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1. Purpose

The Purpose of this procedure is to provide consistent basic procedural steps which are guidelines in the safe operating of Fieldwood Energy, LLC Plug and Abandonment Operations. It is understood that no one set of procedural steps can define the required actions in all circumstances. However, when deviations to established procedures are warranted the appropriate level of management must be consulted for the appropriate action to go forward.
2. Responsibility

2.1. Management Team

The Management team has the responsibility to provide adequate resources to ensure the job actions can be accomplished with the personnel assigned in a safe manner. Resources included but are not limited to tools, equipment, PPE, training, time as required.

2.2. Supervision

Supervisor has the responsibility to accomplish the task at hand and report any difficulties or personnel related issues. All personnel have the responsibility for the safe execution of jobs.

2.3. SEC - Safety Environmental Compliance Support Team

The SEC - Safety Environmental Compliance Support Team has the administrative responsibility for policies and procedure documentation, training, monitoring and reporting of any issue related to Safety, Environmental and Compliance issues.

2.4. Employees

2.4.1.1. Office personnel - Record keeping, payroll, administrative

2.4.1.2. Dispatcher - Job schedule, equipment availability, shop resources, documenting job calls

2.4.1.3. Plug and Abandonment Crew - All personnel on the job location must be qualified and trained in the operation and safety of related equipment. A task JSA will be filled out before any work is performed on location. A separate task JSA will be reviewed and signed off by new crew members before a crew change or before a shift change.

2.4.1.4. P&A Supervisors

2.4.1.5. Plug and Abandonment Operators

2.4.1.6. Riggers/ Helpers

2.4.1.7. Eline Operators

2.4.1.8. Slickline Operators

2.4.1.9. Combination Eline/ Slickline Operators
3. Definitions

3.1 R/U  Rig Up
3.2 Bbl.  Abbreviation for oilfield barrel, a volume of 42 US gallons
3.3 PPE  Personal Protective Equipment
3.4 FRC  Flame Retardant Clothing
3.5 BSEE Bureau of Safety and Environmental Enforcement
3.6 MSDS Material Safety Data Sheet
3.7 HSE Health, Safety and Environment
3.8 JSA  Job Safety Analysis
3.9 MOC  Management of Change
4.0 SWA  Stop Work Authority
4.1 SSV  Subsurface Safety Valve
4.2 SCSSV Surface Control Subsurface Safety Valve
4.3 DSR  Daily Service Report
4.4 TOC  Top of Cement
4.5 CIBP Cast Iron Bridge Plug
4.6 RIH  Run In Hole
4.7 NPDES National Pollutant Discharge and Elimination System
4.8 E line Electric Line
4.9 MSA  Master Service Agreement
5.0 NORM Naturally Occurring Radioactive Material
5.1 DOT  Department of Transportation
5.2 Haz Com Hazardous Communication
5.3 POOH Pull Out of Hole
5.4 SRL  Self Retracting Lifeline
5.5 BML  Below Mud Line
5.6 BHA  Bottom Hole Assembly
5.7 BMLD Below Mud Line Depth
5.8 DECON Decontamination
4. Equipment / Materials

\[\text{NOTE}\] Part numbers listed below are for reference only. Other similar items that perform the required functions may be substituted in this procedure.

4.1. No part number is assigned
5. References

5.1 BSEE Regulations
   5.1.1 30 CFR Part 250
   5.1.2 http://ecfr.gpoaccess.gov

5.2 State Regulations
   5.2.1 LA – Department of Natural Resources http://dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=62&pnid=0&nid=37
   5.2.2 TX – Railroad Commission http://www.rrc.state.tx.us/

Safety and Environmental Precautions (Always reference to FWE Safe Work Practice located in the SEMS Portal)

5.1. Notes, Cautions, and Warnings
   5.1.1.1. All Notes, Cautions, and Warnings appearing in this document convey the following:

   **NOTE**
   Notes emphasize additional information that may be useful to the reader.

   **CAUTION**
   Caution messages give directions that, if not observed, could result in loss of data or in damage to equipment.

   **WARNING**
   Warnings alert users to a specific procedure or practice that, if not followed correctly, could cause personal injury or be a safety hazard.
Practices and / or Procedures (SOP’s)

6. Pre Job Actions Applicable to all Operations

6.1. Fieldwood personnel will familiarize themselves with the job site and perform a Job Safety and Environmental Survey (walk through inspection).

6.1.1. Job site deficiencies shall be corrected prior to rig up.

6.1.2. Hold Pre Job Safety Meeting and task specific JSA on safe crane operations, on unloading the boat and spotting loads on the deck.

6.1.2.1. The boat Captain shall also be present at the meeting in addition to the boat deck hands.

6.1.2.2. If they cannot come up, (a) Fieldwood Energy crew member shall bring the JSA with them on the boat and discuss it with them.

6.1.3. Ensure all personnel are wearing proper PPE; proper PPE includes but is not limited to:

6.1.3.1. Hard Hat
6.1.3.2. Hearing Protection if warranted due to excessive high noise levels
6.1.3.3. Safety Glasses
6.1.3.4. Appropriate task specific gloves
6.1.3.5. Steel toe Boots.
6.1.3.6. Flame Retardant Clothing (FRC)

6.1.4. Identify signalmen.

6.1.4.1. A designated signalman will be identified, assigned on the boat and/or on the platform’s landing area

6.1.5. Only trained certified personnel will handle rigging equipment

6.1.6. Inspect rigging equipment for damage and load capacity

6.1.6.1. Sling usage - Reference the Offshore Crane Operation and Maintenance Program within Fieldwood Safe Work Practices on acceptable usage of various type slings (wire rope, chain or nylon straps).

6.1.6.2. Only safety shackles (made in the USA) shall be used on equipment/material
6.1.7. Check crane for load chart and/or ensure weight indicator is working properly. Additionally, check boom upper and lower limit switches to ensure there are functioning properly.

6.1.8. Talk with crane operator and decide on load sequence.

6.1.8.1. Verify that weather and sea conditions will permit safe crane operations. This shall be determined by all parties involved (Boat Captain, Crane Operator, P&A Supervisor and/or Fieldwood Consultant). STOP Work Authority can be exercised by anyone at any time.

**NOTE**

The Supervisor should use caution when putting inexperienced personnel on the boat during this time.

6.1.9. Verify crane signals and line of sight or utilize radios.

6.1.9.1. During a lift if the crane operator and the signalman loose line of sight with each other Stop Work Authority (SWA) will be initiated.

6.1.9.2. During a blind lift the signalman is to do nothing else until the load is landed.

6.1.9.3. No other tasks are to be performed simultaneously in the immediate area while a crane lift is being performed.

6.1.10. Pick up personnel basket and load personnel on boat. **A separate JSA is required for Personnel Transfer.**

6.1.10.1. Type I or Type V personal flotation device fastened securely will be worn when riding on personnel basket and while working on the deck of the boat.

6.1.11. Rigging Personnel on the boat will make sure equipment being hoisted up has tag lines on them.

6.1.11.1. Tag lines are to be of sufficient length (a minimum of 15’), diameter, and strength to allow adequate control of the load by the rigger(s).

6.1.11.2. Do not tie knots or braid the ends as this could cause the load to hang up.

6.1.11.3. Tag lines should be connected to the lowest practical point and at right angles on the load whenever possible. If a tag line cannot be attached directly to the load, it must be attached to the shackle end of the sling as near the load as possible).
6.1.11.4. Tags lines must be clear of all obstructions before the signal person and/or rigger divert their attention from the load.

6.1.12. Personnel on deck will be aware of overhead loads, pinch points, and make sure that platform or lift boat deck can handle the weight of the equipment.

**WARNING**  
*Always leave yourself a way out. Do not back yourself into a corner or a “one way out” situation.*

6.1.13. It is imperative to rig up equipment leaving a clear walkway for an escape route. Use best practice for equipment layout.

6.1.13.1. Route hoses together when possible and as close to the equipment as possible.

6.1.13.2. Wrap hose with “caution tape” then go back and make a wrap with duct tape where necessary to ensure caution tape does not fall off.

6.1.14. Service equipment and check all fluid levels and ESD.

6.1.15. Ensure drain pans are plugged secure (wrench tight).

6.1.16. Connect the drive shaft of the engine half to the shaft connection of the fluid pump.

6.1.16.1. Insert retainer pins to keep the engine and pump connected.

6.1.16.2. Install drive shaft guard.

6.1.16.3. Connect the gear oil line.

6.1.16.4. Connect the discharge valve to the pump manifold.

6.1.16.5. Connect the mud gauge to the pump manifold.

6.1.16.6. Connect all hoses (discharge, suction, and hydraulic).

6.1.16.6.1. When connecting/disconnecting hydraulic lines, absorbent pads and metal buckets shall be used to contain any leakage.

6.1.16.6.2. Whip checks (safety cables) shall be attached on all high pressure lines at the connection point.

6.1.16.7. Connect pop-off valve.

6.1.16.8. Check packing caps for tightness.

6.1.16.9. Connect grease gun and hoses to grease fitting for plungers.
6.1.16.10. Ensure transmission is in the neutral position.

**WARNING**

*Use extreme caution as this is considered a high risk pinch point area.*


6.1.17.1. Prior to starting engine look on all sides of pump unit to ensure no tools or personnel are on or next to unit.

6.1.17.1.1. Warn personnel working close by before cranking unit.

6.1.17.2. When pumping, the operator shall pump grease into the plungers as needed.

6.1.17.3. Inspect for leaks while the engine is running.

6.1.18. **Hold JSA on Checking Pressures.**

6.1.19. Ensure Pollution Control is in place in well bay area and basement area if grating is present. Pollution control is achieved by:

6.1.19.1. Place an absorbent roll around the well head.

6.1.19.2. Hose/valve plugs and a metal bucket are also to be used when disconnecting hoses or bleeding off needle valves.

6.1.20. Check all gate valves.

6.1.20.1. Install valve onto gate valve in the closed position.

6.1.20.2. Open gate valve slowly.

6.1.20.3. Count rounds.

6.1.20.4. Verify pressure gauge is working.

6.1.21. Check needle valves to insure they are working properly.

6.1.21.1. Never place any part of your body in the “line of fire” always stand to the side.

6.1.22. Check tree connection and casing connection, threads and pressure ratings.

6.1.23. Check pressure on tubing, production casing, intermediate casing, surface casing and record on Daily Service Report.

6.1.23.1. When backing out bull plugs check threads on casing flange and tree flange.
6.1.23.2. Leave needle valve in the open position.
6.1.23.3. Never place any part of your body in the “line of fire” always stand to the side.

6.1.24. Install cap on Subsurface Safety Valve (SSV).
6.1.25. Lock open Surface Control Subsurface Safety Valve (SCSSV) at well with a gauge on the down hole side of control line.
6.1.25.1. The wellhead control panel shall not be used to lock open SCSSV unless approved in the APM.
6.1.25.2. An Enerpac P-39 fluid hand pump with a 10,000 psi manifold system featuring an inline check and bleed off valve shall be used.

6.1.26. To open SCSSV pump 2500 psi above maximum squeeze Rig up flow back and pump lines from well to gas buster/return tank.
6.1.26.1. Ensure gas buster is properly binder down

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**NOTE**

- Wear fall protection and use proper anchor points when working 6’ or above.
- Use scaffolding, ladder, or other work platform when possible

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6.1.26.2. All hoses and chicksan lines shall have whip checks (safety cables) at connections

6.1.27. **Hold a JSA on Operating Cement Pump and Bleeding the Well Pressure.**

6.1.28. Test pump and lines to 1000 psi over anticipated bleed back pressure.
6.1.28.1. The pump shall not be left unattended while it is in gear
6.1.28.2. Well bore fluids or gas pressure shall not be used to test equipment
6.1.28.3. Ensure personnel stay clear of pressurized pump and lines
6.1.28.3.1. Barricade/Caution tape area to identify pressurized lines
6.1.28.4. Set engine RPM and let water circulate through the system

6.1.29. Ensure all valves on manifold are in the proper position.
6.1.29.1. Visually trace out lines from well to manifold. This will ensure valves are lined up properly and the flow of bleeding pressure from the well will be directed and controlled as intended.

6.1.29.2. When opening/closing valves, establish a firm stance and grip on valve bar. Pull in a way that if the bar slips, it will not strike you or others standing nearly, nor will you sustain a fall.

6.1.30. Ensure choke is closed and open valves from well to manifold slowly to gradually release pressure to lines. Look and listen for leaks.

6.1.31. Open choke slowly until flow back rate is established.

**NOTE**

Opening choke too much could create a “blow-by” effect that would allow hydrocarbons to blow past the baffles and out the top of the gas buster. If this occurs, adjust choke as necessary.

6.1.32. Monitor flow returns to the gas buster/return tank, and pressure on the well and lines.

6.1.32.1. Perform a good test on lines prior to task.

6.1.32.2. Monitor connections and lines for leaks throughout the job.

6.1.32.3. Contain small leaks as they occur with absorbent pads and metal catch containers as necessary.

6.1.32.4. For large leaks shut in well and open choke to bleed off pressure.

6.1.32.4.1. Pump through lines to locate where the leak is.

6.1.32.4.2. Break the connection using a metal catch container to contain any residual fluid and repair leak.

6.1.33. Bleed all casing to 0 psi through gas buster.

6.1.34. Fill all casing and tubing’s.

6.1.35. Test according to procedure

6.1.35.1. Do not surge the well by suddenly bleeding off the tubing pressure.

6.1.35.2. If well appears to be “coming-in” shut in well and line up to pump fluids or other required fluid to kill the well

6.1.36. Record bbls to fill each casing and put on Daily Service Report.
6.1.37. Establish an injection rate.
   6.1.37.1. If less than 1 barrel per minute (bpm) call the Project Engineer or Operations Manager.
   6.1.37.2. Monitor all casing while pumping on tubing.
6.1.38. Record rate and pressure on Daily Service Report.
6.1.39. Establish injection into perforation
   6.1.39.1. Do not exceed 75% of the working pressure rating of equipment unless otherwise discussed and approved by the Project Engineer or Operations Manager.
   6.1.39.2. Allow for corrosion and age of equipment, wellhead, and tubing.
6.1.40. Record initial and final pressures on Daily Service Report.
6.1.41. Hold a JSA on Slickline Operations.
6.1.42. Rig up slick line and make gauge run to end of tubing.
   6.1.42.1. Go slow through SCSSV.
   6.1.42.2. Never go out the end of short string.
   6.1.42.3. Use caution going below packer on long string, and single completions.

**NOTE**

Should the Well Procedures state there is a need to run out the end of the tubing check with Project Engineer.

6.1.43. Record tight spots and fluid level on Daily Service Report.
6.1.44. After shutting in well open all valves on manifold and lines to ensure there is no trapped pressure.
6.2. **Crane Operations**

6.2.1. Ensure a Pre-use inspection has been performed on the crane.

6.2.2. **Hold a Task Specific JSA on all Crane Operations with team members.**

6.2.3. Ensure all personnel are wearing proper PPE.

6.2.7. Inform all team members of plan

6.2.7.1. Verify that weather and sea conditions will permit safe crane operations. This shall be determined by all parties involved (Boat Captain, Crane Operator, P&A Supervisor and/or Fieldwood Consultant. STOP Work Authority can be exercised by anyone at any time.

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**NOTE**

The Supervisor should use caution when putting inexperienced personnel on the boat when seas are greater than 4-6 feet.

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6.2.8. Obtain list of equipment to be loaded/unloaded.

6.2.9. Assign all team members specific job tasks.

6.2.10. Hand Signals/Communication

6.2.10.1. A designated signalman will be assigned on the boat and on the platform’s landing area for vessel equipment transfers

6.2.10.1.1. The crane operator shall obey only signals from the designated signalman but anyone may give the signal for emergency stop.

6.2.10.1.2. Area is to be clear of all non-essential personnel prior to making the lift.

6.2.10.1.3. Should someone enter the area the signalman and crane operator will initiate Stop Work Authority (SWA) until the area is clear.

