be taken regularly during transfer to prevent overflowing the fuel storage tank.

- Upon completion of fuel transfer, the hose will be drained in a bucket to prevent spillage.

- Any overflows or spills will be cleaned up promptly to eliminate slip hazard and minimize environmental damage.

- Fuel transfer operations will be stopped upon observing a leak. Transfer operations will not continue until the leak is repaired or eliminated.

- Gasoline-powered transfer pumps will not be used to transfer fuel, water or other fluid products from truck tanks to rig storage tanks or into truck tanks.

- Explosion-proof electrical pumps may be used to transfer fuel or other fluid products.

- Fuel truck drivers will remain with their truck during fuel transfer operations.

- All smoking (including in designated smoking areas within 100 feet of fuel transfer area) will be temporarily suspended during fuel transfer operations.

- Fuel tank levels will be determined using sight-glass tubes and/or flashlights. Fuel tank levels will not be determined using a cigarette lighter, match or other open flame as a source of light.

- Hoses used for fuel transfer will be fitted with factory-installed crimped-end connections. King nipples, boss fittings and field-installed end connections secured with wire, worm gear clamps or banding material are prohibited.

- Upon completion of refueling a forklift or other rolling stock, the person performing the task will verify that the isolation valve between the tank and the supply hose is fully closed and the hose and nozzle are properly stored.
GENERAL OPERATIONAL SAFETY

This section is intended to provide SWN employees with a general set of guidelines to reference when company operations are being conducted. To reference specific procedures for an individual operation, refer to the specific business unit best management practices. If a copy of these practices should need to be obtained, contact HSE or the SWN Site Representative.

During operations, the SWN Site Representative/Supervisor shall implement the SWN HSE Program and is responsible for coordinating with the contractor’s supervisor. The SWN Site Representative or Supervisor will verify that the rig crew and all service employees are familiar with SWN standards, rules, policies and procedures.

The contractor and his or her supervisors are responsible for implementing the safety requirements of their company and SWN. Any conflict with SWN standards or policies shall be brought to the attention of the SWN Site Representative.

General Precautions

- All employees arriving at the location shall immediately notify and sign in (if available) with the SWN Site Representative/Supervisor.
- All vehicles, other than authorized service vehicles, will be parked by backing into a pre-designated area located a safe distance from operations being performed.
- All employees working on SWN locations shall utilize appropriate PPE for the task being performed.
- For both critical and non-routine operations, a pre-job safety meeting shall be held to review procedures, equipment and emergency plans.
- Emergency equipment shall be appropriately stationed, identified and readily accessible before a task can begin.
- SDSs for all chemicals being utilized on location shall be maintained and readily accessible.
- All employees working on SWN locations shall utilize equipment in a manner consistent with its intended purpose.
- High-reaching equipment shall not be used within 10 ft of a power line.
- Open flames or heat-producing task performed within 100 ft of an area where combustible and/or flammable vapors or liquids could reasonably exist requires a Work Permit.
- Proper precautions shall be taken when working with high-pressure lines to minimize employee exposure.
- All pressure equipment shall be mounted, tested and maintained according to the Original Equipment Manufacturer (OEM) and/or to meet appropriate regulatory standards.
• Where necessary, place barriers, signs and/or equivalent measures to ensure that unauthorized employees will not enter high pressure areas.

• Unnecessary equipment and/or employees shall be removed from the immediate area during critical operations.

• Any equipment with a potential for stored energy shall be properly locked and tagged before maintenance can be performed.

• No employee shall be allowed under a suspended load for any reason.

• Every employee working more than 4 ft. above the walking/working surface shall utilize appropriate fall protection.

• Housekeeping shall be maintained throughout the location.

• If there is a potential for severe weather in the operating area, current and future tasks shall be evaluated and the SWN Severe Weather Emergency Action Plan shall be implemented accordingly.

• Spills of any kind will be addressed immediately to minimize environmental impact.

• Spill containment shall be used under equipment to minimize environmental impact.

• All incidents will be immediately reported to the SWN Site Representative/Supervisor.
INDUSTRIAL HYGIENE PROGRAMS

Hazard Communication
(29 CFR 1910.1200 Subpart Z and MSHA Part 47)

• Each chemical container on SWN property shall have a “Hazard Communication” label on it.

• Original manufacturer’s containers must contain the following information as a minimum on its “Hazard Communication” label:
  ○ Name, address and emergency contact telephone number
  ○ Chemical identity
  ○ Appropriate hazard warnings (and USDOT placarding for shipping containers) with pictures, symbols, colors and words that convey hazards of the chemical
  ○ Labels must be GHS compatible as of the effective compliance date.

• Labels for temporary use or portable containers must utilize a format that includes:
  ○ Name of the chemical
  ○ Hazard Class rankings (Health, Flammability, Reactivity and Special Hazards) as indicated on the chemical’s SDSs.

• Exception to labeling – When an employee transfers a chemical to a portable container that is intended for immediate use during that employee’s work shift, a hazard communication label is not required. The container must, however, remain in the possession and control of the employee who made the transfer, and the product content must be identified on the container.

