

# Health, Safety and Environmental Handbook



## WELCOME TO CACTUS WELLHEAD!

You have joined an organization with a rich history and exciting future. We are glad you have chosen to become part of our growing extended family! It is our hope that you will find Cactus Wellhead an inspiring place that will help you reach your professional and personal best.

Across our organization our commitment to working safe is a deeply held value. We also strive to be the best in serving our customers, delivering top quality products and services in a timely manner, and supporting our Associates in their career development. Our continued success is a direct reflection on our ability to consistently deliver in these areas. As an Associate, your primary objective is to work safely and provide high quality service to every customer, every time. This same level of service also extends to our treatment of each other in our day-to-day business relationships at every level in the Company.

To help you better understand Cactus Wellhead and our commitment to your safety and that of your fellow co-workers, we have prepared this HSE Handbook. We hope it will answer questions you may have about our Company and our stance on safety. However, if you should have any questions regarding certain policies and/or procedures, please ask your supervisor or the Health, Safety & Environmental Department (HSE). Once again, we are pleased to have you join our team and wish you every success.

Remember - If it's not safe, don't do it!

Sincerely,

Scott Bender

President



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## Introduction

Cactus Wellhead is committed to protecting the health and safety of our associates and minimizing any negative impact to the environment in communities where we operate. To achieve an incident free workplace, the Company strives to continuously improve its Health, Safety and Environmental (HSE) programs and best practices. The Cactus Wellhead HSE Handbook serves as a quick reference source to assist managers, shop, and field associates with general HSE guidelines that supplement established HSE Procedures. The handbook is not intended to cover all situations or conditions but aids to help reduce workplace hazards and personal injuries. Each company associate shall receive the HSE Handbook.

Associates are provided access to specific and more detailed HSE procedures through the company intranet. Management and supervision provide additional guidance to associates when they have questions or encounter unusual situations. Our ultimate goal is to foster a positive safety culture and proactive working environment for all associates.

## Cactus Wellhead HSE Policy

The management philosophy at Cactus Wellhead incorporates HSE excellence as a fundamental core value. Along with our customers, contractors, and suppliers we share the vision that we can conduct safe and environmentally sound operations. Therefore, it is our policy to:

- Comply with all relevant HSE legislation, regulations.
- Conform to international standards for HSE excellence (e.g., ISO 140001 and ISO 45001).
- Ensure that systems are developed and implemented to identify, assess, monitor, periodically review and control HSE impacts related to our business activities.
- Set HSE objectives and targets, and achieve superior performance (i.e., energy consumption, pollution prevention, hazard elimination and risk reduction) through the utilization of a continual improvement process.
- Provide necessary training and education to enable our associates to understand and perform their roles and responsibilities involved with their job functions.
- Implement mechanisms to communicate with and obtain input from associates, customers, contractors, and other interested parties to the HSE Management System.

## Responsibilities

The company will strive to provide a place of employment that is free from recognized hazards which could cause or are likely to cause injury to associates.

## Management Responsibilities

Company and facility management will create an environment where associates acknowledge ownership of safety and the safety culture by defining HSE goals, demonstrating leadership, establishing roles, providing resources, seeking associate involvement, and promoting continual HSE improvement. It is management's responsibility to promote safe and environmentally sound practices at all facilities to protect the health of personnel as well as the environment. Line managers and supervisors have a responsibility for the health and safety of associates, contractors, and visitors within their area of control or responsibility.

## Associate Responsibility

Associates are the most important resources in an effective HSE system. Associates are always required to exercise good judgment when performing their duties and shall comply with all standards, rules, policies, and procedures. To achieve an incident free workplace, associates are encouraged to:

- ☐ Acknowledge ownership for their safety and their role in the safely culture of the organization.
- ☐ Participate in and lead safety meetings and trainings.
- ☐ Mentor those with less experience. Report hazards, accidents, and near misses immediately, and participate in control measures.
- ☐ Participate in safety observations, Job Safety Analysis, and Risk Assessments, and
- ☐ Use *Stop Work Responsibility* when necessary.

## Stop Work Responsibility

Associates are obligated to exercise their Stop Work Responsibility to stop any task or operation where concerns or questions regarding the control of health, safety or environmental risk exists. This helps create a safe work environment for everyone. Associates are expected to stop the work of coworkers, customers, associates, or contractor personnel where necessary.

In general terms, the Stop Work Responsibility process involves a stop, notify, correct and resume approach of the resolution of an existing or potential unsafe condition, act, error, omission, or lack of understanding that could result in an undesirable event.

Any form of retribution or intimidation directed at any individual or company for exercising their Stop Work Responsibility will not be tolerated.

## Drugs, Alcohol and Contraband

We are committed to a safe, healthy, and productive workplace. We recognize that alcohol, drugs, or substance abuse impairs an associate's ability to perform properly and can have serious effects on the safety, efficiency and productivity of others.

NOTE: For further detailed information, refer to the Alcohol, Drug and Contraband Policy from the Human Resources Department.

## Fitness for Duty

Cactus associates will not be allowed to work unless they are fit for duty and can safely perform essential job functions. Each associate is required to report to work in an emotional, mental, and physical condition (including free of the effects of alcohol and drugs) necessary to perform their job in a safe and satisfactory manner.

Being fit for duty includes being rested and not overly fatigued. The use of energy drinks containing caffeine or other stimulants not covered by the Cactus Drug and Alcohol policy should not be used as a substitute for adequate rest.

## Learning Culture

At Cactus, we strive to embrace a learning culture where all associates and third parties involved in a process feel comfortable and obliged to bring to light any concerns or issues, they are unclear about. Moreover, we recognize that maintaining a safe work climate requires open and frank conversations to ensure everyone has a clear understanding of their responsibilities and is confident to perform their respective work tasks safely.

## Incident Reporting and System

To promote a safe workplace, all incidents, including near misses, minor incidents, and environmental releases, must be reported immediately. This also applies to unsafe conditions and behaviors that associates may observe. Associates are required to immediately report to their supervisor any injury or illness sustained while at work. The following steps should be taken to deal with an accident or incident:

- ☐ Report the incident to your supervisor & HSE immediately.
- ☐ Isolate machinery, tools, or equipment to ensure any remaining hazard is controlled and isolated.
- ☐ If the case is a medical emergency, 911 must be called immediately.
- ☐ For non-emergencies, call medical nurse case management consultants (Xtreme MD 1-800-600-9015 or Axiom Medical 1-281-419-7063) for an initial assessment and to help determine if further medical evaluation and/or treatment is warranted.
- ☐ Initiate the accident/incident investigation. Take pictures and record anything significant.
- ☐ Participate in the completion of the HSE Learning Team Incident Review Process.

## Hazard Identification and Risk Assessments

A key to effective safety management is the ability of personnel to identify workplace hazards and to eliminate or mitigate the hazard. This work must be done in the planning phase of a job or task. Systems for hazard identification and mitigation include:

- ☐ Safety Observation System (Concern Reporting – Benchmark / Gensuite)
- ☐ Job Safety Analysis
- ☐ Hazard Risk Assessments
- ☐ Step Back 5x5 (Last Minute Risk Assessment)

### **Safety Observations**

Designed to help proactively identify hazards and prevent incidents from occurring. Observations are used to improve safety awareness through a structured proactive approach, and associates at all levels are involved in conducting these observations.

When properly implemented, safety observations allow all associates to directly participate in the safety process through observations of work activities, identification and correction of hazardous behaviors and conditions, and recognition of safe work practices. Any information gathered during this process can be used to focus resources on the areas that have been identified.

All facilities are encouraged to foster active involvement in the safety observations. Observations submitted are to be reviewed by facility management and hazardous conditions identified are to be corrected and documented.

### **Job Safety Analysis**

The JSA process is an effective means of helping reduce incidents in the workplace. It is utilized during new associate orientations, training, incident/accident investigations, and personal protective equipment assessments. To begin the JSA process, select the job task to be performed. Each job (common or uncommon) should have a JSA completed. Forms or worksheets may vary from each company, but the intent is the same. Identify all steps, hazards, and safe work procedures before starting the job. Video recording and/or pictures are very helpful in the JSA process.

The JSA process is a multi-step process:

Basic Job Steps:

- ☐ Break the job into a sequence of logical steps.

Existing and Potential Hazards:

- ☐ Identify the hazards or potential hazards associated with each step. Every possible source of energy must be identified. It is important to look at the entire environment to determine every conceivable hazard that might exist.

Recommended safe job procedures:

- ☐ Using the sequence of *Basic steps and Existing and Potential Hazards*, determine what actions are necessary to eliminate, control or minimize hazards that could lead to accidents, injuries, damage to the environment or possible occupational illness. Each safe job procedure or action must correspond to the job steps and identified hazards.
- ☐ As many people as possible who perform a job should be involved with the JSA process. The JSA should be reviewed, approved and signed by the supervisor BEFORE the task is started. Understanding every job step is very important. When a job step changes or a new step is introduced, the JSA must be reviewed, updated and communicated.
- ☐ Remember, the key reasons for completing a JSA are to encourage teamwork, to involve everyone performing the job in the process, and to elevate safety awareness!

### **Hazard Risk Assessments**

Risk assessment is the process of identifying and evaluating workplace hazards and implementing control measures to eliminate the potential for injury. The hazards are evaluated in terms of risk.

$\text{Risk} = \text{Probability} \times \text{Severity}$

Facilities identify activities or tasks for the assessment and prioritize the initial assessments based on the historical frequency of accidents or the potential severity of injury. The risk assessments are normally conducted in teams including a supervisor, a knowledgeable associate, and a third person. The team evaluates the task, recommends controls as needed, reevaluates the task to find residual risk, and recommends implementation of control measures.



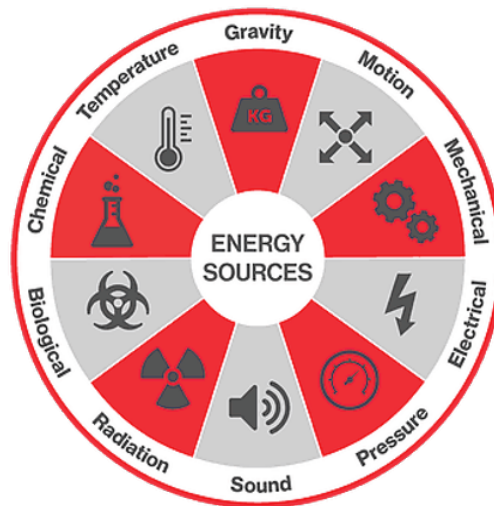
An effective Risk Assessment process will:

- ☐ Identify the tasks or activities to be assessed.
- ☐ Break the task down into a sequence of steps.
- ☐ Identify hazards in each of the steps using the Energy Wheel.
- ☐ Evaluate each hazard in terms of risk.
- ☐ Develop control measures to eliminate or reduce the risk to an acceptable level.
- ☐ Establish completion date for implementing control measures.
- ☐ Communicate to associates.

The hierarchy of controls to be used in reducing risk includes:

- ☐ Eliminate the hazard by such means as redesigning work methods, tools, or workstations.
- ☐ Substitute less hazardous substances.
- ☐ Utilize engineering controls, i.e., safety devices such as guards and lockout devices.
- ☐ Use warning devices or signs.
- ☐ Administrative controls, such as procedures, training, job rotation.
- ☐ Use personal protective equipment.

### Energy Wheel



### Step Back 5 X 5 (Last Minute Risk Assessment)

Work conditions are continually changing. As such, we must be mindful of the situation and periodically reassess the work environment. The Step Back 5 x5 otherwise known as a last-minute risk assessment should be used for this purpose. This process can be formal and informal based on the situation and conditions.

During the job:

- ☐ Observe the progress of the job.

- ☐ Be mindful of potential hazards and controls identified and discussed in the JSA or HRA.
- ☐ Stop the job when conditions change, or an unexpected situation arises.
- ☐ Have a conversation with all parties to determine the best course of action to ensure safety.
- ☐ When agreement is reached by all parties the job may continue.

## Communication

The purpose of a good communication plan is to establish the process for involving associates at all levels within the organization, measuring Health, Safety and Environmental (HSE) performance, reviewing issues, identifying improvement areas and best practices, managing incidents and their resulting actions, and communicating the effectiveness of the Health, Safety, and Environmental Management System (HSEMS).

### HSE Committee

Each facility may organize a Safety Committee consisting of representatives from the various work areas. The size of the committee will vary according to the size of the facility, and careful consideration shall be given to each site's representatives.

The following guidelines are recommended:

- ☐ Each safety committee member shall serve for at least one year.
- ☐ Minutes from each safety committee shall be recorded and posted on facility bulletin boards.
- ☐ Select safety committee members shall be trained in CPR, basic first aid and incident investigation techniques. This training normally is available through a local community college or the American Red Cross for a nominal fee.
- ☐ The Safety Committee shall inspect the facility monthly. A "Monthly Safety Inspection Checklist" is provided in this section and is used to identify safety and environmental hazards.
- ☐ Identify and eliminating hazards will help prevent injuries/incidents from occurring. The Safety Committee shall set a target date for eliminating the hazard and advise the facility's management of this date to ensure that appropriate action is taken.