6.2.10.2. Crane operator shall never start crane movement unless signalman or the complete load is within his range of vision.

6.2.10.2.1. If the crane operator and the signalman loose line of sight with each other SWA will also be initiated.
6.2.10.2.2. During a blind lift the signalman is to do nothing else until the load is landed.

6.2.10.2.3. No other task shall be performed simultaneously in the immediate area while a crane lift is being performed.

6.2.10.3. Two (2) tag lines shall be utilized and they shall be of sufficient length - a minimum of 15', diameter, and strength to allow adequate control of the load by the rigger(s).

6.2.10.3.1. Do not tie knots or braid the ends as this could cause the load to hang up.

6.2.10.3.2. Both tag lines are to be tied on the same side of the load at opposite ends.

6.2.10.3.3. Tag lines should be tied to load not on slings or high points on load.

6.2.10.3.4. Do not use the tag line to pull the load into position.

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**NOTE**

Tag lines are used to help guide and position the load.

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6.2.11. Attaching the load

6.2.11.1. The load shall be attached to the hook by means of appropriate wire rope slings. (Sling usage – Reference the Offshore Crane Operation and Maintenance Program within Fieldwood Safe Work Practices on acceptable usage of various type slings (wire rope, chain, or nylon straps).

6.2.11.2. Inspect the hook and latch to ensure they are free of defects and that they function properly.

6.2.11.2.1. If secondary device (safety pin) can be used (on either block), it will be installed

6.2.11.3. Slings shall be inspected before use.

6.2.11.4. Only safety shackles (made in the USA) shall be used on equipment.

6.2.11.4.1. Ensure proper shackles are used for the correct lifting capacity.

6.2.11.5. Defective slings are to be red tagged and turned in to Supervisor immediately to be discarded properly.
6.2.12. Before the lift
   6.2.12.1. Ensure the load is properly balanced.
   6.2.12.2. Check to see if the lift and swing paths are clear.

**WARNING**

Always leave yourself a way out. Do not back yourself into a corner or a “one way out” situation.

   6.2.12.3. Inspect for twists in multi-part lines.
   6.2.12.4. Ensure hook is over the load to minimize swing when load is lifted.
      6.2.12.4.1. Center block over load to prevent side and shock loading.
   6.2.12.5. Check load chart to verify crane capacity at a particular angle.

6.2.13. During the lift
   6.2.13.1. Lift load to a safe height.
   6.2.13.2. Move load with crane in a smoother manner.
   6.2.13.3. Standard hand signals or radio communications should be used.
   6.2.13.4. Crane should not be used until proper hand signals have been given.
   6.2.13.5. Keep load high enough to clear loading point.
   6.2.13.6. Swing load over loading point and lower it slowly into position.
   6.2.13.7. Land and unhook load.

6.2.14. Before leaving the crane
   6.2.14.1. Ensure the crane will not interfere with helicopter operations.
   6.2.14.2. Put all controls in “off” position or “neutral”.
   6.2.14.3. Apply swing brake (if applicable).
   6.2.14.4. Stop all engine power.
   6.2.14.5. Close all doors and windows.
6.3. **Cement Jobs**

6.3.1. **Hold a JSA on Mixing / Pumping Cement and Crane Operations**

6.3.2. Ensure all personnel are wearing proper PPE when mixing cement. Proper PPE include but is not limited to:

- 6.3.2.1. Hard Hat
- 6.3.2.2. Hearing Protection if warranted due to excessive high noise levels
- 6.3.2.3. Chemical goggles with Face Shield
- 6.3.2.4. N-95 Respirator
- 6.3.2.5. Appropriate task specific gloves
- 6.3.2.6. Flame Retardant Clothing (FRC)

6.3.3. When plugging dual completions.

- 6.3.3.1. After filling casing and establishing injection rate in short string and long string, long string shall be squeezed first unless specified otherwise.
- 6.3.3.2. Calculate the amount of “biocide” chemical if required to circulate bottoms up.
- 6.3.3.3. Question project engineer if procedure states to squeeze the short string prior to squeezing the long string.
- 6.3.3.4. Ensure centrifugal pump is installed when applicable.
  - 6.3.3.4.1. Rig up a line from 100 bbl. tank and cement blender to centrifugal suction.
  - 6.3.3.4.2. Rig up a line from the centrifugal discharge to the down hole pump suction.
- 6.3.3.5. Install cement screen on suction hose between blender and centrifugal pump.
- 6.3.3.6. Check inside the blender to ensure no debris has fallen to the bottom. Clean out if necessary.
  - 6.3.3.6.1. Open valves on bottom of blender and ensure they are clear of debris or other restrictions.
  - 6.3.3.6.2. Personnel will use fall protection when climbing blender.
- 6.3.3.7. Fill with water for amount of cement to be mixed as per calculations.
6.3.3.7.1. Ensure suction hoses are back flushed with water to avoid any air gaps.

6.3.3.8. Ensure there is enough water for displacement as per calculations, in the holding tank. **HAS 100 BBL TANK BBL MARKERS BEEN CALIBRATED**

6.3.3.9. Start pump and engage blender agitation.

6.3.3.9.1. Ensure centrifugal pump is working and not leaking (re pack if leaking)

6.3.3.9.1.1. Set centrifugal hydraulic pressure between 40-50 psi. (Adjust as needed).

6.3.3.9.2. Set hydraulic pressure between 500-750 psi to ensure cement mixes properly.

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**WARNING**

*At no time should personnel reach inside the blender while the agitator is turning.*

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6.3.3.10. Install hopper when applicable. Use proper lifting techniques and get help if necessary.

6.3.3.11. Check cement bag’s condition.

6.3.3.11.1. Check for rips in the bag and on the lifting straps.

6.3.3.11.2. Also check to see if cement has been damaged during transportation

6.3.3.11.3. Check for lumps and hardened cement.

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**CAUTION**

*damaged cement bags will have hardened a good portion of the cement. If any are found do not use.***

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6.3.3.12. Identify signalman.

6.3.3.12.1. A designated signalman will be assigned for this task.

6.3.3.13. Ensure that only certified personnel handle rigging equipment.

6.3.3.14. Inspect rigging equipment for damage and load capacity.

6.3.3.14.1. Reference Offshore Crane Operation and Maintenance Program within Fieldwood Safe Work Practices on acceptable usage of various type slings (wire rope, chain or nylon straps).
6.3.3.14.2. Only safety shackles (made in the USA) shall be used on equipment/material.

6.3.3.15. Check crane for load chart to ensure weight indicator is working properly.

6.3.3.16. Talk with crane operator and decide on load sequence.

6.3.3.16.1. Verify the weather and sea conditions will permit safe crane operations. This shall be determined by all parties involved (Boat Captain, Crane Operator, P&A Supervisor and/or Fieldwood Consultant). STOP Work Authority can be exercise by anyone at any time.

6.3.3.17. Verify crane signals, and line of sight, or utilize radios.

6.3.3.17.1. If the crane operator and the signalman loose line of sight with each other, SWA will be initiated.

**WARNING**

- **No other tasks are to be performed simultaneously in the immediate area while a crane lift is being performed**

6.3.3.18. Riggers will rig up cement bag with 4-part (wire rope) sling and have inner bag tied off.

6.3.3.18.1. Tie off inner plastic bag. Using ¾” rope, to one leg of the sling. This will reduce the chance of the inner bag falling into the blender once it is empty.

6.3.3.19. Crane operator will pick up bag and position over hopper on blender.

6.3.3.19.1. At this point crane operator will take crane signals from the person mixing cement (with exception of an emergency stop from any personnel).

6.3.3.19.2. Personnel mixing cement shall pay attention as cement bag is being moved and be prepared to push off or get out of the way.

6.3.3.19.3. Crane operator should be in the crane at all times when mixing cement.

6.3.3.20. Untie outer sacks, pull down sharply on inner sack, and cut above metal ring.
6.3.3.20.1. Personnel mixing cement will wear the appropriate PPE.
6.3.3.20.2. Use a hacksaw alternative cutting device.
6.3.3.20.3. Pay attention and cut away from your body.

6.3.3.21. When beginning the mixing process:
6.3.3.21.1. Add cement slowly

**NOTE**

The cement bag should never be set down on the blender, hopper or jerked by the crane while in position.

**WARNING**

Never place hands under bag after it has been cut open.

6.3.3.21.2. Mix cement thoroughly to prevent build up around ladder leading into blender.
6.3.3.21.3. This will also insure that the cement will mix consistently.
6.3.3.21.4. Be aware of falling cement pieces that could cause injury.

6.3.3.22. Repeat steps 6.15.3.17 to 6.15.3.20.4 until all bags have been mixed as per calculations.

**NOTE**

If possible and/or allowed: After each bag has been mixed, open the dump valve for 2-3 seconds. This will allow any large pieces that have formed at the bottom to go overboard, decreasing the chance of the screen or pump to clog up.

6.3.3.23. All cement is to be mixed 5-10 minutes after all bags have been added.
6.3.3.23.1. While waiting, personnel should come down and wash cement off his/her person.
6.3.3.23.2. Have Cement Mud Samples and Sample containers ready
6.3.3.24. Catch 2 samples in cups, and measure the weight of the cement, record.
6.3.3.24.1. Before catching sample, ensure hydraulic controls of blender are temporarily shut off and locked (tagged) out.

6.3.3.25. Pump cement and displace according to procedure after catching samples and weighing.

6.3.3.26. Close master valve and secure well.
   6.3.3.26.1. Allow plug to balance and/or squeeze before closing all valves.
   6.3.3.26.2. When applicable, leave some pressure on cement column when closing valves.

6.3.3.27. Insure that displacement volumes, and cement volumes are monitored and recorded on Daily Service Report.
   6.3.3.27.1. Record initial and final pressures prior to shut in on Daily Service Report.
   6.3.3.27.2. Note Calculated TOC (Top of Cement) on Daily Service Report.

6.3.3.28. Immediately upon completion of cement job the Supervisor shall visually inspect to ensure the crew has back flushed water into blender to clear cement from suction hoses, cement screen, and centrifugal pump.

   Rinse blender walls with mixing paddles in motion to help clean walls.

   6.3.3.28.1. Breakdown the cement screen and suction hoses and flush thoroughly with water.
   6.3.3.28.2. Pump through discharge hoses and manifold on pump.
   6.3.3.28.3. Break off pop off valve and gauge assembly from manifold and flush thoroughly.
   6.3.3.28.4. Operate low torque / high torque valves to insure all cement has been removed.
   6.3.3.28.5. Clean work area and make up cement screens and hoses for next cement job or as procedure dictates.
6.4. **Testing Procedures for Lower (Bottom) Cement Plug**

6.4.1. **Hold JSA on Testing, Operating Cement Pump and bleed off.**

6.4.2. Ensure all personnel are wearing proper PPE.

6.4.3. Make sure all personnel are aware that you will be testing and caution tape off area.

6.4.4. Open well.

   6.4.4.1. Check Pressure
   6.4.4.2. Bleed well off to 0 psi

6.4.5. Fill both tubing and casing with saltwater and record volumes on Daily Service Order.

6.4.6. Perform chart test to 1000 PSI (or higher if required) for a minimum of 15 minutes as per BSEE.

   6.4.6.1. In order to be a good test, the pressure must not drop by 10% during a 15 minute period.
   6.4.6.2. Monitor other casing strings while testing. Check for flow back.
   6.4.6.3. When finished with test, bleed well to 0 PSI, and secure well.
   6.4.6.4. Record the test on the Daily Service Report

6.4.7. Perform Bubble Test on tubing and casing for 15 minutes each.

   6.4.7.1. Bleed the tubing down to zero (0).
   6.4.7.2. Rig up needle valve to tubing
   6.4.7.3. Install 4’ rubber hose
   6.4.7.4. Fill 5 gal bucket in water
   6.4.7.5. Insert hose in bucket
   6.4.7.6. Observe the number of bubbles over 15 minute period

6.4.8. **Hold JSA on Rigging up Electric Line (E-Line)**

6.4.9. Rig up E-Line to tag top of cement (TOC).

   6.4.9.1. After tagging TOC record depth on Daily Service Report.

6.4.10. Monitor the amount of fluid it takes to get up to pressure.

   6.4.10.1. With tubing or casing full it should only require a small amount, bleed this back to the same pit and determine if any fluid has been lost.
6.4.10.2. If fluid has been lost it should have shown up on the pressure gauge.
6.5. **Packer / Intermediate Cement Plug**

6.5.1. **Hold JSA on Running CIBP (Cast Iron Bridge Plug) / Perforating with Electric Line.**

6.5.2. Rig up for perforating or tubing cut using Electric Line Field Safety Procedures. (see 6.13 to 6.15)

6.5.2.1. Prior to arming perforator be sure to shut down all radios, telephones and cell phones (Verify shut down by individual verbal or visual confirmation from the Platform PIC, Crane Operator, and/or Liftboat Captain if on site)

6.5.2.2. Notify all boats within one (1) mile radius of the platform.

6.5.2.3. Contact the shore base so they can inform approaching aircraft (by complying with Helideck Closure Notification form “Notam” as well as FW Explosive Safety Awareness Alert).

6.5.2.3.1. Place RED X across Helideck for warning to approaching Helicopter.

6.5.2.4. **P&A Supervisor and/ or Consultant will be present on deck to verify “hotcheck” for tubing cut or perforating services.**

6.5.3. Run in hole (RIH) to depth as described in procedures and perforate.

6.5.3.1. **P&A Supervisor and/ or Consultant will be present on deck to verify “depths” for tubing cut or perforating services.**

6.5.3.2. Record perforation depth on Daily Service Report

6.5.4. Rig up a return line from the casing valve to the gas buster.

6.5.4.1. When circulating for the first time, all fluids must go through the gas buster before discharging or transferring, as some fluids may be hazardous.

6.5.4.2. At no time shall a hose be run from the wellhead without being properly secured on both ends with whip checks (safety cables).

6.5.5. Make sure the catch tank has enough room to catch returns from the cement job.

6.5.6. Establish circulation.

6.5.6.1. Record rates and pressures on Daily Service Report.

6.5.6.2. Circulate clean.
6.5.7. Dispose of well bore fluids according to the National Pollutant Discharge and Elimination System (NPDES) permit.

6.5.8. **NPDES REPORT IS REQUIRED TO BE FILLED OUT DAILY.**

6.5.8.1. When discharging or transferring any fluid an entry shall be made on the Daily Service Report to reflect

   6.5.8.1.1. Time
   6.5.8.1.2. Volume
   6.5.8.1.3. Type of fluid discharged

6.5.9. **Hold JSA on Mixing and Pumping Cement**

6.5.10. Ensure all personnel are wearing proper PPE.

6.5.11. Ensure centrifugal pump is installed.

   6.5.11.1. Rig up a line from 100 bbl. tank and cement blender to centrifugal suction.
   6.5.11.2. Rig up a line from the centrifugal discharge to the pump half suction.

6.5.12. Install cement screen on suction hose between blender and centrifugal pump.

6.5.13. Check blender to ensure no debris has fallen to the bottom.

   6.5.13.1. Personnel will use fall protection when climbing blender.

6.5.14. Fill with water for amount of cement to be mixed as per calculations.

   6.5.14.1. Ensure suction hoses are back flushed with water to avoid any air gaps.

6.5.15. Ensure there is enough water for displacement as per calculations, in the holding tank.

6.5.16. Start pump and engage blender agitation.

   6.5.16.1. Set hydraulic pressure between 500-750 PSI to ensure cement mixes properly
   6.5.16.2. At no time are personnel to reach inside the blender while agitator is turning.

6.5.17. Install hopper when applicable.

   6.5.17.1. Observe hand pinch points when putting it in place and when removing it.

6.5.18. Check cement bag’s conditions
6.5.19. Identify signalman

6.5.19.1. A designated signalman will be identified for this task.

6.5.20. Only certified personnel handle rigging equipment.

6.5.21. Inspect rigging equipment for damage and load capacity.

6.5.21.1. Sling usage – Reference the Offshore Crane Operation and Maintenance Program within the Fieldwood Safe Work Practices on acceptable usage of various type slings (wire rope, chain or nylon straps).

