

1.0: GENERAL SAFETY RULES

As a condition of employment, each employee shall execute his or her individual work assignments in accordance with recognized safe procedures. If there is any doubt regarding proper methods of executing work, consult with your supervisor for specific safety instructions. It is the duty of employees to submit to their supervisor's suggestions for the promotion of safety.

Employees must exercise constant vigilance and help to prevent accidents by:

- 1) Staying alert to observe and watch for unsafe acts and conditions. It is your obligation to report unsafe acts and conditions immediately.
- 2) Studying and applying written and verbal safety instructions.
- 3) Understanding and carefully following instructions.
- 4) Using best judgment and giving undivided attention to the work at hand.
- 5) Helping other employees become safety conscious.

In addition:

- Correct unsafe conditions yourself. If unable to do this, notify your supervisor.
- First aid kits and fire extinguishers are available and emergency phone numbers posted. Be certain to know their location.
- Familiarize yourself with all escape exits and the location of any emergency cutoff valves or switches.
- Never make changes on equipment to bypass safety devices.
- Inspect tools and equipment before use. Do not use or operate if defective or damaged.
- Consult Material Safety and Data sheets and chemical labels for information on chemicals.
- Keep your hands away from pinch points and avoid placing any part of your body where it could be caught between moving objects.
- Know what personal protective equipment (PPE) is required for the job and use accordingly.
- Make sure that electrical tools are properly grounded and that no electrical hazard exists from standing water.
- Do not keep tools in your pockets.
- Lift with leg muscles, not the back. Be certain to have a firm grasp and firm footing before lifting anything. Do not attempt to lift or move anything too heavy. Maximum weight is 85 pounds. Use available equipment for assistance or get help.
- Watch where you walk, especially when walking on uneven surfaces. Pay attention when climbing ladders and stairways and don't jump from one level to another.
- Wear tight-fitting clothes and hair net (if your hair is long) when operating equipment. Avoid wearing jewelry such as rings and watches while operating equipment.
- Do not attempt to repair or fix any machinery while it is operating.
- Do not use compressed air to attempt to clean off clothing.
- Maintain healthy personal hygiene and help keep workplace clean and orderly.
- Be watchful for the safety of others especially visitors who may not be familiar with the operations.
- Report hazards and near-misses to your supervisor.

**Always consider
the consequences
of your actions**

**Lots of people are counting on you -
Make safety part of everything you do**

2.0: PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal Protective Equipment (PPE) is the last line of defense in the hazard control hierarchy. PPE devices alone should not be relied on to provide protection against hazards. Every effort should be made to remove, substitute or use engineering controls to remove hazards prior to the use of PPE. Regulations covering eye and face protection, head protection, foot protection, and hand protection and be found in 29 CFR 1910.132, 133, 135, 136, and 138 and require a hazard assessment to be conducted to determine the type of PPE require. The hazard assessment will also include respiratory protection (29 CFR 1910.134) and hearing protection (29 CFR 1910.95). Employees will be trained in the proper fitting, selection, use, maintenance, storage and limitations of PPE.

- All employees and contract personnel will be required to wear the appropriate PPE.
- PPE will be used and maintained by employees in a sanitary and reliable condition. Inspect PPE before and after each use, and report all malfunctions to your supervisor. Do not use damaged or defective PPE.
- PPE must properly fit each employee and not unduly interfere with the movement of the employee

1) Hazard Assessment

A hazard assessment for unique job designations will determine if hazards are present, or likely to be present, which necessitate the use of PPE. The hazard assessments must be verified through written certification that identifies the workplace evaluated, the person certifying the evaluation, and the date.

PPE Hazard Assessment shall be performed for all new task/jobs and whenever conditions change so that a new hazard is introduced. Changes include, but are not limited to, new chemical hazards and equipment changes that introduce new hazards.

A Workplace Hazard Assessment/Certification Form is attached.

2) Equipment

Equipment specified within the job assessments will be used while performing work duties for that operation. Affected employees are not permitted to substitute any equipment in place of the specified PPE's unless first cleared with management and the EHS coordinator.

The following types of personal protective equipment (PPE) will be required:

- **Foot Protection:** Employees must wear protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where such employee's feet are exposed to electrical hazards. Leather, steel toe work boots with non-skid soles are required. Employees generally are responsible for providing their own safety footwear. Footwear must meet all requirements in ANSI Z41.1-1991.
- **Head Protection:** Employees must wear hardhats whenever there is a danger of injury from falling objects, from striking one's head and from being struck by materials or equipment. This includes all work areas with the exception of self-contained areas, such as truck cabs and offices. Metal and cowboy style hardhats are not permitted. Hardhats should be worn as designed and examined regularly. Hardhats must meet all the requirements of ANSI Z89.1-1986.

- **Eye and Face Protection:** Safety glasses including side shields must be worn whenever there is a danger of injury from flying particles, molten metal, chemicals and vapors. Dark glasses are prohibited inside buildings or confined spaces. Safety goggles and/or face shields must be worn whenever working with chemicals. Eye and face protection must meet all requirements in ANSI Z87.1-1989.
- **Hand Protection:** Appropriate hand protection must be used when employees' hands are exposed to hazards such as those from skin absorption, of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns and harmful temperature extremes. Leather or leather-like gloves should be used when handling wire rope. Rubber or PVC gloves should be worn when working with acids, caustic soda, or other chemicals. Latex, vinyl, or nitrile gloves should be worn if there is danger of bloodborne pathogen contamination. Cotton gloves can be worn for general purposed, but should be disposed of when they become oil soaked.
- **Clothing:** Personal clothing must match working conditions and weather. Full-length pants are required. Employees are encouraged to wear clothing made of cotton or wool as opposed to synthetic fabrics because of their greater resistance to fire and chemicals. Clothes soaked in oil or chemicals should be replaced at once.
- **Respiratory Protection:** Respirators must be used when necessary to protect employees' health from chemical or biological hazards. If respirators are required for any job, a separate Respiratory Protection Program will be developed and implemented.
- **Hearing Protection:** Hearing protection must be used by all employees in areas designated as having high noise levels or when involved in high-noise situations, such as "blowing down" a high pressure well.
- **Other Personal Protective Equipment:** Employees must wear additional protective equipment whenever other potential hazards exist.
 - When handling or mixing hazardous chemicals, such as caustic soda, use a chemical resistant suit and gloves, hardhat with face shield, chemical splash proof goggles and N.95 respirator.
 - When mixing other dry mud additives wear a N.95 respirator and splash proof goggles.
 - When working 6 feet or more above the work surface use approved fall arrest equipment. See Section 6 for detailed information on Fall Protection.

3) Training

All employees will be trained on the following topics concerning the required PPE for their work area and/or function:

1. When PPE is necessary
2. What PPE is necessary
3. How to properly don, doff, adjust, and wear PPE
4. The limitations of the PPE
5. The proper care, maintenance, useful life and disposal of the PPE

All employees will demonstrate an understanding of the training topics and proper use of the equipment. Employees will be retrained if there is a change in the workplace, the type of PPE required or when the

employee's knowledge of the PPE is lacking.