• The SDS must be accessible for each hazardous chemical on location. An updated chemical inventory list must also be maintained for each location and reviewed annually. SWNnet is utilized for maintaining SDSs.

• Before contractors begin work, SWN will inform contractor of any potential chemical hazards associated with the job or chemicals stored in the affected areas. Copies of SDSs for those chemicals will be made available upon request.

• Contractors and vendors will make SWN aware of any potential chemical hazards associated with their work or materials being used on an SWN facility. Copies of SDS for those chemicals will be made available to SWN upon request.

Basic Rules and Procedures Working with Chemicals

• The SDS shall be referenced (prior to handling chemicals) for appropriate PPE to protect employees.

• The SDS shall be referenced for first aid response actions following a chemical exposure incident to employees.
In case of eye contact with chemicals, promptly flush the eyes with water for at least 15 minutes, remove contaminated clothing and seek medical attention. Emergency eyewash stations or showers must be readily available in injurious/corrosive chemical handling areas.

Spills should be promptly cleaned up as required by the SDS and/or local, state or federal guidelines using appropriate PPE and following SWN guidelines. Disposal of all cleanup materials shall be in accordance with the SWN Waste Management program.

Chemicals or materials that produce flammable or combustible fumes/vapors shall not be stored where there is risk of creating an ignition and/or heat source.

Transfer of flammable/combustible chemicals from bulk storage containers requires the installation of bonding and grounding connectors to prevent the generation of static electricity.

When working with flammable/combustible chemicals or where flammable/combustible materials have been stored, non–spark-producing tools and explosion-proof lighting shall be used.

Chemicals should not be smelled or tasted.

It is prohibited to eat, drink, smoke, chew gum or apply cosmetics in areas where chemicals are present. Wash hands thoroughly before conducting these activities.

Glassware or utensils should not be used in laboratory operations to handle food or beverages.

Food or beverages should not be in chemical storage areas or laboratory refrigerators.

Chemicals and equipment shall be properly labeled and stored.

No container should be received, accepted or transported that has been damaged or does not have appropriate labeling.

Stored chemicals should be examined monthly for deterioration and container integrity.

When chemicals are hand-carried, the container should be sealed. If handling volatiles it may be necessary to have some pressure relief to vent the vapors.

Incompatible chemicals must not be stored near each other. Refer to the chemical’s SDS for proper storage requirements.

Spill containment devices such as containment rings or drip pans should be used to contain leaks from containers at transfer areas.
Asbestos
(29 CFR 1910.1001 Subpart Z)

SWN has established an Asbestos Management Program (available on SWNet) to control potential exposures to asbestos-containing materials (ACMs) in its facilities. Employees performing maintenance activities that can potentially disturb ACM must meet the minimum requirements set forth in the Asbestos Management Policy located on SWNet. Removal activities may also require notification of proper regulatory agencies.

General Asbestos Requirements

- ACMs that may be encountered on SWN facilities could include transite siding/roofing, building or pipe insulation, gaskets, floor and ceiling tile, window caulking and pipe coating. These materials are assumed to be asbestos unless documentation and/or testing proves otherwise.

- Before a contractor begins work, SWN will inform the contractor in writing of any potential asbestos hazards associated with the job. Contractors shall be licensed in the state in which the work is to be done and shall have a formal ACM removal program that includes job procedures, training, PPE and certifications/license requirements.

- Asbestos products will not be purchased unless non-ACM products are unavailable.

- All asbestos removal (including repair/O&M jobs) will be supervised by a formally trained Competent Person. Only trained and licensed employees (as applicable to the region) can remove ACM products.

- Eating, drinking, smoking or chewing is prohibited in any contaminated work areas.

- Contact/inhalation with ACM material can be avoided by the use of protective clothing such as gloves, coveralls, rubber boots, respirators and eye protection.

- Employees should thoroughly wash exposed skin areas that may have been exposed to ACM before eating, drinking, smoking or chewing.
Benzene

(29 CFR 1910.1028 Subpart Z)

SWN has established a written Benzene Policy located on SWNet. Benzene may be present in natural gas, crude oils and gasoline. Exposure monitoring, engineering controls and PPE will accomplish the prevention and control of benzene exposure.

- PPE will be provided for SWN employees to prevent eye contact, limit dermal exposure and minimize the inhalation of vapors. PPE may include impermeable clothing, respiratory protection, chemical resistant gloves, safety glasses with side-shields, splash goggles, splash-proof face shield, chemical-resistant footwear and chemical-resistant apron.

- Employees potentially exposed to benzene levels of 1 ppm TWA (8-hour exposure) or 5 ppm STEL (15-minute exposure) must wear a half-mask respirator with appropriate cartridges as a minimum protection level.

- Food preparation, dispensing and eating are prohibited in areas where benzene-containing material is handled or exposure exists.

- The use of tobacco products is prohibited in areas where benzene-containing material is handled or exposure exists.

