PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	BTA OIL PRODUCERS LLC.
LEASE NO.:	NMNM15091
WELL NAME & NO.:	13H –ROJO 7811 27 FEDERAL COM
SURFACE HOLE FOOTAGE:	220'/N & 1340'/E
BOTTOM HOLE FOOTAGE	50'/S & 2310'/E
LOCATION:	Section 27 T.25 S., R.33 E., NMP
COUNTY:	LEA County, New Mexico

Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

1. A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Wolfcamp** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **13 3/8** inch surface casing shall be set at approximately **1120** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

2. The minimum required fill of cement behind the **9 5/8** inch intermediate casing is:

   - Cement to surface. If cement does not circulate see B.1.a, c-d above.

3. The minimum required fill of cement behind the **7** inch production casing is:

   - Cement should tie-back at least **200** feet into previous casing string. Operator shall provide method of verification.

4. The minimum required fill of cement behind the **4 1/2** inch production liner is:

   - Cement should tie-back at least **100** feet into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2.

Option 1:

i. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.

ii. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9 5/8** inch intermediate casing shoe shall be **10,000 (10M)** psi.

Option 2:

i. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the 13-3/8 inch surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 10,000 (10M) psi.

a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
c. **Manufacturer representative shall install the test plug for the initial BOP test.**
d. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

☒ Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.
    e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the

plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. The results of the test shall be reported to the appropriate BLM office.

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

E. SPECIAL REQUIREMENT(S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

MHH11292017

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	BTA OIL PRODUCERS LLC.
LEASE NO.:	NMNM15091
WELL NAME & NO.:	13H –ROJO 7811 27 FEDERAL COM
SURFACE HOLE FOOTAGE:	220'/N & 1340'/E
BOTTOM HOLE FOOTAGE	50'/S & 2310'/E
LOCATION:	Section 27 T.25 S., R.33 E., NMP
COUNTY:	LEA County, New Mexico

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Below Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

Watershed

- The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed.
- Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

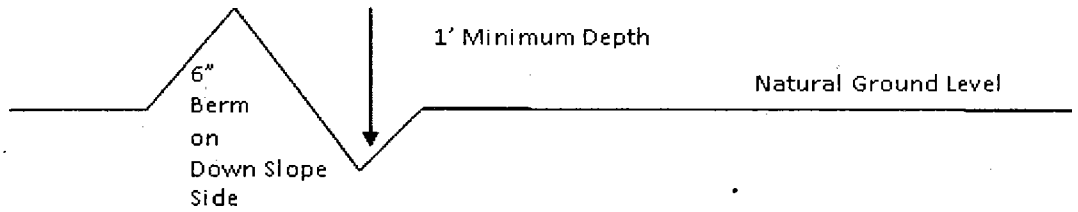
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

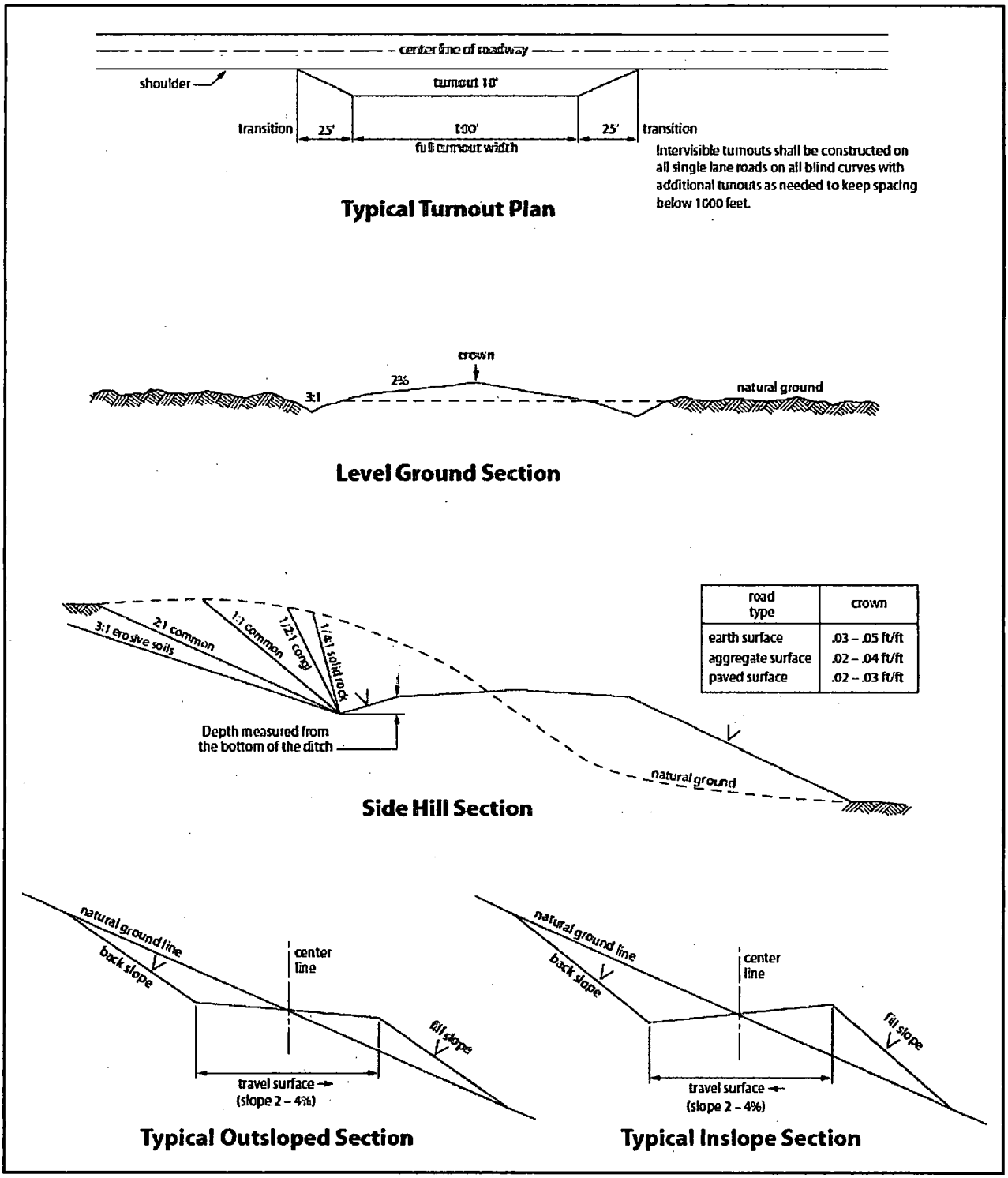


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Below Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

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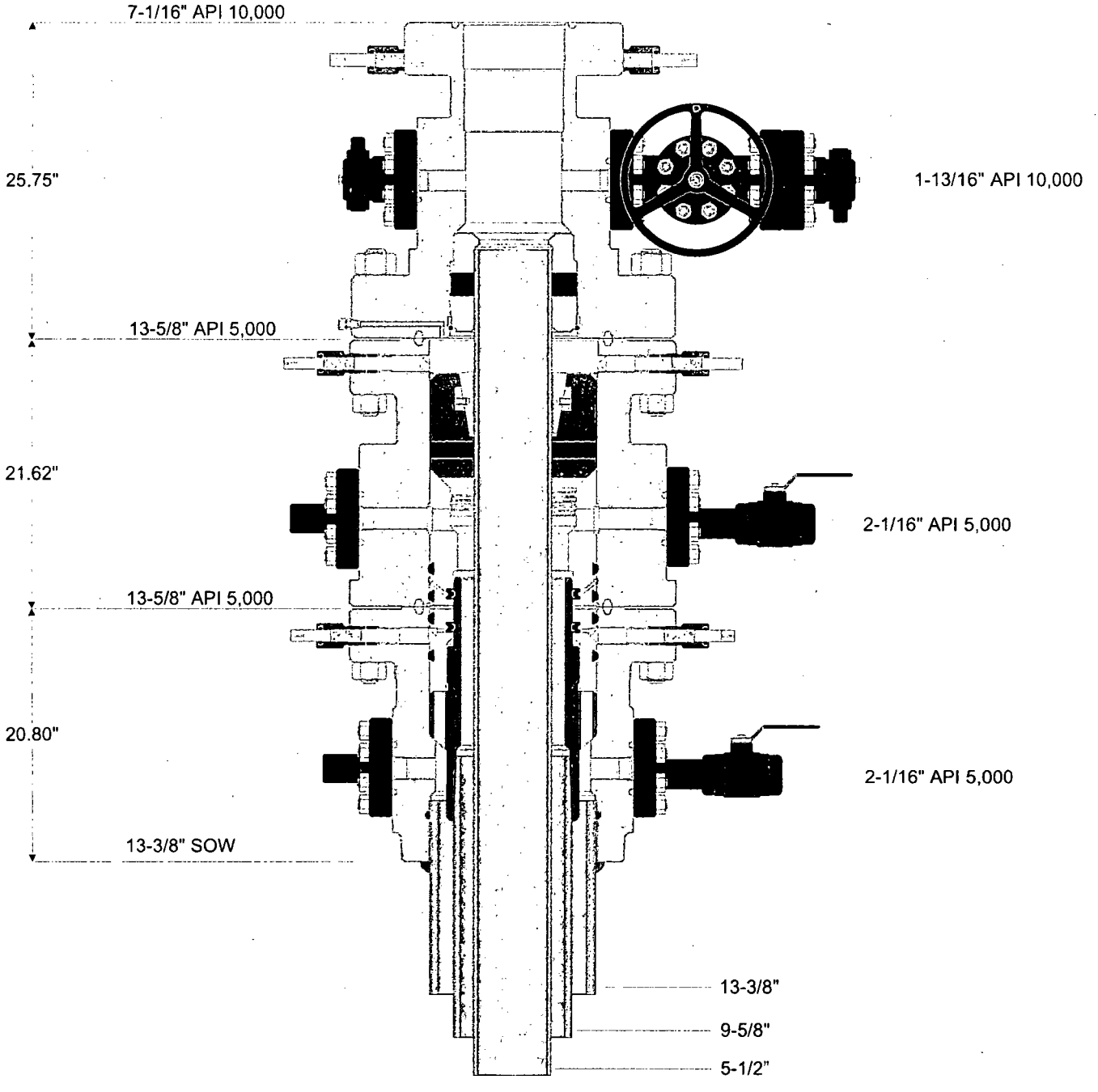
WFT Casing Head (Slip on Weld with O-Ring) Running Procedure

Publication RP-001

October 21, 2010

NOTE: THIS DRAWING IS NOT TO SCALE. THE DIMENSIONS REFLECTED ON THIS DRAWING ARE ESTIMATED DIMENSIONS AND ARE FOR REFERENCE ONLY.



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Customer:	BTA OIL PRODUCERS	Project No.:	146245	Quote No.:	291545 v2
Project Name:	WEST TEXAS	Date:	07/06/16	Drawn By:	JL

Install the Casing Head

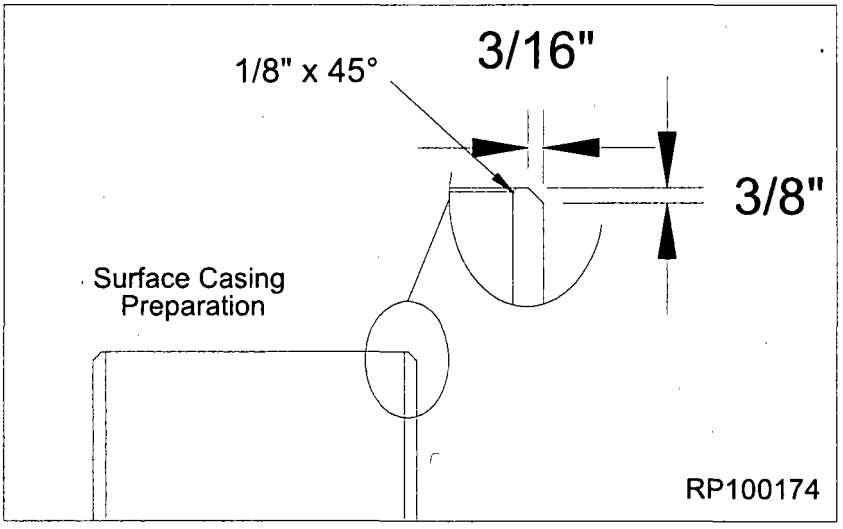
1. Examine the ***WFT Casing Head***. Verify the following:
   - bore is clean and free of debris
   - seal areas, threads and ring grooves are clean and undamaged
   - o-ring is properly installed, clean and undamaged
   - all peripheral equipment is intact and undamaged
2. Measure the pocket depth of the Casing Head and record this dimension.
3. Run the surface casing and cement as required.
4. Determine the required elevation of the Casing Head as required by the Drilling Supervisor.
5. Use the following calulation to determine the correct final cut location of the surface casing.

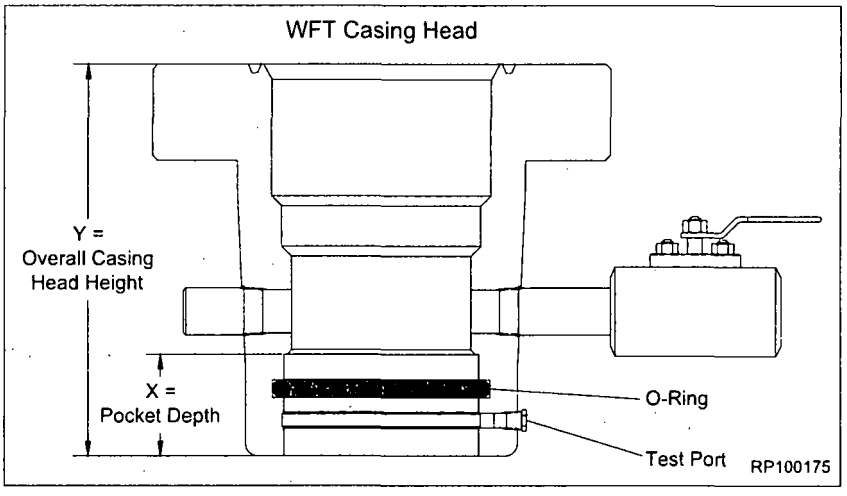
X = Pocket Depth

Y = Overall Casing Head Height

Y - X = Distance from correct elevation point to surface casing cutoff height.