6.5.21.2. Only safety shackles (made in the USA) shall be used on equipment/material

6.5.22. Check crane for load chart and/or ensure weight indicator is working properly

6.5.23. Review with crane operator and decide on load sequence.

6.5.23.1. Verify that weather and sea conditions will permit safe crane operations. This shall be determined by all parties involved (Boat Captain, Crane Operator, P&A Supervisor and/or Fieldwood Consultant). Stop Work Authority can be exercised by anyone at any time.

6.5.24. Verify crane signals, and line of sight, or utilize radios.

6.5.24.1. If the crane operator and the signalman loose line of sight with each other SWA will also be initiated.

6.5.25. Riggers will rig up cement bag with 4-part (wire rope) sling and have inner bag tied off.

6.5.25.1. Tie off inner plastic bag, using ¼” rope, to one leg of the sling. This will reduce the chance of the inner bag falling into the blender once it is empty.

6.5.26. Crane operator will pick up bag and position over hopper on blender.
6.5.26.1. At this point crane operator shall take crane signals from the person mixing cement (with exception of an emergency stop from any personnel).

6.5.26.2. Personnel mixing cement shall pay attention as cement bag is being moved and be prepared to push off or get out of the way.

6.5.26.3. Crane operator will be in crane at all times when mixing cement.

6.5.27. Untie outer sacks, pull down sharply on inner sack, and cut above metal ring.

6.5.27.1. Personnel mixing cement shall wear the appropriate PPE as described in step 6.17.10 of this procedure.

6.5.27.2. Use a hacksaw or alternative cutting device.

6.5.27.3. Pay attention and cut away from your body.

6.5.28. When beginning the mixing process:

6.5.28.1. Add cement slowly.

**NOTE**

The cement bag should never be set down on the hopper or jerked by the crane while in position.

**WARNING**

Never place hands under bag after it has been cut open.

6.17.28.2 Mix thoroughly to prevent build up around ladder leading into blender.

6.17.28.3 This will also insure that the cement will mix consistently.

6.17.28.4 Be aware of falling cement pieces that could cause injury.

6.5.29. Repeat steps 6.17.25 to 6.17.28 until all bags have been mixed as per calculations.

**NOTE**

If possible and/or allowed: After each bag has been mixed open the dump valve for 2-3 seconds. This will allow any large chunks that have formed at the bottom to go overboard decreasing the chance of the screen or pump clogging up.

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Current revision level can be determined through Fieldwood Energy, LLC system or another controlled source.
6.5.30. Allow cement to mix 5-10 minutes after all bags have been added.
   6.5.30.1. While waiting, personnel should come down and wash cement off his/her person.
6.5.31. Catch 2 samples in cuts and measure the weight of the cement.
   6.5.31.1. Before catching sample, ensure hydraulic controls of blender are temporarily shut off.
6.5.32. Pump cement and displace according to procedure.
6.5.33. Close master valve and secure well.
   6.5.33.1. Allow plug to balance before closing all valves.
6.5.34. Insure that displacement volumes, and cement volumes are monitored and recorded on Daily Service Report.
   6.5.34.1. Record initial and final pressure prior to shut in on Daily Service Report.
6.5.35. Immediately upon completion of cement job the Supervisor shall visually inspect to ensure the crew has back flushed water into blender to

- Rinse blender walls with mixing paddles in motion to help clean walls.

   6.17.35.1 Breakdown the cement screen and suction hoses and flush thoroughly with water.
   6.17.35.2 Pump through discharge hoses and manifold on pump.
   6.17.35.3 Break off pop off valve and gauge assembly from manifold and flush thoroughly.
   6.17.35.4 Operate low torque/high torque valves to insure all cement has been removed.
   6.17.35.5 Clean work area and make up cement screens and hoses for the next cement job or as procedure dictates.
6.6. Testing Procedure for Intermediate Cement Plug

6.6.1. **Hold JSA on Testing, Operating Cement Pump**

6.6.2. Ensure all personnel are wearing proper PPE.

6.6.3. Make sure all personnel are aware that you will be testing and caution tape off area.

6.6.4. Open well.
   
   6.6.4.1. Check pressure
   
   6.6.4.2. Bleed off to 0 PSI

6.6.5. Fill both tubing and casing with saltwater and record volumes on Daily Service Order.

6.6.6. Perform chart test to 1000 PSI (or higher if required) for a minimum of 15 minutes as per BSEE
   
   6.6.6.1. In order to be a good test, the pressure must not drop by 10% during a 15 minutes period.
   
   6.6.6.2. Monitor other casing strings while testing.
   
   6.6.6.2.1. Check for flow back.
   
   6.6.6.3. When finished with test, bleed well to 0 PSI, and secure well.
   
   6.6.6.4. Record the test on the Daily Service Report.

6.6.7. Perform bubble test on tubing and casing for 15 minutes each.

   6.6.7.1. Bleed the tubing down to zero (0)
   
   6.6.7.2. Rig up needle valve to tubing
   
   6.6.7.3. Install 4’ rubber hose
   
   6.6.7.4. Fill 5 gal bucket in water
   
   6.6.7.5. Insert hose in bucket
   
   6.6.7.6. Observe the number of bubbles over 15 minute period

6.6.8. **Hold JSA on Rigging up Electric Line (E-Line)**.

6.6.9. Rig up E-Line to tag top of cement (TOC).

   6.6.9.1. After tagging TOC record depth on Daily Service Report.

6.6.10. Monitor the amount of fluid it takes to get up to pressure.

   6.6.10.1. With tubing or casing full it should only require a small amount, bleed this back to the same pit and determine if any fluid has been lost.
6.6.10.2. If fluid has been lost, it should have shown up on the pressure gauge.
6.7. Tree Removal

6.7.1. **Hold JSA on Removing Tree and Crane Operations.**

6.7.2. Ensure all personnel are wearing proper PPE.

6.7.3. Ensure Pollution Control Plan is in place in well bay area and basement area if grating is present. Pollution control is achieved by:

   6.7.3.1. Place a layer of Visqueen around wellhead working area.
   6.7.3.2. Place an absorbent roll around the well head.
   6.7.3.3. Hose/valve plugs and a metal bucket are also to be used when disconnecting hoses or bleeding off needle valves.

6.7.4. Ensure positive bubble test has been conducted.

6.7.5. Open all valves on tubing and production casing.

6.7.6. Check crane position over well.

   6.7.6.1. Check crane for load chart and/or ensure weight indicator is working properly.
   6.7.6.2. Verify that weather and sea conditions will permit safe crane operations. This shall be determined by all parties involved (Boat Captain, Crane Operator, P&A Supervisor and/or Fieldwood Consultant). STOP Work Authority can be exercised by anyone at any time).

6.7.7. Identify signalman.

   6.7.7.1. A designated signalman will be identified for this task
   6.7.7.2. Signalman should verify and coordinate hand signals with crane operator.

6.7.8. Only certified personnel handle rigging equipment.

6.7.9. Inspect rigging equipment for damage and load capacity.

   6.7.9.1. Sling usage – Reference the Offshore Crane Operation and Maintenance Program within Fieldwood Safe Work Practices on acceptable usage of various type slings (wire rope, chain or nylon strap).
   6.7.9.2. All slings should be inspected and certification date checked.
   6.7.9.3. Only safety shackles (made in the USA) shall be used on equipment/material.

6.7.10. Verify crane signals, and line of sight, or utilize radios.
6.7.10.1. If the crane operator and the signalman lose line of sight with each other SWA (Stop Work Authority) will also be initiated.

**WARNING**

- **No other tasks are to be performed simultaneously in the immediate area while a crane lift is being performed**
- **Excess personnel should evacuate area of lift**

6.7.11. Personnel will make sure the tree has tag lines on it to control it as it comes up.

- 6.7.11.1. Tag lines are to be of sufficient length - a minimum of 15’, diameter, and strength to allow adequate control of the load by the rigger(s).
- 6.7.11.2. Do not tie knots or braid the ends as this could cause the load to hang up.
- 6.7.11.3. Do not use the tag line to pull the load into position.

6.7.12. Personnel on deck will be aware of overhead loads and pinch points.

- 6.7.12.1. Always leave yourself a way out. Do not back yourself into a corner or a “one way out” situation.
- 6.7.12.2. The open hole checklist must be completed and verified.

6.7.13. Install barricade around hatch cover where tree is to be removed.

- 6.7.13.1. Barricade must be at least 42” high with a middle rail half way (21”).
- 6.7.13.2. Barricade must be able to withstand 200 lbs. of force that may be applied in any direction
- 6.7.13.3. Working personnel must have 100 % fall protection during open hole activity
- 6.7.13.4. Hatch cover should be sufficient to cover entire exposed hole where tree is to be removed (made out of steel)
- 6.7.13.5. It shall be stabilized to prevent it from being knocked over or pushed into the open hole.

6.7.14. Once the barricade is installed pull hatch cover over exposed hole.

6.7.15. Rig up elevators to crane.
6.7.15.1. Ensure bolts on elevator ears are firmly secure double nut if necessary.

6.7.15.2. Also check to see if the wiring across the dye plates is in place.

6.7.16. Latch onto landing joint and stab on tree.

6.7.16.1. All landing joints used shall exceed the production tubing yield strength.

6.7.16.2. Wear fall protection and use proper anchor points when working 6’ or above.

6.7.16.3. Ensure landing joint is properly seated (screwed in).


6.7.17.1. If gas leaks are detected shut down operations until the source is located and eliminated.

6.7.17.2. Re-check before operations continue and document on the Permit.

6.7.18. Back off studs using a sledge hammer and hammer wrench.

6.7.18.1. Use rope on hammer wrench and appropriate backup tools if needed.

6.7.18.2. Drive studs out of tree if possible. Use MSA Tool Holder or equivalent to assist when driving down studs.

6.7.18.3. Use fall protection when over 6’ above the deck.

6.7.18.4. If unable to back off studs proceed to steps on cutting studs with torch.

If studs back out, proceed to step 10.7.20.

6.7.19. If cutting with torch:

6.7.19.1. Inspect torch cutting equipment and fill out a Hot Work Permit and JSA on performing Hot Work, refer to SEMS Portal for Hot Work Permit form.

6.7.19.2. Personnel using the torch shall wear proper PPE. Proper PPE includes but is not limited to:

6.7.19.2.1. #5 cutting face shield

6.7.19.2.2. Hearing Protection

6.7.19.2.3. Leather cape sleeves and bib
6.7.19.2.4.  Leather Gloves (Leather Gloves shall be inside the leather sleeves)

6.7.19.2.5.  Hard Hat

6.7.19.2.6.  Steel Toe Boots

6.7.19.2.7.  Safety Glasses with Safety Shield

6.7.19.3.  Make sure there are no flammables and no flowing production equipment within 35 feet of where the cutting will be performed.

6.7.19.3.1.  Employees will physically ensure that no flammables are below the work area on sump level or +10 levels.

6.7.19.3.2.  When tarps are used to cover equipment, employees shall ensure they are flame resistant.

6.7.19.4.  The fire watch will be identified and assigned.

6.7.19.4.1.  The fire watch will have a fire extinguisher ready to use and a running water hose if water is available

6.7.19.4.2.  The fire watch will also remain in the area 30 min after the operations have ceased.

6.7.19.4.3.  The fire watch is to do nothing else (i.e. get coffee, tools, or any kind of other work).

6.7.19.5.  Continuous gas monitoring shall be performed during cutting operations and documented on the Hot Work Permit.

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**NOTE**

Watch hand placement when moving and handling studs.

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6.7.19.6.  Cut the nut down the side of the corner first. This will allow the nuts to fall apart when the studs are driven down.

6.7.19.7.  Use the MSA Tool Holder or equivalent with a handle to prevent anyone from reaching into the strike zone and to prevent a single stud driver from bouncing out.

6.7.20.  Once the studs are driven down attempt to pull the tree using the crane.

6.7.20.1.  Ensure the weight indicator is working properly. Do not exceed 30% of the load weight unless approved by the Project Engineer.

6.7.20.2.  If permission is granted to exceed 30% of the load weight, install 2 studs with full nuts before exceeding 30% pull.
6.8. 
6.9. Jet Cutting Tubing

6.9.1. Hold JSA on Jet Cutting Tubing with Electric Line.

6.9.2. Rig up for jet cutting tubing using Electric Line Field Safety Procedures. (see 6.13 to 6.15)

6.9.2.1. Prior to arming cutter, be sure to shut down all radios, telephones, and cell phones. (Verify shut down by verbal or visual confirmation from the Platform PIC, Crane Operator, and/or Liftboat Captain if on site)

6.9.2.2. Notify all boats within one (1) mile radius of the platform.

6.9.2.3. Contact the shore base so they can inform approaching aircraft.

6.9.2.4. Contact the shore base so they can inform approaching aircraft by complying with Helideck Closure Notification form “Notam” as well as FW Explosive Safety Awareness Alert.

6.9.2.4.1. Secure RED X across Helideck for warning to approaching Helicopter.

6.9.2.5. P&A Supervisor and/or Consultant will be present on deck to verify “hotcheck” for tubing cut or perforating services.

6.9.3. Run in hole (RIH) to depth as described in procedures and cut tubing.

6.9.3.1. P&A Supervisor and/or Consultant will be present on deck to verify “depths” for tubing cut or perforating services.

6.9.3.2. Record cutting depth on Daily Service Report

6.9.4. Rig up a return line from the casing valve to the gas buster.

6.9.4.1. When circulating for the first time, all fluids must go through the gas buster before discharging or transferring, as some fluids may be hazardous.

6.9.4.2. At no time shall a hose be run from the wellhead without being properly secured on both ends with whip checks (safety cables).

6.9.5. Make sure the catch tank has enough room to catch returns from the tubing by casing.


6.9.6.2. Circulate clean.
6.9.7. Dispose of well bore fluids according to the National Pollutant Discharge and Elimination System (NPDES) permit.

6.9.8. NPDES REPORT IS REQUIRED TO BE FILLED OUT DAILY

6.9.8.1. When discharging or transferring any fluid an entry shall be made on the Daily Service Report to reflect

6.9.8.1.1. Time
6.9.8.1.2. Volume
6.9.8.1.3. Type of fluid discharged

6.9.8.2. Pull Out of Hole (POOH) with Electric Line.
6.10. **Tubing Cutting Safety** (Safety Alerts related to this task should be reviewed during the JSA discussion)

6.10.1. **Description**

6.10.1.1. Tubing cutters are designed for maximum
Interchangeability with accessory equipment commonly used
in operating commercial Tubing cutters in the field:

6.10.1.1.1. The top of the Cutter Assembly (Fig.1, is on page 16 of
this document) is equipped with the commonly used 1-3/16” – 12
2B threads for connecting to most extension mandrels / shock
subs being used in the field. A size 568-214 Viton O-ring is
employed for sealing.

6.10.1.1.2. Rubber Sleeve (GPR-56659) is used for mounting the
Detonator (DETO-A161-AP or equivalent).

6.10.1.1.3. Connection from the Extension Mandrel to Firing
Head/CCL/or other device is at the option of the user. However,
certain specific Safe Arming Procedures are essential, as detailed
in Section 2.0 and 3.0.

6.10.1.2. Tubing Cutters are PREASSEMBLED with Booster and all
necessary internal components and therefore ready for
assembly and arming at the well site.

Note: It is not recommended to disassemble this Tubing Cutter. Should
disassembly be required for some reason, RETURN THE DEVICE TO THE
MANUFACTURER.

6.10.1.3. One inline Bow Spring Centralizer must be mounted immediately
above the Tubing Cutter (or Shock Mandrel) and one between the
Cable head and the Weight Bar(s) to ensure a properly positioned
(centrnalized) tool string. A centralizer to assure maximum
performance is permanently mounted on the bottom of the tool.