- No skin or eye contact is allowed. If skin contact occurs, employees will immediately wash affected body parts with generous amounts of soap and water. If soap and water are not available, employee should use a waterless hand cleaner. After handling benzene-containing material, it is recommended that hands be thoroughly washed after discarding gloves.

- If clothing should become contaminated with benzene, it should be removed immediately to prevent personal exposure and the spread of contamination to vehicles, offices, shops and homes. Rinse the potentially exposed area with generous amounts of soap and water.

Tank Gauging Procedures

Potential exposures to hazardous vapors and explosive gases can occur during tank gauging operations. To reduce the potential exposure, the following safe operating procedure should be followed:

1. Before gauging any tank, review and/or complete the SWN JSA for this task (if applicable).

2. Read signage and warning labels to determine if the location is known to contain H₂S or benzene-containing materials.

3. No smoking, open flame or spark-producing equipment (including cellular phones) may be used during tank gauging.

4. The SWN FRC policy shall be followed for protective clothing requirements associated with tank gauging.

5. Determine the wind direction. Stand upwind, as much as possible, before opening the “thief hatch.”

6. Wait a few minutes to allow vapors and gases to vent off.

7. Thief (gauge) the tank.

8. Close the thief hatch.
Hearing Conservation
(29 CFR 1910.95 Subpart G and MSHA Part 62.150)

SWN has established a Hearing Conservation Program (HCP) (available on SWNet) to protect employees against noise-induced hearing loss. Employees who are exposed or potentially exposed to a time-weighted average (TWA) of 85 decibels (dBA) or greater over an 8-hour period will be included in the HCP. Audiometric testing will be conducted annually for all employees in the HCP. These employees will undergo a baseline audiogram to establish their level of hearing and for comparison with subsequent audiograms. All employees in the HCP will be trained annually on the effects of noise on hearing, the purpose, types and use of hearing protectors, the purpose of audiometric testing, and an explanation of the test procedures and their results.

All SWN facilities shall be periodically assessed for continuous high-noise levels (85 dBA or greater). Warning signs shall be posted in areas identified as high-noise level areas. Employees are required to wear the provided hearing protection in high-noise level areas and during unusual operations. Extremely loud jobs such as blowing down lines or venting of air pressure may require the use of dual protection (ear plugs and earmuffs).
Heat Exposure

Heat Stress Monitoring

Heat stress monitoring using wet bulb globe temperature (WBGT) meters should be utilized when work factors place excessive heat load on an individual. Heat stress monitoring should be coordinated through the HSE Department to determine stay times and break intervals. Heat load factors include:

- Ambient temperatures above 105 F° or high humidity above 90% or a combination of the two.
- Moderate to heavy work load (as defined by OSHA Technical Manual – Sect III, Chapter 4: Heat Stress) ranging from 200-500 kcal/hour.
- Wearing of PPE and/or FRC that reduces the evaporative cooling effect.
- Increased work intervals with fewer breaks.
Hydrogen Sulfide

Effects of Hydrogen Sulfide

Hydrogen sulfide (\(H_2S\)) is a chemical asphyxiant and irritant gas that can cause loss of consciousness or death at high concentrations and may be present in some SWN operations; Table 1 identifies health effects associated with acute exposure to \(H_2S\).

Physical and chemical properties of \(H_2S\):

- Highly toxic, colorless gas.
- Heavier than air.
- Flammable with an explosive range from 4.3% to 46% by volume.
- Corrosive to metals and can also lead to hydrogen embrittlement and sulfide stress cracks.
- Smells like rotten eggs in low concentrations.

Note: Do not rely on the odor to detect \(H_2S\), as it quickly deadens the sense of smell.

<table>
<thead>
<tr>
<th>Concentration of (H_2S) in parts per million (ppm)</th>
<th>Physical effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor threshold (0.003-0.02)</td>
<td></td>
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<tr>
<td>May be associated with nausea, tearing of the eyes, or headaches (1-5)</td>
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<tr>
<td>Conjunctivitis and lung irritation (Above 20)</td>
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<tr>
<td>Quickly deadens the sense of smell (Below 100)</td>
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<tr>
<td>Considered Immediately Dangerous to Life or Health (IDLH) by NIOSH (Above 100)</td>
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<tr>
<td>Attacks respiratory center in brain causing loss of consciousness within 15 minutes (Above 500)</td>
<td></td>
</tr>
<tr>
<td>Immediate unconsciousness and death if not revived promptly (Above 1000)</td>
<td></td>
</tr>
</tbody>
</table>
Detection Devices
Portable H₂S monitors must be used to alert employees who may encounter hydrogen sulfide levels beyond permissible exposure levels. Fixed monitors must be used in areas where hydrogen sulfide is present in high concentrations at or above 100 ppm.

Possible H₂S sources may include but are not limited to changing out meters, blowing down separators, tank gauging, changing out mud pump equipment, H₂S scavenger units and venting of tanks/vessels.

Respiratory Equipment

Escape units – Designed strictly for escape from a hydrogen sulfide atmosphere.