6. Lift the riser assembly high enough to rough cut the surface casing a minimum of 12" above the anticipated final cut location, if applicable.
7. Remove the spent portion of surface casing and the riser assembly and set aside.
8. Determine the correct elevation for the wellhead assembly.
9. Rough cut the surface casing a minimum of 12" above the final cut location.
10. Cut the conductor pipe a comfortable level below the final cut location of the surface casing.





11. Final cut the surface casing at the correct elevation.

NOTE: Ensure the cut on the surface casing is level as this will determine the orientation of the remainder of the wellhead equipment.

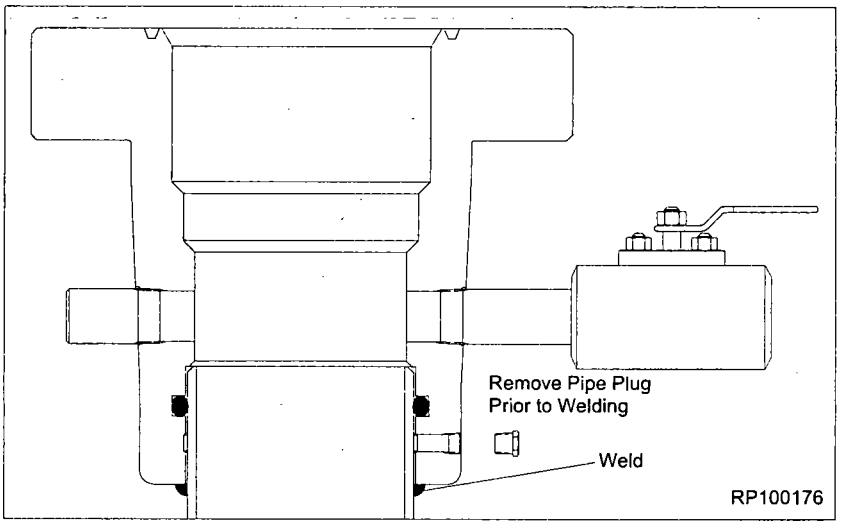
12. Bevel the surface casing with a 3/16" x 3/8" bevel and remove any sharp edges from the OD of the casing.
13. Break a 1/8" x 45° bevel on the ID of the surface casing.

Install the Casing Head

14. Wipe the ID of the o-ring of the Casing Head with a light coat of oil or grease.

NOTE: Excessive oil or grease will prevent a positive seal from forming.

15. Lower the Casing Head over the surface casing stub to a positive stop.
16. Remove the fitting from the test port and set aside.
17. Orient the Casing Head as per the Drilling Superintendents instructions ensuring the face of the Casing Head is level and two holed to the drilling rig substructure.
18. Weld and test the surface casing to the Casing Head as per the ***RECOMMENDED FIELD WELDING PROCEDURE*** located in the back of this manual.
19. Once all welding and testing is completed, replace the fitting into the open port and close the valve on the Casing Head.



Recommended Procedure for Field Welding Pipe to Well-head Parts for Pressure Seal

1. **Introduction and Scope.** The following recommended procedure has been prepared with particular regard to attaining pressure-tight weld when attaching casing heads, flanges, etc., to casing. Although most of the high strength casing used (such as N-80) is not normally considered field weldable, some success may be obtained by using the following or similar procedures.

   Caution: In some wellheads, the seal weld is also a structural weld and can be subjected to high tensile stresses. Consideration must therefore be given by competent authority to the mechanical properties of the weld and its heat affected zone.

   a. The steels used in wellhead parts and in casing are high strength steels that are susceptible to cracking when welded. It is imperative that the finished weld and adjacent metal be free from cracks. The heat from welding also affects the mechanical properties. This is especially serious if the weld is subjected to service tension stresses.

   b. This procedure is offered only as a recommendation. The responsibility for welding lies with the user and results are largely governed by the welder's skill. Weldability of the several makes and grades of casing varies widely, thus placing added responsibility on the welder. Transporting a qualified welder to the job, rather than using a less-skilled man who may be at hand, will, in most cases, prove economical. The responsible operating representative should ascertain the welder's qualifications and, if necessary, assure himself by instruction or demonstration, that the welder is able to perform the work satisfactorily.

2. **Welding Conditions.** Unfavorable welding conditions must be avoided or minimized in every way possible, as even the most skilled welder cannot successfully weld steels that are susceptible to cracking under adverse working conditions, or when the work is rushed. Work above the welder on the drilling floor should be avoided> The weld should be protected from dripping mud, water, and oil and from wind, rain, or other adverse weather conditions. The drilling mud, water, or other fluids must be lowered in the casing and kept at a low level until the weld has properly cooled. It is the responsibility of the user to provide supervision that will assure favorable working conditions, adequate time, and the necessary cooperation of the rig personnel.

3. **Welding.** The welding should be done by the shielded metal-arc or other approved process.

4. **Filler Metal.** Filler Metals. For root pass, it's recommended to use E6010, E6011 (AC), E6019 or equivalent electrodes. The E7018 or E7018-A1 electrodes may also be used for root pass operations but has the tendency to trap slag in tight grooves. The E6010, E6011 and E6019 offer good penetration and weld deposit ductility with relatively high intrinsic hydrogen content. Since the E7018 and E7018-A1 are less susceptible to hydrogen induced cracking, it is recommended for use as the filler metal for completion of the weld groove after the root pass is completed. The E6010, E6011 (AC), E6019, E7018 and E7018-A1 are classified under one of the following codes AWS A5.1 (latest edition): Mild Steel covered electrodes or the AWS A5.5 (latest edition): Low Alloy Steel Covered Arc-Welding Electrodes. The low hydrogen electrodes, E7018 and E7018-A1, should not be exposed to the atmosphere until ready for use. It's recommended that hydrogen electrodes remain in their sealed containers. When a job arises, the container shall be opened and all unused remaining electrodes to be stored in heat electrode storage ovens. Low hydrogen electrodes exposed to the atmosphere, except water, for more than two hours should be dried 1 to 2 hours at 600°F to 700 °F (316°C to 371 °C) just before use. It's recommended for any low hydrogen electrode containing water on the surface should be scrapped.

5. **Preparation of Base Metal.** The area to be welded should be dry and free of any paint, grease/oil and dirt. All rust and heat-treat surface scale shall be ground to bright metal before welding.

6. **Preheating.** Prior to any heating, the wellhead member shall be inspected for the presence of any o-rings or other polymeric seals. If any o-rings or seals are identified then preheating requires close monitoring as noted in paragraph 6a. Before applying preheat, the fluid should be bailed out of the casing to a point several inches (>6" or 150 mm) below the weld joint/location. Preheat both the casing and wellhead member for a minimum distance of three (3) inches on each side of the weld joint using a suitable preheating torch in accordance with the temperatures shown below in a and b. The preheat temperature should be checked by the use of heat sensitive crayons. Special attention must be given to preheating the thick sections of wellhead parts to be welded, to insure uniform heating and expansion with respect to the relatively thin casing.

   a. Wellhead members containing o-rings and other polymeric seals have tight limits on the preheat and interpass temperatures. Those temperatures must be controlled at 200°F to 325°F or 93 °C to 160°C and closely monitored to prevent damage to the o-ring or seals.

   b. Wellhead members not containing o-rings and other polymeric seals should be maintained at a preheat and interpass temperature of 400°F to 600°F or 200°C to 300°C.

Recommended Procedure for Field Welding Pipe to Wellhead Parts for Pressure Seal (continued)

7. **Welding Technique.** Use a 1/8 or 5/32-inch (3.2 or 4.0 mm) E6010 or E7018 electrode and step weld the first bead (root pass); that, weld approximately 2 to 4 inches (50 to 100 mm) and then move diametrically opposite this point and weld 2 to 4 inches (50 to 100 mm) halfway between the first two welds, move diametrically opposite this weld, and so on until the first pass is completed. This second pass should be made with a 5/32-inch (4.0 mm) low hydrogen electrode of the proper strength and may be continuous. The balance of the welding groove may then be filled with continuous passes without back stepping or lacing, using a 3/16-inch (4.8 mm) low hydrogen electrode. All beads should be stringer beads with good penetration. There should be no undercutting and weld shall be workmanlike in appearance.

   a. Test ports should be open when welding is performed to prevent pressure buildup within the test cavity.

   b. During welding the temperature of the base metal on either side of the weld should be maintained at 200 to 300°F (93 to 149°C).

   c. Care should be taken to insure that the welding cable is properly grounded to the casing, but ground wire should not be welded to the casing or the wellhead. Ground wire should be firmly clamped to the casing, the wellhead, or fixed in position between pipe slips. Bad contact may cause sparking, with resultant hard spots beneath which incipient cracks may develop. The welding cable should not be grounded to the steel derrick, nor to the rotary-table base.

8. **Cleaning.** All slag or flux remaining on any welding bead should be removed before laying the next bead. This also applies to the completed weld.

9. **Defects.** Any cracks or blow holes that appear on any bead should be removed to sound metal by chipping or grinding before depositing the next bead.

10. **Postheating.** Post-heating should be performed at the temperatures shown below and held at that temperature for no less than one hour followed by a slow cooling. The post-heating temperature should be in accordance with the following paragraphs.

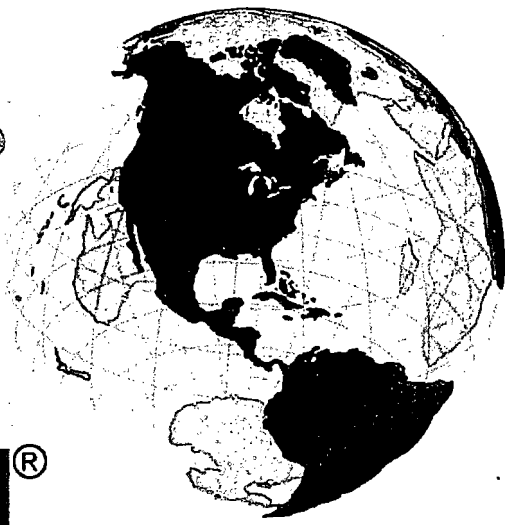
    a. Wellhead members containing o-rings and other polymeric seals have tight limits on the post-heating temperatures. Those temperatures must be controlled at 250°F to 300°F or 120 °C to 150°C and closely monitored to prevent damage to the o-ring or seals.

    b. Wellhead members not containing o-rings and other polymeric seals should be post-heated at a temperature of 400°F to 600°F or 200°C to 300°C.

11. **Cooling. Rapid cooling must be avoided.** To assure slow cooling, welds should be protected from extreme weather conditions (cold, rain, high winds, etc.) by the use of suitable insulating material. (Specially designed insulating blankets are available at many welding supply stores.) Particular attention should be given to maintaining uniform cooling of the thick sections of the wellhead parts and the relatively thin casing, as the relatively thin casing will pull away from the head or hanger if allowed to cool more rapidly. The welds should cool in air to less than 200°F (93°C) (measured with a heat sensitive crayon) prior to permitting the mud to rise in the casing.

12. **Test the Weld.** After cooling, test the weld. The weld must be cool otherwise the test media will crack the weld. The test pressure should be no more than 80% of the casing collapse pressure.

Test Media	
Acceptable Medias	**Unacceptable Medias**
Water Water Soluable Oil Inert Gas •Nitrogen •Argon Gas	Oxygen Acetylene Hydraulic Oil Motor Oil Brake Fluid



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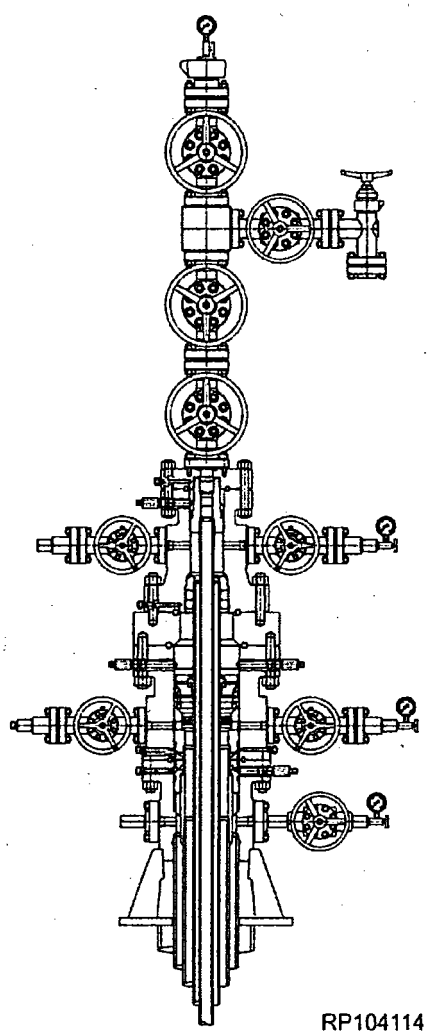
Wellhead Field Service Manual

WFT-SB Wellhead System Running Procedure



Publication: SM-11-1

Release Date: December 2014

RP104114

Weatherford	Field Service Manual	Prepared By:	Reviewed By:	Approved By:	SM-11-1
		Marion Robertson	Bruce Ross	Manuel Zaragoza	Rev WIP
5-3-GL-GL-WES-00XXX		Dec 2014	Dec 2014	Dec 2014	Page 1 of 24