WORKPLACE HAZARD ASSESSMENT/CERTIFICATION FORM

Job/Task Evaluated: _____

Job Title: _____

Completed By: _____ Date: _____

1) Hazard(s) Present

Struck against object	<input type="checkbox"/>	Struck by object	<input type="checkbox"/>	Electrical	<input type="checkbox"/>
Pinch/caught/rollover	<input type="checkbox"/>	Ionizing Radiation	<input type="checkbox"/>	Heat/cold	<input type="checkbox"/>
Hazardous Atmosphere	<input type="checkbox"/>	Confined Space	<input type="checkbox"/>	Chemical	<input type="checkbox"/>
Light (optical) radiation	<input type="checkbox"/>	Corrosive	<input type="checkbox"/>	Toxic	<input type="checkbox"/>
Harmful dust	<input type="checkbox"/>	Noise	<input type="checkbox"/>	Fall	<input type="checkbox"/>
Other _____					

Specific Hazard(s) present: _____

2) Personal Protective Equipment Necessary

Eye/Face	<input type="checkbox"/>	Hand	<input type="checkbox"/>	Body/clothing	<input type="checkbox"/>
Respiratory	<input type="checkbox"/>	Head	<input type="checkbox"/>	Fall	<input type="checkbox"/>
Hearing	<input type="checkbox"/>	Foot	<input type="checkbox"/>	Other _____	

3) Specific Personal Protective Equipment Necessary

Eye/Face

Safety glasses w/ Side Shields	<input type="checkbox"/>
Impact Goggles	<input type="checkbox"/>
Chemical Goggles	<input type="checkbox"/>
Face Shield	<input type="checkbox"/>
Specialty Lenses	<input type="checkbox"/>
Welding Helmet	<input type="checkbox"/>
Torch-cutting Goggles	<input type="checkbox"/>
Shade Safety Glasses	<input type="checkbox"/>
Other: _____	

Clothing

Flame Resistant Clothing	<input type="checkbox"/>
Chemical Resistant Clothing	<input type="checkbox"/>
Type: _____	
Other: _____	

Foot

Leather Boot	<input type="checkbox"/>
Steel Toe Boot	<input type="checkbox"/>
Chemical Resistant Boot	<input type="checkbox"/>
Type: _____	
Metatarsal Guard	<input type="checkbox"/>
Other: _____	

Hand

Leather Gloves	<input type="checkbox"/>
Cloth Gloves	<input type="checkbox"/>
Chemical Resistant Gloves	<input type="checkbox"/>
Other: _____	

Head

Hard Hat	<input type="checkbox"/>
Helmet	<input type="checkbox"/>
Other: _____	

Respiratory

Disposable Filtering Mask	<input type="checkbox"/>
Half-face Air Purifying	<input type="checkbox"/>
Full-face Air Purifying	<input type="checkbox"/>
Powered Air Purifying	<input type="checkbox"/>
Supplied Air	<input type="checkbox"/>
SCBA	<input type="checkbox"/>
Other: _____	

Hearing

Foam Plug Insert	<input type="checkbox"/>
Ear Muff	<input type="checkbox"/>
Other: _____	

Specific Personal Protective Equipment Selected (i.e. Face shield, nitrile gloves, PVC rain suit):

4) Review and Approval

Approval of Specific PPE: Approved ☐ Not Approved ☐

If not approved, state reason: _____

Facility Manager Approval/Certification Signature: _____

EHS Department Approval/ Certification Signature: _____

5) Informing Employees of Specific PPE Selected for Workplace;

Each affected employee must be informed of the Specific PPE selected. Copies of each assessment will be posted for the employees to review and will be maintained in the Ft. Lupton Field Office and the Denver Office. The PPE necessary for specific tasks/jobs will also be listed in the Standard Operating Procedures. Training will also be performed for the use and care of PPR.

6) Record Retention

Workplace Hazard Assessments and training records will be maintained in the Ft. Lupton Field Office and the Denver Office.

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6.0: RIG SAFETY

The rig supervisor shall instruct personnel in the proper use and maintenance of all equipment associated with the rig. It is the employee's responsibility to inform their supervisor of unsafe conditions.

In addition to the guidance in this section, employees must be familiar with, and follow other pertinent safety procedures, including but not limited to, fall protection (Section 8), lock out/tag out (Section 7), and PPE (Section 5).

Proper PPE shall be worn at all times. This includes hard hats, safety glasses, steel toed boots, and gloves. In addition, 100% tie off is required when working above 6'.

Emergency numbers shall be posted. All personnel shall be instructed in how to shut down all equipment including the drawworks, rotary table, catline, etc. in the event of an emergency.

Communications must be maintained either with a flagman or two-way radios if vision is hampered.

Maintenance will not be performed on equipment while that equipment is in operation. Before making any repairs to equipment make sure lock out/tag out procedures are followed to prevent accidental engagement. Do not attempt to operate any switch, valve or other energy isolating device where it is locked or tagged out. Operations shall not start up until repairs are completed, all guards are replaced and the rig supervisor has inspected the job and given his approval.

Good housekeeping must be maintained on the drill rig and the area around the rig. Trash is to be properly disposed of and slip and trip hazards minimized by keeping

Flammable liquids shall not be stored within 50 feet from operating equipment. Smoking and other sources of ignition shall be prohibited at or in the vicinity of operations. "No Smoking" signs shall be conspicuously posted. Combustible materials such as oil rags and waste shall be stored in covered metal containers. An adequate number of fire extinguishers shall be located at the site and maintained in good operating condition. Extinguishers shall be inspected periodically, tagged showing the date of last inspection.

DERRICK FLOOR

- Mousehole must be covered unless tubulars are present.
- Floor must be maintained free of debris, including tools, pipe, rope, etc.
- Floors should be covered in non-skid material.
- Must have safety valves with connections suitable for use with each size and type of tool joint or coupling being used on the job.
- Platforms raised over 4 feet shall be equipped with guard rails, at a minimum height of 42 inches. Guard rails shall also have a mid rail and a 4 inch toe board. Openings in the guard rail over 6 inches will have a chain installed.
- Stairs leading to the elevated work area should be constructed to prevent slips and falls, have non-skid treads, and shall include a hand-rail.

SLIPS AND ELEVATORS

- Slips and elevators shall not be modified
- Check keys, dies, handles and bodies on all pipe and collar slips frequently for wear
- Keep hands and feet, as well as chains, ropes, etc., clear of slip handles when rotary is in motion
- Properly store slips when not in use

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- Slip handles shall be used to raise and lower slips. Do not kick slips into the rotary bushing.
- At least two employees should pull slips, using proper lifting techniques.
- Examine latches, latch springs, hinge pins and elevator shoulders periodically for cracks and deformities and maintain as necessary.
- Do not ride the elevators. This is grounds for immediate termination.
- The elevator ear locks shall be fitted with proper type and size steel bolts. Check bolts often to ensure tightness
- Elevators or bales shall not be gripped in the area of the link eyes.
- Only the elevator horns or handle links, approximately 18" up on the elevator links, shall be used to control the elevator

SPINNING CHAINS

- The spinning chain shall be connected to the cathead chain by a connecting link of equal or greater strength.
- Safely store the spinning chain when not in use.
- Do not wrap the chain around the drill pipe in the mousehole while the rotary is turning.
- The spinning chain shall be equipped with an 8" to 12" tail rope.
- Do not splice the spinning chain.
- Inspect the spinning chain daily. Dispose of the spinning chain immediately if any link is worn greater than 10%.
- Make certain guideposts and chain trough are secured.
- Roller guides shall be smooth and move easily.

CATHEADS AND CATLINES

- Only trained personnel shall operate the cathead.
- When in operation, a qualified person shall be at the driller's console to disengage the cathead if necessary.
- Repair or replace worn, damaged or grooved catheads and worn dividers.
- The catline divider shall not be over 1/4" from the cathead.
- Catheads shall have anti-fouling devices with rope hook attached in use at all times. Maintain the manufacturer's recommended tolerance between the rope divider guard and the surface of the cathead spool.
- Exposed catheads shafts shall be guarded from the cathead to the drawworks.
- A swivel shall be used between the rope and cable.
- Use only hemp or manila rope as a catline. Inspect prior to use for signs of cuts, abrasions, trays, etc.
- Only the amount of wraps necessary shall be used to raise the load. After first wrap, remove the slack before making more wraps.
- Loads shall be raised and lowered at a safe pace and the wraps removed after the load is landed. Do not use the locking device to suspend a load.
- Do not leave the rope wrapped on or in contact with the cathead while it is not in use. Safely store the rope off the floor.
- Do not lift personnel by the catline. Do not wrap the rope around the operator's hand when in use.
- Do not stand inside the coiled rope. Do not stand under a suspended load.
- Do not splice the rope.
- If more than 4 wraps are needed, use another lifting method.
- Do not over lubricate cathead and cause slippage.