6.10.1.4. Several methods of arming the Tubing Cutter are described in
Section 2.0 and 3.0.

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<thead>
<tr>
<th>Item</th>
<th>Part number</th>
<th>Description</th>
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<tbody>
<tr>
<td>1A</td>
<td>HES-100158266 (*or 9000-150-011)</td>
<td>Shock sub w/o button contact, grooved, 1-3/16”–12 2B box up X 1-3/16”–12 2A pin down</td>
</tr>
<tr>
<td>1B</td>
<td>HES-100008258 (*or 9000-150-010)</td>
<td>Shock sub with button contact, grooved 1-3/16”–12 2B box up X 1-3/16”–12 2A pin down</td>
</tr>
<tr>
<td>2</td>
<td>0111-214-V95</td>
<td>O-Ring 568-214 Viton, 95 durometer</td>
</tr>
<tr>
<td>3</td>
<td>GPR-56659</td>
<td>Rubber sleeve (used with 6A)</td>
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### Accessory Components

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<table>
<thead>
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<tr>
<td>6A</td>
<td>DETO-A161-AP</td>
<td>Detonator, A161 or equivalent</td>
</tr>
<tr>
<td>6B</td>
<td>DETO-D1208-P</td>
<td>Detonator, D1208-P (or equiv.) includes rubber sleeve and spring contact assembly</td>
</tr>
<tr>
<td>7</td>
<td>9000-150-022</td>
<td>Safety Sub</td>
</tr>
<tr>
<td>8</td>
<td>3924-12P-FBE</td>
<td>Steel Thread Protector (used as Shunt Plug)</td>
</tr>
</tbody>
</table>

### Field Assembly / Through Mandrel / Arming Procedure

6.10.2.1. Pre-check electric cable circuit, cable head, CCL and any adapters for electrical continuity and insulation prior to off-loading the Tubing Cutter Assembly (See API RP 67).

6.10.2.2. Turn off and verify all radios, welders, cathodic protection devices (in accordance with RP 67); turn off generator of perforating unit; be sure cable Safety Switch is in SAFE mode; measure stray voltages between unit to ground, rig to ground and wellhead to ground, ensuring no stray voltages are present. Electrically bond perforating unit, rig and wellhead with grounding straps.

ENSURE THAT NO VOLTAGE IS PRESENT BETWEEN CABLE CONDUCTOR AND GROUND, USING AN APPROVED BLASTER’S MULTIMETER.

6.10.2.3. Remove Detonator (DETO-A161-AP or equivalent) from proper storage and install into Rubber Sleeve (GPR-6695) assuring that detonator leads remain shorted.

6.10.2.4. Install Safety Sub onto Extension Mandrel (over Detonator), hand tight only. Cut Detonator wires to proper length for connection. Then connect Detonator wires to Connecting Device one lead to power, one to ground. The ground connection should be a positive one, such as provided by a 10-32 screw. (NOTE: Many failures to fire [misruns] are caused by a defective ground connection).

6.10.2.5. Make-up Extension Mandrel to Connecting Device, assuring that loose wires are not damaged by threads or mechanical connection. Electrical continuity of the detonator ground circuit and detonator resistance value should be reconfirmed at this time with an approved Blaster’s Multimeter.

6.10.2.6. BE SURE SAFETY KEY IS VISIBLE AT THE ARMING SITE. Assure that no voltage exists at the bottom electrical connection of the wireline tools or cable head. Attach the Connecting Device to the cable head (or wireline tools).
6.10.2.7. Remove the Safety Sub.

6.10.2.8. Carefully install the Tubing Cutter Assembly over the Detonator Assembly; snug-up the threads with a non-sparking wrench, assuring that 568-214 Viton O-ring is in place (Fig 2E).

6.10.2.9. The Tubing Cutter Assembly is ready to run in the hole.

Note: When checking Detonator circuit electrically:

6.10.2.9.1. Use an approved Blasting Multimeter;

6.10.2.9.2. Assure that the Detonator is either contained within a Detonator Safety Tube or the Safety Sub during any test.

6.11. Field Assembly / Prewired detonator arming procedure

6.11.1. Pre-check electric cable circuit, cable head, CCL and any adapters for electrical continuity and insulation prior to off-loading the Tubing Cutter Assembly (See API RP 67).

6.11.2. Turn off radios, welders, cathodic protection devices (in accordance with RP 67); turn off generator of perforating unit; be sure cable Safety Switch is in SAFE mode; measure stray voltages between unit to ground, rig to ground and wellhead to ground, ensuring no stray voltages are present. Electrically bond perforating unit, rig and wellhead with grounding straps.

ENSURE THAT NO VOLTAGE IS PRESENT BETWEEN CABLE CONDUCTOR AND GROUND, USING AN APPROVED BLASTERS MULTIMETER.

6.11.3. Install Firing Head (with Steel Thread Protector - 3924-12P-FBE installed) into top of Shock Sub hand tight. The Thread Protector acts as an electrical Shunt Plug, and must be utilized.

6.11.4. Remove detonator (DETO-D1208-P, or equivalent) with rubber sleeve and spring contact from proper storage.

6.11.5. Remove the Shunt wire and moisture seal tape from the detonator and install the detonator onto Shock Sub. Uncoil enough of the ground wire from the small diameter of the boot to provide 2” (50.8 mm) of wire above the large diameter of the boot when it is extended from the small diameter and formed over the edge of the large diameter.

Wrap the ground wire clockwise, looking from the detonator end, into the O-ring groove above the boot. Push the 568-020 O-ring up into the groove assuring that the end and about 2” (50 mm) of ground wire is retained between O-ring and mandrel.

6.11.6. Install Safety Sub (9000-150-022) onto Shock Sub (over detonator), hand tight only. Remove the Steel Thread Protector / Shunt Plug from top and confirm electrical continuity and detonator resistance value. Re-install Steel Thread Protector / Shunt Plug until assembly is ready for installation to the cable head (or wireline tools).
6.11.7. BE SURE SAFETY KEY IS VISIBLE AT THE ARMING SITE. Assure that no voltage exists at the bottom electrical connection of the wireline tools or cable head. Remove Steel Thread Protector/Shunt Plug and connect firing head to the wireline tools or cable head. This connects the detonator lead to the hot wire.

6.11.8. Unscrew Safety Sub and carefully install the Tubing Cutter Assembly over the Detonator Assembly and snug threads with a non-sparking wrench. Assure that 568-214 Viton O-ring is in place.

6.11.9. The Tubing Cutter is ready to run in the hole.

Note: When checking Detonator circuit electrically:

6.11.9.1. Use an approved Blasting Multimeter;
6.11.9.2. Assure that the Detonator is either contained within a Detonator Safety Tube or the Safety Sub during any test.

6.12. Disarming the tubing cutter assembly

6.12.1. Prior to going into the well

6.12.1.1. Remove Tubing Cutter Assembly (by unscrewing) from Extension Mandrel.

6.12.1.2. Install Safety Sub over detonator, hand tight.

6.12.1.3. Remove Extension Mandrel from Connecting Device; remove Safety Sub, remove Detonator and return the Detonator Assembly to proper storage.

6.12.2. After running into the well

6.12.2.1. Follow reverse procedure as that outlined in 3.0 or 4.0 above. If connections prove hard to break (reflecting high torque), STOP. Call your Field Technical Representative for assistance.

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6.13. Tubing Pulling Procedure

6.13.1. Develop a Crane Safe Lifting Plan for Pulling Production Tubing and/or Casing. Refer to SEMS Portal and SWP-D-03-E Form.


6.13.3. Ensure all personnel are wearing proper PPE.

6.13.4. Ensure Pollution Control Plan is in place in well bay area and basement area if gathering is present. Pollution control shall be achieved by:

   6.13.4.1. Place an absorbent roll around the well head, covered by a layer of visqueen.
   6.13.4.2. Hose/valve plugs and a metal bucket are also to be used when disconnecting hoses or bleeding off needle valves.

6.13.5. Ensure that the work area around the well is completely covered (no open holes) and is capable of supporting all equipment and personnel.

   6.13.5.1. Work surfaces that are easily manipulated, shall be secured with banding material and/or clamps to prevent movement during pipe pulling operations.
   6.13.5.2. Obtain the deck and/or beam weight-supporting capacity from the office to insure that the capacity is sufficient to support the operation to be performed.

6.13.6. Check well for pressure. Open casing valve with needle valve and gauge.

   6.13.6.1. Open needle valve slowly and never place any part of your body in
6.14. **Tubing Pulling Procedure**

6.13.1 Develop a Crane Safe Lifting Plan for Pulling Production Tubing and/or Casing. Refer to SEMS Portal and SWP-D-03-E Form.

6.13.2 **Hold JSA on Pulling Tubing, and Crane Operations regarding Safe Lifting Plan**

6.13.3. Ensure all personnel are wearing proper PPE

6.13.4 Ensure all Pollution Control Plan is in place in well bay area and basement area if gathering is present. Pollution control shall be achieve by:

- 06.13.4.1 Place an absorbent roll around the well head, covered by a layer of visqueen
- 06.13.4.2 Hose/valve plugs and a metal bucket are also to be used when disconnecting hoses or bleeding off needle valves.
- 06.13.5. Ensure that work area around the well is completely covered (no open holes) and is capable of supporting all equipment and personnel.

- 06.13.5.1 Work surfaces that are easily manipulated, shall be secured with banding material and/or clamps to prevent movement during pipe pulling operations
- 06.13.5.2 Obtain the deck and/or beam weight-supporting capacity from the office to insure that the capacity is sufficient to support the operation to be performed.

6.13.6. Check well for pressure. Open casing valve with needle valve and gauge

- 06.13.6.1. Open needle valve slowly and never place any part of your body in the “line of fire” always stand to the side.


**CAUTION**

- Use caution and do not back hanger pin all of the way out.
- Do not back off on the packing gland


6.14.3. Rig up elevators to crane.
6.14.3.1. Ensure bolts on elevator ears are firmly secure double nut if necessary. Also check to see that the wiring across the dye plates is in place.

6.14.4. Pick up landing joint and screw into hanger.

6.14.4.1. All landing joints used shall exceed the production tubing yield strength.

6.14.4.2. Wear fall protection and use proper anchor points when working 6’ or above.

6.14.4.2.1. Use scaffolding, ladder, or other work platform when possible.

6.14.4.3. Ensure landing joint is properly seated (screwed in).

6.14.4.4. Ensure elevators are tied prior to pulling on tree.


6.14.6. Check crane capacity over wellhead, and ensure weight indicator is working properly.

6.14.6.1. Verify that weather and sea conditions will permit safe crane operations. This shall be determined by all parties involved (Boat Captain, Crane Operator, P&A Supervisor and/or Fieldwood Consultant.) STOP Work Authority can be exercised by anyone at any time.


6.14.7.1. A designated signalman will be identified for this task.


6.14.9.2. Only safety shackles (made in the USA) shall be used on equipment/material.

6.14.10. Verify crane signals, and line of sight, or utilize radios.

6.14.10.1. If the crane operator and the signalman loose line of sight with each other SWA shall be initiated.

6.14.10.1.1. No other tasks are to be performed simultaneously in the immediate area while a crane lift is being performed.

6.14.11.1. Develop a **Crane Safe Lifting Plan for Pulling Production Tubing and/or Casing.** Refer to SEMS Portal and SWP-D-03-E

6.14.11.2. Ensure the weight indicator on crane is working properly. Do not exceed 30% of the load weight unless approved by the Project Engineer.

6.14.11.3. If permission is granted to use Casing Jack, do not exceed 50% of tubing yield strength.


6.14.12.1. Ensure floor plate’s capacity is rated for the work to be done. The same is applied if beams are being used.

6.14.12.2. Ensure all open holes are covered and there are no loose tools lying around that may be dropped in hole.


6.14.14.1. The angle iron that is welded to the side shall face inward.


6.14.15.1. Verify Surface Control Subsurface Safety Valve (SCSSV) control line is coming out of the hole if applicable.

6.14.16. Have NORM meter (Normal Occurring Radioactive Material) available to check for NORM as pipe is pulled.

6.14.17. Have proper materials on hand to handle NORM pipe (Plugs for both ends) before it is laid down on the deck. Record the NORM readings on Daily Service Report for every 5 joints pulled.

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**NOTE**

Consider all tubing to be NORM contaminated until it has been checked with detector


6.14.17.2. Turn on the meter and conduct a background check first away from the area.

   6.14.17.2.1. Verify the background level according to the region

   6.14.17.2.2. Then conduct a survey staring at the lowest possible level and adjusting control knob as necessary.
6.14.17.2.3. If survey indicates a high reading above the background lever, document on Daily Service Report and notify Project Engineer and SEMS Coordinator.

6.14.17.3. Plastic ground covering will be laid in the work area to help contain any displaced NORM contamination.

6.14.17.4. Tubing ends shall be capped and or wrapped in plastic.

6.14.17.5. Any and all contaminated areas shall be deemed restricted areas and shall be cordoned off with yellow tape with the words “Caution Radiation Area” in red or magenta shall be used.

6.14.17.5.1. Any containment area in which an individual could receive doses greater than 5 millirems in any hour or 100 millirems in any 5 consecutive days.

6.14.17.6. A decontamination area shall be established on the outer edge of the restricted area and personnel shall be checked for contamination before exiting the restricted area using a survey meter with GM pancake probe or equivalent.

6.14.17.6.1. The whole body will be thoroughly checked with special consideration given to the areas of the hair, face, neck, hands, lower back, and the Boots soles.

6.14.17.6.2. In the event that contamination is found, personnel will be decontaminated by washing with soapy water in the DECON area.

6.14.17.6.3. If the clothing cannot be decontaminated to background levers, it shall be place in D.O.T. 17-H drums (drums shall be marked with radiation stickers and appropriate HazCom labels.

6.14.17.6.4. No personnel shall be allowed to exit the contaminated area until their readings are at background.

6.14.17.7. Proper PPE shall be worn while working in the restricted area. This includes but is not limited to:

6.14.17.7.2. Hearing Protection (if in designated high noise area)
6.14.17.7.3. Safety Glasses
6.14.17.7.4. Respirator
6.14.17.7.5. Face Shield
6.14.17.7.6. Disposable Coveralls (Tyvek)
6.14.17.7.7. Rubber Gloves
6.14.17.7.8. Rubber Boots

Wrist and ankles of the disposable coveralls shall be ducted taped over the top of the gloves and Boots.

6.14.17.8. Personnel who leave the work area to eat or use the restroom shall follow the decontamination procedure. Upon return they shall wear new PPE.

6.14.17.9. There shall be no eating, drinking, smoking, chewing, or applying cosmetics (e.g. sunscreen, lip balm, etc.) in the immediate work area.

6.14.17.10. Tubing shall be kept wet to minimize dust generation during handling. Other equipment used to pull tubing shall be monitored, washed down and rechecked.

6.14.17.11. The key to working safely with NORM is personal hygiene. Remember to wash your hands and face to prevent ingestion.

6.14.18. If cutting with torch:

6.14.18.1. Inspect torch cutting equipment and fill out a Hot Work Permit and JSA. Refer to SEMS Portal for Hot Work Permit.

6.14.18.2. Personnel using the torch shall wear proper PPE. Proper PPE includes but is not limited to:

6.14.18.2.1. #5 cutting face shield
6.14.18.2.2. Hearing Protection
6.14.18.2.3. Leather cape sleeves and bib
6.14.18.2.4. Leather gloves
6.14.18.2.5. Hard Hat
6.14.18.2.6. Steel Toe Boots
6.14.18.2.7. Safety Glasses with Face Shield

6.14.18.3. Make sure there are no flammables and no flowing production equipment within 35 feet of where the cutting will be performed.

NOTE
Pants / Coveralls shall be un-tucked from Boots
6.14.18.3.1. Employees will physically ensure that no flammables are below the work area on sump level or +10 levels.