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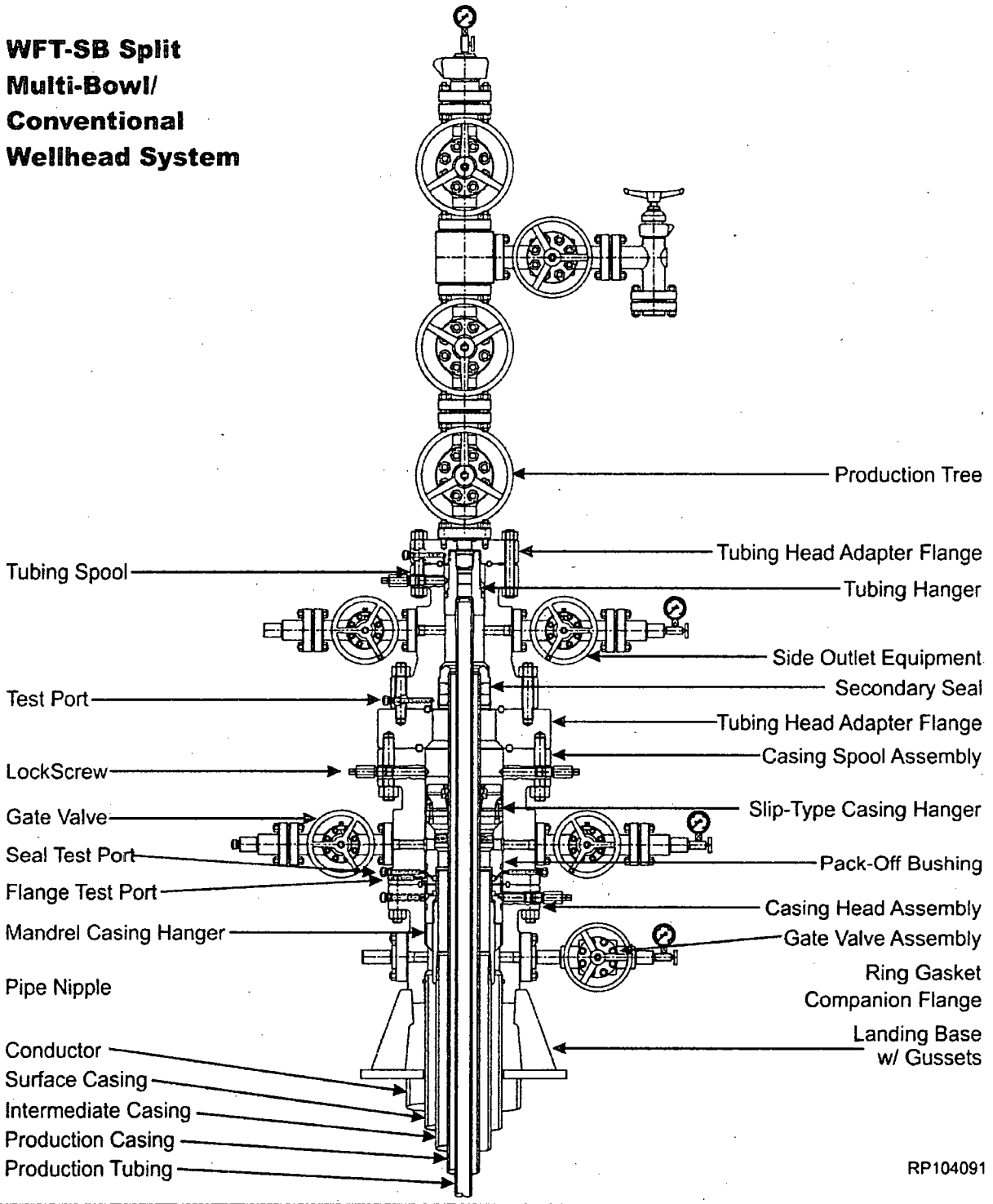
WFT Split Bowl (SB) Wellhead System

WFT-SB Split Multi-Bowl/ Conventional Wellhead System



WFT-SB Casing Head/Spool Assembly Rig Up and Installation

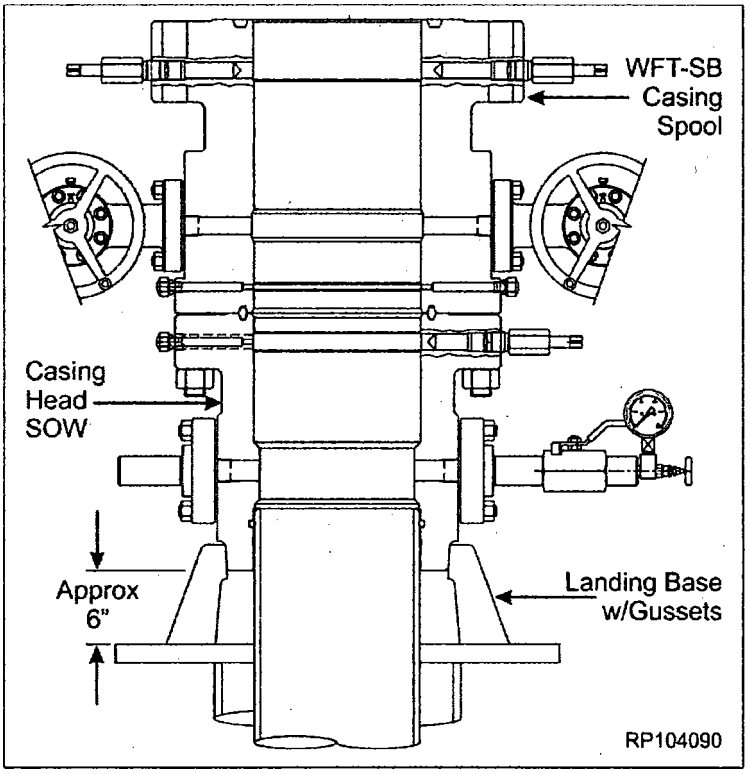
1. Determine the correct elevation for the wellhead system, and cut the conductor pipe at a comfortable elevation, below the surface casing final cut.

NOTE

Ensure that the cut on the conductor is level, as this will determine the orientation of all remaining wellhead equipment.

2. Remove any excess conductor pipe and set aside.
3. Grind the conductor pipe and remove any sharp edges, ensuring that the conductor pipe cut is level.
4. Run the surface casing to the required depth and cement casing in place. Allow the cement to set.
5. Lift the blow-out preventer (BOP) or diverter and prepare to cut off the surface casing at a sufficient height above the cellar deck to facilitate the installation of the WFT-SB Casing Head/Spool Assembly with Base Plate.
6. Once the surface casing is released from the rig floor, cut it approximately 12 inches (or more) above the final cut location.
7. Remove the excess surface casing, and the BOP or diverter, and set aside.
8. Bevel the surface casing outer diameter (3/16" x 3/8") and inner diameter (1/8" x 45 degrees). Remove any sharp edges.
9. Examine the Casing Head with Slip-On Weld (SOW) bottom prep. Verify the following:

- O-ring seal, bore, ports and exposed ring grooves are clean and in good condition.
- Test fittings, studs and nuts, valves, flanges and bull plugs are intact and in good condition.



10. Determine the correct elevation for the wellhead assembly. Measure depth of the surface casing socket in SOW with O-ring bottom prep.
11. Lightly lubricate the casing stub with an oil or light grease.

⚠WARNING⚠

Excessive oil or grease will prevent a positive seal from forming.

12. Align and level the WFT-SB Casing Head/Spool Assembly over the casing stub, orienting the outlets to drilling equipment, per the drilling supervisor's direction.

14. Slowly and carefully lower the assembly over the casing stub until the stub bottoms in the casing socket.
15. Remove the test fitting from the casing head test port, and set aside.
16. Ensure that the WFT-SB Casing Head/Spool Assembly is plumb and level.
17. Weld and test the surface casing using the recommended welding procedure located in the Appendices Section of this manual.

Testing the BOP Stack

1. Examine the Test Plug/Running & Retrieval Tool. Verify the following:

- Elastomer seals, threads and plugs are intact and in good condition.
- Drill pipe threads are correct size, clean and in good condition.

2. Install a new, appropriately sized ring gasket in the ring groove of the WFT-SB Spool and make up the BOP stack.

NOTE

Immediately after make-up of the BOP stack and periodically during drilling of hole for the casing string, the BOP stack (flanged connections and rams) must be tested.

3. Orient the test plug with elastomer down/ACME threads up, and make up a joint of drill pipe to the test plug.

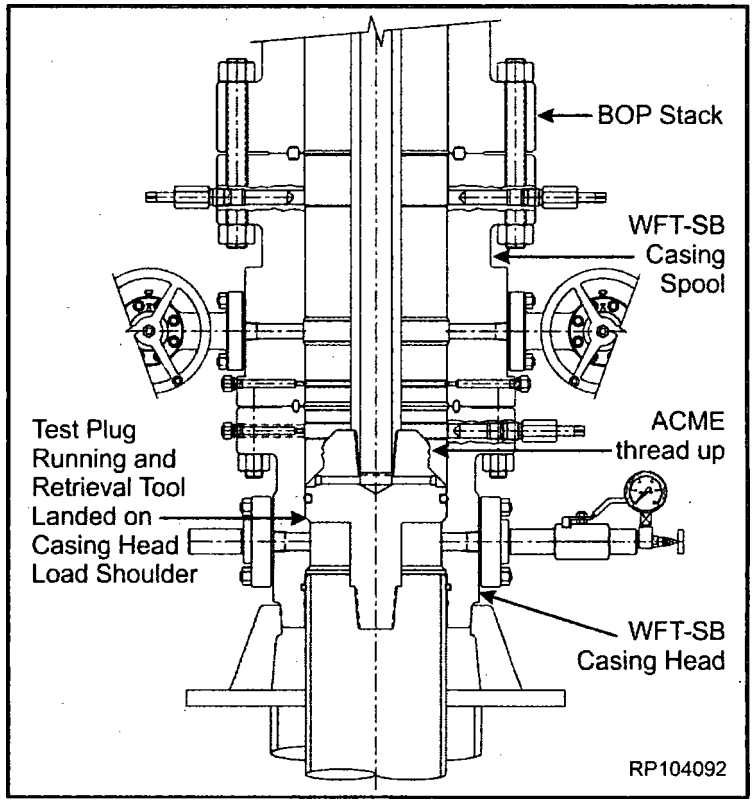
NOTE

If pressure is to be supplied through the drill pipe, remove the pipe plug from the weep port.

⚠CAUTION⚠

Ensure that the test plug elastomer is down and Acme threads are up when testing.

4. Fully retract all lockscrews in the entire WFT-SB casing head/spool assembly.
5. Lubricate the test plug elastomer seal with a light oil or grease.
6. Lower the test plug through the BOP stack into the WFT-SB assembly, until it lands on the casing head load shoulder.



7. Open lower casing head side outlet valve. Monitor any leakage past the test plug seal.
8. Close the BOP rams on the drill pipe, and test to **5,000 psi or as required by the drilling supervisor**.
9. After a satisfactory test is achieved, release pressure and open the rams.
10. Remove as much fluid from the BOP stack as possible.
11. Retrieve the test plug assembly slowly to avoid damage to the seal.
12. Close all outlet valves on WFT-SB Casing Head/Spool Assembly.
13. Repeat Steps 1 thru 12, as required during drilling of the hole.

Running and Retrieval of the Long Bowl Protector

NOTE

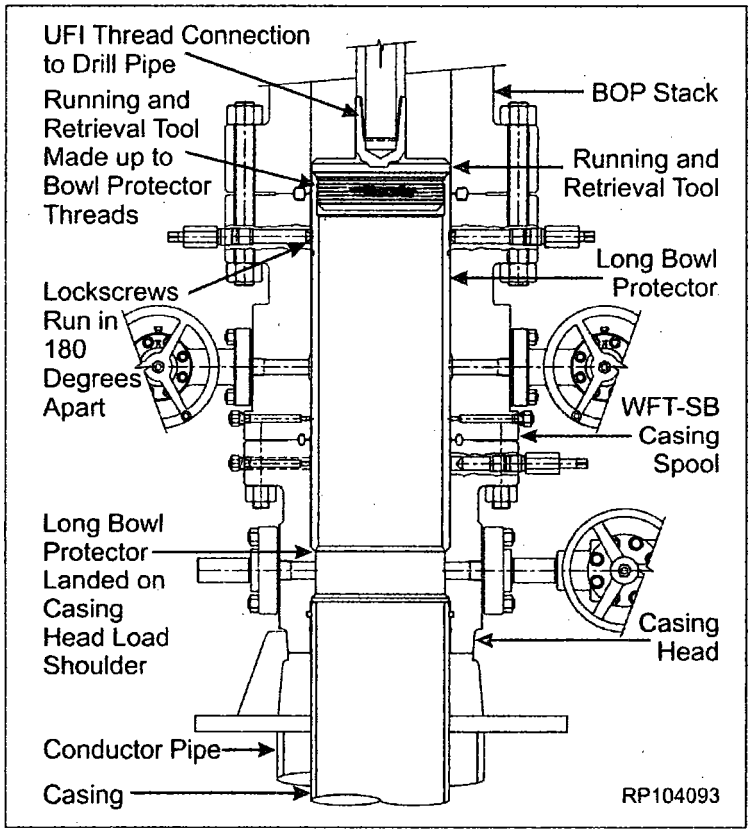
Always use a bowl protector while drilling to protect wellhead load shoulders from damage by drill bit or rotating drill pipe. The bowl protector must be retrieved prior to running the casing string.

Running in the Bowl Protector prior to Drilling

1. Examine the Long Bowl Protector. Verify the following:
   - Bore drift is correct size, clean, in good condition, and free of debris
   - Threads are clean and undamaged
   - O-ring seals are properly installed, clean, and undamaged.
2. Examine the Bowl Protector Running/Retrieval Tool. Verify the following:
   - Threads are clean, undamaged and free of debris
   - Ports are clean and unobstructed.
   - Drill Pipe threads are correct size, clean and in good condition.
3. Orient the Bowl Protector Running Tool with Acme threads down.

⚠CAUTION⚠

Ensure that the left hand (LH) Acme threads are down prior to engaging Bowl Protector Running Tool into Long Bowl Protector.