### Safety Meetings

One safety meeting or toolbox talk will be held at all locations, including rig sites, at the start of each work shift. The safety meeting will provide all associates the opportunity to discuss health, safety and/or environmental issues of concern. The meetings will be led by local management and will focus on:

- ☐ Safety topics of concern
- ☐ Incident Notifications – Near Misses and personal injury
- ☐ Safety Awareness Bulletins
- ☐ Safety Performance Objectives and Goals
- ☐ Any unusual tasks that shift / day

## Safety Postings

Safety postings, electronic and/or hard copy, are used to communicate health, safety, and environmental information in a centralized location. Associates can find safety postings on HSE bulletin Boards and company HSE websites. Regularly posted information includes:

- ☐ Company HSE Policies
- ☐ Company HSE plans
- ☐ Required Regulatory postings (i.e., Workers' compensation, Worker Right-to-know, Family Medical Leave Act, etc.)
- ☐ HSE Alerts (Internal)
- ☐ Incident Notifications
- ☐ Safety Alerts from External Third Parties
- ☐ Site specific Safety information

## Emergency Preparedness and Response

All facilities are required to develop and maintain an Emergency Plan. This plan provides guidance to personnel and management in emergency situations, both man-made and natural, that may occur at any facility. The Facility Emergency Plan must address the following:

- ☐ Facility alarms and training instructions
- ☐ Forms of communication to be utilized for notification of evacuations (radios, telephones, blow-horn etc.)
- ☐ Emergency list identifying key emergency organizations, their locations and phone numbers including:
  - ☐ Fire Department
  - ☐ Police Department
  - ☐ Emergency Team Members
  - ☐ Supervisor's emergency number
- ☐ Actions and duties of emergency team
- ☐ Evacuation routes
- ☐ Assembly areas (muster points) and method of accounting for all personnel on-site.

In addition to traditional emergency preparedness the company maintains Appendix A - Epidemic/Pandemic Response to ensure we can maintain business continuity during an unforeseen event.

## Short Service Employee

A SSE is a field service or shop associate with less than six months of employment with our company. Each facility is to implement a program to monitor and mentor SSEs to assure they are adequately supervised and trained to prevent injury to themselves and others.

The SSE program will include:

- ☐ A fully documented orientation on the worksite where the SSE will be working.

- ☐ An experienced mentor will be assigned to supervise the SSE and will help with the training on job tasks, procedures, and safe work habits.
- ☐ The SSE will be required to wear either a bright green cap or bright green hard hat for the entire duration of the SSE status.
- ☐ The SSE will demonstrate an ability to observe, listen, learn, and actively participate in required safety training and meetings.
- ☐ The associate may be removed from SSE status when they can demonstrate the ability to safely perform the job function, exhibit safe behaviors at the facility, and understand and comply with customer safety requirements.

## Blood Borne Pathogens

Blood Borne Pathogens are disease and infection causing microorganisms carried by blood or other bodily fluids and materials (needles, bandages, etc.). Some of the more serious blood pathogens are Human Immunodeficiency Virus (HIV), Hepatitis A, B, C or D viruses and Malaria. Bodily fluids of any type should always be considered potentially infectious.

The following practices shall be used to help protect the safety and health of associates who may be at risk for potential occupational exposure to blood borne pathogens while performing duties.

- ☐ Personal protective equipment (PPE) to prevent direct exposure to blood borne pathogens will be provided to Medical First Responders and any other potentially affected personnel. Minimal PPE will include disposable gloves, mouthpiece (barrier), and eye protection.
- ☐ Extreme caution and use of specific PPE must be exercised when removing and disposing of contaminated materials such as rags, paper towels, broken glass, etc. Available biohazard disposal kits must be located inside or within close proximity to first aid kits.
- ☐ Hepatitis B immunizations will be offered to associates if the work assignment has the potential for occupational exposures to blood or other bodily fluids. If an associate does not accept the vaccine, a signed statement must be obtained regarding the decision. A form documenting receipt of the vaccination or the declination of same is included in this section.
- ☐ All potentially infectious waste materials shall be properly disposed of in accordance with regulatory guidelines.
- ☐ All associates will receive awareness training on blood borne pathogens annually.

## Temperature Related Illness

Illness can result from work conditions in either hot or cold climates or conditions. Heat-related illness can result from prolonged or intense exposure to hot temperatures. There are three levels of heat-related illness which include heat stress, heat exhaustion and heat stroke.

Reducing excessive exposure to high temperatures and taking other precautionary steps can prevent most heat related illness.

- ☐ Heat Stress- Occurs when the body loses large amounts of water and salt. Signs and symptoms of heat stress include:
  - Thirst
  - Fatigue
  - Irritability
  - Dry mouth

- Feeling hot

Treatments for heat stress include:

- Seek Shade or cool place.
- Drink plenty of water or other non-carbonated fluids.
- Remove excess clothing.
- Place cool, wet clothes on overheated skin.

- Heat Exhaustion- A condition that is a precursor for the very serious condition of heat stroke. It is very important to notice signs and symptoms of heat exhaustion and take immediate action to treat the condition. Signs and symptoms of heat exhaustion include:

- Profuse or heavy sweating
- Weakness and fatigue.
- Headache.
- Slightly elevated body temperature.
- Moist/clammy skin.
- Dizziness.
- Nausea and/or vomiting.
- Excessive thirst.
- Muscle aches and cramps.

Treatments for heat exhaustion include:

- Get to a cool place.
- Drink rehydration fluids.
- Remove excess clothing.
- Elevate feet.
- Apply cool compresses.

- Heat Stroke- A serious condition that requires immediate medical attention. Signs and symptoms include:

- Body temperature of 104° F or above.
- Hot, dry skin.
- Rapid pulse.
- Nausea and/or vomiting.
- Disorientation.
- Seizures.
- Shortness of breath.
- Unconsciousness.

Treatments for heat stroke include:

- Seek immediate emergency medical care.
- Get to a cool place.
- Remove excessive clothing.

When heat-related illness is a potential hazard, management shall ensure all associates have received training on heat-related illness. Administrative and engineering control measures should be implemented where possible. Examples of administrative control measures include periodic breaks, accessible drinking water, or personnel shift rotation. Examples of engineering control include personal cooling devices, heat reflective barriers or erecting shade devices.

Working in extreme cold environments can lead to frostbite and hypothermia. General precautions are:

1. Wear appropriate clothing to prevent exposure
  2. Protect clothing from wetness
  3. Protect against wind, intense light reflection from ice, snow, and water.
  4. Ensure vehicle is equipped with emergency survival supplies if traveling far distances
- ☐ Frostbite- Caused by prolonged exposure to cold. Signs and symptoms include:
    - White patches of skin, numbness, blistering, blackened tissue.
    - Swelling, itching, and burning when area is warmed.
    - Seek immediate emergency medical care.
  - ☐ Hypothermia- Occurs when the body gets cold and loses heat faster than the body can generate. Signs and symptoms include:
    - Excessive shivering.
    - Cold, pale, or blue-gray skin.
    - Shallow breathing, slow pulse.
    - Seek immediate emergency medical care.

## Hearing Conservation

Exposure to high noise levels can lead to hearing loss (acute and chronic), which may result in permanent damage. High noise contributes to accidents arising from difficulty in communication, as well as worker fatigue. Noise levels should be maintained as low as reasonably possible through engineering, administrative and/or personal protective equipment (PPE) controls.

- ☐ Hearing protection (earplugs and/or earmuffs) must be provided and properly worn by associates in high noise areas. The following are examples of where high noise exposure may be encountered at Company locations:
  - Tasks using pneumatic tools (impact wrenching, buffing), metal grinding, abrasive blasting, pressure washing, etc.
  - Any other tasks that are conducted in an area in which it is difficult to verbally communicate at close distances.
  - The facility shall identify high noise areas and post appropriate warning signs.
  - Workers that are exposed to noise levels that exceed a Time Weighted Average (TWA) of 85 decibels (dBA) over an eight-hour work period must be included in a Hearing Conservation Program that includes:
    - ☐ Written Plan
    - ☐ Baseline and annual audiometric testing, and
    - ☐ Associate training in hearing conservation awareness, the effects of noise, the types, selection, fit and care of hearing protection equipment, and information regarding audiometric testing.
    - ☐ If needed, contact your HSE Department for assistance in developing a hearing conservation program at your location.

## Hexavalent Chromium

Chromium hexavalent (Cr(VI)) compounds, often called hexavalent chromium, exist in several forms. Industrial uses of hexavalent chromium compounds include chromate pigments in dyes, paints, inks, and plastics; chromates added as anticorrosive agents to paints, primers, and other surface coatings; and chromic acid electroplated onto metal parts to provide a decorative or protective coating. Hexavalent chromium can also be formed when performing "hot work" such as welding on stainless steel or melting chromium metal. In these situations, the chromium is not originally hexavalent, but the high temperatures involved in the process result in oxidation that converts the chromium to a hexavalent state.

### OSHA's permissible exposure limit (PEL) for hexavalent chromium:

5 micrograms of Cr(VI) per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ) during 8-hour time-weighted average (TWA). This means that over the course of any 8-hour work shift, the average exposure to Cr(VI) cannot exceed 5  $\mu\text{g}/\text{m}^3$ .

### Health Effects

Workers in many different occupations are exposed to hexavalent chromium (Cr(VI)). Occupational exposures occur mainly among workers who handle pigments containing dry chromate, spray paints, and coatings containing chromate, operate chrome plating baths, and weld or cut metals containing chromium, such as stainless steel. Workers who breathe hexavalent chromium compounds at their jobs for many years may be at increased risk of developing lung cancer. Breathing high levels of hexavalent chromium can irritate or damage the nose, throat, and lungs. Irritation or damage to the eyes and skin can occur if hexavalent chromium contacts these organs in high concentrations or for a prolonged period of time.

### Work practice controls

1. **Substitution**- Is it feasible and practical to modify or replace your current welding process, consumable, gas, welding procedure or equipment technology with an alternative process that generates less welding fumes?
2. **Isolation**- Is it feasible and practical to isolate and separate your welding operation by moving it to a regulated area, by automatic/ventilating the welding process and/or by placing a barrier between the associate and the source?
3. **Ventilation**- Is it feasible and practical to control the welding fume path between the source and the worker through source, local and/or general shop extraction/ventilation equipment?

## Hydrogen Sulfide Protection

Some associates work at job sites that may have a hazardous level of hydrogen sulfide present. If this occurs, hydrogen sulfide training shall be given to the associate. Upon completion of the training, the associate will be given a certificate that must be available whenever the associate is on the job site.

### How Hydrogen Sulfide Affects Individuals:

When a person breathes hydrogen sulfide, it goes directly through the lungs and into the bloodstream. To protect itself, the body oxidizes (breaks down) the hydrogen sulfide as rapidly as possible into a

harmless compound.

H<sub>2</sub>S irritates the mucous membranes of the body and the respiratory tract, among other things. Following exposure, short-term, or acute, symptoms may include a headache, nausea, convulsions, and eye and skin irritation. Injury to the central nervous system can be immediate and serious after exposure. At high concentrations, only a few breaths are needed to induce unconsciousness, coma, respiratory paralysis, seizures, even death.

If the individual breathes in so much hydrogen sulfide that the body cannot oxidize all of it, the hydrogen sulfide builds up in the blood and poisons the individual. The nerve centers in the brain that control breathing are paralyzed, the lungs stop working, and the person is asphyxiated.

The way in which hydrogen sulfide affects an individual depends upon these factors:

**Duration:** The length of time the individual is exposed

**Acceptable 8-hour Time-Weighted Average (TWA):** To avoid discomfort, the time-weighted average concentration of hydrogen sulfide shall not exceed 10 ppm.

**Short-Term Exposure Limit (STEL):** 15 ppm of hydrogen sulfide is the associate's 15-minute time-weighted average exposure that shall not be exceeded at any time during a workday.

**Frequency:** How often the individual has been exposed

**Intensity:** How much (concentration) the individual was exposed to.

**Individual Susceptibility:** The individual's physiological makeup.

**Self-Contained Breathing Apparatus (SCBA):** The key device for protection against hydrogen sulfide hazards is the self-contained breathing apparatus (SCBA). Hydrogen sulfide training shall include drills in using an SCBA.

There are several common types of breathing apparatus, and it is important for associates to be trained to properly use the SCBA and to understand the limitations for each type of SCBA.

Some special problems encountered in respiration use are:

- ☐ Facial hair lying between the sealing surface of the respirator face piece and the wearer's skin prevents an effective seal. Even a one day's growth of stubble will permit excessive contaminant penetration and/or loss of air.
- ☐ Contact lenses must not be worn while wearing an SCBA.
- ☐ Corrective glasses with temple bars or straps that interfere with respirator face seal shall not be worn as they will permit excessive contaminant penetration.
- ☐ Associates with psychological disturbances can experience claustrophobia while wearing an SCBA.
- ☐ Miscellaneous sealing problems can occur if the associate has facial scars, hollow temples, prominent cheekbones, deep skin creases, and/or missing teeth or dentures.