6.14.18.3.2. When tarps are used to cover equipment, employees shall ensure they are flame resistant.

6.14.18.4. The fire watch will be identified and assigned.

6.14.18.4.1. The fire watch will have a fire extinguisher ready to use and a running water hose if water is available.

6.14.18.4.2. The fire watch will also remain in the area 30 min after the operations have ceased.

6.14.18.4.3. The fire watch is to do nothing else (i.e. get coffee, tools, or any kind of other work).

6.14.18.5. Continuous gas monitoring shall be performed during cutting operations.

6.14.18.6. Make sure slips are set before cutting joint.


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**CAUTION**

Watch hand placement when moving and handling cut tubing.

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6.14.19. If breaking with tongs:


6.14.19.2. Ensure proper dies are in place for tubing being pulled.


6.14.19.3.1. Absorbent pads shall be used when connection or disconnection hoses.


6.14.19.5.1. Two (2) men shall be utilized when pulling slips.

6.14.19.5.2. Square up to slip handles, tighten the abdominal muscles, keep your back straight, and lift with your legs.

6.14.19.6.1. Stop the crane operator when connection is approximately 2-3’ above slips.


**NOTE**
Ensure slips are set before slacking off on crane.

   6.14.19.8.2. Ensure that the door is closed and the backups are fully engaged.
   6.14.19.8.3. At no time shall personnel place their hand(s) while tongs are engaged.

**NOTE**
When hydraulic tongs are not in use they shall be set back in the rack or they shall be secured against moving or falling.


6.14.21. Swing tubing over with crane and lay it on the pipe rack. Ensure tubing is fully rested on the pipe rack before unlatching the elevators.
   6.14.21.1. Tubing shall not be laid on items such as handrails, drums, or boards that have been elevated.
   6.14.21.2. Laying down tubing shall not be permitted in an established walkway, or gangway of a lift boat.

6.14.22. Unlatch the elevators only after the tubing is fully rested on the pipe rack.
   6.14.22.1. Everyone’s hands and feet are to be clear before releasing elevators.

**NOTE**
This will be accomplished by person releasing elevators shouting “clear”.

6.14.22.2. No one shall stand between tubing while elevators are being opened.


6.14.23.1.1. Once the bundle is lifted off the pipe rack double wrap it with bailing rope.

6.14.23.1.2. All tubing shall be doubled wrapped when it is being laid down on the deck or placed on the boat for shipment.


6.14.25. Continue with step 18-29 until all tubing has been Pulled Out of Hole (POOH).

6.14.26. Ensure there are no loose tools around the well and cover hole.
6.15. **Pulling Tubing with Casing Jacks**

6.15.1. **Hold JSA on Rigging up and Pulling using Casing Jacks.**

6.15.2. Ensure all personnel are wearing proper PPE.

6.15.3. Ensure Pollution Control Plan is in place in well bay area and basement area if grating is present. Pollution control shall be achieved by:

6.15.3.1. Once completed, place an absorbent roll around the well head, covered by a layer of visqueen.

6.15.3.2. Hose/valve plugs and a metal bucket area also to be used when disconnecting hoses or bleeding off needle valves.

6.15.4. Ensure that the work area around the well and jacks is completely covered (no open-holes) and is capable of supporting all equipment and personnel.

6.15.4.1. Work surfaces that are easily manipulated, shall be secured with banding material and/or clamps to prevent movement during pipe pulling operations.

6.15.4.2. Obtain the deck and/or beam weight-supporting capacity from the office to insure that the capacity is sufficient to support the operation to be performed.

6.15.5. Check crane capacity over wellhead, and ensure weight indicator is working properly.

6.15.6. Identify signalman.

6.15.6.1. A designated signalman will be identified for this task.

6.15.7. Only certified personnel handle rigging equipment.

6.15.8. Inspect rigging equipment for damage and load capacity.

6.15.8.1. Sling usage - Reference the Offshore Crane Operations and Maintenance Program within Fieldwood Safe Work Practices for use of slings (wire rope, chain and/or nylon straps)

6.15.8.2. Only safety shackles (made in the USA) shall be used on equipment/material.

6.15.9. Verify crane signals and line of sight, or utilize radios.

6.15.9.1. If the crane operator and the signalman loose line of sight with each other SWA (Stop Work Authority) will also be initiated.

**WARNING**

- **No other tasks are to be performed simultaneously in the immediate area while a crane lift is being**
6.15.10. Set up jacks on well head and/or beams.
   6.15.10.1. Secure jacks with chains on each corner if unable to bolt up to wellhead.
   6.15.10.2. If on beams, secure the beams with chains.
6.15.11. Rig up work basket.
   6.15.11.1. Bolt work basket onto jacks or
   6.15.11.2. Set onto beams and secure

**WARNING**  
Do not unhook basket from crane until it is secure

6.15.12. Set up and secure two (2) ladders.

**NOTE**  
If basket/work platform is setting flat across the beams, set up stairwells and proceed with step 1)

6.15.12.1. Ensure ladder is tall enough to reach the height you need
6.15.12.2. Rated to handle the combined weight of you and your equipment.
6.15.12.3. Inspect it before using it.
   6.15.12.3.1. No missing parts.
   6.15.12.3.2. Firmly attached slip-resistant steps, rungs, or cleats and rails are free of grease and oil.
   6.15.12.3.3. Tight support braces, bolts, screws, and spreaders.
   6.15.12.3.4. Safety feet.
   6.15.12.3.5. No dents or bends parts in metal ladders.
6.15.12.4. Extend the ladder at least three (3) feet above the top support.
6.15.12.5. Anchor both the top and bottom.
6.15.12.6. Only one person shall be allowed at a time on the ladder.
6.15.12.7. Climb up and down facing the ladder and maintaining three point contacts at all times.
6.15.12.8. Small tools must be tethered when working at heights.
6.15.12.9. If over six (6) feet:
   6.15.12.9.1. Rig up Self Retracting Lifeline (SRL) from both ladders.
   6.15.12.9.2. Wear full body harness when ascending/descending.

6.15.12.10. Set stairwells across beams.

6.15.13. Inspect equipment and check all fluid levels and ESD.
   6.15.13.1. Ensure drain pans are plugged secure (wrench tight)
   6.15.13.2. Attach hydraulic hoses
   6.15.13.3. Before starting power pack, set up control panel.

6.15.14. Set up control panel.
   6.15.14.1. Ensure jack controls are in the neutral position.
      6.15.14.1.1. Jack controls are in the neutral position when the lever is centered.
   6.15.14.2. Turn pressure control counter-clockwise to minimize pressure.
   6.15.14.3. Place throttle control in the idle position.
      6.15.14.3.1. Throttle is in the idle position when the lever is forward.
   6.15.14.4. Place pump control in the neutral position.
      6.15.14.4.1. The pump is in the neutral position when the lever is down.

6.15.15. Attach air supply to the power pack.
   6.15.15.1. Do not exceed 150 psi.
      6.15.15.1.1. Ensure whip checks (safety cables) are attached to air hoses.
   6.15.15.2. Push starter button located on opposite side to start power pack.

6.15.16. Test jacks and bleed off trapped air in hydraulic lines.
   6.15.16.1. Engage pump to the on position by moving handle upward.
   6.15.16.2. Increase engine speed by pulling lever downward.

---

**NOTE**

Before jacking on tubing, the hydraulic system shall be purged to ensure accurate reading on the pressure gauge and weight indicator.

6.15.16.3. Bleed off air in jacking system.
   6.15.16.3.1. Unhook gauge hose at panel.
6.15.16.3.2. Put spare snap tie end on gauge hose.

6.15.16.3.3. Pull jack control handle upward until all the air is bleed off and a steady flow of oil passes through.

6.15.16.3.4. Take of spare snap tie and hook gauge hose back to panel.

6.15.17. Determine tubing part limit.

6.15.17.1. This is determined by calculating the pipe weight plus 20%.

6.15.18. Set jack pull pressure.

6.15.18.1. Refer to Jack specifications (Refer to Figure XX) and determine the amount of pull pressure to set so the tubing part limit is not exceeded.

6.15.18.2. Turn the pressure control clockwise until the reading on the pressure gauge shows the desired amount of hydraulic pressure (SPI) needed as per specifications.

6.15.18.3. Do not exceed tubing part limit.

6.15.19. Pick up landing joint and screw into the top of hanger.

6.15.19.1. All landing joints used shall exceed the production tubing yield strength.

6.15.19.2. Ensure landing joint is properly seated (screwed in).

6.15.19.3. Ensure elevators are tied prior to pulling on tree.

6.15.19.4. If cross-over is used on hanger, make sure it is tight.

6.15.20. Stroke top traveling head up 2 feet.

6.15.21. Set top slips in traveling head of jacks.

6.15.22. If tubing is free set bottom slips.

6.15.22.1. Remove handles on bottom set of slips.

6.15.22.2. Replace with 8” long wire rope cables with thimble loop.

6.15.23. Engage jacking system while looking at weight indicator gauge.

6.15.23.1. Record amount of weight on Daily Service Report.

6.15.23.2. Do not exceed tubing part limit.

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**NOTE**

This is done to prevent the slips from getting stuck in the jacks.

---

6.15.23. Do not exceed tubing part limit.
6.15.24. If tubing does not come free.

6.15.24.1. Check hanger pins to see if they are backed out all the way.

6.15.24.2. Try to pull again.

**NOTE**

If tubing is still not free, a MOC shall be necessary to pull over the calculated weight (pipe weight plus 20%), contact office and speak to an Operations Manager.

6.15.25. If tubing is free, review procedures and JSA on Tubing Pulling.

6.15.26. If pulling/tripping excessive amount of tubing in/out the hole:

6.15.26.1. Air slips shall be needed to reduce the hazards of handling slips.

6.15.26.1.1. Window may be needed for bottom of jacks to put air slips in.

6.15.27. When pulling/running chrome tubing, hydraulic slips with non-directional dies will be utilized.

6.15.28. While head is traveling up or down, keep hands and feet clear of jack head to eliminate pinch points.

6.15.29. Constantly watch weight indicator for sudden increase of weight gain.

6.15.29.1.1. Compare to hydraulic pressure gauge to weight indicator to ensure the readings are the same.

Table 1 - Casing Jack Specifications 10.75” Casing Maximum

<table>
<thead>
<tr>
<th>Hydraulic Pressure (PSI)</th>
<th>Two Cylinder Operation Pull (lbs)</th>
<th>Four Cylinder Operation Pull (lbs.)</th>
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Table 1 - Casing Jack Specifications 10.75” Casing Maximum

There are six Model 196 Jacks available. Two of these have 10-1/8” bowls which will handle up to 8-5/8” casing and four have dual 10-1/8” x 12-1/4” bowls which will handle up to 10-3/4” casing. The Model 196 has four 5” hydraulic cylinders.
### Hydraulic Pressure (PSI)

<table>
<thead>
<tr>
<th>Hydraulic Pressure (PSI)</th>
<th>Two Cylinder Operation Pull (lbs.)</th>
<th>Four Cylinder Operation Pull (lbs.)</th>
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<tr>
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**Table 2 – Casing Jack Specifications 30” OD Maximum**

There is one Model 30 Jack available. This Jack has 32” bowl which will handle up to 30” casing. The Model 30 has four 6” hydraulic cylinders. The footprint for the Model 30 is 55” x 55” x 8”.

<table>
<thead>
<tr>
<th>Hydraulic Pressure (PSI)</th>
<th>Two Cylinder Operation Pull (lbs.)</th>
<th>Four Cylinder Operation Pull (lbs.)</th>
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## Hydraulic Pressure

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</table>
6.16. Casing Cutting

6.16.1. **Hold JSA on Casing Cutting with Electric Line.**

6.16.2. Rig up for Casing cutting using Electric Line Field Safety Procedures. (see 6.13 to 6.15)

6.16.2.1. Prior to arming cutter be sure to shut down all radios, telephones and cell phones. (Verify shut down by individual verbal or visual confirmation from the Platform PIC, Crane Operator, and/or Liftboat Captain if on site.)

6.16.2.2. Notify all boats within one (1) mile radius of the platform.

6.16.2.3. Contact the shore base so they can inform approaching aircraft.

6.16.2.4. Contact the shore base so they can inform approaching aircraft (by complying with Helideck Closure Notification form “Notam” as well as FW Explosive Safety Awareness Alert).

6.16.2.5. **P&A Supervisor and/or Consultant will be present on deck to verify “hotcheck” for tubing cut or perforating services.**

6.16.3. Run in hole (RIH) to depth as described in procedures and cut casing.

6.16.3.1. **P&A Supervisor and/or Consultant will be present on deck to verify “depths” for tubing cut or perforating services.**

6.16.3.2. Record cutting depth on Daily Service Report

6.16.4. Rig up a return line from the casing valve to the gas buster.

6.16.4.1. When circulating for the first time, all fluids must go through the gas buster before discharging or transferring, as some fluids may be hazardous.

6.16.4.2. At no time shall a hose be run from the wellhead without being properly secured on both ends with whip checks (safety cables).

6.16.5. Make sure the catch tank has enough room to catch returns from the casing by casing.


6.16.6.2. Circulate clean.

6.16.7. Dispose of well bore fluids according to the National Pollutant Discharge and Elimination System (NPDES) permit.
6.16.7.1. When discharging or transferring any fluid an entry shall be made on the Daily Service Report to reflect

6.16.7.1.1. Time
6.16.7.1.2. Volume
6.16.7.1.3. Type of fluid discharged

6.17. **Surface Cement Job Procedure**

6.17.1. **Hold JSA (JSA) on Tripping Tubing In/Out of Hole and Crane Operations.**

6.17.2. Proper PPE shall be worn while working.

6.17.3. Check crane capacity over well head, and ensure weight indicator is working properly.

6.17.3.1. Verify that weather and sea condition will permit safe crane operations. This shall be determined by all parties involved (Boat Captain, Crane Operator, P&A Supervisor and/or Fieldwood consultant). STOP Work Authority can be exercise by anyone at any time.)

6.17.4. Identify signalman.

6.17.4.1. A designated signalman will be identified, assigned on the boat and/or on the platform's landing area.

6.17.5. Ensure only certified personnel handle rigging equipment.

6.17.6. Inspect rigging equipment for damage and load capacity.


6.17.6.2. Only safety shackles (made in the USA) shall be used on equipment/material unless.

6.17.7. Verify crane signals, and line of sight, or utilize radios.

6.17.7.1. If the crane operator and the signalman lose line of sight with each other SWA (Stop Work Authority) will also be initiated.

**WARNING**

- **No other tasks are to be performed simultaneously in the immediate area while a crane lift is being performed**

6.17.8. Rig up elevators to crane.

6.17.9. Ensure bolts on elevator ears are firmly secure double nut if necessary. Also check to see that the wiring across the dye plates is in place.

6.17.10. Rig up floor plate.

6.17.10.1. Ensure floor plate's capacity is rated for the work to be done. The same is applied if beams are being used.
6.17.10.2. Ensure all open holes are covered and there are no loose tools lying around that may be dropped in hole.

6.17.11. Rig up slips and bowls.


6.17.13. Rig up pipe rack to rest tubing on.

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**NOTE**

The angle iron attached to the side pieces face inwards.

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6.17.14. Run tubing in hole with crane to desired depth or to top of cast iron bridge plug.

6.17.14.1. Latch onto joint of tubing with elevators and trip tubing into well.

6.17.14.1.1. Leave a 2-3" stump of the tubing showing and set the slips around the tubing in the bowl.


6.17.14.2.1. When making up/breaking out 1” or 1 ¼” tubing, a 24” pipe wrench or crummies shall be used to ensure the joint is fully made up.

6.17.14.2.2. Aluminum wrenches shall not be used at any time while working with the wellhead or with tubing.

6.17.14.2.3. Aluminum wrenches can only be used with slick-line or e-line tools.

6.17.14.3. Repeat steps 10.15.14, 10.15.14.1 and 10.15.14.2 until the desired depth is reached according to the well procedure.