4. Make-up a drill pipe joint to the Running Tool.
5. Thread Running Tool into the Long Bowl Protector, rotating two turns counterclockwise.
6. Verify that all lockscrews in the WFT-SB Casing Head/Spool Assembly are fully retracted.
7. Slowly lower the Running Tool/Bowl Protector Assembly through the BOP stack and into the WFT-SB Casing Head/Spool Assembly, until it lands securely on the casing head load shoulder.
8. On WFT-SB Casing Spool, run in two Lockscrews ("snug" tight **ONLY**), 180 degrees apart, to hold Bowl Protector in place.

⚠WARNING⚠

Do NOT over tighten the lockscrews, as this will cause damage to the Bowl Protector and the lockscrews.

9. Remove the running tool from the bowl protector, by rotating the drill pipe clockwise two turns while lifting straight up.
10. Drill out and prepare to run the casing string per the drilling supervisor's instruction.

Retrieving the Bowl Protector after Drilling

1. Make-up the retrieval tool to the drill pipe, with Acme threads down.
2. Slowly lower the retrieval tool through the BOP Stack into the Bowl Protector.
3. Rotate the retrieval Tool counterclockwise, two turns, to engage with bowl protector Acme threads.
4. Fully retract both lockscrews on the WFT-SB casing spool, and retrieve the bowl protector.

NOTE

Ensure that all lockscrews in both the upper flange (casing spool) and lower flange (casing head) of the wellhead Assembly are fully retracted from well bore.

5. Remove the bowl protector and the running and retrieval tool from the drill floor.

Hanging off the Intermediate Casing

1. Run the intermediate casing as required and space out appropriately for the mandrel casing hanger.

NOTE

If the intermediate casing becomes stuck and the mandrel casing hanger cannot be landed, refer to STAGE 4B.

2. Examine the WFT-SBD-SN Mandrel Casing Hanger. Verify the following:
   - Bore drift is correct size, clean and free of debris
   - All threads are clean and undamaged.
   - Flow-By flutes are clear and unobstructed.
   - Slick Neck seal area is clean and undamaged.
3. Examine the Mandrel Casing Hanger Running Tool. Verify the following:
   - Threads are clean and in good condition.
   - O-ring seals are clean and undamaged.
4. Thread the mandrel hanger onto the last joint of casing to be run. Torque the connection thread to manufacturer's optimum "make-up" torque value.
5. Make up a landing joint to the top of the running tool. Torque the connection to thread manufacturer's maximum "make-up" torque valve.

⚠CAUTION⚠

If Steps 4 and 5 were performed prior to being shipped to location, the hanger running tool should be backed off and made back up to ensure it will back off freely.

6. Liberally lubricate the outer diameter of the hanger neck and inner diameter of the running tool O-ring seals with a light oil or grease.

⚠WARNING⚠

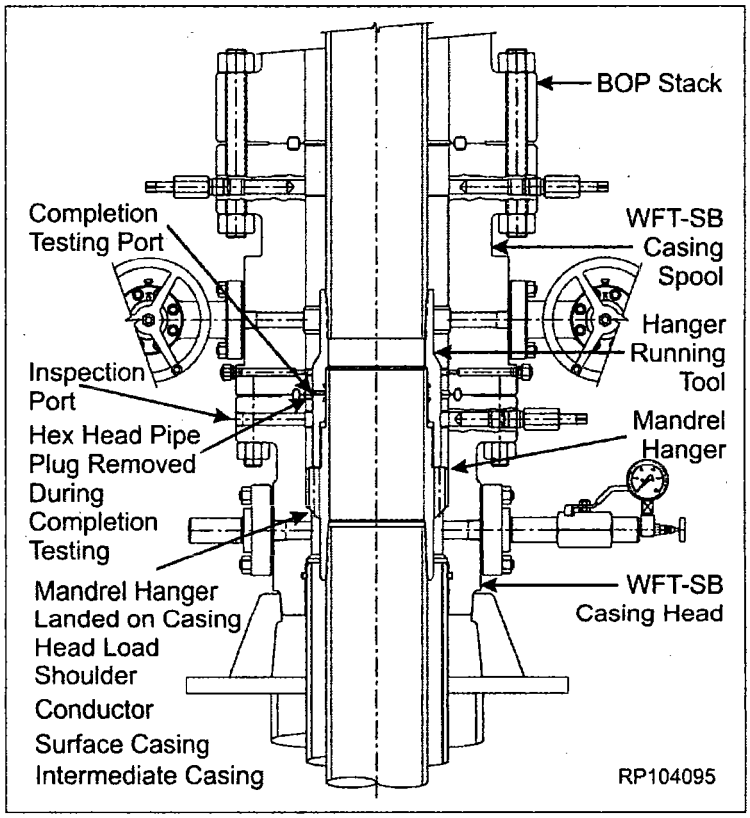
Do NOT use pipe dope or other metal based compounds. This will cause galling.

7. Maintaining a neutral weight, rotate the hanger running tool with chain tongs, first clockwise until a thread "jump" can be felt, then counterclockwise, approximately eight turns, to a positive stop, and then back off (clockwise) one quarter (1/4) turn.

⚠CAUTION⚠

Do NOT torque the running tool to the casing hanger connection. Do NOT back off more than one quarter (1/4) turn.

8. Remove the flush fitting hex head pipe plug from the outer diameter of the running tool and attach a test pump.
9. Apply hydraulic test pressure to **5,000 psi and hold for 15 minutes or as required by the drilling supervisor.**
10. Upon completion of a successful test, bleed off test pressure through the test pump and remove the pump. Replace the pipe plug.
11. Locate indicator groove machined in outer diameter of Running Tool, coat with white paint.
12. Verify that all lockscrews in the WFT-SB casing head/casing spool assembly are fully retracted.
13. Slowly and carefully lower the mandrel hanger through the BOP stack, and land the hanger onto the casing head load shoulder.
14. Slack off weight on the casing.
15. Check that the well is stable and no pressure buildup or mud flow is occurring.



16. Drain the BOP stack through the casing head side outlet valves.
17. Remove the pipe plug from the casing head flange port marked "Inspection Port."
18. Visually verify that the running tool groove is in the center of the inspection port, and that the mandrel hanger has landed properly.
19. Reinstall the pipe plug and tighten securely.
20. Place a paint mark on the landing joint level with the rig floor, and cement casing as required.

NOTE

If the casing is to be reciprocated during cementing, it is advisable to pick up the mandrel hanger a minimum of eight feet above the landing point. Place a mark on the landing joint, level with the rig floor, and then reciprocate above that point. If at any time resistance is felt, land the mandrel casing hanger immediately.

21. Retrieve the hanger running tool and landing joint by rotating landing joint clockwise (to the right), fourteen full turns.

Hanging off Intermediate Casing – Contingency Completion

NOTE

The following procedure should ONLY be followed if the intermediate casing should become stuck in the hole. If the casing did NOT get stuck and is successfully hung off with the mandrel casing hanger, skip this stage.

1. Cement the intermediate casing in accordance with the program, taking returns through the flow-by flutes of the mandrel casing hanger as required.
2. Drain the casing head bowl through the side outlet.
3. Separate the WFT-SB casing spool from the casing head.
4. Pull up on WFT-SB casing spool and suspend it above casing head, high enough to install a WFT-21 Slip Type Casing Hanger.
5. Wash out as required.
6. Examine the WFT-21 slip type casing hanger. Verify the following:
   - Hanger is correct size, clean and undamaged.
   - Slip segments are sharp and in proper position.
   - All screws are in place.
7. Remove the latch screw to open the slip type hanger.
8. Place two boards on the casing head flange, against the casing, to support the hanger.
9. Wrap the hanger around the casing and replace the latch screw.
10. Prepare to lower the hanger into the casing head bowl.
11. Grease the WFT-21 slip type casing hanger body and remove the slip retaining cap screws.
12. Remove the boards and allow the hanger to slide down into the casing head.

13. Once the hanger has landed securely on the casing head bowl load shoulder, pull tension on the casing to the desired hanging weight, and then slack off.

NOTE

A sharp decrease on weight indicator will signify that the hanger has taken weight. If this does not occur, pull tension again and slack once more.

14. Rough cut the casing approximately eight inches, or more, above the top of the casing head flange. Remove the excess casing.
15. Final cut the casing at 2 1/2" +/- 1/8" above casing head flange.
16. Bevel the casing outer diameter (1/4" x 30 degrees) and inner diameter (1/8" x 30 degrees).
17. Remove and discard the used gasket ring from the casing head.
18. Clean the mating ring grooves on the WFT-SB casing spool and casing head. Lightly wipe with oil or grease.

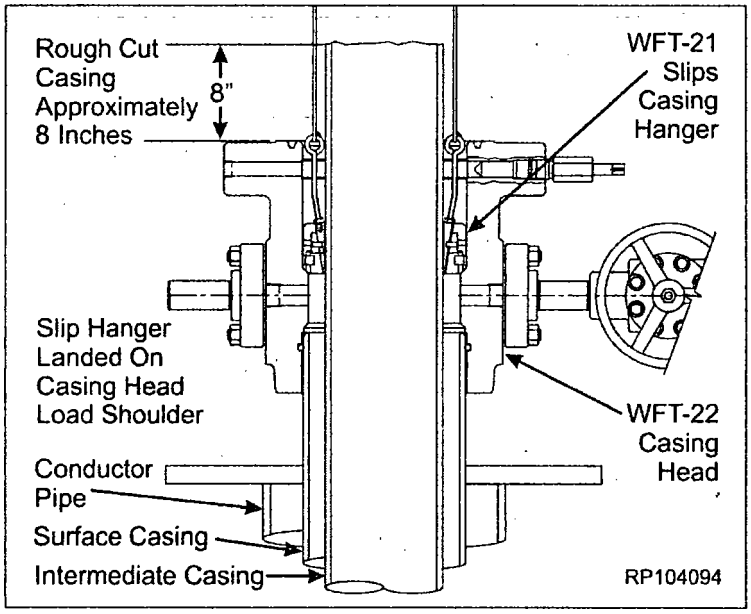
⚠WARNING⚠

Excessive oil or grease will prevent a positive seal from forming.

19. Install a new appropriately sized ring gasket into the casing head groove.
20. Loosely reconnect or make up the WFT-SB casing spool to the casing head.

NOTE

The casing spool to casing head connection will be fully tightened after the pack-off bushing is run and proper setting is verified.



Installation of the Pack-Off Bushing and Energizing the P-Seals

WFT-SB Pack-Off Bushing Installation

NOTE

Installation procedure is identical for both Standard and Emergency WFT-SB Pack-Off Bushings.

1. Determine which pack-off bushing to use:
   - If casing has been run normally and is hung off with a mandrel casing hanger, use a standard packoff bushing.
2. Examine the appropriate pack-off bushing. Verify the following:
   - All elastomer seals are in place and undamaged.
   - Bore, ports and alignment lugs are clean and in good condition.
   - Coat the lockscrew relief groove with white paint.
3. Liberally lubricate the inner diameter of the double P-seal grooves and outer diameter of dovetail seals with a light oil or grease.

4. Examine the pack-off bushing running tool. Verify the following:
   - All elastomer seals are properly installed, clean and undamaged
   - Threads are clean, undamaged and free of debris
   - Bore and ports are clean and unobstructed.
5. Make-up a landing joint to the running tool and rack back assembly.
6. Run two or three stands of heavy weight drill pipe or collars in the hole and set floor slips.

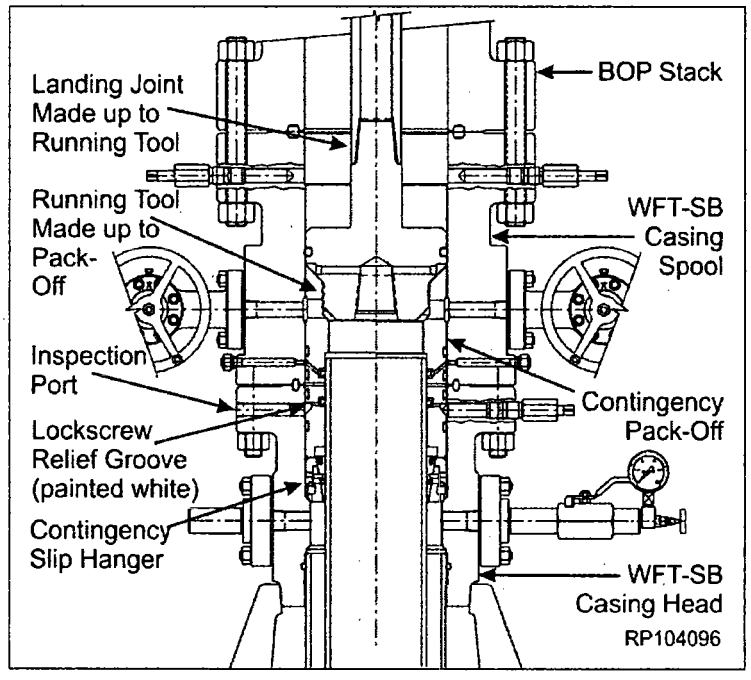
NOTE

Use heavy weight drill pipe or drill collars. Weight required to push Pack-Off Bushing into Casing Head, over Mandrel Hanger slick neck, is approximately 14,000 lbs.

⚠WARNING⚠

When lowering the drill pipe into the well, extreme caution must be taken to not damage the top of the mandrel hanger with the end of the drill pipe. It is recommended that the drill pipe be centralized to the hanger inner diameter, as closely as possible, when entering the hanger.

7. Carefully lower the bushing over the drill pipe and set it on top of floor slips.
8. Make up the landing joint/running tool assembly to the drill pipe suspended in floor slips.
9. Carefully pick up the pack-off bushing, thread the bushing into the running tool, then rotate the bushing approximately two turns counterclockwise (to the left), coming to a positive stop.
10. Lower the assembly through the BOP Stack and the WFT-SB spool assembly until the pack-off bushing lands on the casing hanger.