## Industrial Hygiene

Industrial Hygiene monitoring is carried out where associates are working with concentrations of a substance that may be present above the permissible exposure limit. Processes that generate dusts, fumes, mists, gasses, vapors, and excessive noise should be assessed to determine if industrial hygiene sampling is warranted.



Industrial hygiene is sampling, and testing is conducted to assure worker exposure is below *permissible exposure limits*. In cases where workers are exposed above *permissible exposure limits*, actions must be taken to control the exposure.

**BE SURE TO:**

- ☐ Evaluate work areas through a Risk Assessment to determine if there is a potentially hazardous concentration of substances being used. Use Safety Data Sheets (SDS) or local equivalent documents and knowledge about the process to assess if the process has the potential to expose workers above *permissible exposure limit*.
- ☐ Conduct industrial hygiene monitoring for areas of concern to test exposure levels.
- ☐ When industrial hygiene monitoring indicates exposure above the permissible exposure limits, the following actions must be taken in this order:
  - Implement engineering controls (area ventilation, chemical product substitution, etc.)
  - Implement administrative controls (job rotation, etc.)
  - Provide personal protective equipment (PPE)
  - Medical surveillance, if applicable, must be provided for associates exposed above permissible exposure limits or associated action levels.
  - Provide additional precautions, such as signage, restricting areas, etc.

## Access to Medical Records

Medical Surveillance of an associate may be necessary for certain activities performed by associates. Locations shall conduct Risk Assessments to identify activities that are subject to medical surveillance requirements. Some justifications for implementing medical surveillance program may be, but are not limited to:

- ☐ Chemical or other hazardous material exposure or a display of related symptoms.
- ☐ Reassure associates that PPE and work procedures are adequate for their protection.
- ☐ Industrial hygiene sampling results that indicate workers exceeding the PEL's or associated action levels
- ☐ Provisions for a baseline for future reference
- ☐ Detection of any changes in an associate's physical condition

Possible Tests that a medical surveillance program may include are:

- ☐ Audiometric
- ☐ Respirator functional capacity
- ☐ Chest X-ray
- ☐ Blood Test

Test results shall be made available to the tested associate and/or his/her designated representative. Contact your HSE department for assistance where needed.

## Vehicle Safety

Cactus Wellhead, LLC has a fleet management program to aid in the continuous improvement of company drivers and to help ensure safe operation of vehicles. Refer to the fleet management and vehicle safety program for additional information.

### General Rules of Vehicle Safety:

- ☐ Seat belts should be worn by all passengers in Company vehicles, including rental cars. The driver is responsible for ensuring that all passengers wear seat belts.
- ☐ When using the Cruise Control option on the truck you must remain alert and vigilant to your surroundings.
- ☐ DO NOT operate a vehicle if you are under the influence of alcohol, illegal drugs, prescribed or over the counter medication.
- ☐ Ensure you are well rested prior to beginning a journey and take breaks when needed to combat fatigue.
- ☐ DO NOT allow unauthorized individuals to operate, drive or tow a Company vehicle.
- ☐ Check the condition of the vehicle prior to the journey.
- ☐ Handheld cellular phones and handheld devices are prohibited from use while driving.
  - o Drivers can use hands free devices but should refrain from placing outgoing calls.
  - o Incoming calls should be limited Cactus Wellhead HSE Handbook.
  - o Text messaging and e-mailing are strictly prohibited while driving.
  - o All mobile devices should be turned off when entering a service station for the purpose of refueling.
- ☐ Report all traffic violations and vehicle incidents immediately to your supervisor. Use your cellphone camera to document the scene.
- ☐ Materials on cars, trucks, or other vehicles shall be loaded so that no part of the load protrudes over the vehicle's side or can fall off in transit.
- ☐ Practice defensive driving always.

#### **Wait, before you drive...**

Stop—take a moment to evaluate yourself.

Think—am I tired? When did I last sleep?

Act—let your ASM know if you need rest.

Y ? - Because your safety is important.



**If you are exhausted, STAY where you are and rest!**

## Respiratory Protection

The primary objective in respiratory protection is to prevent atmospheric contamination to protect the health of personnel. Engineering or administrative controls, when feasible, should be implemented to reduce airborne exposures below permissible exposure limits.

The use of respirators should be the last line of defense for protection from potential respiratory hazards. When engineering or administrative controls are not feasible, personnel must use respiratory protection.

Some potential respiratory hazards are:

- ☐ Oxygen-deficient environments.
- ☐ Gas or vapor contaminants, such as hydrogen sulfide, hydrocarbons, and benzene.
- ☐ Particulate contaminants, such as harmful dust, fumes, mists, and spray.
- ☐ A combination of any of the above.

When respirators are required to be used, associates must participate in the Respiratory Protection Program (RPP). This program includes:

- ☐ Medical fitness test
- ☐ Identification, selection, and use of respirators.
- ☐ Fit testing and respirator functionality check.
- ☐ A clean-shaven policy for those in the program.
- ☐ Training on proper use, limitations, and care of respirators.
- ☐ Inspection, maintenance, cleaning, and storage procedures for respirators.

## Hazard Communication

Cactus Wellhead will provide associates and contractors with information regarding any chemical or hazardous substances in the workplace. Chemicals can pose a wide range of health and physical hazards, and this procedure ensures associates and contractors understand the hazards they may be exposed to.

- ☐ Each facility will maintain an updated inventory of hazardous chemicals used and/or stored at the location.
- ☐ A Material Safety Data Sheet (MSDS) for each hazardous chemical should be on site at the facility and accessible in the work area during all work shifts.
- ☐ Any associate carrying, shipping, or delivering a hazardous chemical to a job site must have a copy of the MSDS in their vehicle or with the product.
- ☐ Labels are the main warning system that allow workers to identify hazardous chemicals. Each container must be labeled or marked in a way to identify the contents and show hazard warnings that the associate understands.
- ☐ Before working with hazardous chemicals or in an area where there is potential exposure, associates will need to receive initial training and again if the job changes or a new hazard is introduced. This training will cover the requirement of the hazard communication standard.
- ☐ Any contractors will be given access to our hazardous chemical inventory and have the MSDS available for their review. If any specific chemical hazard exists in an area where they will be working, the hazards will be brought to the contractor's attention. Any hazardous chemicals brought on site by the contractor must also have proper labels and material safety data sheets or local equivalent documents.

## Handling Chemicals

Always understand the hazard of a chemical before use.

1. Wear your PPE (chemical goggles, face shield, chemical resistant gloves, and chemical resistant apron).
2. Always wash your hands with soap and water after handling any chemicals and especially before eating or smoking.

3. If contaminated by a spill or splash, remove clothing and wash affected area immediately.
4. Exposure to the eyes should be rinsed immediately at an eyewash station with liberal amounts of potable water.

#### **Safety Equipment Requirements**

1. If chemicals are used, eyewash station must be provided for emergency use.
2. Locate eyewash station in proximity to chemical handling areas.
3. If corrosive materials are handled, provide a safety shower or another method for rinsing with large amounts of potable water at low velocity.
4. Place signs designating the location of eyewash stations and/or safety showers and make sure all personnel are familiar with these locations.

#### **Chemical Container Storage Areas**

1. Store chemicals in areas away from ignition sources, excessive heat, sunlight, excessive cold, moisture or contamination.
2. Store incompatible materials separately (i.e., acids – caustics, oxygen, and acetylene, etc.).
3. Store flammables in smaller quantity containers (i.e., 5 gallons (18.92 liters) or less) in an approved flammable materials storage cabinet.
4. Storage areas must be ventilated and free of excessive vapors that may cause a flammable or explosive atmosphere.
5. Drums will not be stacked more than two high and aisle space in storage areas will be maintained.
6. Chemical storage areas must be on an impermeable surface with secondary containment.

#### **Compressed Gas Cylinders**

1. Always secure cylinders with the valve up. Never leave a cylinder unsecured. An unsecured cylinder may fall, potentially damaging the cylinder and/or valve.
2. Never move a cylinder or store a cylinder while the regulator and hoses are attached. Remove the regulator and place protective cap when not in use.
3. Absolutely no smoking when using compressed gases.
4. Keep cylinders, valves, regulators, couplings, and hoses free of oil and grease.
5. Transport cylinders in a secure upright position with the protective cap in place.
6. Store compressed gas cylinders in an area away from sources of ignition and separate oxygen cylinders from fuel cylinders by at least 20 feet or use a 30 min fire-proof separation wall.
7. Both cylinders must have a flashback arrestor installed at the gauge, not the torch head.
8. Signs must be posted in compressed gas storage areas identifying the substance and hazards. No smoking within 25 feet of these areas.

### **Hand and Portable Power Tools**

Injuries resulting from heavy machines or tools generally are severe in nature. Each associate must evaluate the potential hazards of each machine or tool and eliminate or minimize those hazards before beginning a job.

### **Portable Power Tools**

- ☐ Associate must visually inspect all power tools prior to use.
- ☐ Power tools showing worn or deteriorated electrical cords or that do not have safety guards and devices in place will be red tagged and removed from service. Guards shall be always in place and operational.
- ☐ Always use power tools as intended and keep hands, fingers, and loose clothing clear of moving parts.
- ☐ Retaining Rings used to help secure sockets onto drive tools should be used.
- ☐ Do not use spliced electrical or extension cords. Prevent cords from creating a trip hazard or being damaged by the movement of equipment. Use only extension cords with a three-prong plug.
- ☐ Portable grinders can be dangerous. Make sure that the grinding disc used is appropriate for the rotational speed of the grinder, and never use a damaged grinding disc.
- ☐ Power tools should be stored in an area free from moisture and excessive dirt and dust.
- ☐ Remember to wear approved safety glasses and impact resistant face shields while conducting chipping, grinding wire wheel rotary tool operations.

### **Hand Tools**

- ☐ Maintain hand tools in good working order. Tools found to be defective or unsafe shall be red tagged and removed from service.
- ☐ Use hand tools as they are designed for their intended purpose. Never subject a tool to service beyond its capability.
- ☐ Inspect the driving faces of hammers, chisels, hammer wrenches and similar tools for defective faces. If they are broken, mushroomed or defective, red tag and remove them from service.
- ☐ Clean tools after each use and ensure they are stored in an area free from moisture, dirt, and dust. Do not use tools that are oily and greasy.
- ☐ Use wrenches properly sized for the job. Be sure wrench jaws are not sprung or chipped and do not have worn teeth.
- ☐ Shop made or homemade tools are strictly prohibited on any location or customer location.

### **Hand Tool Selection and use**

The following suggestions for properly selecting and using hand tools will help ergonomic practice and reduce the likelihood of developing work-related musculoskeletal disorders (WMSDs) in the hands, wrists, and arms:

- ☐ Maintain straight wrists. Avoid bending or rotating the wrists: a variety of bent-handle tools are commercially available.
- ☐ Avoid static muscle loading. Reduce both the weight and size of the tool. Do not raise or extend elbows when working with heavy tools. Provide counterbalance support devices for larger, heavier tools.
- ☐ Avoid stress on soft tissues. Stress concentrations result from poorly designed tools that exert pressure on the palms or fingers. Examples include short-handled pliers and tools with finger grooves that do not fit the associate's hand.

- ☐ Reduce grip force requirements. The greater the effort to maintain controls of a hand tool, the higher the potential for injury. A compressible gripping surface rather than hard plastic should be used.
- ☐ Whenever possible, select tools that use a full-hand power grip rather than a precision finger grip.
- ☐ Avoid sharp edges and pinch points. Select tools that will not cut or pinch the hands even when gloves are not worn.
- ☐ Wear gloves that fit. Tight-fitting gloves can put pressure on the hands, while loose-fitting gloves reduce the grip strength and pose other safety hazards.

## Confined Space Entry

Associates must be knowledgeable about the existence of hazards associated with working in a confined space. The atmosphere, configuration and/or material within a confined space can pose serious hazards to people that may enter to conduct work. Review the following definitions for confined spaces and the requirements for labeling and permit-required confined space entry.

(Reference the Confined Space Entry Flowchart in the Field Service Guide.)

**Confined Space:** Any space that has a size and shape to allow a person to enter and work, has limited or restricted means of entry and exit, and is not designed for continuous human occupancy.

**Permit-Required Confined Space:** is a confined space that:

1. Has the potential to contain a hazardous atmosphere (petroleum storage tanks, well cellars, wastewater treatment tanks and pits etc.)
  2. Contains material that could engulf an entrant.
  3. Has an internal configuration that could trap or asphyxiate an entrant, or
  4. Contains any other serious safety or health hazard.
- ☐ Label confined spaces with “DANGER” Confined Space and permit-required confined spaces with “DANGER” Permit- Required Confined Space-Do Not Enter. Contact your HSE Department for assistance in this classification, if needed.
  - ☐ Cactus service associates first must attempt to re-classify the permit-required space to a non-permit required space through a documented pre-entry assessment or determine if an alternate procedure can be used.
  - ☐ Initial testing of atmospheric conditions must be performed from outside the confined space using a calibrated Multigas monitor.
  - ☐ Work that requires entry into a permit-required confined space is conducted by contractors that meet the Company’s requirements and are qualified to conduct permit-required confined space entry. No Company associates are to enter a permit-required confined space until they have received specific training and meet the permit-required confined space entry qualifications. Associates meeting these qualifications must receive approval from the Company’s HSE Department prior to performing work.
    - To enter a permit-required confined space, an entry permit must be completed and approved before entry can begin.