6.17.15. Rig up pump-in sub and hose.

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**NOTE**

At no time shall a hose be run from the wellhead without being properly secured on both ends with whip checks (safety cables).

---

6.17.16. Make sure the catch tank has enough room to catch returns from the cement job.


6.17.17.2. Circulate clean.

6.17.18. Dispose of well bore fluids according to the National Pollutant Discharge and Elimination System (NPDES) permit.

6.17.19. NPDES REPORT IS REQUIRED TO BE FILLED OUT DAILY

6.17.19.1. When discharging or transferring any fluid an entry shall be made on the Daily Service Report to reflect.

6.17.19.1.1. The time

6.17.19.1.2. Volume

6.17.19.1.3. The type of fluid being discharged

6.17.20. Hold a JSA on Mixing and Pumping Cement.


6.17.22. Check blender to ensure no debris has fallen to the bottom.

6.17.22.1. Personnel will use fall protection when climbing blender.

6.17.23. Fill with water from amount of cement to be mixed as per calculations.

6.17.24. Ensure there is enough water for displacement as per calculations, in the holding tank.

6.17.24.1. Ensure suction hoses are back flushed with water to avoid any air gaps.

6.17.25. Start pump and engage blender agitation.

6.17.25.1. Engage centrifugal pump.

6.17.25.1.1. Set centrifugal hydraulic pressure between 40-50 psi (adjust as required).

6.17.25.2. Set blender hydraulic pressure between 500-750 psi to ensure cement mixes properly.

6.17.25.2.1. At no time are personnel to reach inside the blender while agitator is turning.

6.17.26. Install hopper when applicable. Use proper lifting techniques and get additional help if needed.


6.17.26.3. Tighten your abdominal muscles.

6.17.26.4. Keep the load as close to your body as possible.
6.17.26.5. Lift with your legs.
6.17.26.6. Observe hand pinch points when putting it in place and when removing it.

6.17.27. Check cement bag’s condition.
   6.17.27.1. Check for rips in the bag and on the lifting straps.
   6.17.27.2. Also check to see if cement has been damaged during transportation.

**CAUTION**

**Damaged cement bags will have hardened a good portion of the cement. If any are found do not use.**

6.17.28. Riggers will rig up cement bag with 4-part (wire rope) sling and have inner bag tied off.
   6.17.28.1. Tie off inner plastic bag, using ¼” rope, to one leg of the sling. This will reduce the chance of the inner bag falling into the blender once it is empty.

6.17.29. Crane operator will pick up bag and position over hopper on blender.
   6.17.29.1. At this point crane operator will take crane signals from person mixing cement, with exception of an emergency stop from any personnel.

6.17.30. Untie outer sacks, pull down sharply on inner sack, and cut above metal ring.
   6.17.30.1. Personnel mixing cement will wear a dust mask.
   6.17.30.2. Use a hacksaw or alternative cutting device.
   6.17.30.3. Pay attention and cut away from your body.

6.17.31. When beginning the mixing process:
   6.17.31.1. Add cement slowly.
      6.17.31.1.1. The cement bag shall never be set down on the hopper or jerked by the crane while it is in position.
   6.17.31.2. Mix thoroughly to prevent build up around ladder leading into blender.
   6.17.31.3. This will also insure that the cement will mix consistently.
   6.17.31.4. Be aware of falling cement pieces that could cause injury.
6.17.32. Repeat steps 10.15.14 to 10.15.18 until all bags have been mixed as per calculations.

**NOTE**

If possible/allowed, after each bag has been mixed open the dump valve for 2-3 seconds. This will allow any large chunks that have formed at the bottom to go overboard decreasing the chance of the screen or pump clogging up.

6.17.33. Allow cement to mix 5-10 minutes after all bags have been added.

   6.17.33.1. While waiting personnel should come down and wash cement off his/her person.

6.17.34. Catch 2 samples in cups and measure the weight of the cement.

   6.17.34.1. Before catching sample, ensure hydraulic controls of blender are temporarily shut off.

6.17.35. Pump cement and displace.

   6.17.35.1. After pumping cement:

       6.17.35.1.1. Pull out of hole to top of cement and displace 1 ½ times the tubing volume.

       6.17.35.1.2. Pull out of hole if the task must shut down due to meals or night fall.

       6.17.35.1.3. The Supervisor shall ensure an additional 3 joints are pulled and laid down and again pump 1 ½ times the tubing volume.

   6.17.35.2. Ensure that displacement volumes are monitored and recorded on service order according to procedure.

   6.17.35.3. Record the amount of cement pumped on Daily Service Order.

**NOTE**

The Supervisor shall ensure two (2) men start step mm) and three men start step 10.15.37.

6.17.36. Continue to pull out of hole until all tubing is laid down.

   6.17.36.1. Latch onto work string with crane and elevators.

   6.17.36.2. Pull slips.

       6.17.36.2.1. Two (2) men shall be utilized when pulling slips.
6.17.36.2.2. Square up to slips handles, tighten the abdominal muscles, keep your back straight, and lift with your legs.

6.17.36.3. Pick up tubing to connection.

6.17.36.3.1. Stop the crane operator when connection is approximately 2-3’ above slips.

6.17.36.4. Set slips, tie handles and slack off on crane.

**NOTE**

Ensure slips are set before slacking off on crane.

6.17.36.5. Break out tubing using 24” pipe wrench or crummies.

6.17.36.5.1. Watch finger and hand placement when positioning tools on tubing.

6.17.37. Once tubing is free, have the crane pick it up and swing it over and lower it to the pipe rack.

6.17.37.1. Ensure tubing is fully rested on the pipe rack before unlatching the elevators.

6.17.37.2. Have the crane swing back over to the work string and repeat step 10.15.37 and 10.15.38 until all the tubing is laid down.

6.17.38. Immediately upon completion of cement job Supervisor shall visually inspect to ensure the crew has back flushed water into blender to clear cement from suction hoses, cement screen, and centrifugal pump.

**NOTE**

Rinse blender walls with mixing paddles in motion to help clean walls.

6.17.38.1. Breakdown the cement screen and suction hoses and flush thoroughly with water.

6.17.38.2. Pump through discharge hoses and manifold on pump.

6.17.38.3. Break off pop off valve and gauge assembly from manifold and flush thoroughly.

6.17.38.4. Operate low-torque/high-torque valves to insure all cement has been removed.

6.17.38.5. Clean work area and make up cement screens and hoses for next cement job as procedure dictates.

6.17.39. Pull out of hole with tubing to desire depth, wash off top of cement with seawater and store equipment away.

6.18.1. **Hold a JSA on Rigging up Jack Basket and Crane Operations**

6.18.2. Ensure all personnel are wearing proper PPE.

6.18.3. Check crane capacity over wellhead, and ensure weight indicator is working properly.

   6.18.3.1. Verify that weather and sea conditions will permit safe crane operations. This shall be determined by all parties involved (Boat Captain, Crane Operator, P&A Supervisor and/or Fieldwood Consultant). STOP Work Authority can be exercise by anyone at any time.

6.18.4. Identify signalman.

6.18.4.1. A designated signalman will be identified for this task.

6.18.5. Ensure only certified personnel handle rigging equipment.

   6.18.5.1. Sling usage - Reference the Offshore Crane Operations and Maintenance Program within the Fieldwood Safe Work Practices on usage various type (wire rope, chain or nylon straps).

   6.18.5.2. Only safety shackles (made in the USA) shall be used on equipment/material.

   6.18.5.3. Verify slings are in good shape and have been certified.

6.18.6. Verify crane signals and line of sight, or utilize radios.

   6.18.6.1. If the crane operator and the signalman loose line of sight with each other SWA (Stop Work Authority) will also be initiated.

---

**WARNING**

- No other tasks are to be performed simultaneously in the immediate area while a crane lift is being performed

6.18.7. Ensure jacks are secured down.

6.18.8. Lift work basket with 4 part slings.

   6.18.8.1. Use tag line on each corner.

6.18.9. Install bolts (4) securing basket to jacks.
6.18.9.1. Do not unhook basket from crane until it is secure
6.18.9.2. Secure basket with guide buckles and turn buckles if Gin pole is being used.

6.18.10. Set up and secure two (2) ladders on opposite sides.

**NOTE**

If basket/ work platform is setting flat across the beams, set up stairwells and proceed to step 6.25.11.

6.18.10.1. Ensure ladder is tall enough to reach the height you need.
6.18.10.2. Rated to handle the combined weight of you and your equipment.
6.18.10.3. Inspect it before using it:
   6.18.10.3.1. No missing parts.
   6.18.10.3.2. Firmly attached slip-resistant steps, rungs, or cleats, and they are free from grease and oil.
   6.18.10.3.3. Tight support braces, bolts, screws, and spreaders.
   6.18.10.3.4. Safety feet.
   6.18.10.3.5. No dents or bent parts in metal ladders.
6.18.10.4. Extend the ladder at least three (3) feet above the top support.
6.18.10.5. Anchor both the top and bottom
6.18.10.6. Only one person shall be allowed at a time on the ladder.
6.18.10.7. Climb up and down facing the ladder and maintaining three point contacts with the ladder at all times.
6.18.10.8. Small tools must be tether when working at heights.
6.18.10.9. If over six (6) feet.
   6.18.10.9.1. Rig up Self Retracting Lifeline (SRL) for both ladders.
   6.18.10.9.2. Wear full body harness when ascending/descending.
6.18.10.10. Set stairwells across beams.
6.18.10.11. Bring handling tools needed for job in basket.
6.18.10.12. Lay all tools needed for job in basket.

**WARNING**

Do not stand items on handrail unless hung off with cable or chain.
6.18.10.13. Keep tools out of walkway and in orderly fashion.

6.18.11. Rig up tong arm in basket.
   6.18.11.1. Check arm slot to ensure that no debris is in hole.
   6.18.11.2. Apply grease to bottom section of tong arm.
   6.18.11.3. Lower arm into slot.
      6.18.11.3.1. Be sure to keep hands clear of pinch points associated with pole.
   6.18.11.4. Make sure pole is lowered all the way down before unhooking from crane.

6.18.12. Rig up tongs with cable.
   6.18.12.2. Install safety cable.

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6.18.13. Installing motors for cables.
   6.18.13.1. Insert cables through sheaves on top of pole while in deck.

   6.18.14.1. Unhook (1) side of sling from bottom to pole.
   6.18.14.5. Lean pole towards basket and install pin

6.18.15. Rig up hydraulic panels for winches.
   6.18.15.1. Function test all hydraulic systems
      6.18.15.1.1. Check for leaks.

---

If the gin pole is not being used refer to Pulling Tubing using Casing Jacks.
6.18.15.1.2. Damaged hoses.
6.18.15.1.3. Bad connections.

6.18.16. If running in hole (RIH) with tubing:

6.18.16.1. Lift nubbins shall be tightened down on pipe when used.
6.18.16.2. Ensure no one is under basket while lift nubbin is being lowered/lifted to basket.
6.18.16.3. If Pulling Out of Hole (POOH):

6.18.16.3.1. Before lowering tubing down ensure none is standing under it.

6.18.17. As job progresses inspect cables on winches.

6.18.17.1. To ensure that cables do not “bird nest” on drum
6.18.17.2. Also look for broken or bad cable.
6.19. **Sand Cutting**

6.19.1. **Hold JSA on Sand Cutting and Crane Operations.**

6.19.2. Inspect well for the casing size and or other missed information.

6.19.3. Ensure that there is no pressure or oil in the well.

6.19.4. Ensure all personnel are wearing proper PPE.

6.19.5. Identify signalman.

6.19.5.1. A designated signalman will be identified for this task.

6.19.6. Only certified personnel handle rigging equipment.

6.19.7. Inspect rigging equipment for damage and load capacity.


6.19.7.2. Only safety shackles (made in the USA) shall be used on equipment/material.

6.19.8. Check crane for load chart and ensure weight indicator is working properly.

6.19.8.1. Verify that weather and sea conditions will permit safe crane operations. This shall be determined by all parties (Boat Captain, Crane Operator, P&A Supervisor and/or Fieldwood Consultant). STOP Work Authority can be exercised by anyone at any time.

6.19.9. Talk with crane operator and decide on load sequence.

6.19.10. Verify crane signals, and line of sight, or utilize radios.

6.19.10.1. If the crane operator and the signalman lose line of sight with each other SWA (Stop Work Authority) will also be initiated.

**WARNING**

- **No other tasks are to be performed simultaneously in the immediate area while a crane lift is being performed**

6.19.11. Personnel rigging equipment will ensure tag lines are placed on it.

6.19.11.1. Tag lines are to be of sufficient length (a minimum of 15’), diameter, and strength to allow adequate control of the load by the rigger(s).
6.19.11.2. Do not tie knots or braid the ends as this could cause the load to hang up.

6.19.11.3. Both tag lines are to be tied on the same side of the load at opposite ends.

6.19.11.4. Do not use the tag line to pull the load into position.

6.19.12. Personnel on deck will be aware of overhead loads, pinch points, and make sure that platform or lift boat deck can handle the weight of the equipment.

**NOTE**  
*Always leave yourself a way out. Do not back yourself into a corner or a “one way out” situation.*

6.19.13. Inspect equipment and check all fluid levels and ESD.


6.19.15. Inspect sand pot.

6.19.15.1. Make sure all valves are operating.

6.19.15.2. Make sure cap works freely.

6.19.15.3. Ensure sand pot has pop off valve.


6.19.17. Rig up rotary table with sand cutting head for casing size that will be cut.

6.19.17.1. Inspect jets to ensure they are not damaged (washed out) and they are not clogged.

6.19.18. Run in hole with work string to determine cutting depth using proper handling tools.


6.19.20. Rig up all hoses.

6.19.20.1. Ensure whip checks (safety cables) are placed on all connections.

6.19.20.2. When connecting/disconnecting hydraulic snap tights, wrap with absorbent pads to prevent seepage.

6.19.21. Fill up water tanks and monitor same during cutting operations.

6.19.22. Test all equipment with water to ensure:

6.19.22.1. That the pop off valves on pumps are working and set at desired pressure.
6.19.22.2. That the pop off valves on sand pot are working and set at desired pressure.

6.19.22.3. Ensure rotary table is working properly and set RPM.

6.19.22.3.1. Rotary speed shall be set at ¼ RPM unless a MOC is approved.

6.19.22.3.2. Record table speed for rotation on Daily Service Report.

6.19.22.4. All low-torque valves on sand pot are working.

6.19.23. Inspect the sand bags condition.

6.19.23.1. Check for rips in the bag and on the lifting straps.

6.19.23.2. Also check to see if sand has been damaged during transportation.

6.19.24. Riggers will rig up sand bag using a 4 part (wire rope) sling.

6.19.24.1. Tie off inner plastic bag, using ¼” rope, to one leg of the sling. This will reduce the chance of the inner bag falling into the hopper once it is empty.

6.19.25. Crane operator will pick up bag and position over hopper.

6.19.25.1. At this point crane operator will take crane signals from person filling the hopper (with exception of an emergency stop from any personnel).

6.19.25.2. Personnel filling hopper shall pay attention as the sand bag is being moved and be prepared to push off or get out of the way.