11. Verify, through inspection port that the pack-off bushing has landed properly after:
    - ensuring well is stable and no pressure buildup or mud flow is occurring.
    - drain BOP Stack through Casing Head side outlet valves.
    - remove Pipe Plug (1"-NPT) from Casing Head flange port marked "Inspection Port".
    - Check, to ensure, bottom of Lockscrew relief groove (painted white) on Support Bushing is at bottom of inspection port.
    - Reinstall Pipe Plug and tighten securely.
12. Fully run in all Casing Head Lockscrews (lower flange), in an alternating cross pattern.
13. Using two chain tongs, 180° apart, rotate Landing Joint/Running Tool approximately 2 turns clockwise (to the

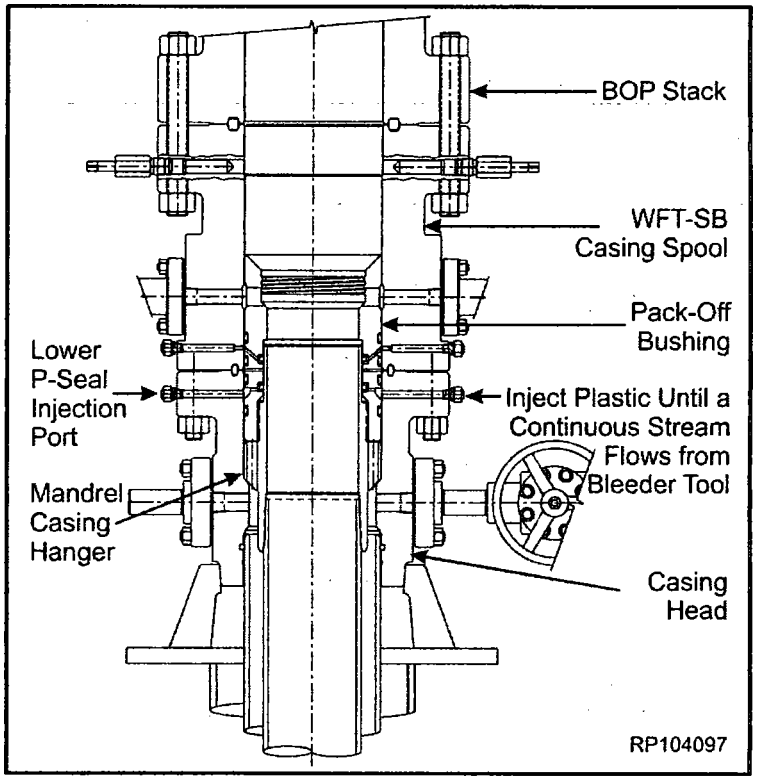
right), coming to a stop and carefully lift tool to Drill Floor, set aside.

NOTE

If the Contingency Pack-Off Bushing is being installed, it is now necessary to make up the Speed Head Casing Head/Casing Spool connection. Tighten all studs in an alternating cross pattern until the flange bolting is fully made up.

Energizing the P-Seals

1. Locate the two lower injection fittings ("INJ"), located 180 degrees apart on the casing head. Remove the dust cap from one fitting and remove the second fitting entirely.
2. Attach a bleeder tool to the injection fitting without the dust cap, in the casing head. Open the bleeder tool.
3. Attach a plastic injection tool to the open port and inject plastic packing into the port until a continuous stream flows from the bleeder tool. Close the bleeder tool.
4. Remove the injection tool. Reinstall the injection fitting into the open port and remove the dust cap. Reattach the injection tool.
5. Continue injecting plastic packing to **5,000 psi. or to 80% of casing collapse pressure, whichever is less.**



NOTE

The strength of a mandrel casing hanger slick neck is equivalent to P110 Grade casing with the same weight as run in the casing string.

6. Hold and monitor pressure for 15 minutes or as required by the drilling supervisor.
7. If pressure drops, the plastic packing has not filled the seal area completely. Open the bleeder tool, bleed off the pressure and repeat Steps 5 and 6, until pressure is stabilized.
8. Remove the plastic injection tool and bleeder tool. Reinstall the dust caps on both injection fittings.
9. Repeat Steps 1 thru 8 to pack off and energize the upper P-Seal.

10. Locate the "SEAL TEST" fitting, slightly below and 90 degrees from the injection fittings. Remove the dust cap from this fitting.
11. Attach a test pump to the fitting.
12. Pump clean test fluid between the P-Seals until a test pressure of **5,000 psi or 80% of casing collapse pressure is attained, whichever is lower.**

⚠WARNING⚠

Do NOT exceed 80% of casing collapse pressure when a slip type casing hanger and contingency pack-off bushing are utilized.

13. Hold test pressure for **15 minutes or as required by the drilling supervisor.**
14. If pressure drops, a leak has developed. Take the appropriate action per the following table:

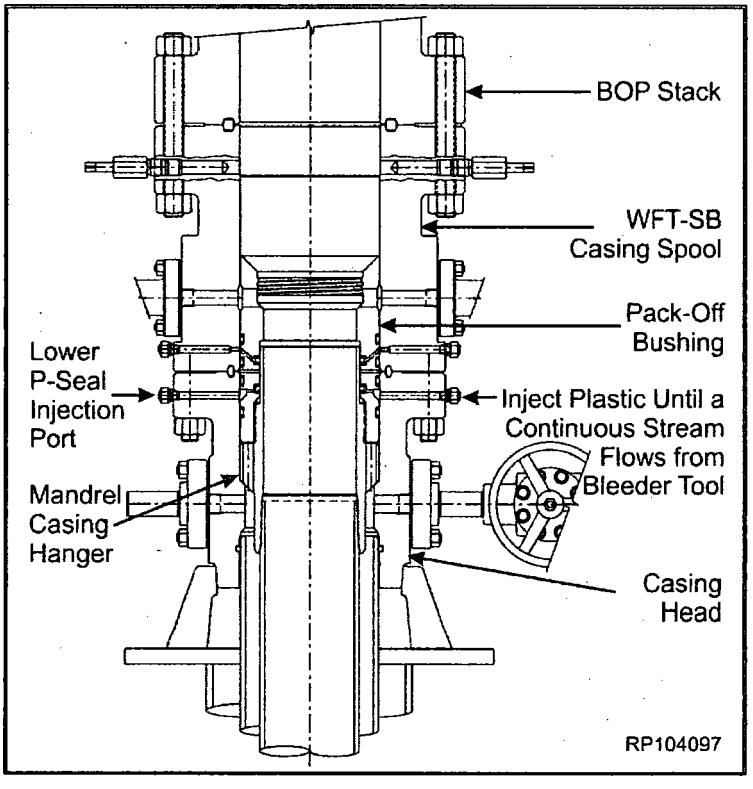
Leak Location	Cause	Action
Into the bore of the casing head	Upper P-seal leaking	Bleed off pressure and re-inject plastic packing into leaking upper P-seal port.
Around the casing	Lower P-Seal leaking	Bleed off pressure and re-inject plastic packing into lower P-seal port.

15. Repeat Steps 12 thru 14 until a satisfactory test is achieved.
16. Once a satisfactory test is achieved, carefully bleed off pressure and remove Test Pump.
17. Attach the bleeder tool to the test port fitting and open the tool to vent any remaining trapped pressure.

⚠CAUTION⚠

Always direct the bleeder tool port away from people and property.

18. Remove the bleeder tool and reinstall dust cap in Test Port Fitting.



Retesting the BOP Stack

1. Examine the Test Plug/Running Tool. Verify the following:
   - Elastomer seals are intact and in good condition.
   - Drill pipe threads are clean and in good condition.

NOTE

Immediately after testing the support bushing seals and periodically during conditioning of the hole prior to running tubing, the BOP stack (flanged connections and rams) must be tested.

2. Orient the test plug with elastomer down/ACME threads up. Make up a joint of drill pipe to the test plug.

NOTE

Remove the pipe plug from the weep port if pressure is to be supplied through the drill pipe.

⚠CAUTION⚠

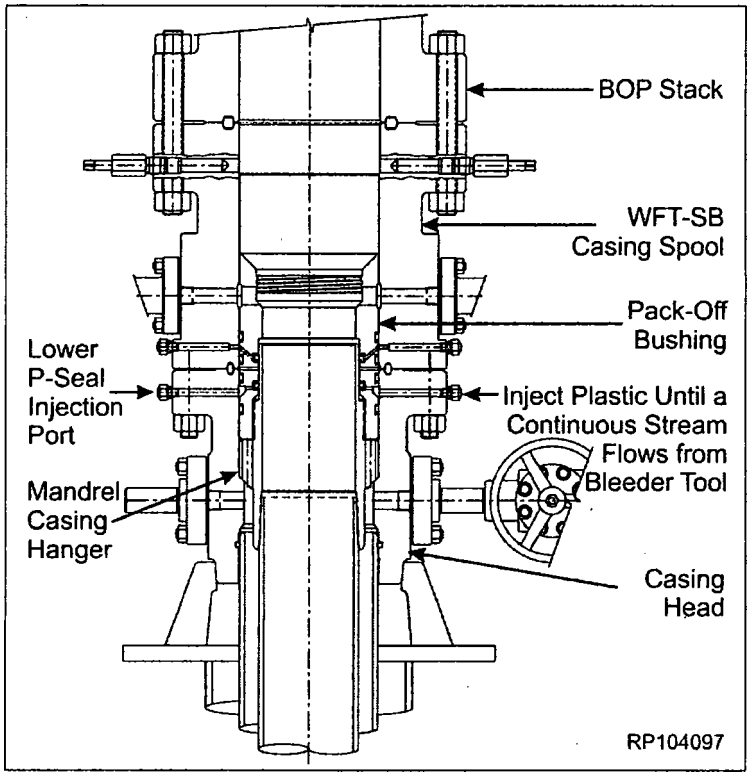
Make sure the elastomer is down and ACME threads are up when testing.

3. Fully retract all lockscrews in the upper WFT-SB Spool Assembly.

⚠WARNING⚠

Do NOT retract the lockscrews located in the casing head (lower flange). Doing so could allow the pack-off support bushing to rise out of position.

4. Lubricate the test plug elastomer seal with light oil or grease.



5. Lower the test plug through the BOP stack into the WFT-SB spool assembly until it lands on top of the pack-off bushing.
6. Open the upper WFT-SB casing spool side outlet valves. Monitor for any leakage past the test plug seal.
7. Close the BOP rams on the drill pipe and test to **10,000 psi or as required by the drilling supervisor.**
8. After a satisfactory test is achieved, release all pressure and open the rams.
9. Remove as much fluid from the BOP stack as possible.
10. Retrieve the test plug assembly slowly to avoid damage to the seal.
11. Close all outlet valves on the WFT-SB casing head/spool assembly.

Running and Retrieving the Short Bowl Protector

NOTE

Always use a bowl protector while drilling to protect the wellhead load shoulders from damage by the drill bit or rotating drill pipe. The bowl protector must be retrieved prior to running the casing string!

Running the Bowl Protector Prior to Drilling

1. Examine the short bowl protector. Verify the following:
   - Bore drift is correct size, is clean, in good condition, and free of debris.
   - Threads are correct size and type.
   - Threads are clean and in good condition.
2. Orient the bowl protector running tool with ACME threads down.

NOTE

The running tool is the same tool used for handling the long bowl protector.

⚠CAUTION⚠

Make sure that the left hand (LH) ACME threads are down prior to engaging the bowl protector running tool into the short bowl protector.

3. Make-up a drill pipe joint to the running tool.
4. Thread the running tool into the short bowl protector, rotating two turns counterclockwise (to the left).
5. Verify that all upper lockscrews in the WFT-SB spool assembly are fully retracted. Slowly lower the running tool/bowl protector assembly through the BOP stack into the WFT-SB spool assembly until it lands on top of the pack-off bushing.

⚠WARNING⚠

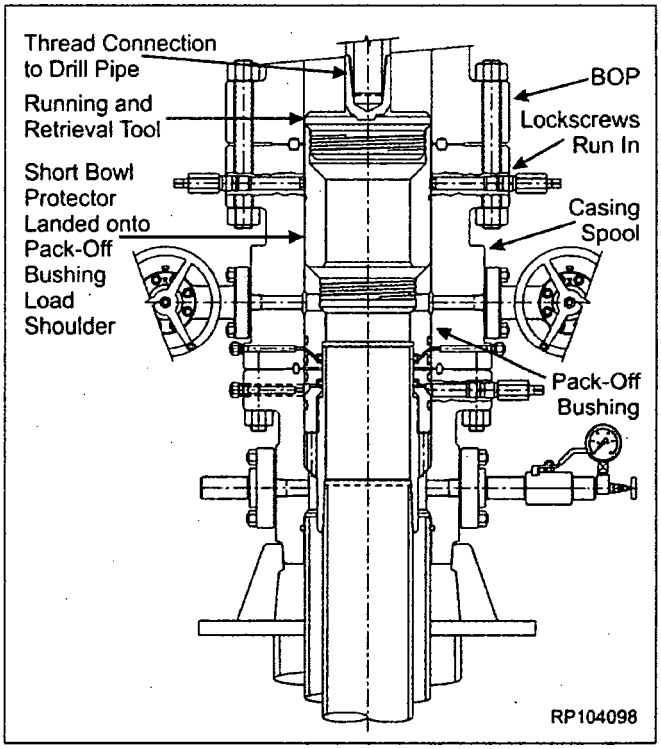
Do NOT retract the lower lockscrews located in the WFT-SB casing head, as this could allow the pack-off bushing to rise out of position.

6. On the upper WFT-SB spool assembly, run in two lockscrews ("snug" tight ONLY), 180 degrees apart, to hold the bowl protector in place.

⚠WARNING⚠

Do NOT over tighten the lockscrews, as this will cause damage to both the bowl protector and lockscrews.

7. Remove the running tool from the bowl protector, by rotating the drill pipe clockwise two turns while lifting straight up.
8. Drill out and prepare to the production casing string per the drilling supervisor's instructions.