Self-Contained Breathing Apparatus (SCBA) or Supplied breathing air unit – Generally used as a work unit. Such units must have a positive pressure feature. Supplied air units must be equipped with an escape cylinder in case the air supply is interrupted.
General Requirements

- Detection equipment must be used when working in an area where there is a possibility of hydrogen sulfide gas, especially in enclosed or below-grade areas.
- A hydrogen sulfide area must not be entered without proper training (including CPR) and authorization.
- In atmospheres immediately dangerous to life or health (IDLH level of 100 ppm or greater), a standby person(s) with suitable SCBA must be available for purposes of rescue.
- Employees should never attempt to rescue a hydrogen sulfide victim without the adequate level of training and the proper respiratory protection in the form of an SCBA or an approved air line unit equipped with an escape pack.
- Iron sulfide deposits are generally found in hydrogen sulfide areas in tanks, vessels and piping. Iron sulfide may spontaneously combust when exposed to air and should always be kept wet to prevent ignition (see Iron Sulfide, under Fire Safety).
- Wind socks shall be used in areas of known H₂S.
Lead

(29 CFR 1910.1025 Subpart Z)

SWN has established a written Lead Management Program located on SWNet to control potential exposures to lead-containing products in its facilities. Employees performing maintenance activities that can potentially disturb lead-containing products such as paints or coatings must meet the minimum requirements set forth in the Lead Management Program. An action level of 30 cubic micrograms per cubic meter of air as an 8-hour TWA has been established for lead.

General Lead Requirements

- Before a contractor begins work, SWN will inform the contractor of any potential lead issues associated with the job. Contractors shall have their own program, which shall include job procedures, training, PPE, certifications/license, etc.
- Lead-containing products will not be purchased unless non–lead-containing products are unsuitable.
- Only trained employees can remove lead-containing material.
- Unknown coatings shall be tested before their removal to determine safe work practices and the appropriate level of personal protective equipment required for the job (i.e., respiratory protection and protective clothing).
- Qualitative lead test kits should be used for testing paints and/or coatings prior to work commencement.
- To minimize the potential of lead products becoming vaporized by heat, painted and/or coated surfaces should be removed before any hot work operations are performed. Removal should be a minimum of 6 inches surrounding the working area.
- Chemical removal methods should be used when applicable to reduce potential exposures.
Naturally Occurring Radioactive Material

Naturally occurring radioactive material (NORM) occurs in nature and concentration levels can be enhanced through the production of both oil and gas. NORM is primarily brought to the surface through “Piggy Backing” of larger compounds or with produced water. Dramatic changes in pressure, temperature and turbulence causes particulates to precipitate out and to form a scale. This scale is usually deposited into equipment such as produced water tanks, separators, coalescers, dehydrators, flow lines, tubing, pumps, filters, etc. and is usually located at bends, turns, changes in pipe diameter and at the bottom of the vessels.

The SWN NORM Management Program shall be followed by all SWN employees to verify that facilities are monitored to preclude employee exposure to NORM at elevated levels. Minimum requirements for NORM control measures are set forth in the NORM Management Program.

If the presence of NORM is suspected, SWN employees will reference the NORM Management Program. The program requires confirmatory radiation surveys on the affected equipment in addition to recurrent periodic surveys of SWN facilities. If survey results show elevated radiation levels as described by the NORM Management Program, then the equipment and/or material shall be treated as NORM-contaminated and special labeling, storage and disposal procedures shall apply.

All safe work practices and employee protection protocols shall be designated by individual Worker Protection Plans based on the activity and the specific radiation levels of a given facility. The Worker Protection Plan shall also specify site posting requirements, employee dosimetry, additional survey requirements and disposal of NORM-contaminated materials to licensed waste facilities. The Worker Protection Plan shall be submitted to the respective state(s) (or local authority’s) Department of Health for review prior to employees being exposed to NORM.
Silica

A large volume of sand also referred to as proppant and which generally contains silica, is used in the hydraulic fracturing process. Prolonged exposure to respirable silica through inhalation can cause silicosis, which is a debilitating, life-threatening disease. It is SWN’s policy to control employee silica exposure through engineering controls when feasible. Types of controls that may be used depending on the circumstances are vacuum systems, filters, skirting, misting systems and enclosed systems.

Exposure zones will be set up to restrict employee access to these areas. The minimum requirement is that employees inside these zones will wear an approved respirator with a P100 air-purifying cartridge.

Periodic monitoring is conducted to evaluate silica exposure of employees working in hydraulic fracturing operations.
ENVIRONMENTAL PROGRAMS

AIR

The Federal Clean Air Act (CAA) and various state air regulations have been established to regulate numerous construction and operational aspects of many SWN facilities, including compressor stations, gas processing plants, and other emission sources. Under the CAA, many stationary sources of air pollution cannot legally operate until an air permit is obtained and met. A “stationary source” is any non-mobile equipment or facility that emits any air pollutant. Common stationary sources in the natural gas industry include temporary or permanent compressor engines, generators, tanks, dehydrator pumps, fire tubes, reboilers or associated equipment, boilers and vaporizers. Stationary sources may be subject to different requirements depending on the amount and type of emission sources and the quality of the air near the source.