- Permit-required confined spaces must have the atmosphere tested for flammable gases and vapors, oxygen deficiency, and toxic gases.
- Before entry into a permit-required confined space, a rescue plan must be developed and understood by all personnel involved in the entry.
- Entry supervisors, authorized attendants, and authorized entrants will be trained initially upon assignment and at a minimum annually. Training will also be conducted before a change in duties if a new hazard has been introduced or deviations have occurred.

## Electrical Safety

Follow these general guidelines when working with electricity.

- Only qualified personnel may work on energized electrical equipment and systems using appropriate safe work practices, shock-hazard and arc flash restricted approach boundaries and insulating PPE.
- All electrical wires shall be considered “live” and dangerous. When working on electrical equipment, associates shall de-energize and use *Lock- Out/Tag-Out* procedures for the control of the unexpected release of hazardous energy, where applicable.
- Remove any jewelry or metal objects from your pockets before working on any electrical equipment.
- Do not touch electrical equipment while standing in water, on metal floors or ladders, on damp concrete, or on conductive surfaces.
- Extension cords should not be used in areas of standing water, where they will create a trip hazard, or be damaged by people or equipment moving over them.
- Extension cords should not be used to replace permanent hard wiring.
- Use Ground Fault Circuit Interrupters (GFCI) on extension cords if they could be exposed to water or moisture that could enter the connections.
- All extension cords should be inspected prior to use. Do not use extension cords that are frayed, worn, cut, have exposed wiring, missing prongs, damaged insulation, or altered in some manner. Protect cords from contact with oil, hot surfaces, and chemicals.
- Damaged electrical equipment will be removed from service and tagged “Do Not Use.”
- Be aware of static electricity. Containers should be *grounded and bonded* before transferring flammable liquids between containers or transferring flammable liquids from a permanent storage tank to a truck mounted transport or from a truck to another vehicle.
- Be very cautious when working near overhead power lines; People must not work within 10 feet of any energized overhead lines for voltages to ground of 50 kV or less. For every 10 kV over 50 kV to ground, the minimum working distance must be 10 feet plus 0.4 inches. If work beneath live overhead lines cannot be avoided, barriers, goal posts and warning notices must be provided, being extremely careful not to hit the line or place a metal object too close to the line.

## Lifting and Back Safety

Back injuries are one of the most common types of workplace injuries. The key to reducing back injuries is to lift objects only manually as a last option. Always try to use a mechanical lifting device. If you must lift an object manually, it is critical to follow proper lifting techniques.

- ❑ When manual lifting is required, a hazard assessment should be completed to assess the risk. In addition, when manual lifting is required, associates shall follow proper lifting techniques and always get help to lift heavy objects. Under normal circumstances, associates may not lift objects more than 50 pounds alone unless one of the following conditions are met:
  - The task has been evaluated, the job description details the allowable lifting loads, and associates have been medically evaluated and approved for lifting the desired load.
  - A task evaluation has been performed using ergonomic evaluation tools, such as the NIOSH Lifting Equation for evaluations of acceptable weights for manual lifting, or equivalent with an acceptable risk level for the task involving the manual lift.
- ❑ Never lift a load beyond your capacity and always know what you are lifting.
- ❑ Before lifting an object, look for sharp edges, burrs, rough, regularly shaped, or slippery surfaces. Keep hands free of oil and grease and away from pinch points, especially when setting the load down. Use proper lifting techniques:
  - Position the body close to the object.
  - Bend at the knees, back straight with a slight incline from the hips.
  - Keep feet shoulder width's apart, one slightly ahead of the other.
  - Firmly grasp the object with the whole hand.
  - Use your legs to lift. Keeping the back straight and the object close to your body.
  - Avoid twisting when lifting, carrying, and setting down the load.

## Fire Protection

Preventing fires is the best way to avoid injury and damage. Exercise caution towards potential fire hazards that may be present at a well location or within a facility.

- ❑ Associates must be aware of and trained on the Facility Emergency Action Plans.
- ❑ Do not smoke or light ignition sources in no smoking areas or in the vicinity of flammable liquids, gasses, or combustible materials. An open light or flame shall not be used when working near oil, gasoline, grease, compressed gases, or fuel storage areas.
- ❑ Storage areas for flammable and combustible liquids shall not be used for operations and should be located away from ignition sources.
- ❑ Only use approved and properly labeled metal safety containers to transport flammable liquids.
- ❑ Maintain good housekeeping. All leaks of flammable or combustible materials should be cleaned up immediately and the container repaired, replaced, or isolated using secondary containment. Oily waste and oil-soaked materials must be placed in a properly covered metal waste container.
- ❑ Post fire related safety signs including fire escape routes and exits. Exits or egresses from the area shall not be blocked and must be clearly marked.
- ❑ Associates must be aware of and trained on the Facility Emergency Plan.
- ❑ Provide approved fire extinguishers and make them readily accessible to associates.
- ❑ Associates must be trained in the use of the fire extinguishers.
- ❑ Fire extinguishers must be inspected monthly and properly maintained.
- ❑ The fire extinguisher shall be in its designated location, have an unbroken seal, and shall not have any physical damage that might prevent operation.



## First Aid and CPR

- ☐ All facilities will designate associates to be Medical First Responders (MFRs). MFRs will render aid to injured associates in a responsible manner and not place themselves or others at risk.
- ☐ Facilities shall insure the first aid kit stays adequately stocked by the vendor.
- ☐ MFRs should be trained in Cactus incident reporting and telephonic nurse care management process.
- ☐ Associates shall know where first aid kits are located.
- ☐ All facilities must identify in an emergency action plan a health care facility in close proximity to provide assistance and associates will be made aware of the location and its contact information.
- ☐ Only trained MFRs shall provide first aid and/or cardiopulmonary resuscitation at Company facilities.
- ☐ MFRs will receive certification refresher training in AED, First Aid, and CPR every two years.
- ☐ Automated external defibrillators (AED's) are available at all locations and are designed to be used by trained personnel.

## Forklift Safety

- ☐ Only trained and certified personnel shall operate forklifts.
- ☐ Training is to be provided on initial assignment and every three years afterwards.
- ☐ Visually inspect forklifts daily and report any problems or irregularities immediately.
- ☐ Document your daily forklift inspections.

### **Forklift Operation**

- Passengers shall not ride on forklifts.
- Stunt driving and horseplay are prohibited operating mobile equipment.
- Right-of-way is always yielded to pedestrians and motor vehicles.
- When the forklift is not in use, the controls shall be neutralized, the power shut off, the forks shall be lowered to the ground, and the brakes set.
- Blocking of the wheels is required if parked on an incline.
- The maximum load limits of the forklift shall not be exceeded. When moving oversized loads, a spotter will be used to assist the driver.
- Seat belts shall be worn when operating the forklift.
- No smoking or use of mobile electronic devices is allowed when operating a forklift.
- Forklifts shall not be used as personnel elevators unless a properly secured platform for this purpose is used.
- Associates shall not stand, work, or walk under elevated forks. Forklifts shall not be driven up to anyone standing in front of a fixed object.
- Operators are to look in the directions of travel, maintain a clear view, and slow down and sound the horn at blind corners and when vision is obstructed.
- Keep forks as close to the ground as possible while traveling, whether the forklift is loaded or unloaded.
- Check clearance of overhead objects look behind before backing up, and always be aware of rear swing. Avoid quick stops, wet or slippery floors, and sudden moves in any direction.

## Hot Work Permitting

This process controls activities that may provide an ignition source in high-risk areas where natural gas or other flammable or combustible materials are present, each Cactus branch shall institute permitting programs for hot work conducted at Company locations. This program requires authorization from an associate's supervisor before equipment capable of igniting flammable or combustible materials is used in certain high-risk (restricted areas).

**Hot Work** is a term used to describe an activity that uses an open flame, produces an electrical arc, or generates sparks. In our operations, these activities typically include:

- ☐ Chipping
- ☐ Sandblasting
- ☐ Grinding
- ☐ Drilling
- ☐ Metal cutting (oxygen-acetylene)
- ☐ Metal Heating or heat treating
- ☐ Area Heating (space heating)
- ☐ Welding
- ☐ Soldering
- ☐ Brazing
- ☐ Use of any electronic equipment that is not approved as an intrinsically safe apparatus (i.e., radio, torque pump, cell phones, etc.)

Because these activities are potential ignition sources, a **Hot Work Permit** is required if any of the above activities are conducted outside of a designated Hot Work Areas in an area of the company facility that:

- ☐ Contains flammable or combustible materials or
- ☐ Has a potential to contain an explosive agent e.g., combustible dust, flammable atmosphere > LEL.

The supervisor shall complete the Hot work Permit, review the requirements of the permit during a pre-job safety meeting and post the permit near the job site until work is complete.

- ☐ All direct reading atmosphere monitoring instrumentation must be calibrated, and bump tested per manufacturer's instructions. An instrument must not be used if it has not been calibrated properly.

Hot Work is prohibited:

- ☐ In any area where explosive gases or vapors have been detected above zero LEL.
- ☐ In any area where an installed fire suppression system is inoperable or has been disabled for service or repair.

## Housekeeping

Facilities and work areas are to be kept in a clean and uncluttered manner. Poor housekeeping practices account for a large portion of accidents, health hazards, and fires. These practices can also play a role in storm water contamination in industrial facilities.

- ☐ Trash containers shall not be overfilled, and trash will be placed in the appropriate container.

- ☐ Containers placed outside or exposed to the weather will be covered to minimize storm water impact.
- ☐ Store equipment, material, or products in a neat, orderly fashion. Inventory these items, and if they have no value or visible use to the facility, dispose of them in the proper manner.
- ☐ Keep floors and work surfaces free of standing water, shavings, metal chips, and chemical residue.
- ☐ Minimize trip hazards by keeping cords and hoses out of walkways.
- ☐ Around work areas or benches, keep pathways clear of tools, hoses, equipment, oils, greases, and debris, as these may also present trip hazards.
- ☐ Clean spills up immediately. This is the responsibility of all associates, whether they created the spill or not.
- ☐ Keep kitchen and break areas clean and sanitary to help prevent health hazards.

## Lead Safety

### How You Can Become Exposed to Lead

Lead is an ingredient in thousands of products widely used in industry, including lead-based paints, lead solder, electrical fittings and conduits, tank linings, plumbing fixtures, and many metal alloys. Although many uses of lead have been banned, lead based paints continue to be used on steel structures because of its rust- and corrosion-inhibiting properties. Cactus does not approve the purchase or use of lead containing chemical products at its facilities.

#### Operations that can generate lead dust and fumes include:

- Demolition of structures.
- Flame-torch cutting.
- Welding.
- ☐ Use of heat guns, sanders, scrapers, or grinders to remove lead paint.
- Abrasive blasting of steel structures.

#### Regulations for lead exposure

- A permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air, as averaged over an 8-hour period.
- Requirement that employers use engineering controls and work practices, where feasible, to reduce worker exposure.
- Requirement that associates observe good personal hygiene practices, such as washing hands before eating and taking a shower before leaving the worksite.
- Requirement that associates be provided with protective clothing and, where necessary, respiratory protection.
- Requirement that associates exposed to high levels of lead be enrolled in a medical surveillance program.

## Lock Out / Tag Out

The Lock-Out / Tag-Out Program establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or service is performed on a machine or piece of equipment. Lockout/ Tagout is used to ensure that a machine or piece of equipment is stopped, isolated from all

potentially hazardous energy sources, and locked out before associates perform any work where the release of stored energy or the unexpected start-up of the machine or equipment could cause injury.

The lock-out / tag-out procedure is applicable to servicing and maintaining of machinery and equipment at company facilities. This procedure is not applicable to:

- Portable pneumatic or hydrostatic pressure testing equipment.
- Oil and gas well drilling and servicing.

Remember:

- Each facility shall evaluate equipment and processes that may require maintenance, repairs, or adjustments. Once identified, each piece of equipment or process will need to have a Lock-out/Tag-out instruction developed.
- Equipment may have multiple hazards that will need to be isolate and locked out before work can safely begin.
- Lock-out/Tag-out equipment shall be placed on the primary source of energy. For example, electrical disconnects will be isolated rather than start/stop switches.
- Associates who are authorized to perform Lock-Out/Tag-out operations shall be trained on how to perform this procedure before being allowed to work on equipment. Associates not authorized to use Lock-out/Tag-out will be trained on general awareness of the procedure.
- Lock-out devices shall always be in the possession of the person that put the lock in place. Lock-out devices shall be keyed differently to prevent someone from accidentally removing the wrong device.
- This procedure does not apply to work on cord and plug connected electric equipment in which exposure to unexpected start up is controlled by the unplugging of the equipment from the energy source and by the plug being under the exclusive control of the associate performing the work.