AIR-HOISTS

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- Only trained personnel shall operate the air-hoist.
- All air hoists shall be equipped with a drum guard and the line guide.
- Hoisting lines shall be visually examined each shift.
- The hoisting line shall not be in contact with any derrick member.
- Do not exceed the manufacturer's recommended load capacity of the air hoist and wire rope.
- Maintain a safe distance when a load is suspended. Use tag lines to control loads. Do not stand/pass under a suspended load.
- Set the air hoist drum brake anytime a load is suspended. Do not leave the hoist unattended.
- The air hoist operating level shall return to the neutral locked position when the operator releases it.
- Do not exceed the rated load capacity of the air-hoist. Load limits shall be posted on the air-hoist.
- During operation, the bottom layer of cable shall be maintained on the drum at all times.

TAG LINES

- Tag lines shall be used to control all suspended loads. Attach tag lines prior to lifting the load.
- Use non-conducting tag lines such as nylon rope or a nylon strap to control suspended loads. Do not use chains or steel cables.
- Do not wrap tag lines around the hand or waist.
- Tag lines shall be of sufficient length so no part of the person guiding the load shall be under the load at any time.
- Caution shall be taken to ensure that no part of the person's body guiding the load is between the load and any stationary object.

PIPE TONGS

- Only designated personnel shall operate power tongs.
- Use proper hand placement of tongs. Operate tongs only by utilizing tong handles.
- Snub lines of sufficient size and length shall be provided tongs. Visually examine them each shift.
- Tong counter-balance and parts thereof shall be properly maintained and restrained, guarded or located so as to prevent them from falling on or striking crewmembers.
- Makeshift weights such as tools, pipe protectors, and bits shall not be tied to the counterbalance and/or tongs.
- Tong die slots shall be properly maintained. Check for wear and lubricate them on a regular basis.
- Tongs shall be provided with sharp dies at all times and properly pinned in die slots. Use die drivers to remove tong ties. Wear face shields and safety glasses when changing tong dies.
- Do not use rotary table for final making up, or initial breaking out, of a pipe connection.
- When excessive pull is needed to break a tight joint, all floor crewmen shall move away from the rotary, and out of the path of the tongs and snub lines before torque is applied.
- Do not stand between the two pipe tongs or between stands of pipe in the derrick and tongs while the driller is making up or breaking out pipe or collars.
- Do not latch tongs around moving pipe.
- Tongs shall be hung in the mast so that they swing away from drill pipe when unlatched. Tongs should hang level.
- Hook tongs back in the derrick when not in use.
- All pins shall be kept in place with cotter pins or safety pins.
- Daily inspect tongs for tong dies condition, keeper pins in place, snub lines in good shape, properly sized and connected to the tongs and derrick leg, etc.

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ROTARY TABLE AREA

- Do not step on the rotary table when it is rotating.
- Keep hoses, ropes and lines clear the rotary table and adjoining rotating equipment while rotary is in motion.
- Secure the pipe tongs away from the rotary table.
- If the rotary table is removed, the chain/cable used shall be of sufficient strength and condition and placed evenly around the block hook to ensure a level lift.
- Be sure the hole is covered when using hand tools around the rotary table.
- Maintain a non-slip condition in the floor area around the rotary table.

DERRICKS AND MASTS

- Periodically examine the derrick or masts.
- Keep pipe racking fingers straight and secured with a safety device.
- Secure drill collar tieback ropes to derrick or mast member.
- No personnel shall be allowed in the mast or derrick when pulling on or jarring stuck pipe.
- Attach safety lines to all sheaves hanging in the derrick (i.e. tongs, air-hoist, catline, etc.). Examine lines frequently.
- Check safety pins regularly to make sure they are properly secured.
- Block movement is prohibited with a person in the derrick, unless the person is located in a stationary position under full fall protection.
- Notify drilling operator before connecting to the ladder-climber assist/anti-fall device.
- Do not stand between, under or in front of the derrick A-leg when being raised or lowered. Do not stand on A frame when the derrick is raised or lowered.
- Chain down the brake when greasing the traveling block, crown block, or swivel. Driller shall remain at the console.

PIPE RACKS, BINS, CATWALKS, AND V-DOOR

- Do not get under, inside, or on top of pipe racks and bins when pipe, casing or any other pieces of equipment are being moved on pipe racks, and in bins.
- Pipe racks shall be equipped with adequate pipe stops or pins. Each layer of tubulars shall be secured.
- Pipe shall be chocked immediately after being placed on the rack.
- Roll tubulars away from the body. Place hands in a safe position (on back of pipe). Do not use feet to push tubulars. Always watch for pinch points when rolling pipe.
- Stay outside the ends of the tubulars during loading or unloading operations and do not roll pipe behind a person.
- Do not leave end of stripping protruding more than a few inches beyond the tacked pipe.
- Pipe racks and bins should be leveled.
- Catwalks shall be kept level and in good condition.
- Secure V-door in place by pins or other method to prevent V-door from being dislodged.
- Properly guard the V-door when not in use with a V-door net.
- Use an adequate pipe stop (not chains) to keep pipe from sliding out of the V-door, when needed.

DERRICKMAN'S ESCAPE LINE

- The escape line shall be installed per the manufacturer's recommendations and operable upon the derrickman's first climb into the derrick.
- Perform a visual examination of the escape device and escape line each shift. Look for kinks, broken wire, or a coating of grease.

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- Use the device only in the event of an emergency.
- Do not attach the escape line with a chain and hook. A minimum of three clamps is required on the end of the cable.
- Properly anchor the cable to a cement barrel or cement block outside the guy pattern.
- Use an approved personnel carrier, with brake, for controlled unobstructed descent to the lower anchor point.

DRILLING LINE, CROWN BLOCK, AND TRAVELING BLOCK

- Do not touch the drilling line in motion or while the traveling block is moving.
- Visually inspect the drilling line daily for wear and breaks. Inspect the raising line with each rig move for wear, breaks, or kinks.
- Do not allow drilling line to rub against other objects.
- Visually exam the deadline anchor bolts to ensure that all the safety bolts are in place and in good condition.
- Spool all excess drilling line off the ground.
- Follow the slip-and-cup program as recommended by the drilling line manufacturer.
- Examine the line guide regularly, checking the condition of the cables and rollers.
- The line guide shall have a safety cable.

DRAWWORKS, BRAKES, AND CLUTCHES

- Only authorized personnel shall operate the drawworks.
- The brakes, linkage and break flanges shall be tested and visually inspected each day.
- All guards shall be in place and in good condition with in operation. Any rotating shaft (cathead shaft, aux. break, etc.) shall be guarded.
- Do not stand on top of the drawworks or inside the main drum guard when the drums are moving.
- Secure the brake with a catch lock anytime the driller leaves the driller's console.
- Periodically, check the brake blocks, linkage, pins, cotter keys, etc.
- Do not direct water at the break bands when washing the drawworks.
- Check the crown-o-matic prior to tripping in/out of the hole and reset after drill line is cut and slipped.

MUD PUMPS, PITS, AND EQUIPMENT

- Only authorized personnel shall operate mud guns.
- Use caution when working around high-pressure components.
- Mud pumps shall have pressure relieving safety devices installed and maintained according to manufacturer's recommendations. Pop off valve covers shall be in place. Do not use nails as a substitute for shear pins. Pop offs shall be snubbed back to the pumps and relief lines tied to the pump and pit.
- Make sure guards are in place while pump is operating.
- Do not remove liners or seat liners in a pump by running the pump or by applying hydraulic, pneumatic or gas pressure.
- Maintain studs and nuts on the fluid end in good condition. Keep tight.
- Snubb off high-pressure hoses with cables and shackles.
- Use only high-pressure fittings and lines properly rated for the expected working pressures.
- Make sure mud gun unions and connections are kept tight.
- Gunning hoses shall be equipped with adjustable choked and low-pressure pop off.
- Locate electrical equipment away from fluids.
- Add caustic soda to water slowly to avoid splashing. Use an approved caustic barrel, mounted on the pit, for mixing caustic. Use appropriate PPE.

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- Do not mix para formaldehyde and caustic soda together.
- Do not catch mud samples with a cup attached to a rope.