New Stationary Sources Requiring Construction Permits

Some new stationary sources of air pollution require a construction permit before construction commences. The HSE Department should be contacted immediately upon learning of such projects, as construction permits, operating permits and permit revisions can take months to obtain. In addition, the HSE Department should be notified if there are any proposed changes to the initial design that could affect emissions, as such changes can extend the permitting process.

Proposed Stationary Source Modifications Requiring Permits

Upon “modification,” some existing stationary sources are subject to permit revisions and/or additional air pollution control requirements. For these purposes, modification refers to any of the following situations:

- Any physical change in a source
- Any change in the operation of a source
- Any relocation of source equipment (moving equipment)
- Changes in the amount of any air pollutant (up or down)

The HSE Department should be consulted if any stationary source is modified. However, as discussed immediately below, activities classified as “routine maintenance, repair or replacements” are not considered modifications and can be performed without first contacting the HSE Department.

Routine Maintenance, Repair and Replacements

“Routine maintenance, repair and replacement” activities are not considered modifications and do not require permit reviews. Detailed records shall be maintained for routine maintenance, repairs and replacement occurrences. However, such activities will be noted on project approval documents indicating that emissions were not affected. Activities that can be performed without contacting the HSE Department include, but are not limited to:

- Engine balancing
- Inspection and cleaning
• Oil changes
• Changing of filters
• Like-for-like replacement of spark plugs

Common Activities Requiring Permit Review
Some commonly performed activities are considered modifications and do require permit reviews. Because these activities have the potential to increase emissions, it is essential that they be reviewed prior to execution. The most common activities within this category are:

• Engine repairs or overhauls involving the replacement of parts with like parts
• Engine swings
• Changing spark plug or ignition systems types
• Changing fuel valve types
• Changing or repairing the exhaust stack or inlet filter/silencer
• Changing or modifying the unit automation and controls

If the proposed activity to be performed on a source is not on the above list, the HSE Department will be consulted before the activity is performed. In addition, the HSE Department should be consulted if there are any questions as to whether any proposed maintenance, repair or replacement activity is “routine.” Activities not listed above will require HSE clearance before the activity is performed. Employees should contact HSE if there are any questions regarding the “routine” nature of an activity.

Reconstructed Stationary Source Requiring Extensive Permit Review
Even if activities at a stationary source may otherwise be performed without air permit reviews, such reviews are necessary if the activities, taken together, amount to a “reconstruction” of the source. For these purposes, reconstruction occurs when the components of an existing stationary source are replaced and the fixed capital cost of the replaced components exceeds 50% of the construction cost for a comparable new source. The HSE Department should be consulted if there are any questions concerning proposed replacements at the facility that may trigger this provision.

Stationary Source Reactivations and Abandonments Requiring Permit Applicability Reviews
The HSE Department should be notified of all planned re-commissioning activities following an extended nonuse period (e.g., more than 18 calendar months). In addition, the HSE Department should be notified of abandonment projects involving any stationary source. The HSE Department conducts all Permit Applicability Reviews.
WATER

The Federal Clean Water Act (CWA) created laws and regulations that require companies to control and monitor water pollutants. For the E&P industry those pollutants can include storm water runoff, hydrocarbon spills and salt/brine water. In addition, discharge of dredge or fill material into “waters of the U.S.” is also regulated under the CWA. SWN has established Stormwater Pollution Prevention Plans (SWPPPs), Reasonable and Prudent Practices for Stabilization (RAPPS) and Spill Prevention Control and Countermeasure (SPCC) plans that can be found on SWNet or at local facilities.

SPCC (40 CFR 112)

The purpose of the SPCC is to prevent the discharge of hydrocarbons into navigable waters of the United States and adjoining shorelines and to provide plan design guidelines for containing and cleaning such discharges if they occur.

Definitions

Harmful Quantities – Quantities that violate applicable water quality standards, cause a sheen upon the water or adjoining shorelines, or cause a sludge deposit below the water surface or upon adjoining shorelines.

Navigable Waters of the United States – The term “navigable waters” of the United States means “navigable waters” as defined in section 502(7) of the Federal Water Pollution Control Act (FWPCA), and includes (1) all navigable waters of the United States, as defined in judicial decisions prior to the passage of the 1972 Amendments of the FWPCA also known as the CWA, and tributaries of such waters as; (2) interstate waters; (3) intrastate lakes, rivers, and streams that are utilized by interstate travelers for recreational or other purposes; and (4) intrastate lakes, rivers and streams from which fish or shellfish are taken and sold in interstate commerce.

Oil – Includes oil of any kind and in any form, including petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes.

SPCC Plan – An SPCC Plan is designed to implement safety standards, fire prevention and pollution prevention rules and regulations to minimize the potential for oil discharges.