## Radiation Safety

Radiation safety purpose is to provide practices for use of and protection against radioactive materials where radioactive materials, equipment containing radioactive sources, or naturally occurring radioactive materials (NORM) are present.

Equipment is to be screened with a calibrated survey meter, held approximately one centimeter from the surface of the equipment. Note: the maximum acceptable level including background is 50 micro roentgens per hour.

- All used oil and gas production equipment will be screened prior to leaving the client's well site when possible, and prior to any Company location assuming possession. NORM screening entails a scan of all equipment parts and sub-parts.
- Screening must be completed with an appropriately calibrated radiation survey meter.
- If the reading exceeds the action level, the equipment cannot be accepted. The customer is responsible for the removal of the contaminated equipment from the location. Until such arrangements can be made, all NORM impacted equipment should be set aside in a specially

marked and segregated storage area, preferably at the customers' location. Contact your HSE department for further guidance.

- DO NOT do any abrasive work on any scale coated equipment identified as being contaminated by NORM; contact your HSE department for the procedure for using wet methods to clean scaling.
- Associates are to wear dust masks when conducting any abrasive work to remove scaling from production equipment.

## Office Safety and Ergonomics

To prevent accidents in the office, areas should be designed and maintained in a way to promote a safe and healthy work environment.

Associates should follow these general office safety guidelines:

- Be familiar with the facility emergency action plan, alarm signals and appropriate evacuation route for specific work area.
- Keep exits, aisles, doorways, and stairwells clean, clear, and unobstructed at all times.
- Clean up loose objects and spilled liquids immediately ☐ Do not overload electrical outlets or pig-tail multiple extension cords or power strips.
- Locate space heaters at least 3 feet from combustible materials and ensure the heater has an automatic shut-off in the event of a tip over.
- Secure file cabinets, bookcases, and shelving units more than 5 feet tall to the wall or floor.
- Avoid stacking items on top of cabinets and always place heavier items in/on bottom sections of cabinets, bookcases, or shelving units.
- Do not open more than one file drawer at a time and never leave open drawers unattended.
- Use all office furniture for its intended purpose. Do not substitute office furniture for ladders.
- Use handrails when traveling up and down stairways.
- When carrying items, ensure vision is clear over and around the load.
- Test the load to be lifted prior to lifting and always use proper lifting techniques. Ask for assistance when necessary.
- Ensure lighting is adequate in all areas.

Ergonomics plays an important role in preventing injury and illness. Ergonomics is “fitting the job task to the person performing the job.” Many times, this involves manipulating an individual’s work area so that it fits the individual better and enables him or her to work in a neutral posture. Maintain the body’s natural curves.

The main conditions associated with the development of cumulative trauma injuries include:

- Awkward postures (bending or twisting)
- Forceful exertions (carrying, lifting heavy loads)
- Repetitive motions (frequent reaching, lifting)
- Vibration in the work area
- Pressure points (grasping, leaning against parts or surfaces that are hard or have sharp edges)
- Static postures (maintaining fixed positions for a long time)
- Travel distances

Repeated exposure to one or more of these factors may lead to fatigue and discomfort. Over time, injury to back, shoulders, hands, wrists, or other parts of the body may occur. Injuries may include damage to muscles, tendons, ligaments, nerves, and blood vessels.

Excessive levels and durations of exposure to whole-body vibrations may contribute to back pain and performance problems. Vibrating level and duration factors may contribute to finger disorders.

**Remember:**

1. Analyze the workstation.
2. Identify patterns of traumas or strains that may indicate the potential for cumulative trauma.
3. Reduce or eliminate ergonomic problems through engineering and/or administrative controls.

## Personal Protective Equipment

Personal Protective Equipment (PPE) is designed to prevent injury or illness rather than to prevent accidents and therefore should not be considered the ultimate in associate protection. Engineering controls to eliminate or minimize hazards shall be considered as the best option to protect associates.

Each location must perform a Risk Assessment to determine specific needs for PPE at the location. This assessment will state specific requirements for specific PPE to be used by associates when performing specific tasks. Managers and associates shall assess the workplace for hazards to associates concentrating on potential hazard to the head, feet, hand and arm, eye and face, body, hearing, respiratory (breathing). In addition, PPE requirements for visitors will be defined and implemented based on the Risk Assessment.

If it is decided that PPE is needed, the degree of protection required, and the degree of protection offered by the particular piece of PPE will govern selection. The PPE must meet accepted performance specifications and standards. Comfort and ease will also be considered in the selection process.

### Head Protection

Associates and visitors to our facility shall be provided head protection when working in our visiting areas where there is a potential for a head injury from falling objects or exposure to electrical conductors which could contact the head.

- Long hair constitutes a hazard for getting caught in machinery and equipment and must be secured.
- Protective headwear (hard hats) must comply with the requirements of all applicable legislation and standards relative to the local area of operations.

### Foot Protection

Approved protective footwear must be worn by all associates working in the field or shop. Protective footwear must also be used in any area or function where the following hazards may exist:

- Falling objects.
- Rolling objects.
- Objects piercing the sole.
- Electrical hazards.

Protective footwear must comply with the requirements of all applicable legislation and standards relative to the local area of operations and must have defined heel, a sole that is oil, water, slip and puncture- resistant, and provide ankle support (no tennis type shoes).

### **Hand and Arm Protection**

Hand protection shall be selected depending on the hazards present and the level of protection needed. Proper fitting gloves and sleeves designed for the work being performed will help reduce and prevent hand, finger, and arm injuries.

Proper hand protection will be worn by associates to reduce risk to injury when:

- Handling rough and/or sharp materials,
- Handling chemicals that can damage, irritate, or penetrate the skin,
- Conducting electrical work and,
- Working in harmful temperature extremes.

Gloves will not be worn when working around large rotational equipment, such as lathes, CNC machines, mills, drill presses, etc., while the machine is in operation.

### **Eye and Face Protection**

Eye and face protection must be worn by associates directly involved in any job or operations that may be present an eye hazard from flying particles, molten metal, liquid chemicals, acids, or caustic liquids, chemical gases or vapors, and potentially injurious light radiation.

Visitors, supervisors, and associates, who enter such areas, even for brief periods, must also wear the appropriate eye protection.

- Protective eye and face devices (glasses, goggles, and shields) must comply with the requirements of all applicable legislation and standards relative to the local area of operations.
- Approved impact resistant face shield and safety glasses must be worn when chipping, grinding, scraping, impacting, torquing, or doing any other activity that would present a hazard to the eyes and face.
- Use safety goggles and face shield when handling hazardous chemicals.
- To protect from light radiation produced from welding, cutting, and brazing, equipment with the proper filter lenses shall be used. Dark tinted safety glasses are not approved for this work.

### **Hearing protection**

Approved hearing protection (earplugs and/or earmuffs) shall be worn in high noise areas. The facility shall identify high noise areas and post appropriate warning signs. The following are examples of where high noise exposure may be encountered at Company Locations:

- Tasks using pneumatic tools (impact wrenching, torquing, buffing), metal grinding, abrasive blasting, pressure washing etc.
- Any other tasks that are conducted in an area in which it is difficult to verbally communicate at close distances.

A supply of earplugs will be maintained in the facility for associates to use in the shop and in field locations.

All PPE must be kept clean, maintained, and ready for use. Before use, PPE must be visually inspected for tears, punctures, cuts, texture changes, or other signs of damage or excessive wear. PPE found to be defective or not in usable condition shall be replaced immediately.

## Elevated Surfaces

Severe injury can occur while working at heights or an elevated surface. Keep in mind the following when working from scaffolding, ladders, or any other elevated working surface:

- If scaffolding is used, it must be constructed according to manufactured requirements and can only be erected and inspected by trained, qualified personnel in accordance to the regulations for scaffolding.
- As a rule, the Company does not erect, modify, or dismantle any scaffolding or scaffolding components.
- Inspect all ladders before use. Check for broken or missing parts. Ladder rungs should be clear of any slip hazards and the ladder should not have loose steps, hinges, or spreaders.
- Do not use metal ladders when working on or near electricity.
- Place ladders on a stable and level surface. When climbing or descending a ladder, always face the ladder, and always maintain three points of contact with your hands or feet on the ladder.
- To prevent falls from stairways, keep stairways clean of debris and slip hazards and install stair rails that meet regulatory requirements, keep at least one hand on the stair rails at all times, and do not carry bulky items in one hand while using stairs.
- Associates shall wear a fall protection system when working at a dangerous height (above or at 4 ft) or by customer requirement. Prior to use, the fall protection harness and lanyard shall be inspected for cuts, burns, frays, excessive wear, or other defects.
- Be aware that fall protection and fall arrest systems must be selected to provide adequate protection for the worker. Severe injury can be caused by improper use of fall arrest system.
- As a company, Cactus Wellhead, LLC does not build, demo, or revise scaffolding for any reason.

## Welding, Cutting, Brazing

All Welding processes require heat and sometimes other substances to produce the weld. Because high heat is used to make the weld, a number of by-products result from this process. The hazards presented by fumes, gases, or vapors should be minimized by providing adequate ventilation and using the proper respiratory protection.

- Before welding, cutting, or other flame or spark producing processes are started, floors should be swept clean and preferably covered with metal or other noncombustible materials where sparks or hot metal may fall.
- When performing electric arc welding, check electrode holders for loose or exposed connections. Replace welding leads spliced within 10ft of the holder.
- Do not use worn, damaged, or poorly spliced cables.
- Do not touch an energized electrode while in contact with the grounded material.



- When possible, place weld shields around welding areas to protect adjacent workers from arc flash.
- When performing gas welding or cutting operations, visually inspect hoses and fittings for any leaks and defects.
- Any hoses with leaks, worn spots, or burns must be replaced immediately. Never use oil or grease on gas welding equipment.
- Only use a friction lighter or other approved devices to light a torch; do not use a match or cigarette lighter.
- Never open oxygen and fuel gas cylinders near sparks or flammable materials. Never stand directly in front of or behind a regulator when opening the cylinder valve. Slowly and carefully open the cylinder valves and open the oxygen valve completely to seal the packing.
- Always wear the correct PPE when welding. At a minimum, wear gloves, welding hoods, cutting goggles, or fitted face shield. Shaded safety glasses are not acceptable. Depending on the work being done, respiratory protection may also be required.
- Welders should never wear synthetic clothing and/or synthetic blends, including synthetic insulated under clothing, and outer clothing should be reasonably free from oil and grease.

## Well Site Safety

Every well site on land and offshore is different and each offers unique hazards, so it is important for associates to understand Cactus and customer safety requirements. Associates shall never work at a location where they find unacceptable risks, work being conducted in an unsafe manner, or unsafe conditions exist can pose a risk to the worker and environment. Always exercise the Stop Work Responsibility when unsafe behaviors and conditions exist.

Prior to beginning the job, complete a JSA with the affected or required personal. Participate in location pre-job and safety meetings. Observe customer safety rules and if the Customer's policy conflicts with Cactus' policy, the one offering the highest level of protection will be followed. Before working on a site, stop and look over the entire location and work area for equipment and personnel. Always be aware of your surroundings and everything that is happening. Take any site-specific safety training or orientation. General guidelines for working on well sites:

- Before a job is started, assess the work area for hazards, verify information concerning the well and job, understand site specific safety requirements, and complete the JSA.
- Identify and list all well barriers on your JSA. There shall be a two-wellbore physical barrier expectation during well activities and operations.
- Know the site emergency procedures. Attend all safety meetings and emergency drills conducted by the customer.
- Watch for wet and slippery work surfaces, stairs, ladders, and guard against falling objects.
- Three points of contact are always required when using ladders and stairs.
- Utilize mechanical lifting when transporting materials to the rig floor.
- Use a stick gauge to verify that no greater than 8" of fluid is present in the cellar. Use muck boots and chemical resistant disposable coveralls. Where necessary, request that the customer pump out excess fluid from the cellar prior to starting work.
- Be on guard against falling objects. Stop the job if you are at risk from potential falling objects.
- Customer defined restricted access "no-go" zones will be always respected.

- Make sure potential ignition sources (vehicles, generators, hydraulic torque units, etc.) are an adequate distance from the well site (75' min distance).
- Utilize standard and specialized PPE (face shields, muck boots, welding gloves) as required by the conditions onsite and the task being performed.
- Avoid situations where you will be working alone onsite.
- Hot work conducted at field service locations must comply with applicable permits issued by the owner/operator of those locations.
- All associates working on a well site whether inland or offshore must be familiar with the procedures for Well Site Safety.

## Hoisting and Rigging Safety

Lifting of heavy equipment is one of the most frequent and high-risk activities conducted in our operations. Failure to inspect and properly use lifting equipment puts associates in danger of serious personal injury. Associates must be knowledgeable in the use of hoisting and rigging, safe lifting, and material handling.

- ☐ Give full attention to the job being done. Use equipment designed and rated for the material handling operation.
- ☐ Do not move loads over personnel. If necessary, clear the area until the operation is completed.
- ☐ Never work under a suspended load and always keep clear of them. Lift the load only as high as needed for the move.
- ☐ Conduct and document monthly hoisting and rigging inspections.