HIGH PRESSURE LINES, HOSES AND FITTINGS

- Do not attempt to tighten or loosen unions or other connections under pressure. Do not hammer on lines.
- Check pressure relief valves periodically in accordance with manufacturer's recommendations.
- High-pressure lines shall be fitted with high-pressure fittings.
- Stand clear of high-pressure lines being used during cementing and well testing procedures.
- Check chikan sections in high-pressure lines for leaks. Use caution when moving.
- Do not stand in front of valves or bull-plugs when under pressure.
- Do not remove any grease fitting or plug on any high-pressure line or fitting until pressure is bled off.
- During rig down secure the swivel end of the kelly hose to the derrick using the safety cable on the hose.

ENGINES

- Use guards or shielding for all exposed revolving parts such as cooling fans, belts, flexible drives, generators, water pump pulleys, shafts, couplings and other moving parts.
- Keep area below engine skids and beneath the sub base clear of drained motor oil and filters.
- Use caution around engines, radiators, etc., to avoid contact with hot surfaces and fluids. Appropriate PPE includes a face shield in addition to safety glasses.

BLOWOUT PREVENTION EQUIPMENT

- Do not climb on blowout preventers and components until they are secured.
- Keep hands and feet from between the flanges of the blowout prevention equipment. Do not place hands or feet on the bolts or nuts while the equipment is being installed.
- Use closed socket hammer wrenches of correct size, as well as sledgehammers of suitable weight and size when tightening blowout prevention equipment nuts. Use a rope tag line to hold closed socket hammer wrenches in place.
- Use hydraulic torque equipment in accordance to manufacturer's recommendations.
- Stay clear when the blowout prevention equipment is being pressure-tested.
- Bleed all pressure lines down to zero before hammering on the unions.
- Bolts shall be long enough to allow for a full nut when fully tightened.
- Coordinate nipple up/down to avoid hazards such as work taking place above other employees.
- All hydraulic lines from accumulator will be metal or metal clad. Lines shall be maintained in good condition.
- All fittings from accumulator to BOP must be high pressure.
- Do not repair leaks while under pressure.
- A designated alarm is used to signify a well control situation.
- Inspect BOP equipment daily. Pressure test (500 psi for 15 minutes) the casing string and each component of the BOP equipment prior to drilling.
- Conduct a blowout prevention drill once a week.

BLOWOUT ACCUMULATOR BOTTLES AND PULSATION DAMPENERS

- Only qualified personnel shall charge accumulator bottles and pulsation dampeners.
- Check the pre-charge before each well.

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- Clearly mark each control on the blowout prevention accumulator and each blowout preventer remote unit as to its exact function.
- Protect the blind ram control handle to prevent against accidental closure.

TUBULARS

- Do not mousehole pipe until the driller has the bit on bottom.
- Do not allow joints of drill pipe to remain in the mousehole while hoisting or lowering pipe during a trip.
- Hold back pipe as it is lifted from the rig floor. Do not allow pipe to swing freely. Use a tail-rope.
- Use a tail rope when handling drill collars.
- Push against the outer face of the pipe when setting it back. Keep feet from beneath the pipe as it is set down. Do not let fingers get caught between pipes.
- Do not place feet beneath the pipe when rabbiting drill pipe
- When rabbiting tubulars, face away from the pipe rack to avoid possible eye injury.
- Tighten each drill collar lift sub into the collar before the collar is hoisted into the derrick.
- Do not place feet, knees and hands on the underside of a drill collar clamp at any time.
- Do not use a drill collar clamp to hoist the drill collar overhead.
- Do not place hands and feet on the bit breaker while the bit and collars are guided into the bit breaker opening. Do not use feet to adjust the lock on the bit breaker.
- Set stabilizers, wall scrapers or pup joints on the rotary table supported by a hoist line.
- Do not throw or drop tools. Use a hoist line.
- Double wrap chain when mouse-holing all tubulars.
- Use pipe stops (not chains) on catwalk.
- Use a multiple leg sling if lifting more than two joints into the V-door.
- Keep all non-essential employees clear of the area when pulling on or jarring a stuck pipe.
- Use the air-hoist to pick up or lay down drill collar handling subs.

LIGHTING AND ELECTRICAL POWER

- *See sect 4 on Electrical Safety done*

DOGHOUSE AND CREW TRAILER/CHANGE ROOM

- Maintain in a clean and orderly manner.
- Crew trailer/clothes change areas will be kept clean and sanitary at all time. Do not allow trash, paste paper, dirty rags, oil-soaked rags etc., accumulate.
- Stoves are not allowed within 120 feet of the well bore, or within the guyline pattern. Turn off when unattended.
- Emergency phone number and pertinent safety bulletins shall be posted in crew trailer.

RIG INSPECTIONS AND AUDITS

- The rig supervisor shall conduct a complete inspection after every rig up and after every 10 days of complete running.
- Critical equipment shall be inspected upon completion of rig up.
- Daily rig examination shall be completed.
- Periodic safety audits shall be completed.
- All inspections/audits must be documented and records maintained at the field office.

44.0: ELECTRICAL SAFETY

This section addresses electrical safety requirements that are necessary for the practical safeguarding of employees in their workplaces. Additional detailed guidance can be found in OSHA standards 1910.301 through 1910.335. Lock Out / Tag Out Procedures are detailed in Section 5.

Safety-related Work Practices

- Live parts shall be deenergized before working on or near them.
- If live parts can not be deenergized, other safety-related work practices shall be used to protect employees.
- When working on or near deenergized parts, the circuits energizing the parts shall be locked out or tagged or both. See Section 5 on Lock Out/Tag Out procedures.
- Conductors and parts of electric equipment that have been deenergized but have not been locked out or tagged shall be treated as energized parts.
- Only qualified persons may work on electric circuit parts or equipment that has not been deenergized.
- Only qualified persons shall use test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and shall verify that the circuit elements and equipment parts are deenergized.
- A qualified person shall conduct tests and visual inspections to verify that all tools, electrical jumpers shorts, grounds and other such devices have been removed, so that circuits and equipment can be safely energized.
- If work is to be performed near overhead lines, the lines shall be deenergized and grounded, or other protective measures shall be provided before work is started.
- If working in an elevated position near overhead lines, maintain a distance of at least 10 feet from lines 50kV or below or for lines over 50kV maintain a distance of 10 feet plus 4 inches for every 10kV over 50kV.
- Stand to one side of an electrical control box (opposite of box door hinges) and touch first with the back of the hand prior to opening or closing a disconnect.

Use of Equipment

- Do not use flexible electrical cords to raise or lower equipment.
- Do not hang flexible cords in a fashion that could damage the outer jacket or insulation. Do not fasten with staples.
- Visually inspect portable cords and plug connected equipment and flexible cords before use for external defects (loose parts, deformed or missing pins, etc.) and for internal damage (pinched or crushed outer jacket). Remove damaged equipment from service.
- All electrical wall outlets, hand tools extension cords, etc. shall be provided with proper grounds.
- Protect plugs and cords from damage, by maintaining all electrical cords off of the ground. Do not allow vehicles to drive over cords.
- Electrical switchgear shall be labeled to identify the equipment it controls.
- Cover panels on switch boxes and electrical control panels shall be kept closed.
- Splicing or cutting of electrical wire by unauthorized personnel shall not be permitted.
- Substitutes for fuses are prohibited.
- Turn off electrical tools before connecting to or disconnecting from the power supply. Disconnect cords from power sources before coiling for storage.
- All overhead lights shall be equipped with safety fasteners to prevent lights from falling.
- Replace broken or burned out bulbs as soon as possible. Vapor proof globes and guards shall be kept in place over lights located in Class 1, Division 2 areas (i.e. volatile flammable liquids or flammable gases are handled, processed, or used but in which the hazardous liquids, vapors, or gases will normally be confined within closed containers or closed systems).
- All skids with electrical motors and skids with transformers shall be grounded.

Environmental, Health and Safety Manual

- Breaker switches should not be thrown "in" or "out" under loaded circuit.
- Explosion-proof equipment shall be returned to its explosion-proof condition when repaired.
- All guards on electrical equipment shall be kept in place and in good repair.
- All explosion-proof junction boxes and breaker boxes shall be properly sealed with all bolts in place.