Reportable – Requiring National Response Center (NRC) notification – releases that impact navigable waters of the United States.

Determining Plan Necessity

- A facility that, due to its location, could not reasonably be expected to discharge oil into navigable waters of the United States or adjoining shorelines, does not need an SPCC Plan (Plan), regardless of size.

- A facility that, due to its location, could reasonably be expected to discharge oil into navigable waters of the United States or adjoining shorelines, needs a Plan if any of the following conditions apply:
  - The underground oil storage capacity is 42,000+ gallons
  - The total above ground oil storage capacity is 1,320+ gallons
• A facility that has experienced two reportable spills within any 12-month period needs a Plan, regardless of size or location. Such Plan will be submitted to the EPA Regional Administrator within 60 days of the second event.

• Plans are required for mobile or portable facilities, such as onshore drilling or workover rigs, barge-mounted offshore drilling or workover rigs and portable fueling facilities.

**Stormwater**

If a facility or location experiences a reportable quantity release, employees should contact the HSE Department for guidance regarding SWN’s obligations under the industrial stormwater program.

**Definition**

*Stormwater* – Precipitation (rain, melted snow or ice) that is collected and carried through any system of pipes, ditches, channels, gutters, surface drains or any other surface runoff discharged on or off a facility or property. Stormwater cannot encounter the following without triggering permit requirements:

• Raw materials (e.g., crude oil)

• Intermediate products

• By-products or waste products

If stormwater collects oil or other contaminants, it can lead to soil or water pollution and special permitting requirements.

**Preventing Stormwater Contamination**

• Substances should never be discharged, poured, unloaded or released into storm sewers, drainage ditches, sumps or ground areas unless allowed by a facility National Pollutant Discharge Elimination System (NPDES) (40 CFR 122) or other permit.

• If any chemicals or contaminants are discovered on the ground or in the stormwater drainage system, immediate action should be taken to clean up.

• The HSE Department should be contacted if a discharge of oil or hazardous substances has occurred in association with a stormwater event. A reportable quantity (RQ) is any amount that violates applicable water quality standards or causes a film or sheen on the water surface. The HSE Department should be contacted for guidance on water quality standards in each state.

• The oil and gas industry has a categorical exemption from the industrial stormwater permitting program. However, a permit will be required for operators of oil and gas exploration, production, processing, treatment operations or transmission facilities that experience an RQ discharge of oil or a hazardous substance.

• RAPPS was developed to verify that adequate best management practices (BMPs) are in place to prevent and minimize erosion and sedimentation during well pad and lease road construction.
Waters of the U.S.

Activities occurring in waters of the United States, which includes the discharge of dredge or fill material and/or the placement of structures in streams and wetlands, are regulated by the U.S. Army Corps of Engineers (USACE). Some states also regulate these activities. Please refer to the SWN Pre-Construction Environmental Review Process for additional information.

Definitions

Waters of the United States – Waters of the United States are broadly defined and include, but are not limited to, lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows and playa lakes.

Wetlands are further defined by having three indicators:

1. They support vegetation of a type typically found in saturated soil conditions.
2. They contain hydric soils (i.e., soils that are saturated, flooded or inundated long enough by surface water or groundwater during the growing season to result in an absence of oxygen in their upper parts).
3. They are subject to wetland hydrology, resulting in saturated soil conditions, at least seasonably.

Wetlands and waters of the U.S. are difficult to identify and, generally, a wetlands expert is needed to attain a correct identification. If there is any question as to whether a site may contain wetlands or waters of the United States, contact the HSE department.

Actions Possibly Requiring a Permit

Placement of a fill or structure in waters of the United States will require approval from the USACE. Appropriate pre-construction notification and permits are required before construction can commence. Examples of actions, which when conducted in waters of the United States, requiring approval include:

- Well sites
- Lease roads
- Pipelines/flowlines
- Channel dredging (construction and maintenance)
- Dams
- Reclamation/removal of previously permitted activities
Waste Management

SWN engages in responsible waste management practices in order to remain in regulatory compliance and embody good stewardship. Further process information can be found in the Waste Management Program documents. The Resource Conservation and Recovery Act (RCRA) (40 CFR 239-282) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 USC 9601) have driven the development of solid waste management laws and regulations. To meet these standards, SWN has developed a Solid Waste Management Process that includes approved waste disposal facilities that can be found on SWNet. Refer to these processes for more detailed procedures.

Definitions

**Disposal** – Discharge, deposit, injection, dumping, spilling, leaking or placing of any waste into or on land, water or air (40 CFR 260.10). Nonhazardous oil field waste and non-hazardous waste will be disposed only at facilities approved by the HSE Department. Hazardous waste disposal will be coordinated by the HSE Department.

**E&P Exemption** – Certain wastes generated by the oil and gas exploration and production industry that have been exempted from hazardous classification under the RCRA, Subtitle C.

**Hazardous Waste** – Any waste that is listed as hazardous by RCRA, Subtitle C or that has been mixed with or exhibits the characteristics of hazardous waste.