Retrieval of the Short Bowl Protector After Drilling

1. Make up the retrieval tool to the drill pipe with ACME threads down.
2. Slowly lower the retrieval tool into the bowl protector.
3. Rotate the retrieval tool counterclockwise, two turns, to engage with the bowl protector ACME threads.
4. Fully retract both lockscrews on the casing spool (upper flange), and retrieve the bowl protector.
5. Remove the bowl protector and retrieval tool from the drill string.

Running the Production Casing

1. Run the production casing to necessary depth and cement as required.

NOTE

There are two methods for installing WFT-22 Slip Type Casing Hangers:

- **Under the BOP stack.**
- **Through the BOP stack.**

Installation of the Slip-Type Casing Hanger Under the BOP Stack

1. Drain the casing head through the uppermost side outlet valve.
2. Lift and suspend the BOP stack above the WFT-SB spool assembly to a minimum of 18 inches.
3. Wash out the WFT-SB casing head/spool assembly as required.
4. Confirm that ONLY the lockscrews in the casing spool (upper flange) are fully retracted.
5. Examine the WFT-22 slip-type casing hanger. Verify the following:
   - Slip segments are clean and undamaged.
   - All screws are in place.
   - Packing element is clean and undamaged.

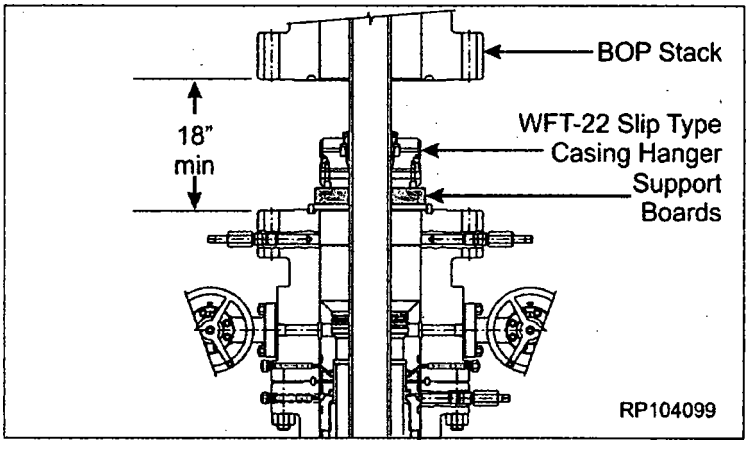
⚠CAUTION⚠

The packing element should not protrude past the casing hanger outer diameter. If the packing element does extend past the outer diameter, loosen the cap screws in the bottom of the hanger.

6. Place two boards across the casing spool face, against the casing, to support the hanger.
7. Disengage the spring loaded latch, open the hanger and wrap the hanger around the casing, allowing the support boards to carry weight.
8. Re-engage the casing hanger spring loaded latch.
9. Remove the slip retaining cap screws from the outer diameter of the hanger body, allowing the slip segments to settle around the casing.
10. Supporting the weight of the casing hanger, remove the support boards and lower the hanger into the WFT-SB casing head/spool assembly until it lands on the pack-off bushing load shoulder.

⚠CAUTION⚠

Do NOT drop the hanger; lower it carefully.



Installation of the Slip-Type Casing Hanger through the BOP Stack

1. Drain the WFT-SB casing head/spool assembly and BOP stack through the side outlet valves on the spool assembly.
2. Wash out the wellhead assembly until clean returns are seen.
3. Examine the slip type casing hanger. Verify the following:
   - slip segments are clean and undamaged
   - all screws are in place
   - Packing Element is clean and undamaged.

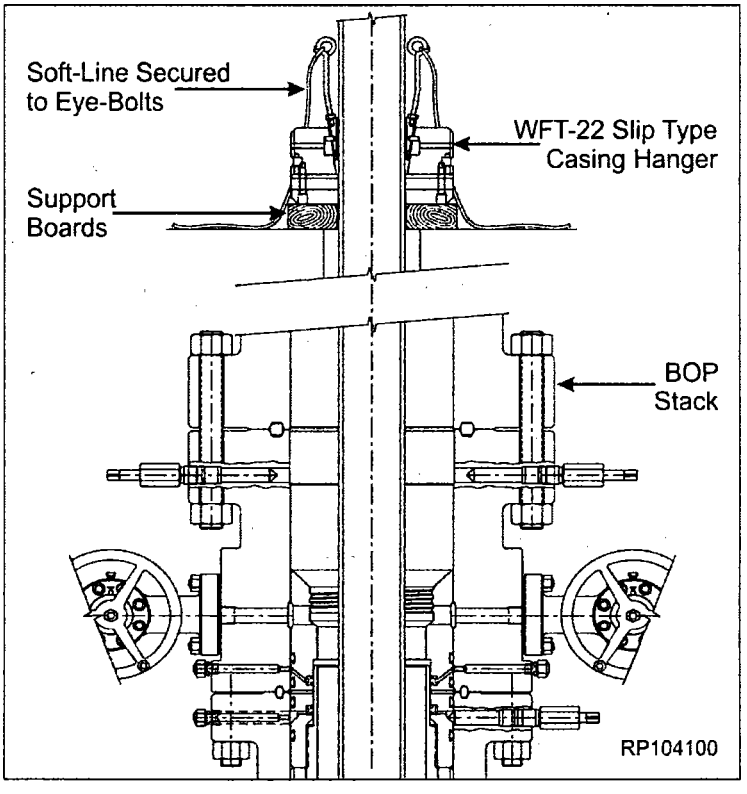
⚠CAUTION⚠

The packing element should not protrude past the casing hanger outer diameter. If the packing element does extend past the outer diameter, loosen the cap screws in the bottom of the hanger.

4. Place two boards across the rotary table, against the casing, to support the hanger.
5. Disengage the spring loaded latch, open the hanger and wrap it around the casing, allowing the support boards to carry the weight.
6. Re-engage the casing hanger's spring loaded latch.
7. Measure the distance from the top flange of the WFT-SB casing spool to the drilling rig floor (RKB).
8. Measure out two lengths of soft-line cord (rope) to the same length as the RKB measurement, and adding an additional 10 feet to each line.
9. Mark the soft line cord at the required length.
10. Install two eyebolts into the tapped holes in the top of the casing hanger slip segments, 180 degrees apart.
11. Securely tie the soft-line cord to the eyebolts.

NOTE

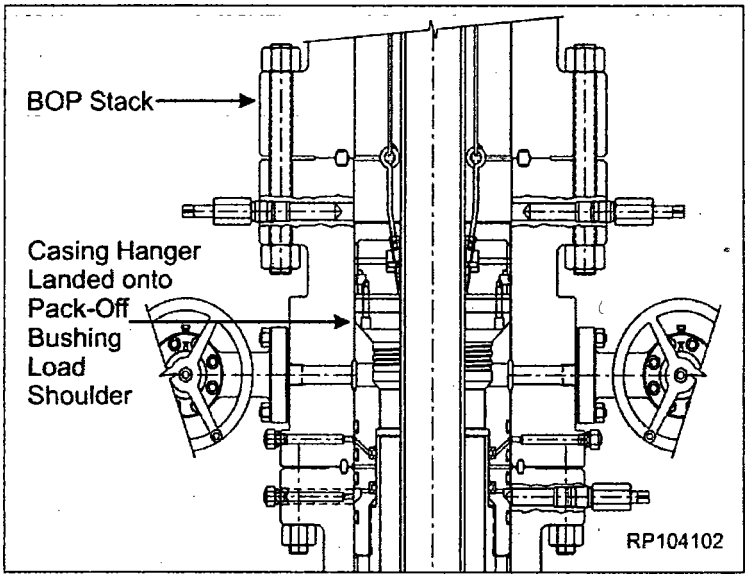
Measuring the soft-line cord and installing the eyebolts into the hanger segments should be done offline.



12. Remove the slip retaining cap screws from the outer diameter of the hanger body, allowing the slip segments to settle around the casing.
13. Supporting the weight of the casing hanger, remove the support boards and carefully lower the hanger through the BOP stack into the WFT-SB casing head/spool assembly, until it securely lands on the pack-off bushing load shoulder.

⚠ CAUTION ⚠

Do NOT drop hanger; lower it carefully.



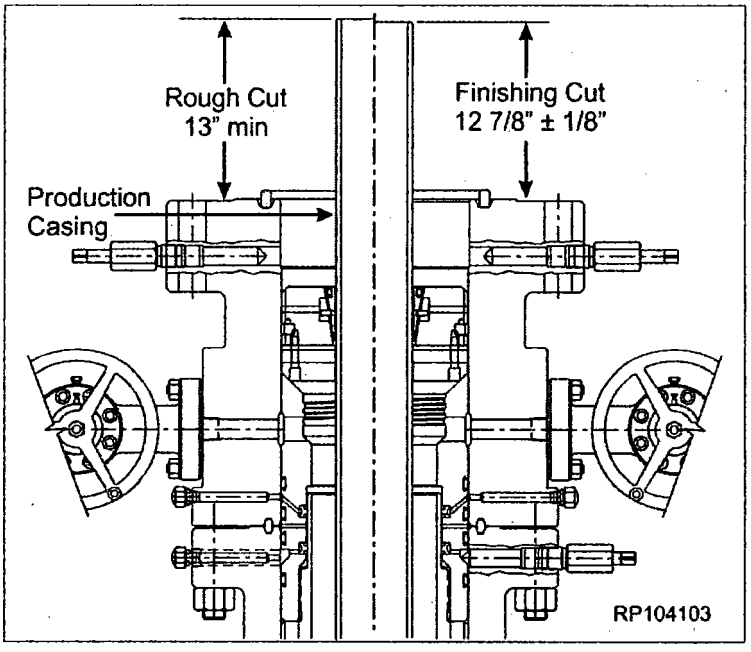
Hanging off the Production Casing

1. With the casing hanger now landed onto the pack-off bushing load shoulder, pull tension on the casing to the desired hanging weight, and then slack off.

NOTE

A sharp decrease on the weight indicator will signify that the hanger has taken weight. If this does not occur, pull tension again and slack off once more.

2. Rough cut casing approximately 16" above top of WFT-SB Spool top flange. Remove excess casing.
3. Carefully remove BOP stack, set aside.
4. Final cut the casing at about 12 7/8" +/- 1/8" above the face of the WFT-SB spool, which will allow room for the double studded adapter flange.
5. Grind the casing stub level and bevel the casing outer diameter (1/4" x 1/8") and inner diameter (1/8" x 45 degrees).



Installation of the Double-Studded Adapter (DSA) Flange

1. Examine the double studded adapter (DSA) Flange. Verify the following:
   - Ring grooves are clean and undamaged.
   - Stud threads are clean and undamaged.
2. Orient the DSA flange with the 10M side down.
3. Thoroughly clean the mating grooves of the DSA flange and the WFT-SB spool assembly. Wipe lightly with oil or grease.

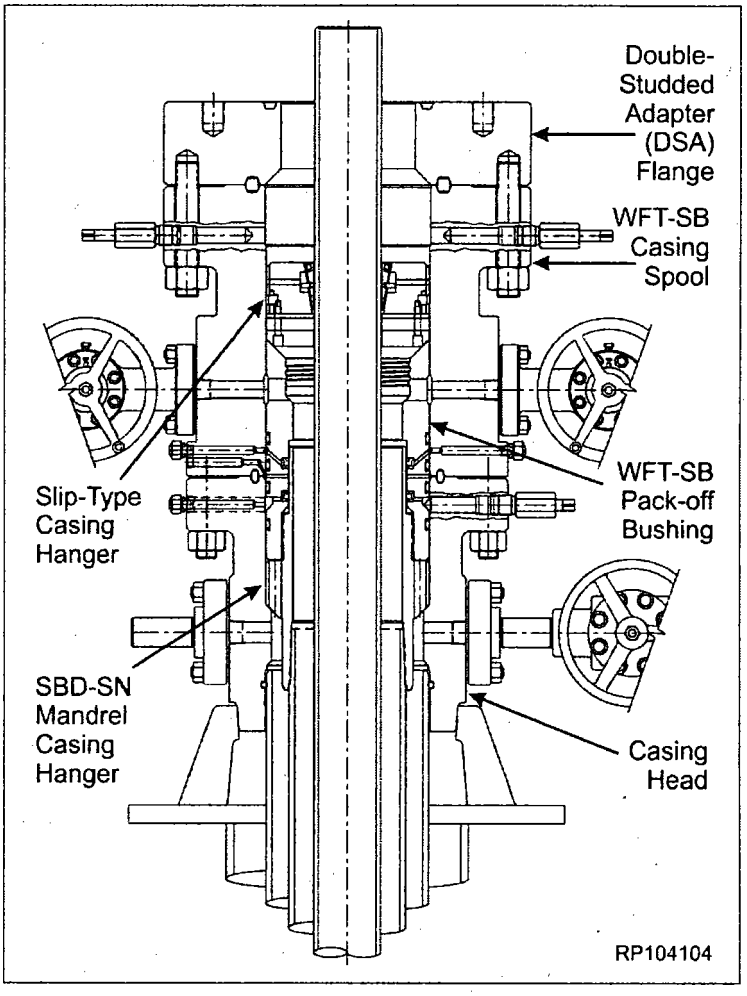
⚠WARNING⚠

Excessive oil or grease will prevent a positive seal from forming.

4. Install a new appropriately sized ring gasket into the WFT-SB spool assembly groove.
5. Lift, while holding level, and carefully lower the DSA over the production casing stub until it lands on the ring gasket.
6. Make-up the flange connection with appropriate nuts, tightening in alternate cross pattern, as required by API 6A.
7. Fill the void area in the DSA around the production casing with a light weight oil.
8. Continue filling with a light weight oil to the top of the DSA.

⚠WARNING⚠

Do NOT allow oil to run into the ring groove. This may prevent a positive seal from forming.