6.19.25.3. Crane operator will be in crane at all times while filling hopper.


6.19.26.1. Use a hacksaw or alternative cutting device.


6.19.27. Fill sand pot up with sand.

6.19.27.1. Clean the threads from the top with water and WD-40 and install the cap.


6.19.28.1. Look on all sides of pump unit to ensure no tools or personnel are on or next to unit.

6.19.28.2. Warn personnel working close by before cranking unit.
6.19.28.3. Engage pump to 2000 psi
6.19.28.4. Open bottom valve to equalize pot.
   6.19.28.4.1. When opening/closing valves, establish a firm stance and
grip on valve bar.
   6.19.28.4.2. Pull in a way that if the bar slips, it will not strike you or
others standing nearby.
6.19.29. Open valve from pot to the tubing, close the bypass.
   6.19.29.1. Ensure personnel stay clear of pressurized pump and lines.
   Barricade/Caution tape area to identify pressurized lines.
6.19.30. Bring pump up to 5000 psi
6.19.31. Monitor your gauge for:
   6.19.31.1. For pressure increase to let you know when the sand hits the tip.
   6.19.31.2. To record how long your sand pot will run for.
   6.19.31.3. For pressure decrease to let you know when the sand runs out.
6.19.32. After sand runs out bring the pressure down to 1000 psi and
bypass.
6.19.33. Close valve from pot to tubing and open bleed off.
6.19.34. Remove top.
6.19.35. Repeat steps 6.26.27 to 6.26.34 until well is cut.
6.19.36. Once well is cut:
   6.19.36.2. Disconnect and store hoses in their proper place.
6.19.37. Disconnect swivel and come out the hole with the work string.
6.19.39. Rig down sand cutting head, store in proper place.
6.19.40. Rig down equipment, secure the opening, and demobilize job.
6.20. **Mechanical Cutting**

6.20.1. **Hold JSA** on the following:

6.20.1.2. Crane Operations

6.20.1.3. Rigging Up Power Swivel for Mechanical Cutting, and

6.20.1.4. Tripping Tubing out of Hole with Tongs.

6.20.2. Ensure all personnel are wearing proper PPE.

6.20.3. Insure that the work area around the well is completely covered (no open holes) and is capable of supporting all equipment and personnel.

6.20.3.1. Obtain the deck and/or beam weight-supporting capacity from the office to insure that the capacity is sufficient to support the operation to be performed.

6.20.4. Inspect well for casing size and or other missed information.

6.20.5. Ensure there is no pressure or oil in the well.

6.20.6. Check crane capacity over wellhead, and ensure weight indicator is working properly.

6.20.6.1. Verify that weather and sea condition will permit safe crane operations. This shall be determined by all parties involved (Boat Captain, Crane Operator, P&A Supervisor and/or Fieldwood Consultant.) STOP Work Authority can be exercise by anyone at any time.

6.20.7. Identify signalman.

6.20.7.1. A designated signalman will be identified for this task

6.20.8. Only certified personnel handle rigging equipment.

6.20.9. Inspect rigging equipment for damage and load capacity.

6.20.9.1. Sling usage - Reference the Offshore Crane Operations and Maintenance Program within the Fieldwood Safe Work Practices on acceptable usage of various type slings (wire rope, chain or nylon straps).

6.20.9.2. Only safety shackles (made in the USA) shall be used on equipment/material.

6.20.10. Verify crane signals, and line of sight, or utilize radios.

6.20.10.1. If the crane operator and the signalman loose line of sight with each other SWA (Stop Work Authority) will also be initiated.
**WARNING**

- No other tasks are to be performed simultaneously in the immediate area while a crane lift is being performed

6.20.11. Measure from casing to the top of water and record in tally book.
   - 6.20.11.1. Add this depth to the water depth that the procedures call to be cut below the mud line (BML).
   - 6.20.11.2. Record the overall depth and the mechanical cut will be made on the Daily Service Report.

6.20.12. Service and inspect equipment and check all fluid levels and ESD.

6.20.13. Check power swivel and fluid levels.

6.20.14. Ensure proper tong dies are in tongs, and handling tools are ready for the tubing that is being run in hole (RIH).

6.20.15. Tally (O.D., I.D., and length) of all mechanical cutting tools.
   - 6.20.15.1. Record measurements and pieces that will make up the Bottom Hole Assembly (BHA) on the Daily Service Report.

6.20.16. Lay out tubing, number and tally same.

6.20.17. Make up BHA according to tool technician’s specifications.
   - 6.20.17.1. At no time shall personnel stand on equipment to tighten connections.
   - 6.20.17.2. BHA connections shall be tightened while lying on the deck.

6.20.18. Rig up floor plate.
   - 6.20.18.1. Ensure floor plate’s capacity is rated for the work to be done.
     - 6.20.18.1.1. The same is applied if beams are being used.
   - 6.20.18.2. Ensure all open holes are covered and there are no loose tools lying around that may be dropped in hole.

6.20.19. Rig up slips and bowls.

6.20.20. Rig up pipe rack to rest tubing on.
   - 6.20.20.1. Tubing shall not be laid on items such as handrails, drums, or boards that have been elevated, etc.
   - 6.20.20.2. Laying down tubing shall not be permitted in an established walkway, or gangway of a lift boat.
6.20.21. Inspect and rig up elevators to crane.

6.20.21.1. Ensure bolts on elevator ears are firmly secure double nut if necessary.

6.20.21.2. Also check to see that the wiring across the dye plates is in place.

6.20.22. Latch on to the first joint and make up to BHA using pipe wrenches.

6.20.22.1. Once joint is seated use two 36” (pulling in opposite directions) to bump up tubing tight.

6.20.22.1.1. Aluminum wrenches shall not be used at any time while working with the wellhead or with tubing.

6.20.22.1.2. Aluminum wrenches can only be used with slick-line or e-line tools.

6.20.23. Swing assembly over to casing an RIH.

6.20.24. Leave 2-3’ stump of the tubing showing and set the slips around the tubing in the bowl.

6.20.24.1. The slip handles shall be tied together with rope.

6.20.24.1.1. Crisscross the rope (figure 8) across the handles several times and secure.

6.20.24.1.2. This will secure the slips from popping open in case the tubing slips through the dyes.

6.20.25. RIH with remaining tubing.

6.20.25.1. Hydraulic tongs shall be used (when available) to tighten tubing.

**NOTE**

When hydraulic tongs are not in use they shall be set back in the rack or they shall be secured against moving or falling.

6.20.25.1.1. When hydraulic tongs are unavailable use 36” pipe wrenches to tighten tubing.

6.20.25.1.2. Aluminum wrenches shall not be used at any time while working with the wellhead or with tubing.

6.20.25.1.3. Aluminum wrenches can only be used with slick-line or e-line.

6.20.25.2. Go by number order as per tally, until the Below Mud Line Depth (BMLD) is reached.
6.20.25.2.1. Once the BMLD is reached it may be necessary due to height of the work string, to use pup joints.

6.20.25.2.2. This will make it easier when stabbing the power swivel.

6.20.25.3. Tubing that is not used should be bundled together and laid to the side.

6.20.26. Remove and set up power swivel control panel in a safe area.

6.20.27. Rig up hydraulic hoses between panel and power pack.

6.20.27.1. Route and duct tape hoses every 2’ to minimize trip hazards.

6.20.28. Install pump flow line and hydraulic lines on power swivel.

6.20.28.1. Ensure whip checks are installed on all high pressure lines.

6.20.28.2. When installing or disconnecting hydraulic lines, use absorbent pads and metal buckets.

6.20.29. Pick up power swivel with load line using elevators or 2-part slings and safety shackles (depending on brand).

6.20.29.1. Tie elevator horns together with rope.

6.20.29.2. Crisscross the rope (figure 8) across the handles several times and secure.

6.20.29.2.1. This will secure the elevators from popping open while power swivel is turning.

6.20.29.3. Attach and figure 8 a chain at the base of power swivel goose neck to provide stabilization if power swivel is to be used more than once.

6.20.30. Attach stiff arm.

6.20.30.1. Ensure all safety keepers are placed in pins.

6.20.30.2. If bolts are used, nuts are to be doubled.

6.20.31. Swing power swivel over to work string.

6.20.32. Rig up guide cable to stiff arm.

6.20.32.1. When rigging up guide cable, ensure 3 clamps are properly used on each end.

6.20.32.1.1. Cable clamps are to be the same size as cable being used.

6.20.32.1.2. The u-bolt goes on the dead side of the cable. Thimbles shall be installed when eyes are formed in cable.
6.20.32.2. During operation, periodically check to ensure that shackle attached to stiff arm and guide cable is not backing out.

6.20.32.2.1. Only safety shackles shall be used on equipment/material.

6.20.32.2.2. Also inspect for wear and damage.

6.20.33. Stab power swivel onto work string.

6.20.33.1. Use crummy wrench to make up and break out connection.

6.20.33.1.1. Ensure crummy is secure and the area is clear of all non-essential personnel.

6.20.33.2. Tool technician will engage power swivel and torque to work string.

6.20.34. Pick up assembly, note total weight in tally book.

6.20.35. Remove handling tools from around pipe.

6.20.36. Ensure mud tanks are full and overboard pump and keep up with pump rate.

6.20.37. Tool hand will set torque pressure and dictate what pressure and rate will be pumped until the casing is cut.

**WARNING**

*At no time is power swivel control panel to be left unattended.*

6.20.38. Once tool technician verifies casing is cut, shut down pump.

6.20.39. Set up handling tools, break off power swivel.

6.20.39.1. Tool technician will engage power swivel and break out power swivel from work string.

6.20.39.2. Ensure area is clear of all non-essential personnel.

6.20.40. Rig down stiff arm guide cable and stiff arm.

6.20.41. Disconnect pump flow line and hydraulic lines on power swivel.

6.20.41.1. Disconnect whip checks from high pressure lines.

6.20.41.2. When disconnecting hydraulic lines, use absorbent pads and metal buckets.

6.20.42. Swing power swivel over and set in storage rack.

6.20.42.1. If power swivel is not be used again return all equipment to proper place.

6.20.43. Pull Out on Hole (POOH) with work string using hydraulic tongs.
6.20.44. Service and inspect equipment. Check all fluid levels and ESD on power pack.

6.20.44.1. If 2 cranes are available, rig up tongs with the right side crane and pull tubing using the left side crane.

6.20.44.1.1. If only one crane is available, use main hoist to pull tubing and auxiliary hoist to hold tongs while backing tubing out.

6.20.44.2. Once tubing is backed out, disconnect tongs from auxiliary line and lay tubing down.

6.20.45. Pick up hydraulic tongs and place in work area.

6.20.46. Connect hydraulic lines to tongs.

6.20.46.1. When installing or disconnecting hydraulic lines, use absorbent pads and metal buckets.

6.20.47. Ensure correct tongs dyes are in place for tubing that is being pulled.

6.20.47.1. When changing dyes on tongs, the operator shall ensure the hydraulic lines are disconnected.

6.20.47.2. Rig up back-up safety cable/chain.

6.20.48. Inspect and rig up elevators.

6.20.49. Latch onto work string and pull up to connection.

6.20.49.1. Do not lay tubing on boards that are elevated off deck such as walkway handrails, drums, etc.

6.20.50. Set the slips in the bowl.


6.20.51.1. Look up to ensure crane operator has slacked off.

6.20.51.2. Use caution when maneuvering tongs into position.

6.20.51.3. Tong operator shall look at assistant’s hand placement before engaging tongs.

6.20.52. Swing to landing area and lay down.

6.20.52.1. Do not lay tubing on boards that are elevated off deck such as walkway handrails, drums, etc.

6.20.53. Open elevator at safe distance from deck, approximately 2’.

6.20.53.1. Everyone’s hands and feet are to be clear before releasing elevators.
6.20.53.1.1. This will be accomplished by person releasing elevators shouting “clear”.

6.20.53.2. No one is to stand in the midway point of pipe while elevators are being opened.

6.20.54. Repeat steps 6.27.48 to 6.27.53 until work string is laid down.

6.20.55. Pick up and lay down BHA as per tool hands instructions.

6.20.56. Pull casing following Casing Pulling Procedures (page 89).

6.20.57. Repeat steps 6.27.11 to 6.27.51 until all casing is cut and laid down.

6.20.58. Rig down all equipment for demobilization. Place cover over openings.
6.21. Casing Pulling Procedure Using Crane


6.21.2. Ensure all personnel are wearing proper PPE.

6.21.3. Verify casing is cut.

6.21.3.1. Line up pump to reverse circulation.

6.21.3.1.1. The pressure shall not exceed 75% of the collapse pressure.

6.21.3.1.2. Never look down the well bore when reverse circulating.

6.21.3.2. When higher pumping pressure is required.

6.21.3.2.1. The tree is to be placed back on the well head.

6.21.4. Hold JSA on:

6.21.4.1. Pulling Out of Hole (POOH) and Lay Down Casing using torch, pins, and shackles.

6.21.4.2. Performing Hot Work, and

6.21.4.3. Crane Operations.

6.21.5. Insure that the work area around the well is completely covered (no open-holes) and is capable of supporting all equipment and personnel.

6.21.5.1. Work surfaces that are easily manipulated, shall be secured with banding material and/or clamps to prevent movement during pipe pulling operations.

6.21.5.2. Obtain the deck and/or beam weight-supporting capacity from the office to insure that the capacity is sufficient to support the operation to be performed.

6.21.6. Ensure all open holes are covered and there are no loose tools lying around that may be dropped in hole.

6.21.6.1. Work surfaces that are easily manipulated shall be secured with banding material and/or clamps to prevent movement during casing pulling operations.

6.21.7. Back out hanger pins if wellhead has any.

6.21.7.1. Be aware of pinch points when backing out hanger pins.

6.21.7.2. Never stand in front of hanger pins when backing them out.

6.21.7.2.1. Do not back off packing gland nut.
6.21.8. Remove casing head nuts and pull free.


**NOTE**

> **If stubs back out, proceed to step 10.14.19.**

6.21.9.1. Use rope on hammer wrench and a pipe wrench as backup if needed.

6.21.9.2. Drive studs out of tree if possible.

6.21.9.3. Use the MSA Tool Holder or equivalent or equivalent to assist when driving studs down.

6.21.9.4. Use fall protection when over 6 feet above the deck.

6.21.9.5. If Unable to back off studs proceed to step 8.14.10 and cut studs with torch.

6.21.10. If cutting with torch:

6.21.10.1. Inspect torch cutting equipment and fill out a **Hot Work Permit and JSA on same.**

6.21.10.2. Personnel using the torch shall wear proper PPE. Proper PPE includes but is not limited to:

6.21.10.2.1. #5 cutting face shield

6.21.10.3. Hearing Protection if warranted due to excessive high noise levels

6.21.10.3.1. Leather cape sleeves and bib

6.21.10.3.2. Leather gloves. Leather glove shall be inside the leather sleeves.

6.21.10.3.3. Hard Hat

6.21.10.3.4. Steel Toe Boots

6.21.10.3.5. Safety Glasses

6.21.10.4. Make sure there are no flammables and no flowing production equipment within 35 feet of where the cutting will be performed.

6.21.10.4.1. Employees will physically ensure that no flammables are blow the work area on sump level or +10 levels.

6.21.10.4.2. When tarps are used to cover equipment, employees shall ensure they are flame resistant.

6.21.10.5. The fire watch will be identified and assigned.
6.21.10.5.1. The fire watch will have a fire extinguisher ready to use and a running water hose if water is available.

6.21.10.5.2. The fire watch will also remain in the area 30 minutes after the operations have ceased.

6.21.10.5.3. The fire watch is to do nothing else (i.e., get coffee, tools or any kind of other work).

6.21.10.6. Continuous gas monitoring shall be performed during cutting operations.

\[\text{NOTE}\]

Watch hand placement when moving and handling studs.

6.21.10.7. Cut the nuts on the side of the corner first.

\[\text{NOTE}\]

This will allow the nuts of fall apart when the studs are driven down.

6.21.10.8. Use the MSA Tool Holder or equivalent with a handle to prevent anyone from reaching into the strike zone and to prevent a single stud driver from bouncing out.


6.21.11.1. Shackle holes should be cut approximately 3-4” below separation cut to ensure shackles are not pulled through the remaining steel during lifting.

6.21.11.2. Only safety shackles (made in the USA) shall be used on equipment.

6.21.12. Check crane capacity over wellhead, and ensure weight indicator is working properly.

6.21.12.1. Verify that weather and sea condition will permit safe crane operations. This shall be determined by all parties involved (Boat Captain, Crane Operator, P&A Supervisor and/or Fieldwood Consultant.) STOP Work Authority can be exercise by anyone at any time.