## Pressure Testing

To verify equipment integrity, acceptance standards for oil and gas equipment typically requires the equipment to be pressure tested. Pressure testing is usually conducted using two media, water (hydrostatic testing) or inert gas testing. When conducting pressure testing of equipment at a company facility or in the field, safety must be of primary importance and personnel exposure must always be kept to an absolute minimum.

The process of pressure testing will be taken seriously. Failure of a vessel containing hydrostatic, or gas pressure has the potential to cause serious injury and/or death to exposed personnel.

### ***The following guidelines will be met:***

- ☐ Pressure testing will only be conducted by authorized personnel that are appropriately trained in pressure testing safety.
- ☐ Pressure testing will be conducted in strict accordance with applicable testing procedures.
- ☐ A formal Job Safety Analysis (JSA) must be prepared prior to all test operations. This JSA must be reviewed and signed by all personnel involved in the test.
- ☐ All hoses, connections, test flanges, and test plugs shall be checked to assure rating for the maximum pressure to be applied during the test; visually check for all defects or damage and check to make sure all connections are properly made up.

- Test bay and area should be kept clean/dry and free of trip hazards. Care needs to be taken with the bleeder line to arrange it in a fashion to drain as close to the floor drain as possible, yet not becoming a trip hazard.
- The number of hoses and connections in the set-up will be minimized to the extent practical to limit potential failure points and trip hazards.
- All equipment tested at a company facility will be enclosed in a test cell (hydrostatic testing) or water-filled test pit (gas testing) during the duration of the test. No testing will be done in any areas outside of a test enclosure. A visual indicator (flashing red light) shall be used to indicate the system is under pressure.
- Fittings, couplers, test plugs and flanges will be verified that they are made up correctly into the assembly and facing the test cell walls or pit when possible.
- All studs on test flanges are to be in place and fastened. (No flange bolt holes are to be left open / hot bolting.)
- Once pressure is applied to the system entry into a test cell is allowed in only one case – when the procedure requires the manual stroking of a valve *under working pressure with a branch manager's supervision*. This should be conducted only:
  - If a shell (body) test has been successfully performed AND
  - After the test pressure has stabilized.
  - By qualified personnel only
  - Must have spotter managing the test controls.

Under no other circumstances are personnel allowed to enter the test cell while the system is under pressure.

- No fittings or connections will be tightened or loosened while the system is under pressure. In cases where leaks are observed during the initiation of the testing, the system must be bled down completely, and the test stopped before entry into the cell and adjustment of any connection.
- Personnel will not be allowed to lean over the test pit during gas testing to check for bubbles. A stand-off distance of 5 feet around the pit should be maintained and roped off during the test. Leak monitoring will be through a protective viewing window or video surveillance system.
- All field pressure testing will require appropriate shielding and stand-off distances to assure safety of personnel working in the area. During the test, the designated test area shall be restricted to testing personnel only. The test area will not be left unattended while the test is in progress.
- Where field pressure testing is required, a yellow sign reading “Caution – High Pressure Testing in Progress” will be displayed on all sides to prevent access to the area by unqualified personnel.

**\*\*Falsifying test charts or test results will result in termination.**

Field Equipment- Pressure containing equipment returned from the field must always be treated as pressurized until proven otherwise.

## Air Quality

Air quality management regulations vary by location and should be reviewed to identify the applicable requirements on a case-by-case basis. Air emissions shall be managed in accordance with local, regional, and/or country requirements. The following general guidelines provide guidance for management of air emissions.

- ☐ All facilities shall limit or eliminate air emissions where possible.
- ☐ Open burning shall not be permitted.
- ☐ Painting should be conducted in an enclosed structure with ventilation and filtration to limit the escape of vapors and paint residue.
- ☐ Only non-lead-based paints will be used.
- ☐ Each facility should perform a baseline review of all emission sources to determine the applicability of any local or regional air permitting requirements.
- ☐ Some facilities have small sources of air emissions that are not required to be controlled; however, registration or notification of even small emissions sources may be required by local or regional jurisdictions.
- ☐ Activities that may require permitting and/or notifications include, but may not be limited to:
  - ☐ Surface coating operations
  - ☐ Abrasive blasting
  - ☐ Chemical storage and transfer operations
  - ☐ Degreasing operations
  - ☐ Dust generation
  - ☐ ☐ Due to varying regulations governing air emission permitting and/ or registrations, contact your HSE Department for assistance in determining applicability of air regulation for your area of operation.

## Environmental Awareness

Associates shall use environmentally sound work practices and procedures at all locations. The Company policy is to:

- ☐ Comply with applicable environmental laws and regulations and to apply responsible standards where laws and regulations do not exist.
- ☐ Encourage respect and concern for the environment, emphasizing every associate's responsibility in environmental performance, and to ensure appropriate operating practices and training.
- ☐ Manage business with the goal of preventing incidents and of controlling emissions and waste to below harmful levels and to operate and maintain facilities to this end.
- ☐ Respond quickly and effectively to incidents resulting from its operations and cooperate with authorized regulatory agencies and industry organizations.
- ☐ Communicate with the public on environmental matters and help facilitate improvements in industry performance.
- ☐ Conduct appropriate reviews and evaluations of its operations to measure progress and ensure compliance with this policy.

## Environmental Sampling

The purpose of environmental sampling is to identify situations when action is required and the procedures to be followed when collecting samples at Cactus Wellhead, LLC locations.

Environmental sampling is the method of assessing the contaminant levels in media such as air, soil, and water, and characterization of waste streams generated at the location. These contaminant levels are generally, in very low concentrations (parts per million or parts per billion) and require third party laboratory analysis. Therefore, following sampling procedures precisely is important to ensure reliable testing results.

Air, Soil, and Water sampling will be done by a qualified 3rd Party contractor designated by the HSE department.

## Uncontrolled Releases

Uncontrolled releases can have an impact on the environment, associate health and/or the public. Some releases, no matter how small, may require reporting to local, regional, or country agencies. Uncontrolled releases shall be managed in accordance with local, regional, and/or country requirements. In cases of a spill of a chemical substance or industrial waste to surface water, land or to the air, follow these general guidelines.

- ☐ Initiate your facility emergency plan.
- ☐ If possible, identify the type and source of the release.
- ☐ Establish an upwind position.
- ☐ Shut-off the source of the release, if possible, to do so safely.
- ☐ Contain the release using pigs, pads, dirt berms, etc.
- ☐ Notify facility management and report the incident to your HSE Department.
- ☐ Initiate clean-up of the release.
- ☐ Dispose of contaminated materials properly.

Report a release as soon as possible to the HSE Department. It will be important to know the type of substance released the nature of the release, such as spill to land, water, etc., and the estimated quantity of the release.

## Waste Management

Waste shall be managed in accordance with local, regional, and/or country requirements.

- ☐ All company facilities must work at limiting or minimizing, to the extent feasible, industrial wastes generated at their locations.
- ☐ Waste streams should be characterized, profiled, and documented to allow viable and compliant management option to be identified and selected. Each waste stream can be characterized by testing through process knowledge but will generally fall into one of the following groups dependent upon your location and the characteristics of your waste stream.
  - Hazardous (or similar designation such as “dangerous”) Waste
  - Non-Hazardous Waste
  - Recyclable Waste

- Universal (i.e., light bulbs, batteries, and similar) waste.
- Waste stream types will typically include:
  - Waste paint and paint solvents.
  - Used paint filters.
  - Waste cleaning/degreasing solvents.
  - Spent aerosol cans.
  - Waste grease.
  - Waste sandblasting media.
  - Office trash.
  - Used oils and oily water.
  - Scrap metal.
  - Batteries.
  - Fluorescent bulbs.
- Recyclables, such as scrap metals, used oils, batteries, fluorescent bulbs, etc. should be segregated from other waste streams and recycled to the maximum extent feasible. For larger facilities, recycling of paper, plastics, and aluminum cans may be practical and beneficial to reduce office trash.
- Companies that are used by facilities for the transportation, recycling, treatment, storage and/or disposal and recycling of waste must have the required licenses and permits for the services provided.
- A copy of all waste manifests must be kept for a minimum of five years.
- Requirements for the management of industrial waste are determined by the amount of hazardous waste generated at our facility, so keep the amount of hazard waste to a minimum where practical.
- The storage of industrial waste is regulated. Follow these minimum requirements for waste storage at your facilities:
  - Waste containers must be compatible with the waste, no corrosive in metal containers.
  - Waste containers remain closed when you are not adding waste.
  - Label the waste container.
  - Waste storage areas must be demarcated or otherwise marked as waste storage.
  - No smoking within 50 feet of waste storage areas.
  - Flammable waste will not be stored in areas with potential ignition sources.
  - Allow waste paint filters to air dry prior to placing in a waste container.
  - Conduct periodic inspections of waste storage areas, clean-up spills immediately.
  - Waste storage shall be conducted in a manner that will not impact storm water.
- Trash bins are to be used for disposal of waste, such as paper, plastics, metal strapping, small quantities of inert construction debris, such as wood, rebar, sand, gravel, empty metal containers, etc.
  - No liquids
  - Paint cans and other containers that once held a chemical must be empty.
  - Aerosol cans must be punctured and fully drained.

## Water Programs

Company facilities are to limit or eliminate contaminants contained in water discharges when possible. Wastewater shall be managed in accordance with local, regional, and/or country requirements. In general, there are three classifications of water discharges that are managed at facilities. These include:

- ☐ **Stormwater**- Includes rainwater and snow melt water that fall on the facility property and are not used for any industrial process.
- ☐ **Sanitary Wastewater**- Water used or that encounters any industrial process, such as equipment wash and rinsing waters, water from equipment testing, plant floor washing, etc.
- ☐ **Process Wastewater**- Water used or that encounters an industrial process, such as equipment wash and rinsing waters, water from equipment testing, plant floor washing. Etc.
- ☐ All facilities must operate in a manner that minimizes the impact to stormwater. Use the following methods to prevent stormwater contamination:
  - Maintaining good housekeeping in areas that encounter stormwater. If these areas are free of contaminants, stormwater runoff will not be impacted.
  - Waste storage outside or in an area that is not covered should be frequently monitored. Keep waste containers always closed to prevent stormwater from encountering the waste.
  - Secondary containment and berms should be provided to the extent necessary to ensure contaminated stormwater runoff occurs from waste, waste containing materials and waste storage areas into waterways.
  - Roofs, overhangs, and other enclosures should be utilized to the extent feasible to prevent exposure of waste, waste containing materials and waste storage areas to direct precipitation.
- ☐ Facilities shall ensure that sanitary and process wastewater from their facilities does not impact the environment or jeopardize the health and safety of their associates or the local residents.
  - Sanitary wastewater is regulated and will not be discharged directly to the surface or bodies of water. Acceptable options include:
    - ☐ An approved septic system
    - ☐ Connection to local sewer system for off-site treatment
    - ☐ A collection vessel for periodic transport to local sewage treatment system.
- ☐ Process wastewater will not be discharged directly to ground or a body of water. Acceptable options include:
  - On-site wastewater treatment, recycling, and reuse
  - Connection to local sewer system for off-site treatment (approval from treatment system authority is required)

**If you can't do it safely, don't do it!**

## **Cactus Wellhead Field Service Guide**





# Cactus – Jam Jogger

Plan

Gather

Discuss

Agree

Work

## Pre-job - Journey Management

- ☐ Confirm departure & arrival time, route and driver's rest/fit for duty.
- ☐ Consider - weather, construction, traffic, wildlife.
- ☐ Inspect vehicle & trailers (confirm loads are secure).

### Plan

- ☐ Tasks and sequence of completion.
- ☐ Resources (personnel, equipment, work instructions, time) required.
  - Verify:
    - Personnel – training, orientation, fit for duty (fatigue) & competency for tasks to be completed.
    - Equipment – service tools, PPE, lifting & rigging devices, gas monitors, are present in the correct size, quantity, and condition to complete job.
    - Work Instructions – service order, field service manual, installation procedure, job safety analysis, work permit etc. are complete and of the latest revision.

### Gather:

- ☐ Prior to beginning work, identify onsite leadership, check-in.
- ☐ Key personnel onsite who will be perform and be around the job.
  - Include customers/contractors.
- ☐ Tools, Equipment, and PPE (Final onsite checks & verification).




### Discuss

- ☐ Your JSA with third parties and company representatives.
  - Hazards: cellar conditions (access, fluid, ventilation, SIMOPS/overhead work)
    - Use Energy Wheel to identify potential hazards.
  - Controls: Life Saving Rules, no-go zones, physical barriers to pressure, SWA, hold points, PPE.
- ☐ Work permit requirements (H<sub>2</sub>S, confined space, energy isolation, hot work, etc.)