Safeguards for Personnel Protection

- Employees shall wear protective equipment including nonconductive head protection, eye protection. Equipment shall be maintained in a safe, reliable condition and shall be periodically inspected or tested.
- When working near exposed energized conductors or circuit parts, use insulated tools or holding equipment
- Use alerting techniques i.e. safety signs and tags, barricades, and attendants, to warn and protect employees from hazards.
- If working with energized equipment, hands, footwear, and clothing shall be dry. Do not operate when water hazards are present.
- If any electrical equipment fails to operate, have a licensed electrician make the necessary repairs. **DO NOT ATTEMPT REPAIRS!!!**
- Do not use water or any substance containing water to extinguish an electrical fire.
- Rubber non-conductive mats shall be placed in front of the switchboards and maintained in a clean condition.
- Clearly mark "DANGER HIGH VOLTAGE" on all high voltage panels.
- Never assume electrical wiring is harmless. Check the source to insure it has been deenergized.
- Never assume low voltage cannot be dangerous.
- Before attempting rescue of a victim of electrical shock, first switch off the power causing the shock.

Training

- Employees shall be trained in and familiar with the safety-related work practices and other safety related guidelines.
- Training can either be on-the-job or classroom training. The degree of training provided will depend on the risk to the employee.

Only certified, licensed electricians shall be allowed to conduct any installation or repairs on electrical equipment, outside the scope of normal job related duties. Always contact your immediate supervisor if you have any questions. The following general rules regarding safe practices of electrical equipment shall be followed at all times.

6 Done

8.0: FALL PROTECTION

The Federal Occupational Safety and Health Administration (OSHA) requires employers to outline the steps necessary prevent falls and to protect employees in the event of a fall. Fall protection may include but is not limited to guardrails, handrails and personal fall arrest systems.

Definitions

- A. Anchor System – a secure point of attachment (capable of sustaining 5,000 pounds) for lifelines, lanyards or deceleration devices.
- B. Boatswain's Chair/Riding Belt – those devices that secure an employee in a manner that distributes the fall arrest forces over the thighs, pelvis and waist.
- C. Body Harness (Full) – straps which may be secured about the employee in a manner which will distribute the fall arrest forces over at least over the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.
- D. Connectors – a device (capable of sustaining 5,000 pounds) used to couple (connect) personal fall arrest system and positioning device systems together.
- E. Conventional Fall Protection – handrails and guardrails are considered conventional forms of fall protection.
- F. Deceleration Device – any mechanism or device such as rope grab, rip stitch lanyard, specially woven lanyard, tearing or deforming lanyard, automatic self-retracting lifeline/lanyards, etc., which serves to dissipate a substantial amount of energy during a fall arrest or otherwise limit the energy imposed on an employee during fall arrest.
- G. Fall Arrest Systems – a system used to arrest an employee's fall from a working level 10 feet above any surface. This system may consist of anchors, connectors, a full body harness, and may include a lanyard, deceleration device, lifeline, or any suitable combination of this equipment.
- H. Lanyard – a flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body harness to a deceleration device, lifeline, or anchorage. Lanyards, including the extension of the shock absorption system or design, shall be rigged such that an employee can neither free fall more than 6 feet or contact any lower level.
- I. Positioning Device System – a body belt or body harness system rigged to allow an employee to be supported in an elevated vertical surface and work with both hands free while leaning. Not to be used as a substitute for a body harness.
- J. Walking/Working Surface – any surface on which an employee must be located in order to do their job, whether horizontal, sloped, or vertical on which an employee walks or works, including floors, roofs, ramps, runways, or catwalks but not including ladders, vehicles or trailers.

FALL PROTECTION

- Fall protection is required when working more than 6 feet or more above the lower surface. Fall protection should be used at lower elevations if danger of falls exist.
- Install tested horizontal or vertical lifelines as a continuous/sliding anchor for lanyard and harness fall protection. Examples of where these may apply include the tops of sheds, motor houses, frac tanks, or along ladders in derricks or bulk tanks, etc.
- A derrick ladder climbing assist device (angel lift) is not considered an approved form of fall protection. Personnel climbing derricks or any other fixed ladder should be secured to a fall arrest system.
- Personnel should maintain 100% fall protection when moving from one unguarded elevated surface to another over 6 feet in height.
- See Section 9.0 Ladders, Stairs, Elevated Platforms for additional information.

PERSONAL FALL ARREST SYSTEM

- Use a fall arrest system when climbing to or working on any unguarded elevated work area. Fall arrest system requirements may vary depending on the nature and location of the work performed.
- A fall arrest system shall be used when rigging up or down in areas such as rig substructures, derrick assembly, mud tanks, or any other elevated work area.
- A fall arrest system must be rigged to prevent an employee from free falling more than six feet or contacting any lower level.
- Locate the tie-off attachment point to the anchor should be located at or above the connection point of the fall arrest equipment .
- When it is necessary to unhook to change locations, a secondary safety line or equipment shall be provided and used. This provides 100% tie-off.
- Personal fall protection equipment shall be ANSI approved, used and maintained in accordance with manufacturer's specifications.
- Minimum requirements for fall protection include full body harness, shock absorbing lanyard, double locking snap hooks, and tie-off adapter attached to stationary support.
- Lanyards should not be used as a climbing or positioning device or as rigging material to secure objects.
- Lanyards should not be hooked directly onto the edge of an I-beam, nor should it be wrapped around the beam and hooked off to itself. An anchor system should be used as lanyards attach points.
- Any fall arrest system device that has arrested a fall should be removed from service, inspected and if necessary returned to the manufacturer for inspection, repair or destruction.
- Fall protection shall be inspected periodically by a qualified person. The employee that is going to wear the equipment shall inspect the Fall Protection prior to use. If not in good condition, the equipment should be removed from service, returned to the manufacturer or destroyed. It should not repaired or used for any other purpose.
- All employees that inspect and use fall protection systems shall be trained in the use and inspection of such equipment.

WALKING/WORKING SURFACES

- When possible, use conventional fall protection such as handrails, guardrails, toe-boards and manway covers to guard elevated work areas. Elevated walking/working surfaces should have a toe-board installed to prevent tools, etc. from falling onto personnel below.
- Guardrails should be 42 inches high and have a midrail. Guardrails should be able to withstand 200 pounds of pressure.

- Access to areas beneath elevated work should be restricted to prevent falling objects from striking personnel below.
- Hand tools used in elevated work areas should have wrist lanyards attached to prevent dropping on personnel below.
- A fall arrest system shall be used with floor or wall openings cannot be protected by a handrail system or covered to prevent employees from falling through the openings.
- Good housekeeping should be maintained on Walking/Working surfaces.
- Stairways extending to and from working surfaces with four or more risers shall have permanently affixed hand and mid-rails.
- Tread construction should be of non-skid material

BOATSWAIN'S CHAIR HARNESS

- The Boatswain's Chair Harness is the only approved fall protection permitted when lifting employees.
- A 30 foot tagline shall be permanently secured to the chair to assist the occupant in repositioning when needed.
- No rotary equipment shall be in operation when a person is suspended in a Boatswain's Chair.

#7.0 done
4.0: FIRE PROTECTION

The Federal Occupational Safety and Health Administration (OSHA) requires employers to provide proper exits, firefighting equipment, emergency plans and employee training to prevent fire deaths and injuries in the workplace. Fire protection standards can be found in 29 CFR 1910.155, 1910.157. The purpose of the regulations are to (1) reduce the number of fires by limiting opportunities for ignition of flammable and combustible materials, (2) make sure that employees know how to escape harm in the event of fire, and (3) require basic training regarding fire extinguishers.