6.21.13.1. A designated signalman will be identified for this task.


6.21.15. Inspect rigging equipment for damage and load capacity.
6.21.15.1. Sling usage - Reference the Offshore Crane Operations and Maintenance Program within Fieldwood’s Safe Work Practices on acceptable usage of various type slings (wire rope, chain or nylon straps)

6.21.15.2. Only safety shackles (made in the USA) shall be used on equipment/material.

6.21.16. Verify crane signals, and line of sight, or utilize radios.
6.21.16.1. If the crane operator and the signalman lose line of sight with each other SWA (Stop Work Authority) will also be initiated.
6.21.16.2. No other tasks are to be performed simultaneously in the immediate area while a crane lift is being performed.

6.21.17.1. Do not exceed the load limit weight cut (plus 30%) unless a MOC has been approved.

6.21.18. Pull casing to desired length.
6.21.18.1. Best practice is to cut them in approximately 30’ sections.

6.21.19. Cut holes on both sides of casing and install pin bar.

6.21.20. Slack off casing and set on pin.

6.21.21.1. Once it is cut swing it out of the way and lay it down.
6.21.21.2. Keep well full of seawater after each cut is made.

6.21.22. Tally casing and check for NORM

**NOTE**

Consider all casing to be NORM contaminated until it has been checked.

6.21.22.1. Turn on the meter and conduct a background check first away from the area.
6.21.22.1.1. Verify the background lever according to the region
6.21.22.1.2. Then conduct a survey staring at the lowest possible level and adjusting control knob as necessary.
6.21.22.1.3. If survey indicates a high reading above the background lever, document on Daily Service Report. Notify the Project Engineer and SEMS Coordinator.
6.21.22.2. Plastic ground covering will be laid in the work area to help contain any displaced NORM contamination.

6.21.22.3. Tubing ends shall be capped and or wrapped in plastic.

6.21.22.4. Any and all contaminated areas shall be deemed restricted areas and shall be cordoned off with yellow tape with the words “Caution Radiation Area” in red or magenta shall be used.

6.21.22.4.1. Any containment area in which an individual could receive doses greater than 5 millirems in any hour or 100 millirems in any 5 consecutive days.

6.21.22.5. A decontamination area shall be established on the outer edge of the restricted area and personnel shall be checked for contamination before exiting the restricted area using a survey meter with GM pancake probe or equivalent.

6.21.22.5.1. The whole body will be thoroughly checked with special consideration given to the areas of the hair, face, neck, hands, lower back, and the Boots soles.

6.21.22.5.2. In the event that contamination is found, personnel will be decontaminated by washing with soapy water in the DECON area.

6.21.22.5.3. If the clothing cannot be decontaminated to background levels, it shall be place in D.O.T. 17-H drums (drums shall be marked with radiation stickers and appropriate HazCom labels.

6.21.22.5.4. No personnel shall be allowed to exit the contaminated area until their readings are at background.

**NOTE**

Wrist and ankles of the disposable coveralls shall be ducted taped over the top of the gloves and Boots.

6.21.22.6. Personnel who leave the work area to eat or use the restroom shall follow the decontamination procedure as described in step 8.16.22.5. Upon return they shall wear new PPE.

6.21.22.7. There shall be no eating, drinking, smoking, chewing, or applying cosmetics (e.g. sunscreen, lip balm, etc.) in the immediate work area.

6.21.22.8. Tubing shall be kept wet to minimize dust generation during handling. Other equipment used to pull tubing shall be monitored, washed down and rechecked.

6.21.22.9. The key to working safely with NORM is personal hygiene. Remember to wash your hands and face to prevent ingestion.
6.21.23. Cover hole when all casing is out of the well.
6.22. **Heavy Lift Procedure (15,000 lbs. (7.5 Tons) or more)**

6.22.1. **Hold JSA on Crane Operations.**

6.22.2. Proper PPE shall be worn while working.

6.22.3. Check the crane limits and ensure the weight indicator is working.

6.22.3.1. Verify that weather and sea condition will permit safe crane operations. This shall be determined by all parties involved (Boat Captain, Crane Operator, P&A Supervisor and/or Fieldwood Consultant.) STOP Work Authority can be exercised by anyone at any time.

6.22.4. Identify signalman.

6.22.4.1. A designated signalman will be identified for this task.

6.22.5. Only certified personnel handle rigging equipment.

6.22.6. Inspect rigging equipment for damage and load capacity.

6.22.6.1. Slings with tag rated for lift.

6.22.6.2. Inspect slings for damage.

6.22.6.2.1. Sling usage - Reference the Offshore Crane Operations and Maintenance Program within the Fieldwood Safe Work Practices on acceptable usage of various type slings (wire rope, chain or nylon straps).

6.22.6.3. Insure shackles with proper rating for lift.

6.22.6.3.1. Only safety shackles (made in the USA) shall be used on equipment/material.

6.22.7. Verify crane signals, and line of sight, or utilize radios.

6.22.7.1. If the crane operator and the signalman loose line of sight with each other SWA (Stop Work Authority) will also be initiated.

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**WARNING**

- No other tasks are to be performed simultaneously in the immediate area while a crane lift is being performed

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6.22.8. View lifting point

6.22.8.1. Determine the pick-up strength.

6.22.8.1.1. If it is pre-existing pad eye holes or,

6.22.8.1.2. A shackle hole cut to a predetermined depth.

6.22.8.2. Inspect pad eyes for rust/corrosion around weld areas.
6.22.9. Attach rigging to lift.
6.22.10. Attach lift to crane.
6.22.11. Supervisor will make sure rigging is attached properly.
6.22.12. Pick up crane to a predetermined pull weight.

6.22.12.1. To minimize the risk of shock loading crane:
   6.22.12.1.1. It will take a predetermined pull weight above the actual weight of the lift if the load is mud stuck.
   6.22.12.1.2. In most cases about 40,000 over the pipe weight will require a MOC.
   6.22.12.1.3. Tie down or snub off load if able to keep it from shock loading.

6.22.13. When load is free, set load in predetermined area.
6.22.15. Store all rigging in proper place.
6.22.16. Project Engineer and Operation Management shall be notified of any lifts that exceed 90% of the cranes static capabilities, so that weight calculations can be reviewed.
6.22.17. Lift exceeding or anticipated to exceed the calculated weight by 30% shall not be attempted until Project Manager and Operation Management are notified.
6.23. **Rigless Drilling Operations**

6.23.1. **Hold a separate JSA** on the following

   6.23.1.1. Crane Operations
   6.23.1.2. Rigging Up Power Swivel for Drilling Operations
   6.23.1.3. Tripping Tubing out of Hole with Tongs

6.23.2. Insure that the work area around the well is completely covered (no open holes) and is capable of supporting all equipment and personnel.

   6.23.2.1. Obtain the deck and/or beam weight-supporting capacity from the office to insure that the capacity is sufficient to support the operation to be performed.

6.23.3. Inspect well for casing size and, or other missing information.

6.23.4. Ensure there is no pressure or oil in the well.

6.23.5. Check crane capacity over wellhead, and ensure weight indicator is working properly.

6.23.6. Identify signalman.

   6.23.6.1. A designated signalman will be identified for this task.

6.23.7. Only certified personnel handle rigging equipment.

6.23.8. Inspect rigging equipment for damage and load capacity.

   6.23.8.1. Sling usage - Reference the Offshore Crane Operation and Maintenance Program within the Fieldwood Safe Work Practices on acceptable usage of various type slings (wire rope, chain or nylon straps)

   6.23.8.2. Only safety shackles (made in the USA) shall be used on equipment/material.

6.23.9. Verify crane signals, and line of sight, or utilize radios.

   6.23.9.1. If the crane operator and the signalman loose line of sight with each other SWA (Stop Work Authority) will also be initiated.

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**WARNING**

- **No other tasks are to be performed simultaneously in the immediate area while a crane lift is being performed**

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6.23.10. Measure from casing to the top of water and record in tally book.

   6.23.10.1. Add this depth to the water depth.
6.23.10.2. Record the overall total depth and water depth on the Daily Service Report.

6.23.11. Service and inspect equipment and check all fluid levels and ESD.

6.23.12. Check power swivel and fluid levels.

6.23.13. Ensure proper tong dies are in tongs, and handling tools are ready for the tubing that is being run in hole (RIH).

   

6.23.15. Lay out tubing, number and tally.
   

6.23.16. Rig up floor plate.
   
   6.23.16.1. Ensure floor plate’s capacity is rated for the work to be done.
   
   6.23.16.1.1. The same is applied if beams are being used.

   6.23.16.2. Ensure all open holes are covered and there are no loose tools lying around that may be dropped in hole.

6.23.17. Weld bit breaker to deck, or use equivalent.

6.23.18. Set up rig tong and guidelines.

6.23.19. Inspect and rig up elevators to crane.
   
   6.23.19.1. Ensure bolts on elevator ears are firmly secure double nut if necessary.

   6.23.19.2. Also check to see that the wiring across the dye plates is in place.

6.23.20. Latch on the first joint and make up to BHA.
   
   6.23.20.1. Make-up cross over to tubing.
   
   6.23.20.1.1. Once joint is seated, tighten with tongs.

   6.23.20.2. Make-up drill bit to cross over.

   6.23.20.3. Set assembly in bit breaker and tighten with tongs.
   
   6.23.20.3.1. Apply 14,000 to 20,000 psi to connections.

**NOTE**

It is important that drill bit is secure during drilling operations.

6.23.21. Swing assembly over to casing and RIH.
6.23.22. Leave a 2-3’ stump of the tubing showing and set the slips around the tubing in the bowl.
   6.23.22.1. The slip handles shall be tied together with rope.
      6.23.22.1.1. Crisscross the rope across the handles several times and secure.
      6.23.22.1.2. This will secure the slips from popping open in case the tubing slips through the dyes.
6.23.23. RIH with remaining tubing.
   6.23.23.1. Use tongs to tighten tubing.
   6.23.23.2. Go by number order as per tally, until the desired depth is reached.
      6.23.23.2.1. Once the depth is reached it may be necessary due to height of the work string, to use pup joints.
      6.23.23.2.2. This will make it easier when stabbing the power swivel.
6.23.23.3. Tubing that is not used should be bundled together and laid to the side.
6.23.24. Remove and set up power swivel control panel in the safe area.
6.23.25. Rig up hydraulic hoses between panel and power pack.
   6.23.25.1. Route and cut tape hoses every 2’ to minimize trip hazards.
6.23.26. Install pump flow line and hydraulic lines on power swivel.
   6.23.26.1. Ensure whip checks are installed on all high pressure lines.
   6.23.26.2. When installing or disconnecting hydraulic lines, use absorbent pads and metal buckets.
6.23.27. Pick up power swivel with load line using elevators.
   6.23.27.1. Tie elevator horns together with rope.
   6.23.27.2. Crisscross the rope across the handles several times and secure.
      6.23.27.2.1. This will secure the elevators from popping open while power swivel is turning.
   6.23.27.3. Attach a chain at the base of power swivel goose neck to provide stabilization if power swivel is to be used more than once.
6.23.28. Attach stiff arm.
   6.23.28.1. Ensure all safety keepers are placed in pins.
   6.23.28.2.1. If bolts are used, nuts are to be doubled.
6.23.29. Swing power swivel over to work sting.
6.23.30. Rig up guide cable to stiff arm.
   6.23.30.1. When rigging up guide cable ensure 3 clamps are used on each end.
      6.23.30.1.1. Cable clamps are to be the same size as cable being used.
      6.23.30.1.2. The u-bolt goes on the dead side of the cable.
      6.23.30.1.3. Thimbles shall be installed when eyes are formed in cable.
   6.23.30.2. During operation, periodically check to ensure that shackle attached to stiff arm and guide cable is not backing out.
      6.23.30.2.1. Only safety shackles shall be used on equipment/material unless a MOC has been approved.
      6.23.30.2.2. Also inspect for wear and damage during the operation.
6.23.31. Stab power swivel onto work string.
   6.23.31.1. Use crummy wrench to make up and break out connection.
      6.23.31.1.1. Ensure crummy is secure and the area is clear of all non-essential personnel.
   6.23.31.2. Tool technician will engage power swivel and torque to work string.
6.23.32. Pick up assembly, note total weight in tally book.
6.23.33. Remove handling tools from around pipe.
6.23.34. Ensure mud tanks are full and overboard pump can keep up with pump rate.
6.23.35. Set torque pressure and pump rate to be used during drilling operation.
   6.23.35.1. Engage power swivel.
   6.23.35.2. At no time is power swivel control panel to be left unattended.
   6.23.35.3. Watch torque gauge, if torque increases pick up and reset.
6.23.36. Once the desired depth is reached pull out of hole and shut down pump.
6.23.37. Set up handling tools, break off power swivel.
   6.23.37.1. Engage power swivel and break out power swivel from work string.
   6.23.37.2. Ensure area is clean of all non-essential personnel.
6.23.38. Rig down stiff arm guide cable and stiff arm.
6.23.39. Disconnect pump flow line and hydraulic lines on power swivel.
   6.23.39.1. Disconnect whip checks from high pressure lines.
   6.23.39.2. When disconnecting hydraulic lines, use absorbent pads and metal buckets.
6.23.40. Swing power swivel over and set in storage rack.
   6.23.40.1. If power swivel is not be used again return all equipment to proper place.
6.23.41. Pull Out of Hole (POOH) with work string using hydraulic tongs.
6.23.42. Service and inspect equipment. Check all fluid levels and ESD on power pack.
   6.23.42.1. If cranes are available, rig up tongs to the right side crane and pull tubing using the left side crane.
   6.23.42.2. If only one crane is available, use main hoist to pull tubing and auxiliary hoist to hold tongs while backing tubing out.
   6.23.42.3. Once tubing is backed out, disconnect tongs from auxiliary line and lay tubing down.
6.23.43. Pick up hydraulic tongs and place in work area.
6.23.44. Connect hydraulic lines to tongs.
   6.23.44.1. When installing or disconnecting hydraulic lines, use absorbent pads and metal buckets.
6.23.45. Ensure correct tongs dyes are in place for tubing that is being pulled.
   6.23.45.1. When changing dyes on tongs the operator shall ensure the hydraulic lines are disconnected.
   6.23.45.2. Rig up back-up safety cable/chain.
6.23.46. Inspect and rig up elevators.
6.23.47. Latch onto work string and pull up to connection.
   6.23.47.1. Leave 2-3’ stump of the tubing showing.
6.23.48. Set the slips in the bowl.
6.23.49. Break out tubing using hydraulic tongs.
   6.23.49.1. Look up to ensure crane operator has slacked off.
   6.23.49.2. Use caution when maneuvering tongs into position.
6.23.49.3. Tong operator shall look at assistants hand placement before engaging tongs.

6.23.50. Swing to landing area and lay down.

6.23.50.1. Do not lay tubing on boards that are elevated off deck such as walkways, handrails, drums, etc.

6.23.50.2. Lay tubing down on boards that or laid out on level decking.

6.23.51. Open elevator at safe distance from deck, approximately 2’.

6.23.51.1. Everyone’s hands and feet are to be clear before releasing elevators.

6.23.51.1.1. This will be accomplished by person releasing elevators shouting “clear”.

6.23.51.2. No one is to stand in the midway point of pipe while elevators are being opened.

6.23.52. Repeat steps 10.17.47 to 10.17.51 until work string is laid down.

6.23.53. Pick up last joint and break of drill bit.

6.23.53.1. Set drill bit in bit breaker and breakout using rig tongs.

6.23.54. Break off cross over from tubing using ring tongs.

6.23.54.1. Set drill bit in bit breaker and breakout using rig tongs.

6.23.55. Rig down all equipment for demobilization.

6.23.56. Place cover over openings.
7. Revision History Table

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<th>Rev</th>
<th>Date</th>
<th>Description</th>
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<td>New, initial release</td>
<td>Michael Pham</td>
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