### Agree

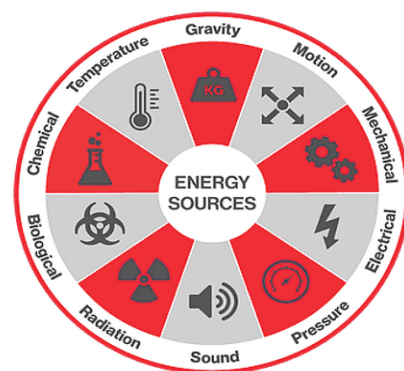
- ☐ Listen to potential concerns and find common ground to address potential hazards.
- ☐ JSA must be acknowledged by all parties (including personnel onsite performing SIMOPS).

### Work

- ☐ Using field service manual/installation procedure instructions noting all   
- ☐ Stop work when planned operational conditions change. Use the JSA to Plan/Gather/Discuss/Agree before restarting work.

## Post job - Journey Management:

- ☐ Complete job documentation – obtain signatures.
- ☐ Consider - weather, construction, traffic, wildlife.
- ☐ Inspect vehicle & trailers (confirm loads are secure).



**Remain attentive: IF YOU ARE TIRED, STOP! Call in and get some rest.**

# Incident and Event Reporting



## **Report all events immediately to your direct Supervisor, Branch Manager or HSE Specialist**



An event is a work related, unplanned occurrence that impacts safety, the environment, regulatory compliance, reliability, or security. Reporting events allows Cactus to develop corrective actions with the goal of preventing the reoccurrence of those undesirable events. When on location, report any events to the Person in Charge (PIC).

### **Events (incidents and near misses) include but are not limited to:**

- ☐ Injuries (*sprains, strains, cuts, punctures, exposure to chemicals, foreign object in eyes, contusions, fractures etc.*)
- ☐ Illnesses (*heat or cold related, occupational exposures*)
- ☐ Fires or explosions
- ☐ Violation of Life Critical Expectations
- ☐ Spills or releases (*on or off-location*)
- ☐ Reliability events
- ☐ Security events (*theft, suspicious activity, etc.*)
- ☐ Property damage
- ☐ Regulatory compliance events (agency inspections which result in an action or enforcement, Agency Reportable Environmental Incidents)
- ☐ Well control events
- ☐ Occupational exposures (*including personal, handheld, or fixed alarms*)
- ☐ Process safety events

### **Injuries and Illnesses Reporting Steps**

1. If life threatening, call 911 or local emergency services.
2. Report all injuries to your immediate Supervisor or Branch Manager ***immediately.***
3. Contact your Branch's preferred provider for all injuries and illnesses regardless of severity.

Branch	Preferred Provider	Contact
Hobbs Odessa Pleasanton Williston Broussard		<b>1-800-600-9015</b>
New Waverly Oklahoma City Bridgeport Bossier City Athens Dubois Donora Vernal Ft. Collins Casper		<b>1-877-502-9466</b>

Applicable forms and policies:

Vehicle Accident Report Form  
Vehicle Accident Witness Statement  
Trailer Inspection Form  
Fleet Management and Safe driving

# Driving



## Life Critical Expectations

- ☐ Always wear your seatbelt.
- ☐ Never actively use a phone or mobile device while driving.
- ☐ Obey speed limits and adjust for road conditions.
- ☐ Journey Management – Preparing for weather, construction, and wildlife.
- ☐ Secure all loads and equipment before traveling.

## Driver Fitness and Qualifications

- ☐ Possess a valid driver or operator license for the class of on-road vehicle being operated.
- ☐ Complete all Company-required training.
- ☐ Do not drive under the influence of a substance(s) that impairs your capabilities to drive in any way.
- ☐ Suspend driving until illnesses, fatigue, or any other debilitating situations are assessed, and alternatives are considered.

## Pre-Trip Inspections

- ☐ Checking for obstacles around the vehicle.
- ☐ Ensuring pedestrians are not in harm's way.
- ☐ Checking the vehicle for any potential safety hazards.

Check for functionality of safety devices, such as:

- ☐ Air bags
- ☐ Anti-lock brakes
- ☐ Blind spot monitoring

## Incident Reporting & Post Drug & Alcohol Testing

- ☐ Report all traffic violations and vehicle incidents immediately to your supervisor.
- ☐ The Supervisor must report incidents to fleet manager and HSE Specialist
- ☐ Drug and alcohol testing must occur as soon as practical, but within eight hours after a vehicle incident that results in:
  - Bodily Injury requiring treatment by a medical professional.
  - Vehicle driven is towed from the scene.
  - Damage to another vehicle(s) (regardless of the owner.)
  - Damage to the environment.

## **Wait, before you drive...**

Stop—take a moment to evaluate yourself.

Think—am I tired? When did I last sleep?

Act—let your ASM know if you need rest.

Y ? - Because your safety is important.



Applicable forms and policies:

General Permit to Work  
Fire Protection SMP 1910 Subpart L  
Housekeeping SMP 1910.22  
PPE - SMP 1910 Subpart I

# Hot Work



## Life Critical Expectations

- ☐ Confirm that LEL levels are at 0% in your area of work before ignition.
- ☐ All combustible and flammable objects are 35' from the worksite or covered by fire retardant blanket(s).
- ☐ Confirm that any energy sources are isolated before starting hot work.
- ☐ Utilize Fire Watch when performing spark or flame producing hot work and after for 30 minutes.

## Hot Work Operation Requirements

- ☐ Complete a General Permit to Work (Hot Work).
- ☐ Hold a Toolbox safety meeting for all affected personnel on location.
- ☐ Personnel must have up to date training certifications (Fire Watch and Hot Work operations).
- ☐ Relocate work equipment away from combustible sources.

Wellhead Hot Work Tasks and Ignition Sources	Potential Hazard	Areas Where Hot Work Should Be Restricted
<b>Cutting (Casing)</b>	• Ignition of flammable or combustible materials in the workspace from leaks of flammable gas.	<input type="checkbox"/> Areas with dry vegetation
<b>Grinding (Casing)</b>		
<b>Drilling</b>	• Hot work equipment producing sparks or fire.	<input type="checkbox"/> Areas near and in tank batteries
<b>Line Heaters</b>		
<b>Welding</b>	• Getting burned by a flash or explosion from areas with explosive atmospheres (mixture of flammable gases, vapors, liquids, or dusts with air).	<input type="checkbox"/> Areas around compressors
<b>Torquing</b>		
<b>Generators</b>	• Hot work operations may produce flammable and/or toxic vapors	<input type="checkbox"/> Near and in areas with pipeline connections, valves, or wellheads, especially during the completion phase of well completion work.
<b>Trucks &amp; Mobile Equipment</b>		
<b>Unclassified or inappropriately classified electrical equipment use</b>	• Creation of sparks in hazardous atmospheres (flammable gases, vapors, or dust).	<input type="checkbox"/> Areas with portable flammable liquid storage containers
		<input type="checkbox"/> Areas with explosive atmospheres (mixture of flammable gases, vapors, liquids, or dusts with air)
		<input type="checkbox"/> Ducts and conveyor systems that carry sparks to distant combustibles.

### Applicable Forms and Policies:

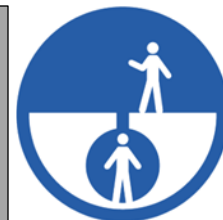
Permit Required Confined Space

General Permit to Work

Confined Space Entry (SMP 1910.146)

Wellsite Safety Policy

# Confined Space Entry



### Life Critical Expectations

- ☐ Never enter a confined space without authorization.
- ☐ Confirm that all energy sources are isolated before entering.
- ☐ Confirm that initial and recurring atmospheric monitoring is conducted.
- ☐ Confirm that an attendant is monitoring the confined space, and the rescue provision are in place.

### Minimum Requirements for a Confined Space Permit

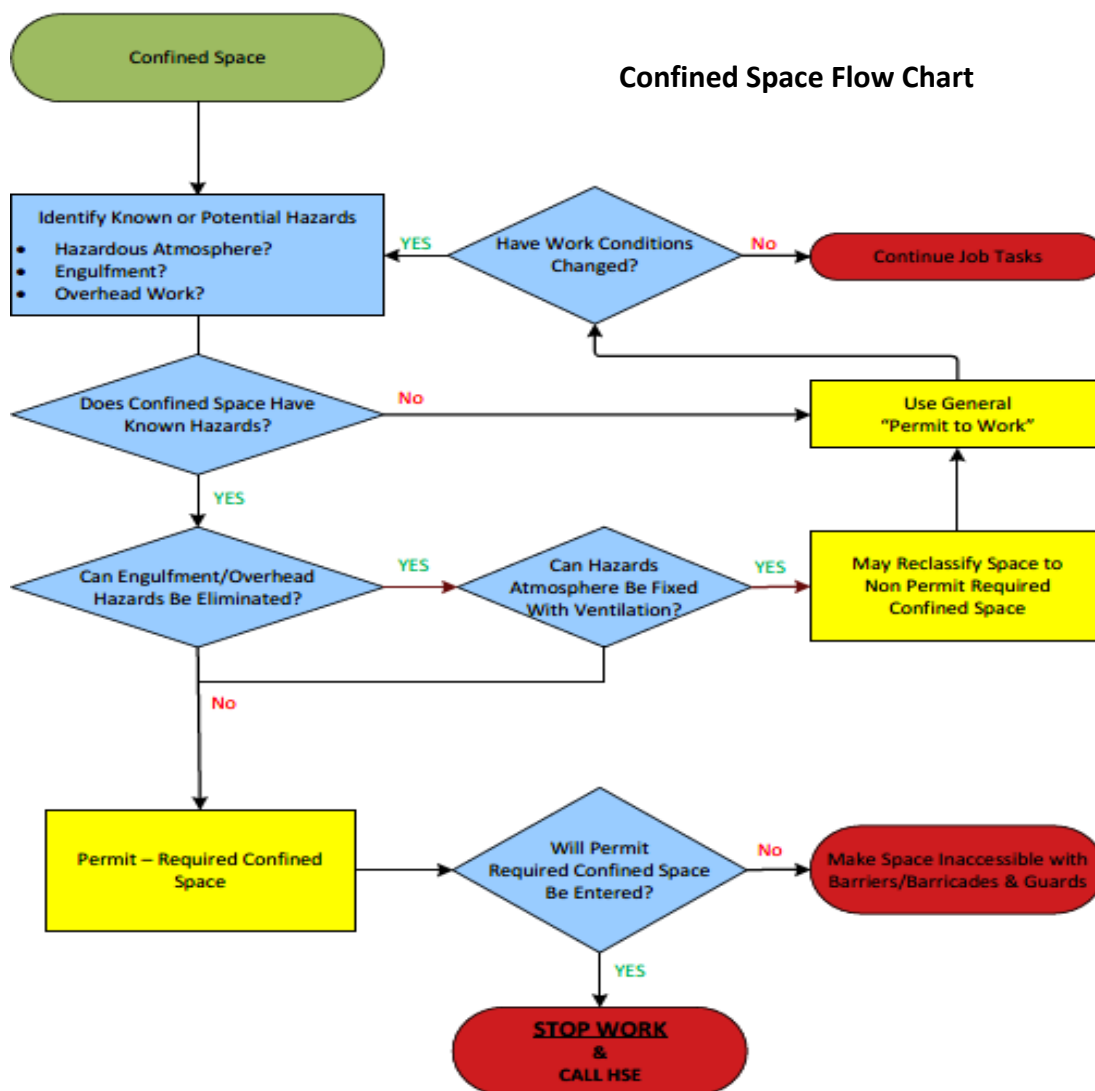
Identify the location and purpose of the confined space entry.

List authorized personnel entering the space, including attendants and entry supervisor.

Assess and communicate the hazards, control measures, and acceptable entry conditions.

Document atmospheric testing results, equipment used, and test times.

Establish rescue and emergency procedures, communication methods, necessary PPE, and any additional permits or relevant information to ensure employee safety.



# Working at Heights



## Life Critical Expectations

- ☐ Take caution before walking on or near grated covered cellars.
- ☐ Protect yourself from falls when working unprotected at or about 4'.
- ☐ Use the appropriate fall protection for the right job.
- ☐ Use only sufficient anchor points.