- Each workplace building must have at least two means of escape remote from each other
- Fire doors must not be locked or blocked in any manner that would prevent emergency use
- Exit routes from buildings must be clear and free of obstructions and properly marked with signs designating exits
- Smoking is prohibited except in designated areas. At least two "NO SMOKING" signs must be displayed conspicuously at each well location.
- No open flames are allowed within 120 feet of the well bore.
- Well cellar, well floor and ground area adjacent to derricks or tanks shall be kept reasonably free from accumulation of oil which might create or aggravate fire hazards
- Heat producing equipment such as burners, boilers, welding equipment etc. must be properly maintained and kept clean of accumulations of flammable residues
- Flammables must be stored away from heat sources, preferably in flammable cabinets. Storage areas must be adequately labeled
- All fires must be reported to your supervisor

1) Portable Fire Extinguishers

- Fire extinguishers shall be mounted, located and identified so that they are readily accessible to employees without subjecting the employees to possible injury
- Every well servicing unit will have three non-freeze type approved 20# B/C rated fire extinguishers
- Portable fire extinguishers are maintained in a fully charged and operable condition and kept in their designated places at all times except during use
- Fire fighting equipment shall not be tampered with and is not to be removed for other than intended purpose
- Portable fire extinguishers shall be visually inspected monthly - *check pressure & aug c. initial service tag*
- Portable fire extinguishers shall be subjected to an annual maintenance check by an outside fire extinguisher company. A record of the annual maintenance date must be kept for 1 year

2) Emergency Evacuation Planning

- Each workplace has evacuation routes and procedures that employees must be familiar with
- Evacuated employees must report to designated areas
- Emergency numbers are posted

3) Training

exting must undergo appropriate hydrostatic testing by trained personnel tested at interval specified by OSHA 5-12 years

Car recharge

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All employees will be trained in the potential fire hazards of their jobs, with the general principles of fire extinguisher use and on the hazards involved with incipient stage firefighting. Training is required upon initial employment and at least annually thereafter.

8 done
10.0: FLAMMABLE AND COMBUSTIBLE LIQUIDS

Flammable and combustible liquids are encountered daily in field operations. OSHA standard 29 CFR 1910.106 provides guidance for the safe storage and handling of this material.

Flammable liquid: any liquid having a flashpoint below 100° F and having a vapor pressure not exceeding 40 psia at 100° F. Flammable liquids are divided into three classes as follows:

- Class IA liquids shall include those with a flash point below 73° F and a boiling point below 100 F (example – gasoline)
- Class IB liquids shall include those with a flashpoint below 73° F and a boiling point at or above 100 F (example – methanol)
- Class IC liquids shall include those with a flashpoint at or above 73° F and below 100° F (example – chlorohexane)

Combustible liquid: any liquid having a flashpoint at or above 100° F. Combustible liquids are divided into two classes as follows:

- Class II liquids shall include those with flashpoints at or above 100° F and below 140° F (example - diesel fuel)
- Class III liquids shall include those with flashpoints at or above 140° F (example – phenol)

1) General Safety

- Adequate precautions must be taken to prevent the ignition of flammable vapors.
- Flammable liquids must be kept away for all sources of ignition including open flames, lightning, smoking, cutting and welding, hot surfaces, frictional heat, and sparks (static, electrical, and mechanical)
- Operational area where flammable liquids with flash points below 100° F (Class I liquids) are used must be ventilated.
- Suitable fire-control device, such as portable fire extinguishers, shall be available to locations where fires are likely to occur

2) Container and Portable Tanks Storage Requirements

- Flammable liquids must be stored in closed containers or tanks.
- Plastic containers shall NOT be used to collect, store or transfer flammable liquids. No worker shall at any time store and/or transport gasoline in a plastic container of any type, this includes plastic gasoline containers designed for this purpose. Metal containers or tanks must be used unless the product being stored will cause a reaction with the metal tank or container.
- Containers and tanks must be properly labeled.
- The quantity of flammable or combustible liquid that may be located inside a building but outside of an approved storage room or approved cabinet shall not exceed:
 - 25 gallons of Class IA liquid in containers
 - 120 gallons of Class IB, IC, II or III liquid in containers
 - 660 gallons of Class IB, IC, II, or III liquid in a single portable tank
- Specific criteria for storage rooms and storage cabinets shall be met including by not limited to:
 - Constructed of fire-resistive materials
 - Liquid-tight to prevent any spills from migrating from the area
 - Labeled in conspicuous lettering "FLAMMABLE – KEEP FIRE AWAY"
 - Located so as not to limit safe egress of people
- Outside storage areas must be:

- Graded to divert spills away from buildings
- Surrounded with a curb at least six inches high with drainage to a safe location
- Kept free of weeds, debris, and other combustible material not necessary to the storage.
- Protected against tampering or trespassers.

3) Handling Requirements

- Class I liquids may not be dispensed into containers unless the nozzle and containers are electrically interconnected. This can be satisfied by:
 - Having a metallic floor plate on which the container stands while fill pipe or nozzle is electrically connected to the container or floor plate
 - Bonding the container to fill stem by means of bond wire.
- Flammable or combustible liquids must be drawn from, or transferred into, vessels, containers, or portable tanks within a building only through a closed piping system. Liquids may be transferred into safety cans by means of a top drawing device/pump, or from a container or portable tank by gravity through an approved self closing valve.
- Transferring flammable or combustible liquids by means of gas or air pressure is prohibited

4) Static Protection

- Where Class I liquids are loaded or where Class II or Class III liquids are loaded into vehicles which may contain vapors from previous cargoes of Class I liquids, bonding facilities for protection against static sparks during the loading of tank vehicles through open domes shall be provided

5) Training

All employees receive training on flammable and combustible liquids upon initial employment.

9.0: Ladders, Stairs, Elevated Platforms

The Federal Occupational Safety and Health Administration (OSHA) has adopted standards (29CFR 1910.21 to 29 CFR 1910.30) to ensure the safety of employees working on ladders and elevated platforms including scaffolds.

Ladders

- Inspect ladders for cracks, splits, loose rungs, etc. before use. Remove damaged ladders from the work site.
- Use only ladders in safe condition, equipped with proper type of shoes or spurs for the ground conditions.
- Do not use the top half of an extension ladder by itself as a straight ladder
- Secure ladders at the top. If on uneven ground, have someone hold the ladder while you tie it off.
- Place a straight ladder so that the base is at a distance approximately one-fourth (1/4) the length of the ladder from the object it is leaning against. The ladder should extend 42" above the top of the structure to be climbed
- Never climb higher than the third rung from the top on extension ladders or the second rung on a stepladder.
- Only one person is allowed on a ladder at one time.
- Keep both hands free for climbing (3 point connection). Use a hand line to raise or lower materials or tools.
- Do not use ladders in a horizontal position, as a scaffold.
- Face toward the ladder when climbing up or down.
- Do not reach beyond arm's length of the side rails of a ladder.
- Fixed ladders with more than 20 feet rise must be caged or equipped with a fall arrest system.
- No person shall ride the traveling block or related equipment for any purpose, including ascending or descending the derrick

Stairs and ramps

- Maintain stairways and ramps in a clean, dry, and orderly condition. Keep clear of spills and any other loose or foreign material.
- Treads shall be structurally sound, level and have a uniform riser height and tread width.
- Ramps that rise four or more feet above surrounding ground level, or stairs having four or more risers shall be provided with a standard handrail.
- Do not slide down handrails.

Elevated Platforms

- Maintain deck, floors and walkways in a clean, dry, and orderly condition. Keep clear of spills and any debris including tools, hoses, other equipment, etc.
- Use anti-slip flooring where oil or water is a constant problem.
- Provide guardrails on all decks, raised floors and walkways over 4 feet in height. Guardrails should be 42" and have a midrail and toe board.
- Any openings greater than 6" should be protected with a standard handrail or tight chain.
- Entrance to ladders, v-doors, and infrequently used stairways shall be guarded with gates, or chains.
- Keep hatches closed and other openings covered when not in use. Open holes shall have standard railings or shall be constantly attended by someone.
- Do not obstruct walkways, exits, fire fighting equipment or operating controls.
- Landing platform(s) are required for ladders over 30 feet
- Access to areas beneath elevated work area should be restricted to prevent falling objects from striking personnel below.