**Hazardous Waste Characteristics** – Specific characteristics identified by RCRA in Subtitle C that cause a waste to be hazardous. A waste exhibiting any one of the following characteristics classifies it as hazardous:

1. Ignitable – Liquid with flash point <140°F or non-liquid capable of causing fire when handled.

2. Corrosive – Liquid with pH less than 2.0 or greater than 12.5.

3. Reactive – Reacts violently with water, undergoes violent change without detonation or detonates when hit.


**Non-Hazardous Waste** – Any waste not meeting the RCRA hazardous waste characteristics and are those wastes not specifically listed as hazardous by any state or federal regulation.

**Recycled** – A waste that is used, reused or reclaimed as ingredients in industrial process to make a product or provide an effective substitute for commercial products.

**Waste** – Any discarded material that is abandoned, spilled, placed in a landfill or disposed of by burning or injecting downhole; anything that can no longer be used for its original purpose. Waste may be a solid, semi-solid, liquid or containerized gas that has been discarded, used or is a by-product.
General Requirements

1. All wastes generated by company operations will require identification and classification by appropriate operations employees.
   - Identification and classification will include declaring the source or process generating the waste and stating whether the waste is E&P exempt. Exempt waste requires no further classification.
   - Non-exempt wastes will be classified as hazardous or non-hazardous, including methodology for determination if classified as non-hazardous.

2. The HSE Department will prepare individual Waste Management Plans as needed for each generated waste.
   - Waste Management Plans are approved and signed by the department manager responsible for the operations generating the waste.
   - Preferred method of disposal will be stated and specific disposal site(s) identified, either on each plan by name or as an attachment to the plan in the form of an “approved” list.
   - Disposal sites will be evaluated and inspected by the HSE Department.
   - Waste will be handled and/or stored in accordance with its specific plan.
   - Waste Management Plans will identify all records/documents resulting from management of a specific waste.
   - When preparing the Waste Management Plans, employees should consider the following:
     - No waste may be disposed of without a plan.
     - Hazardous and non-hazardous wastes should not be commingled.
     - Material may be disposed only at a site approved by the HSE Department.
     - Recycling is preferable to disposal.

3. Non-exempt hazardous wastes require special handling. A Waste Management Plan for hazardous waste will have the signed approval of the HSE Department.
   - Waste disposal facilities will be evaluated and inspected periodically by the HSE Department. Observed noncompliance or other concerns are to be communicated to the appropriate business unit management. The decision to cease disposal at any site requires revision of the Waste Management Plan and the approved disposal site list.
   - The operating area generating the waste is to maintain documentation of hazardous waste management as part of the facility’s permanent records.

Waste Minimization, Segregation and Housekeeping

The handling and disposal of waste adds significant expense to operations. Three strategies can reduce the expenses associated with waste management:

- Waste minimization and/or product substitution results in lower costs for storage and disposal of waste. In addition, waste minimization may be required by regulation.
- Segregation of wastes prevents unnecessary disposal of nonhazardous waste as hazardous waste.
- Good housekeeping practices provide a safe working environment and reduce overall waste.

**Waste Minimization**

Employees should use the following strategies to minimize waste:

- Before performing work, plan ways to minimize the amount of waste that will result.
- Substitute non-hazardous material for hazardous material if the intended use is not compromised.
- Purchase products from vendors who will take back empty or unopened/unused containers or products.
- Order and use only the amount of material necessary to do the job.
- Use products completely before shelf lives expire, using the oldest products first.
- Contact other company facilities to see if they can use extra materials.
- Keep lids on product containers tightly closed.
- Recycle materials (oil, cans, glass, cardboard, etc.).
- Reuse materials, such as paint thinners or degreasers when possible.
- Use a rag service that will pick up used rags and return clean ones.
- Do not mix wastes improperly.
- Use drop cloths or containers to prevent spills and to collect materials for reuse.
- Require contractors to minimize waste.

**Segregation of Wastes**

1. Do not mix waste. Mixing hazardous and non-hazardous waste can result in the entire mixture being classified as hazardous, increasing the amount of hazardous waste requiring disposal.

2. Keep any waste (e.g., soil, transformer oils, electrical switch boxes) suspected of having any concentration of poly-chlorinated biphenyls (PCBs) in separate containers.

3. Provide separate containers for wastes to be recycled (e.g., glass, plastic, batteries, used oil, and solvents).

**Good Housekeeping Practices**

1. All products and wastes will be correctly inventoried, clearly labeled and properly stored. If labeling is inadequate or illegible, expensive testing may be required to properly identify the material. Improper storage can result in contamination of the material, which may then require disposal through expensive hazardous waste methods.
2. Place all types of waste into appropriate containers or recycling bins.

3. Store wastes so they do not come in contact with rainwater. If possible, store wastes in a covered area, and in covered and clearly labeled containers, or cover them with a heavy tarp.

4. Secure lids on trash cans, trash bins, drums, recycling bins and other waste containers so waste stays inside. Remove funnels after use and close the drum or container.