Installation and Testing of the Tubing Spool Assembly

Installation of the TCM Tubing Spool Assembly

1. Examine the tubing spool assembly. Verify the following:
   - bore is clean and free of debris
   - ring grooves and seals are clean and undamaged
   - PE-seal assembly is properly installed, clean and undamaged.
2. Thoroughly clean the mating ring grooves of the WFT-TCM Tubing Spool and WFT-SB Casing Spool.
3. Lightly lubricate the inner diameter of the PE-seal and outer diameter of the casing stub with oil or grease.

⚠WARNING⚠

Excessive oil or grease will prevent a positive seal from forming.

4. Install a new appropriately sized ring gasket into the WFT-SB casing spool assembly groove.
5. Orient the tubing spool assembly as required and carefully lower it over the casing stub, until it lands on the ring gasket.
6. Make up the flange connection with the appropriate studs and nuts, tightening in an alternating cross pattern, as required by API 6A.

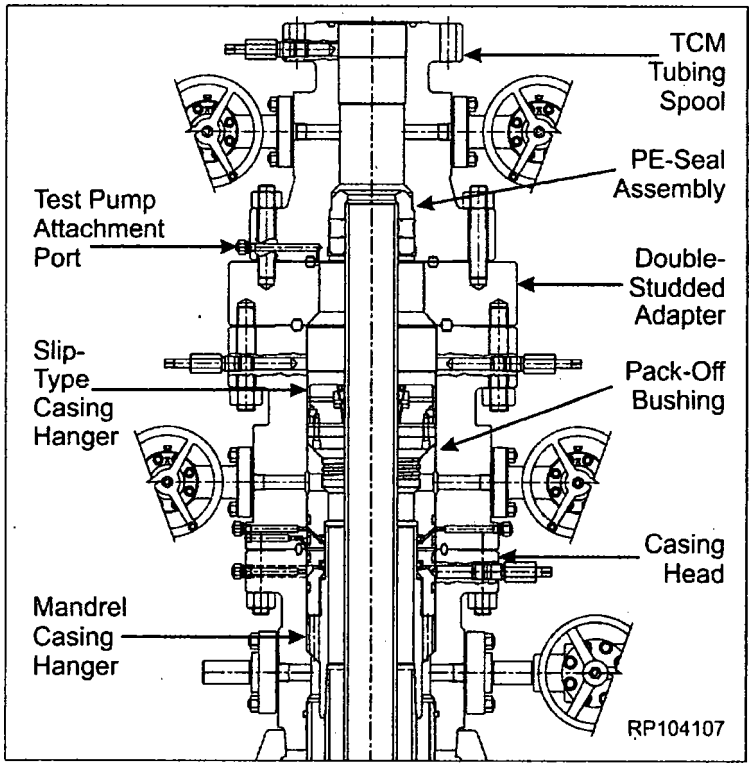
Testing the Secondary Seal and Flange Connection Test

1. Locate the test port fitting on the OD of the tubing spool lower flange. Remove the dust cap from the fitting.
2. Attach a test pump to the test port fitting.
3. Pump clean test fluid into the void area between the flanges until a test pressure of **10,000 psi or 80% of casing collapse pressure is attained**, whichever is lower.
4. Hold and monitor pressure for 15 minutes or as required by the drilling supervisor.
5. Once a satisfactory test is achieved, carefully bleed off pressure and remove the test pump
6. Attach a bleeder tool to the test port fitting and open the tool to vent any remaining trapped pressure.

⚠CAUTION⚠

Always direct the bleeder tool port away from people and property.

7. Remove the bleeder tool and reinstall the dust cap on the test port fitting.
8. Install a new appropriately sized ring gasket into the tubing spool groove.



Testing the BOP

NOTE

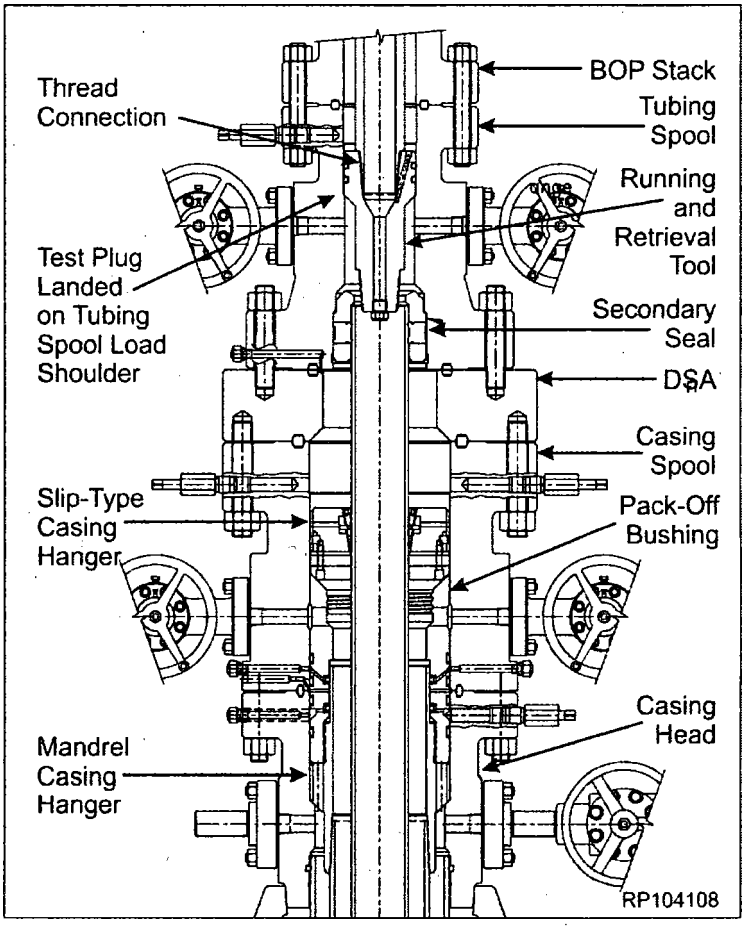
Immediately after the make-up of the BOP Stack and periodically during drilling of hole for the next string, the BOP stack (flanged connections and rams) must be tested.

1. Examine the test plug. Verify that:
   - O-ring seals and plugs are properly installed, clean and undamaged.
   - All threads are clean and undamaged.
2. Orient the test plug with O-ring seals up and drill pipe pin connection down.
3. Make up a joint of drill pipe to the top of the test plug.

NOTE

If pressure is to be supplied through the drill pipe, the pipe plug should be removed from the weep port.

4. Fully retract all lockscrews on the WFT-TCM tubing spool assembly.
5. Open the side outlet valves on the tubing spool.
6. Wipe the test plug O-ring seals with a light oil or grease.
7. Lower the test plug through the BOP until it lands on the tubing spool load shoulder.
8. Close the BOP rams on the drill pipe and test to **10,000 psi maximum.**
9. Monitor the open outlets for signs of leakage past the test plug.
10. Once a satisfactory test is achieved, release pressure and open the rams.
11. Close the side outlet valves.
12. Remove as much fluid from the BOP stack as possible.
13. Slowly retrieve the test plug, avoiding damage to the seals.
14. Repeat this procedure, as required, during drilling or conditioning of the hole.



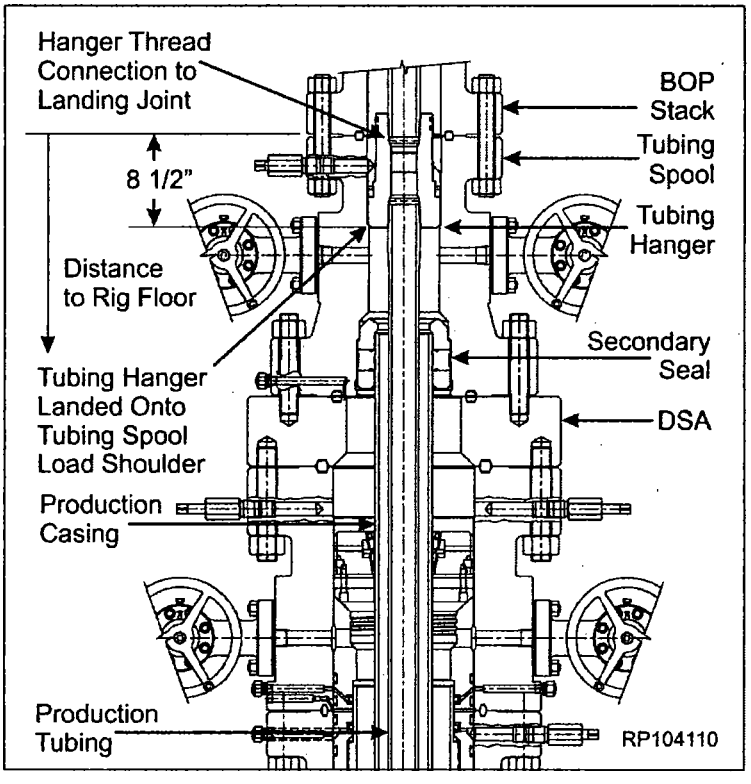
Hanging off the Production Tubing String

1. Run the production tubing and space out appropriately for the tubing hanger.
2. Examine the TC1AEN Tubing Hanger. Verify the following;
   - Packing element is clean and undamaged.
   - S-seals are properly installed.
   - S-seals are clean and undamaged.
   - All threads are clean and undamaged.
3. Make-up a short handling joint to the top of the tubing hanger.
4. Pick up the tubing hanger and make it up to the tubing string, tightening the connection to the thread manufacturer's recommended optimum torque value.
5. Remove the short handling joint from the top of the hanger. Make up the landing joint to the top of the tubing hanger, tightening the connection to the thread manufacturer's recommended minimum torque values.
6. Ensure that all tubing spool lockscrews are fully retracted from the bore and open side outlet valves. Drain the BOP stack.

NOTE

The side outlet valves should remain open while landing the tubing hanger.

7. Calculate the distance from the tubing spool load shoulder to the rig floor. Measure from the face of the tubing spool.
8. Carefully lower the tubing hanger into the well, tallying the tubing every five feet, until the tubing hanger lands securely on the tubing spool load shoulder.
9. Run in all tubing spool lockscrews, in an alternating cross pattern, to 300 ft-lbs, in 75 ft-lb increments.
10. Remove the landing joint from the tubing hanger, and set it aside.



11. Install the Type H Back Pressure Valve, carefully lowering the BPV through the BOP stack into the tubing hanger. Rotate the BPV counterclockwise (to the left) until it bottoms out in the tubing hanger BPV prep. Continue rotating counterclockwise, approximately 7 turns, to retrieve the running tool.
12. With the well safe and under control, the BOP stack may be removed.

Installation and Testing of the Production Tree

Installation

1. Examine the production tree assembly. Verify the following;
   - Bore is clean and free of debris.
   - All valves are in the fully open position.
   - All threads and seal areas are clean and undamaged.
   - All fittings, nuts and handwheels are intact and undamaged.
2. Thoroughly clean all exposed portions of the tubing hanger, tubing head adapter flange and bottom prep of the tubing head adapter.
3. Thoroughly clean mating ring grooves of the tubing head adapter flange and WFT-TCM tubing spool.
4. Lightly lubricate the tubing hanger neck outer diameter and tubing head adapter flange bottom prep with oil or grease.

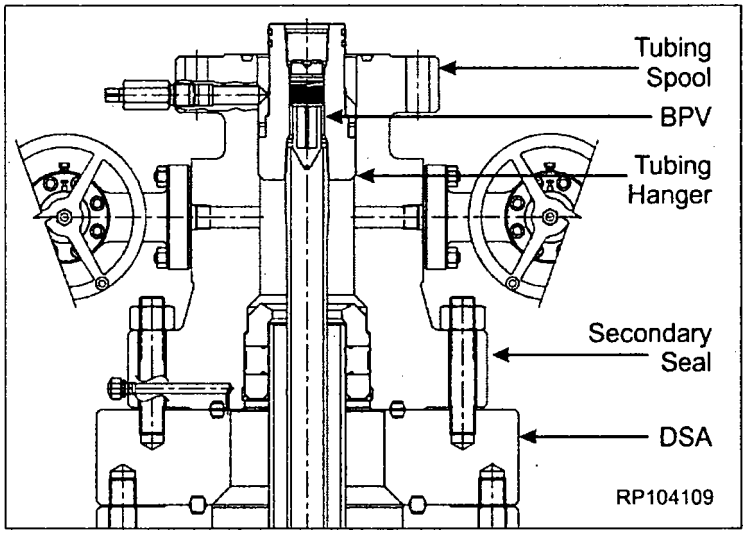
⚠WARNING⚠

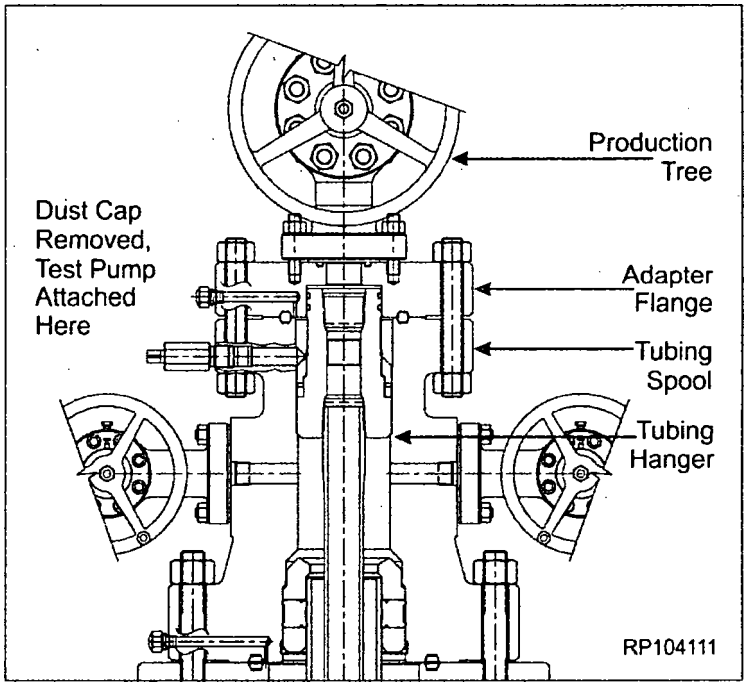
Excessive oil or grease will prevent a positive seal from forming.