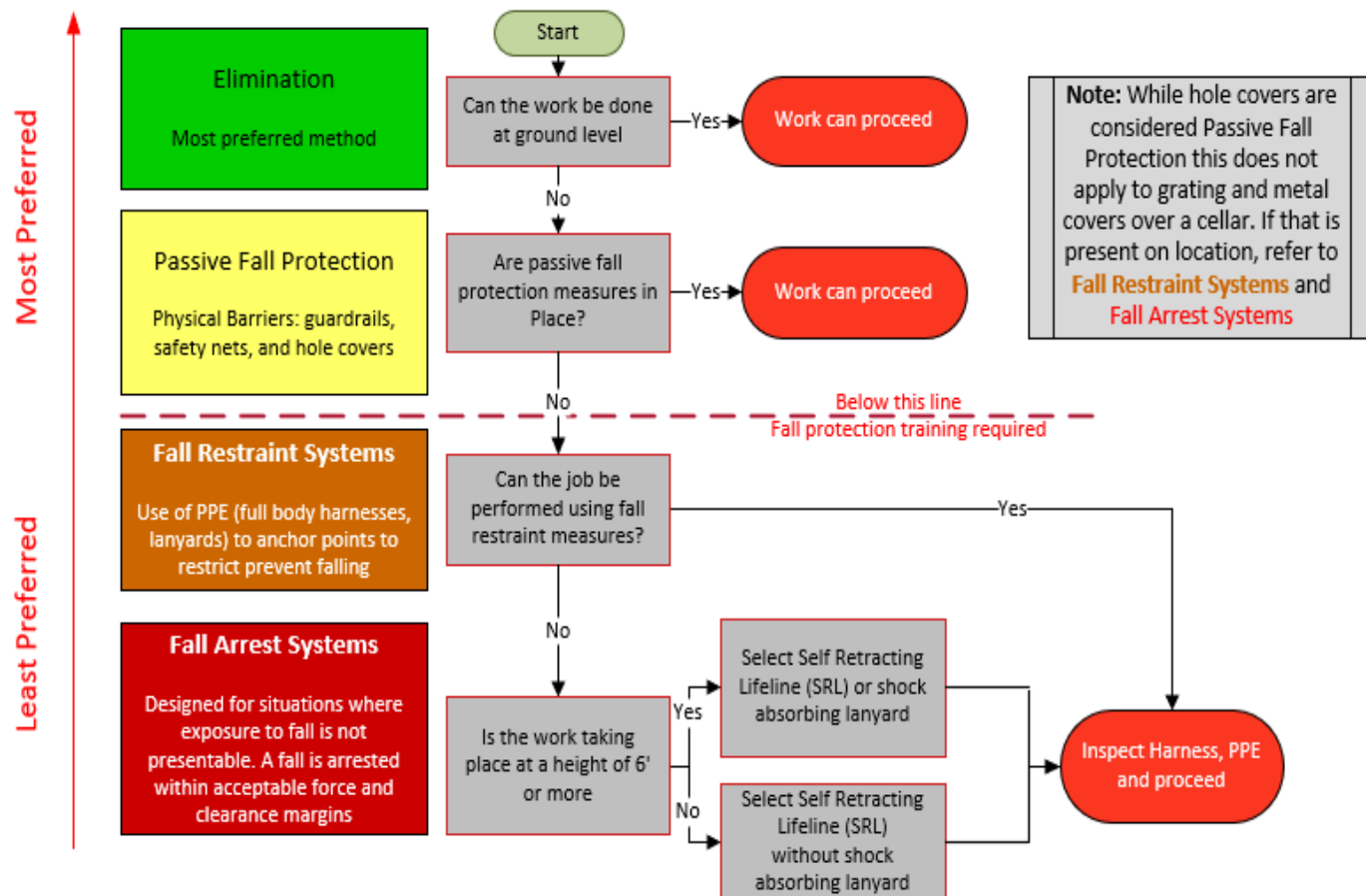
Most Preferred

Fall Protection Systems

Least Preferred

Passive Fall Protection ( <b>Passive</b> )	Fall Restraint Systems ( <b>Active</b> )	Fall Arrest Systems ( <b>Active</b> )
Does not require the use of fall protection equipment.	Secures the person to an anchor point to them from reaching the fall hazard.	Stops a person after a fall has begun.

## Fall Hazard Risk Control Hierarchy



Applicable forms and policies:  
Lockout/Tagout SMP 1910.147  
Electrical Safety (SMP 1910 Subpart S)  
Equipment LOTO Procedure  
Lockout/Tagout inspection (Gensuite)

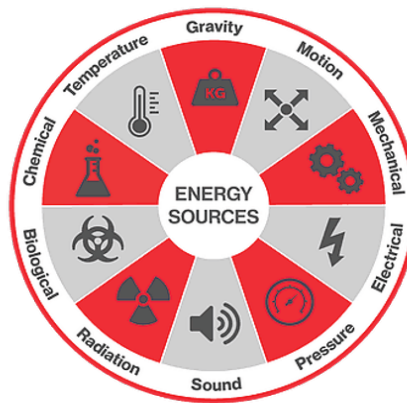
# Energy Isolation



## Life Critical Expectations

- ☐ Always verify isolation and zero energy before work begins.
- ☐ Use Energy Wheel to identify all hazardous energy sources.
- ☐ Confirm energy sources have been isolated, locked, and tagged, i.e., follow lockout/tagout procedures.
- ☐ Confirm there is no residual or stored energy prior to starting the task.
- ☐ When working at a customer's location, associates will prioritize the safest policy, whether it is the customer's or Cactus Wellhead's

**Authorized Employee**  
Trained individuals responsible for lockout-tagout procedures who know how to safely secure and remove locks and tags on equipment. They understand the risks involved and the importance of following proper procedures.



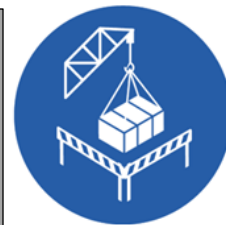
**Affected Employee**  
Individuals not directly involved in the lockout tagout process but may be exposed to the hazardous energy while performing their job duties, or whose job duties may be impacted by the implementation of lockout/tagout procedures.

## Steps to perform lockout/tagout (LO/TO) procedures:

1. **Preparation:** Before starting any LO/TO, a procedure must be prepared. This procedure should include a detailed description of the work to be performed, the energy sources involved, and the steps to be taken to isolate and control the energy sources.
2. **Notification:** Notify all affected employees and Company rep of the upcoming maintenance work and the LO/TO procedure to be followed.
3. **Shutdown:** Shut down and isolate the equipment or and area. This may involve shutting off power sources, shutting down machines, or stopping the flow of fluids.
4. **Isolation:** Isolate the energy sources by placing locks or tags on the energy-isolating devices.
5. **Verification:** Verify that all energy sources have been properly isolated before starting any maintenance work.
6. **Maintenance work/Repair:** Perform the maintenance work/repair while the energy sources are isolated.
7. **Remove LO/TO devices:** After completing the maintenance work, the locks or tags on the energy-isolating devices must be removed by the person who placed them.
8. **Verification of equipment:** Before restarting the equipment, verify that all maintenance work has been completed and that all LO/TO devices have been removed.



# Mechanical Lifting



## Life Critical Expectations

- ☐ Confirm that lift and rigging equipment have been inspected and is fit for service.
- ☐ Only operate equipment that you are certified to use.
- ☐ Establish and obey buffer and exclusion zones.
- ☐ Use taglines – push/pull devices to maintain distance and keep hands off loads!
- ☐ Never walk under a suspended load or lift loads over personnel.

## Wellhead and Frac Safe Rigging Operations

### 1.0 Lifting Wellhead and Frac Assemblies & Components

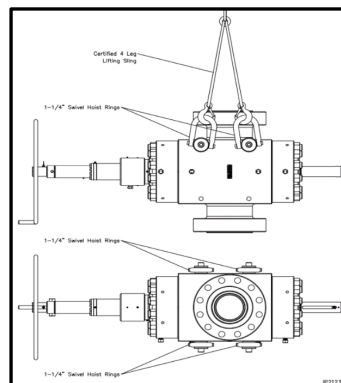
**1.1** Use a crane for lifting wellhead and frac assemblies and components on location.

**Note:** Check the customer's lift policy before using a forklift/telehandler on location as some customers only allow crane operations.

**1.2** If a crane is not available and the customer's policy allows forklift/telehandler use, use a forklift/telehandler with an appropriately sized attachment and hook for positive attachment of slings.

**1.3** If any other method of lifting is used, create a specific lifting plan using the Cactus Lift Plan form and get it approved.

**1.4** Use lift eyes in the engineered lifting points for "below the hook" lifting devices to lift Cactus wellhead and frac components.



**1.5** Use an appropriately sized sling with safety latches on the hooks or a double adjustable loop style chain sling to prevent detachment during a lift.

**1.6** When lifting components without designated lift points, consider the configuration and center of gravity to ensure even lifting without shifting.

**1.7** Do not rig directly to the bolt hole of a flanged connection with a standard hook and safety latch as this can cause a dropped load. Use a double adjustable loop style chain sling that can pass through the bolt hole and attach to itself to avoid detachment during the lift.

## Lifting and Rigging Learning Center





Applicable forms and policies:  
Dropped Object Prevention Policy  
Wellsite Safety Policy

# Line of Fire



## Life Critical Expectations

- ☐ Position yourself to avoid known hazards related to:
  - Heavy Equipment and Vehicles
  - Pressure Releases
  - Dropped Objects
- ☐ Secure and tether tools to prevent dropped objects.
- ☐ Establish and adhere to all exclusion and buffer zones.
- ☐ Mitigate/Eliminate SIMOPS through well communicated JSAs and pre job meetings with all parties and leads.

## Setting up Buffer/Exclusion Zones

Establish Buffer/Exclusion Zones for work activities with an increased risk of injury due to dropped objects, pressure releases, the movement of onsite vehicles, equipment, or loads, or other hazards.

## Examples of operations

Pressure Testing Operations	Manlift Operations	Cellar Operations	Vehicle Operations
Exclusion to testing area and around hoses	Exclusion to working under the basket	Buffer zones above and around your work area	Buffer zones when reverse parking or operating forklifts

**Tool Tethering:** To prevent dropped objects, techs must tether tools before starting work at heights or near open holes.

## Definitions

**Primary Drop System** - Main method of preventing tool drops, typically relying on the worker's grip or hand placement on the tool. It may also involve support systems, such as tool holsters on the body or designated platforms for temporary tool placement when not in use.

**Buffer Zone**- An identified area with the potential to contain hazardous conditions that pose a risk to the safety of workers, property, or the environment. (Individuals who are knowledgeable about the specific task being performed, aware of the potential hazards present in the area, and adhere to the necessary safety precautions are permitted entry into the designated zone.)

**Exclusion Zone**- An area identified where hazards to people working, the environment, or equipment are present. (Only Authorized Entrants are allowed into an Exclusion Zone.)

***Tethers must be inspected before use.***



**CORRECT**



**WRONG**



# Work Authorization



## Life Critical Expectations

- ☐ Confirm if a permit is required.
- ☐ Must meet the qualifications and authorization to perform work.
- ☐ Understand which permit is required for which task.
- ☐ Confirm hazards are controlled before starting.
- ☐ Stop the Job and reassess if conditions change.

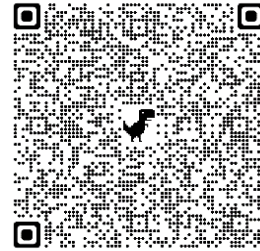
## Tasks Requiring Permit to Work

Task	Requirements
<b>Hot Work</b>	<p><b>The following must be reviewed in the JSA pre job meeting or Toolbox meeting <u>before</u> task begins.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Permit to Work must be completed before task(s) begin.</li> <li><input type="checkbox"/> Must have a designated fire work for during and after Hot Work tasks.</li> </ul> <p><b>NOTE:</b> Reference (Pg.) for Cactus Hot Work examples</p>
<b>Confined Space</b>	<p><b>Confined Space Permits are required under the following conditions.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Contains or has the potential to contain a hazardous atmosphere.</li> <li><input type="checkbox"/> Contains material that has the potential to engulf an entrant.</li> <li><input type="checkbox"/> Has walls or floors that which could trap or suffocate an entrant.</li> <li><input type="checkbox"/> Contains any other recognized serious safety or health hazard.</li> </ul> <p style="text-align: center;"><b>OR</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Required to be filled as per customer's request.</li> </ul>
<b>Electrical</b>	<p><b>The following must be reviewed in the JSA pre job meeting or Toolbox meeting <u>before</u> task begins.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Permit to Work must be completed before task(s) begin.</li> <li><input type="checkbox"/> Only qualified persons performing work.</li> <li><input type="checkbox"/> Disconnected – Lock out Tag out (<i>Reference Pg. X</i>)</li> <li><input type="checkbox"/> Insulated Tools and PPE to be used and worn.</li> <li><input type="checkbox"/> Equipment cooled, Ventilated and/or Isolated.</li> <li><input type="checkbox"/> Barriers/ No entry zones Identified.</li> <li><input type="checkbox"/> Non-Essential persons cleared from work area.</li> </ul>

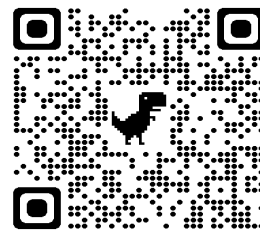
**NOTE:** When comparing the Cactus Permit to Work with the Customer's site-specific Permit to Work, the safer option will be given priority, superseding the other permit.

## Other HSE References

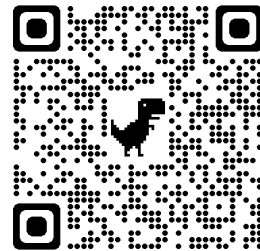
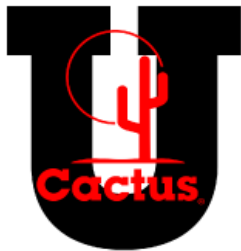
### HSE Policies & Procedures



### HSE Contact List



### CactusU



### Benchmark - Gensuite



- ☐ Safety Data Sheets
- ☐ Concern Reporting (BBS)
- ☐ Action Tracking
- ☐ Inspections