5. Store empty product drums and/or containers as follows:
   - Close lids securely.
   - Place containers on wood pallets or on a rack at an angle (45 degree angle or more) to prevent the collection of rainwater and/or corrosion on the top and bottom.
   - Drum storage areas will have secondary containment.

6. Keep flammable liquids (e.g., fuels, small cans of gasoline) in a designated location that is at least 50 ft. from the property/lease line and store in appropriate, labeled containers.

7. Use poly-liners, tarps or other portable containment equipment constructed of a non-reactive material to catch spills or drips that may occur.

8. Keep spill control and clean-up equipment ready and in good condition.
Weed and Pest Control

Selection of Herbicide and Pesticide

The following guidelines should be followed regarding herbicide and pesticide use:

• Do not use any herbicide or pesticide unless it is approved for use by the HSE department.

• Do not use any herbicide if it contains arsenic or 2-4D.

• Do not use any herbicides on any pipeline segment or company facility that is adjacent to or intersects creeks, streams, drainage ditches, rivers, or livestock areas or is in a highly populated areas.

• Use only licensed contractors to apply herbicides or pesticides. Over-the-counter products, such as Roundup, do not require licensed applicators.

• Notify the HSE Department of proposed herbicide and pesticide application where project approval is required.

Use of Approved Herbicides and Pesticides

1. Advise persons handling, applying or working around herbicides and pesticides, or areas where they have been applied, that the herbicides and pesticides are being used and contain hazardous chemicals.

2. Maintain a copy of the SDS document for the herbicide or pesticide product at the site or work location where it is being used.

3. Maintain records of applicator contractor licenses on site.

4. Encourage each employee to read the SDS document in order to become familiar with product characteristics.

5. Employees who will be handling herbicides or pesticides are required to read the SDS document.
   • If an outside contractor is applying herbicides or pesticides, obtain a copy of the SDS from the contractor prior to application of the substance.
   • Follow the manufacturer’s directions concerning the use and application of all herbicides and pesticides.
   • Use appropriate PPE while working with herbicides or pesticides.
   • Verify that empty herbicide and pesticide containers are not reused for any purpose other than the original use.
   • There may be specific landowner requirements for application of herbicides or pesticides on lands belonging to the Bureau of Land Management, the state or tribes.
**ONE CALL NOTIFICATION NUMBERS**

Before digging, drilling, or excavating, call the appropriate utility locating service. Calling 811 in all states will connect the caller with that state’s buried utility locate dispatch for marking underground utilities. Most One Call agencies require a minimum of two business days to locate buried utilities before mechanized digging, drilling or excavation can commence. For additional information on specific states, please refer to the master list of One Call numbers on SWNet.
**AGENCY INSPECTION PROCEDURES**

When an inspector from any federal, state or local agency with HSE jurisdiction arrives, employees having the initial contact should:

- Verify the inspector’s credentials and agency involved (local, state, tribal or federal).
- Determine basis/purpose/type of inspection.
- Notify a supervisor and the HSE Department immediately.
- As appropriate, conduct and document an HSE orientation for the facility.
- Defer inspection until supervisor arrives. If unable to contact, proceed.
- Follow all safety procedures during inspection (PPE, rules, etc.).
- Maintain detailed record of inspector’s activity.
- Record same physical measurements and take same photographs as inspector.
- Permit review of records related only to inspection.
- Avoid answering question(s) that are not understood.
- Request abatement recommendations in closing conference.

**Note:** Employee has the right to refuse to be interviewed and the right to request the presence of an SWN representative when participating in an OSHA or MSHA inspection.
INCIDENT NOTIFICATION PROCEDURES

Notification Process

When an incident occurs, employees should:

1. Determine the incident type.
2. Make initial telephone notifications. (Refer to Table 2)

Note: Activate the Crisis Management Incident Response Plan if the event level dictates.

3. Enter the report information into the SWN Incident Management System (SIMS) located on SWNet or onto the appropriate SWN incident form.
4. Forward incident report form within noted reporting time frames.

Documentation of a “return to work” release must be furnished to the Supervisor from the attending Physician whenever an employee with a restricted duty or lost-time injury returns to work. Contractors are required to provide a copy of the completed contractor incident report for incidents occurring on SWN locations or conducting business for SWN.

Note: Telephone notifications need to be made within specified reporting time frames, and persons making the notifications must follow their business unit reporting requirements as outlined in the table on the following page.
<table>
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<th>Reporting Time Frame</th>
<th>Incident Type</th>
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<td>C</td>
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</tr>
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Table 2

Contacts
1. Immediate Supervisor
2. Team Leader/Manager/Director
3. HSE Department
4. Human Resources
5. Vice President of the affected Business Unit
6. Legal
ACKNOWLEDGEMENT PAGE

I ___________________________ acknowledge that I have received, read and understand the contents of this 2015 Health Safety & Environmental Handbook, which serves as a reference for the minimum rules and standards for SWN.

_______________________________
Signature of Recipient/Date

Remove this page and return this page to one’s immediate supervisor.