- Hand tools used in elevated work areas should have wrist lanyards attached to prevent dropping on personnel below.
- Fall arrest system shall be used when floor or wall openings cannot be protected by a handrail system. See Section 6 on Fall Protection.

Scaffolds

- Properly construct scaffolds including handrails, midrails and toe boards.
- Scaffold must be inspected daily.
- Unstable objects such as barrels, boxes, loose brick, etc, shall not be used to support scaffolds or planks.
- Do not exceed the scaffold load limit.
- Scaffolds must have planking which is in good condition and secured so it can't slip off.
- Rope off areas below scaffolding. Post signs. No entry is allowed below the workers.
- Do not work on scaffolds during inclement weather i.e. high winds, icy conditions, etc.

13.0: FIRST AID

The Federal Occupational Safety and Health Administration (OSHA) standards for Medical Services and First Aid can be found in 29 CFR 1910.152. In addition, the following guidelines shall be followed in the event of a first aid injury.

Training

Personnel shall be trained in basic first aid and CPR. At least one person, preferably two or more, on each crew will hold a current certificate of first aid training and CPR issued by the American Red Cross, the American Heart Association or other qualified organization.

First Aid Kits

First aid supplies shall be readily available at the job site. First aid kits shall be mounted conspicuously in the crew trailer, the drill rig, and in each truck. The contents of the first aid kit will be maintained by regular safety inspections and should include the following:

- Protective latex gloves
- A CPR mouth shield (one-way airway protector)
- Antiseptic cleaner for washing hands or other skin surfaces
- One bottle of hydrogen peroxide
- At least one roll of 2" gauze
- Band aids of various sizes and types
- Compresses of various sizes and types
- First aid tape
- Burn ointment
- Antibiotic crème

Eye Washes

Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.

Bloodborne Pathogens

All injuries involving exposure to blood shall be treated as though there is a potential for exposures to contagious disease. See Section 14 for additional information on Bloodborne Pathogens.

In the Event of an Emergency

- Know where emergency phone numbers are posted.
- Contact emergency medical services or have someone make the call for you.
- Contact the Supervisor immediately.
- Do not move the injured person unless absolutely necessary.
- Know exact directions to the job site, have them posted if necessary.
- Know where the First Aid Kits are located and how to use them.
- Respond to the injured to the extent that you are trained.
- Know where MSDSs are kept and how to use them.

Notifying Emergency Medical Services

- Stay calm and stay on the phone with emergency personnel.

- Give your full name, company name, location and phone number.
- Explain the need for emergency services.
- Provide information on the victim(s) i.e. name, age, any known medical conditions, etc.
- Provide directions to the location and have someone meet the emergency personnel at a main road.

Injury Report

- Complete an Injury Report. Copies can be found in Environmental, Health and Safety Forms.
- Injury Reports are to be completed as soon as practical, but no later than 12 hours after the injury.
- Give a copy of the Injury Report to the EHS department and the HR department.
- Personnel are required to fully participate in any incident investigation.

Description of Work:		Date:	Revisions:	(Date/Initials)
Potential Hazards: (Check those that apply)				
<input type="checkbox"/> Lifting hazards	<input type="checkbox"/> Water/drowning hazard			
<input type="checkbox"/> Fall potential	<input type="checkbox"/> Fire or explosion potential			
<input type="checkbox"/> Electrical shock	<input type="checkbox"/> Excavation hazard			
<input type="checkbox"/> Hazardous chemical exposure (e.g. H ₂ S)	<input type="checkbox"/> High noise levels			
<input type="checkbox"/> Skin irritants	<input type="checkbox"/> Ionizing radiation			
<input type="checkbox"/> Confined spaces	<input type="checkbox"/> Environmental extremes			
<input type="checkbox"/> Elevated load or work	<input type="checkbox"/> Sharp edges or hot/cold surfaces			
<input type="checkbox"/> Short service employees	<input type="checkbox"/> Other: _____			
<input type="checkbox"/> Pinch, crush or striking hazards				
<input type="checkbox"/> Potential release of energy				
Applicable Safe Work Practices: (Check those that apply)				
<input type="checkbox"/> Hot work permit	<input type="checkbox"/> Confined space entry permit			
<input type="checkbox"/> Energy isolation procedure	<input type="checkbox"/> Use of specialized PPE			
<input type="checkbox"/> Use of barricades	<input type="checkbox"/> Site/job orientation			
<input type="checkbox"/> Special pre-job safety discussions	<input type="checkbox"/> Review of emergency action plans			
<input type="checkbox"/> Other: _____				
Special Precautions: (Check those that apply)				
<input type="checkbox"/> Pollution Prevention Measures	<input type="checkbox"/> Air Monitoring:	<u>Acceptable Condition</u>	<u>Result</u>	
<input type="checkbox"/> Redundant Protection Measures	Oxygen	19.5 - 23.5%		
<input type="checkbox"/> Simultaneous Operations	LEL	< 10% LEL		
<input type="checkbox"/> Other: _____	CO	< 35 ppm		

16 June
4.0: HAZARD COMMUNICATION

The Federal Occupational Safety and Health Administration (OSHA) has adopted a Hazard Communication Standard 29CFR 1910.1200 to ensure that the hazards of chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees. This transmittal of information is to be accomplished by means of a comprehensive hazard communication program, which includes maintaining a list of hazardous chemicals on site, container labeling and other forms of warning, material safety data sheets (MSDS) and employee training.

- 1) List of the hazardous chemical known to be present

A list of hazardous chemicals either produced or imported to a K.P. Kauffman site can be found in the front of the MSDS book or be contacting the Safety Department.

- 2) Labeling or other warnings

Each container of hazardous chemical must be properly labeled with the identity of the chemical and the appropriate hazard warning associated with the chemical. If the container leaves the workplace the label must also include the name and address of the responsible party. Labels must be legible, in English, and prominently displayed on the container.

- 3) MSDSs

Every chemical on the hazardous materials inventory must have a MSDS and the MSDSs must be available to all employees. MSDS stations must be updated as necessary and maintained in good condition. MSDS stations are located in the Field Office and the Denver Corporate Office. No chemicals should be brought on site without first obtaining a MSDS from the manufacturer and getting approval from the Safety Department.

- 4) Training

All Company employees will be provided with information and training on hazardous chemicals in their work area.

Training will consist of:

- 1) Objectives of the Hazard Communication Program
- 2) Any operations in their work areas where hazardous chemicals are present
- 3) The location and availability of the written hazard communication program, the list of hazardous chemicals and the MSDSs.
- 4) Methods and observations used to detect the presence or release of a hazardous chemicals
- 5) Physical and health hazards of the chemicals in the work area
- 6) Measures employees can take to protect themselves from these hazards i.e. PPE
- 7) The details of the hazard communication program including an explanation of the labeling system, the MSDSs and how employees can obtain and use the appropriate hazard information.

Initial training will be conducted during the New Employee Orientation. Additional training will take place when hazards change. Documentation of this training will be in writing and kept on file.

2 17 done
20: **CONFINED SPACE ENTRY**

The Federal Occupational Safety and Health Administration (OSHA) requires employers to outline the steps necessary for preparation, entry and restoration of a confined space to be entered by personnel. The standard can be found in 29 CFR 1910.146. The standard is designed to establish and maintain a safe environment for personnel working in a confined space.

A "confined space" is defined as an area that:

- Has adequate size and configuration for employee entry and work performance,
- Has limited means of entry or outlet; and
- Is not designed for continuous employee occupancy

A "permit-required confined space" is a confined space that:

- Has or could contain a hazardous atmosphere;
- Contains materials that could engulf a worker in the space;
- Could close in and trap or asphyxiate a worker;
- Or contains any other serious safety or health hazard

Confined spaces include, but are not limited to, any tank, vessel, vault, cellar, pit (except an open-topped space where the width and length are greater than the depth) or excavation greater than four feet deep.

Entry is defined as the entrant's face breaking the plane of the opening to the space, whether or not a cover or man-way had to be opened for access.

It is K.P. Kauffman's policy that no employees shall enter any confined space. When work is required in a confined space this work is contracted out to a company with appropriately trained personnel. A copy of the contractor's Confined Space Entry Plan must be provided to the EHS department prior to doing any work. In addition, K.P. Kauffman must:

- Inform the contractor that the workplace contains confined spaces
- Apprise the contractor of any precautions or procedures that the K.P. Kauffman has implemented for the protection of employees near the area
- Coordinate entry operations with the contractor
- Debrief the contractor at the conclusion of the entry operations

All permit-required confined spaces must be marked with a sign reading "DANGER – Permit Required Confined Space, DO NOT ENTER"

20.0: HOT OILING OPERATIONS

Hot oil operations must not commence until the operator is satisfied that safe operating conditions exist. The operator should look for, and be aware of, leaks around and under the truck and along the line to the well. This check should be made after the first few minutes of operation and occasionally thereafter. See the Standard Operating Procedures and Job Safety Analysis for additional information.

- NO SMOKING" signs must be installed on the hot oil unit and "no smoking" rules observed. A hand held portable 30 lb. dry chemical fire extinguisher **must** be set off the truck and upwind some 20 to 25 feet from the truck.
- Any oil spills must be reported immediately to KPK personnel and cleaned up
- Hot oil de-waxing operations must not be done at night.
- Sleeved shirts must be worn (tank tops are prohibited) and full-length trousers (cut-off trousers or shorts are prohibited) while on the job. Flame resistant/retardant clothing is recommended to be worn by the hot oil operator while the burners are lit.
- A copy of KPK's Hazard Communication Program is available at each operations center and appropriate precautions should be taken when handling hazardous materials.
-

EQUIPMENT LOCATION AND SETUP

- Hot oil units must be located 150 feet from any tanks or 100' from any wellhead or 150 feet from any flammable/combustible vapor source. When this distance is not possible to maintain, the unit may be positioned closer; however, if the hot oil unit is within 35 feet of a vapor source, a fire watch must be assigned to the job.
- The hot oil unit must be positioned so that the prevailing wind will be crosswind, and the unit operator will be on the upwind side. If this is not possible, the unit should be placed upwind from the well. Be sure the fuel vapors cannot get to the firebox air intake. Air intakes should be designed to accommodate flash back arrestors.
- The service company should position the hot oil unit so that drainage from the unit will not be toward the well, other equipment or test tanks on location.
- The hot oil unit **should not** be parked over **any** flowline. If the operator is not sure of the location of the flowline, they must contact the KPK supervisor in charge of the lease.

FIRE AND EXPLOSION PROTECTION

- If a fire watch is required, the fire watch must be within arms reach of a 20 lb. dry chemical portable fire extinguisher at all times during hot oiling operations.
- High pressure steel or aluminum pipe and steel connections must be used to hook up to the equipment to be hot oiled.
- A high pressure check valve must be used in the line near the wellhead. The valve on the well should be checked to ensure the integrity of the check valve before connecting the lines at the first union or flange. The valves must be closed on the well prior to hooking up the lines to the hot oil unit.
- The service unit operator must pressure test the lines from the hot oil unit to the wellhead at 150% of pressures anticipated during treatment before lighting the burner.

- Pressure ratings of wellhead connections must not be exceeded while pumping. All chiksan joints and connections must be tight and leak proof. If a leak develops, the pressure must be bled to the hot oiler and repairs made.
- When lighting the burners, a device should be used to detect explosive gas mixtures in the fire box. An electronic ignition system should be used that will place the operator as far away as possible from the fire box during the ignition procedure.
- The heater coils must be pressure tested to 750 psi annually with the test results furnished, upon request, to the Safety Coordinator.
- Propane tanks must be properly filled to eliminate the probability of safety relief valve discharge. Adjust packing glands on hot oil unit pump to eliminate excessive oil leaks which could allow vapors to migrate into the burner box.
- In the event a fire should develop, the operator should activate the automated fire arresting system on the hot oil unit and alert all personnel in the area of explosion hazards and warn them to stay a safe distance from the fire.

Note: The protection and safety of personnel is the prime concern in a fire involving a hot oil unit. Attempts to physically extinguish the fire and preserve equipment shall be made **only** when such action does not endanger the lives or physical safety of the personnel involved. Fire suppression equipment should initially be used for the protection and evacuation of personnel within the danger area.

- Cold oil should be circulated through the heater coils before lighting the burner. This is to insure that oil is in the heat transfer tubes prior to heating. Cold oil should be pumped down the flowline or well before pumping hot oil. Light the burners and visually check to see that they are burning correctly.
- The burner must be shut off 10 to 15 barrels before finishing. This will extinguish the fire and cool the coils.

21.0: TRENCHING & EXCAVATIONS

The Federal Occupational Safety and Health Administration (OSHA) requires employers to outline the steps necessary to protect employees when working in excavations including trenches.

UNDERGROUND UTILITIES

- Locate all utility installations such as sewer, telephone, fuel, electric, water lines or any other underground installations that could reasonably be expected to be encountered during excavation work prior to opening an excavation.
- When the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard employees.

EGRESS

- If using structural ramps for access or egress from excavation must be designed by a competent person.
- A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are four (4) or more feet in depth.

HAZARDOUS ATMOSPHERE

- For trenches greater than four (4) feet deep where an oxygen deficient atmosphere (containing less than 19.5 % oxygen) or hazardous atmosphere exists or could reasonably be expected to exist, test the atmosphere prior to entering.
- Provide proper respiratory protection or ventilation if necessary.
- Provide proper ventilation for an atmosphere containing a concentration of a flammable gas in excess of 20 percent of the lower flammable limit of the gas.
- When hazardous atmosphere conditions exist or may exist, provide emergency rescue equipment such as breathing apparatus, a safety harness and line, etc.

WATER ACCUMULATION

- Do not work in excavations in which there is accumulated water
- If water is controlled or prevented from accumulating by the use of water removal equipment, the equipment and operations shall be monitored by a competent person.
- Excavation subject to runoff from heavy rains will require an inspection by a competent person.

STABILITY OF ADJACENT STRUCTURES

- Provide support systems such as shoring, bracing, or underpinning where the stability of adjoining buildings, walls or other structures may be endangered by excavation operations.
- Sidewalks, pavements, etc. shall not be undermined unless a support system or another method of protection is provided.

LOOSE ROCK OR SOIL

- Keep all materials or equipment at least two (2) feet from the edge of the excavation or use a retaining device to prevent materials or equipment from falling or rolling into excavations

INSPECTIONS

- Daily inspections of excavation, the adjacent areas, and protective systems shall be made by a competent person.
- Inspections shall be conducted prior to the start of the work and as needed throughout the shift.
- Inspections are also made after every rainstorm or other hazard increasing occurrence.

FALL PROTECTION

- Walkways for employee or equipment crossing over trenches must have guardrail.

WORKING IN EXCAVATIONS

- Do not walk or work underneath loads handled by lifting or digging equipment.
- Do not work on the faces of sloped or benched excavations at levels above other employees.
- When working with mobile equipment use a warning system such as barricades, hand signals, etc. if the equipment operator does not have a clear and direct view of the edge of excavation.

PROTECTIVE SYSTEMS

- Protective systems must be in place except when excavations are made entirely in stable rock or excavations are less than five (5) feet in depth and examination of the ground by a competent person provides no indication of a potential cave-in.
- Protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.
- Excavations shall be sloped at an angle not steeper than one and one-half horizontal to one vertical (i.e. width and length greater than depth). This is dependent on a number of factors including soil type. If in doubt, check with a registered professional engineer.
- Support systems shall be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from be struck by members of the support system.
- Start removing support systems from the bottom up and backfill as the support systems are removed.
- Shields (i.e. trench boxes) shall be installed in a manner to restrict lateral or other hazardous movement of the shield.
- Employees are not allowed in shields when shields are being installed, removed, or moved vertically.
- Do not excavate material more than two (2) feet below the support system.
- Manufactured materials and equipment used for protective systems shall be used and maintained in a manner that is consistent with the recommendations of the manufacturer. Damaged protective systems shall be removed from service.