5. Install a new appropriately sized ring gasket into the WFT-TCM tubing spool groove.
6. Fill the void area around the hanger with hydraulic fluid, to the top of the tubing spool assembly.

⚠WARNING⚠

Do NOT overfill the void area, allowing oil to run into the ring groove. This may prevent a positive seal from forming.





7. Align and level the production tree above the tubing hanger and carefully lower it over the tubing hanger neck, landing it on the ring gasket.

⚠WARNING⚠

Do NOT damage the hanger neck seals, as this will impair their sealing ability.

8. Make up the connection using the appropriate studs and nuts, and tightening in an alternating cross pattern, as required by API 6A.

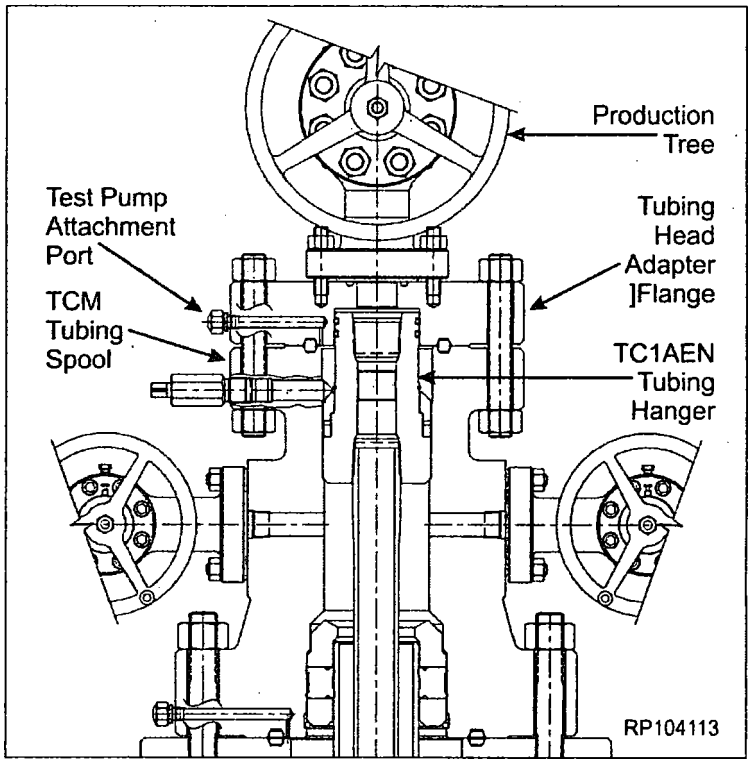
Testing the Production Tree Connection

1. Locate the test port fitting on the outer diameter of the tubing head adapter flange. Remove the dust cap from the fitting.
2. Attach a test pump to test port fitting, and open the pump.
3. Pump clean test fluid into void area between flanges, test to 10,000 psi maximum.
4. Hold and monitor pressure for **15 minutes or as required by the production supervisor**.
5. Once a satisfactory test is achieved, carefully bleed off test pressure and remove the test pump.
6. Attach a bleeder tool to the test port fitting, and open the tool to vent any remaining trapped pressure.

⚠CAUTION⚠

Always direct the bleeder tool away from people and property.

7. Remove the bleeder tool and reinstall the dust cap on the test port fitting.
8. Remove the type 'H' back pressure valve (BPV) through the production tree.
9. Ensure that the well is safe and secure by closing all gate valves.



BTA Oil Producers, LLC

Lea County, NM
Rojo
Rojo #13H

Wellbore #1

Plan: Design #1

Standard Planning Report - Geographic

13 March, 2017

BTA

Planning Report - Geographic

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Rojo #13H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 3344.0usft
Project:	Lea County, NM	**MD Reference:**	GL @ 3344.0usft
Site:	Rojo	**North Reference:**	Grid
Well:	Rojo #13H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Lea County, NM, Lea County, NM		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Ground Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		Using geodetic scale factor

Site	Rojo				
Site Position:		**Northing:**	399,019.90 usft	**Latitude:**	32° 5' 40.608 N
From:	Map	**Easting:**	741,892.00 usft	**Longitude:**	103° 33' 8.030 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.42 °

Well	Rojo #13H					
Well Position	**+N/-S**	0.0 usft	**Northing:**	403,901.10 usft	**Latitude:**	32° 6' 28.986 N
	+E/-W	0.0 usft	**Easting:**	740,839.70 usft	**Longitude:**	103° 33' 19.853 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	3,344.0 usft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	12/31/2009	7.73	60.14	48,725

Design	Design #1				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.0	0.0	0.0	190.54	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,276.7	0.00	0.00	2,276.7	0.0	0.0	0.00	0.00	0.00	0.00	
2,576.7	6.00	281.65	2,576.1	3.2	-15.4	2.00	2.00	0.00	281.65	
11,751.4	6.00	281.65	11,700.5	196.8	-954.6	0.00	0.00	0.00	0.00	
12,051.4	0.00	0.00	12,000.0	200.0	-970.0	2.00	-2.00	0.00	180.00	
12,126.9	0.00	0.00	12,075.5	200.0	-970.0	0.00	0.00	0.00	0.00	
12,876.9	90.00	179.60	12,553.0	-277.5	-966.7	12.00	12.00	0.00	179.60	
17,617.5	90.00	179.60	12,553.0	-5,017.9	-933.7	0.00	0.00	0.00	0.00	Pivot #13H BHL

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Project:	Lea County, NM	**MD Reference:**	GL @ 3344.0usft
Site:	Rojo	**North Reference:**	Grid
Well:	Rojo #13H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
100.0	0.00	0.00	100.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
200.0	0.00	0.00	200.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
300.0	0.00	0.00	300.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
400.0	0.00	0.00	400.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
500.0	0.00	0.00	500.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
600.0	0.00	0.00	600.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
700.0	0.00	0.00	700.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
800.0	0.00	0.00	800.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
900.0	0.00	0.00	900.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
1,000.0	0.00	0.00	1,000.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
1,100.0	0.00	0.00	1,100.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
1,200.0	0.00	0.00	1,200.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
1,300.0	0.00	0.00	1,300.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
1,400.0	0.00	0.00	1,400.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
1,500.0	0.00	0.00	1,500.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
1,600.0	0.00	0.00	1,600.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
1,700.0	0.00	0.00	1,700.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
1,800.0	0.00	0.00	1,800.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
1,900.0	0.00	0.00	1,900.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
2,000.0	0.00	0.00	2,000.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
2,100.0	0.00	0.00	2,100.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
2,200.0	0.00	0.00	2,200.0	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
2,276.7	0.00	0.00	2,276.7	0.0	0.0	403,901.10	740,839.70	32° 6' 28.986 N	103° 33' 19.853 W
2,300.0	0.47	281.65	2,300.0	0.0	-0.1	403,901.12	740,839.60	32° 6' 28.986 N	103° 33' 19.854 W
2,400.0	2.47	281.65	2,400.0	0.5	-2.6	403,901.64	740,837.10	32° 6' 28.991 N	103° 33' 19.883 W
2,500.0	4.47	281.65	2,499.8	1.8	-8.5	403,902.86	740,831.17	32° 6' 29.004 N	103° 33' 19.952 W
2,576.7	6.00	281.65	2,576.1	3.2	-15.4	403,904.27	740,824.33	32° 6' 29.018 N	103° 33' 20.031 W
2,600.0	6.00	281.65	2,599.3	3.7	-17.8	403,904.76	740,821.94	32° 6' 29.023 N	103° 33' 20.059 W
2,700.0	6.00	281.65	2,698.8	5.8	-28.0	403,906.87	740,811.70	32° 6' 29.045 N	103° 33' 20.178 W
2,800.0	6.00	281.65	2,798.2	7.9	-38.2	403,908.98	740,801.46	32° 6' 29.067 N	103° 33' 20.297 W
2,900.0	6.00	281.65	2,897.7	10.0	-48.5	403,911.09	740,791.23	32° 6' 29.088 N	103° 33' 20.416 W
3,000.0	6.00	281.65	2,997.1	12.1	-58.7	403,913.20	740,780.99	32° 6' 29.110 N	103° 33' 20.534 W
3,100.0	6.00	281.65	3,096.6	14.2	-68.9	403,915.31	740,770.75	32° 6' 29.131 N	103° 33' 20.653 W
3,200.0	6.00	281.65	3,196.0	16.3	-79.2	403,917.43	740,760.51	32° 6' 29.153 N	103° 33' 20.772 W
3,300.0	6.00	281.65	3,295.5	18.4	-89.4	403,919.54	740,750.28	32° 6' 29.175 N	103° 33' 20.891 W
3,400.0	6.00	281.65	3,394.9	20.5	-99.7	403,921.65	740,740.04	32° 6' 29.196 N	103° 33' 21.010 W
3,500.0	6.00	281.65	3,494.4	22.7	-109.9	403,923.76	740,729.80	32° 6' 29.218 N	103° 33' 21.129 W
3,600.0	6.00	281.65	3,593.8	24.8	-120.1	403,925.87	740,719.56	32° 6' 29.240 N	103° 33' 21.247 W
3,700.0	6.00	281.65	3,693.3	26.9	-130.4	403,927.98	740,709.33	32° 6' 29.261 N	103° 33' 21.366 W
3,800.0	6.00	281.65	3,792.8	29.0	-140.6	403,930.09	740,699.09	32° 6' 29.283 N	103° 33' 21.485 W
3,900.0	6.00	281.65	3,892.2	31.1	-150.8	403,932.20	740,688.85	32° 6' 29.304 N	103° 33' 21.604 W
4,000.0	6.00	281.65	3,991.7	33.2	-161.1	403,934.31	740,678.62	32° 6' 29.326 N	103° 33' 21.723 W
4,100.0	6.00	281.65	4,091.1	35.3	-171.3	403,936.42	740,668.38	32° 6' 29.348 N	103° 33' 21.842 W
4,200.0	6.00	281.65	4,190.6	37.4	-181.6	403,938.53	740,658.14	32° 6' 29.369 N	103° 33' 21.960 W
4,300.0	6.00	281.65	4,290.0	39.5	-191.8	403,940.64	740,647.90	32° 6' 29.391 N	103° 33' 22.079 W
4,400.0	6.00	281.65	4,389.5	41.7	-202.0	403,942.75	740,637.67	32° 6' 29.412 N	103° 33' 22.198 W
4,500.0	6.00	281.65	4,488.9	43.8	-212.3	403,944.87	740,627.43	32° 6' 29.434 N	103° 33' 22.317 W
4,600.0	6.00	281.65	4,588.4	45.9	-222.5	403,946.98	740,617.19	32° 6' 29.456 N	103° 33' 22.436 W
4,700.0	6.00	281.65	4,687.8	48.0	-232.7	403,949.09	740,606.96	32° 6' 29.477 N	103° 33' 22.555 W
4,800.0	6.00	281.65	4,787.3	50.1	-243.0	403,951.20	740,596.72	32° 6' 29.499 N	103° 33' 22.673 W
4,900.0	6.00	281.65	4,886.7	52.2	-253.2	403,953.31	740,586.48	32° 6' 29.521 N	103° 33' 22.792 W
5,000.0	6.00	281.65	4,986.2	54.3	-263.5	403,955.42	740,576.24	32° 6' 29.542 N	103° 33' 22.911 W
5,100.0	6.00	281.65	5,085.6	56.4	-273.7	403,957.53	740,566.01	32° 6' 29.564 N	103° 33' 23.030 W
5,200.0	6.00	281.65	5,185.1	58.5	-283.9	403,959.64	740,555.77	32° 6' 29.585 N	103° 33' 23.149 W

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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,300.0	6.00	281.65	5,284.5	60.7	-294.2	403,961.75	740,545.53	32° 6' 29.607 N	103° 33' 23.268 W
5,400.0	6.00	281.65	5,384.0	62.8	-304.4	403,963.86	740,535.29	32° 6' 29.629 N	103° 33' 23.387 W
5,500.0	6.00	281.65	5,483.4	64.9	-314.6	403,965.97	740,525.06	32° 6' 29.650 N	103° 33' 23.505 W
5,600.0	6.00	281.65	5,582.9	67.0	-324.9	403,968.08	740,514.82	32° 6' 29.672 N	103° 33' 23.624 W
5,700.0	6.00	281.65	5,682.3	69.1	-335.1	403,970.19	740,504.58	32° 6' 29.694 N	103° 33' 23.743 W
5,800.0	6.00	281.65	5,781.8	71.2	-345.4	403,972.31	740,494.35	32° 6' 29.715 N	103° 33' 23.862 W
5,900.0	6.00	281.65	5,881.2	73.3	-355.6	403,974.42	740,484.11	32° 6' 29.737 N	103° 33' 23.981 W
6,000.0	6.00	281.65	5,980.7	75.4	-365.8	403,976.53	740,473.87	32° 6' 29.758 N	103° 33' 24.100 W
6,100.0	6.00	281.65	6,080.2	77.5	-376.1	403,978.64	740,463.63	32° 6' 29.780 N	103° 33' 24.218 W
6,200.0	6.00	281.65	6,179.6	79.7	-386.3	403,980.75	740,453.40	32° 6' 29.802 N	103° 33' 24.337 W
6,300.0	6.00	281.65	6,279.1	81.8	-396.5	403,982.86	740,443.16	32° 6' 29.823 N	103° 33' 24.456 W
6,400.0	6.00	281.65	6,378.5	83.9	-406.8	403,984.97	740,432.92	32° 6' 29.845 N	103° 33' 24.575 W
6,500.0	6.00	281.65	6,478.0	86.0	-417.0	403,987.08	740,422.68	32° 6' 29.866 N	103° 33' 24.694 W
6,600.0	6.00	281.65	6,577.4	88.1	-427.3	403,989.19	740,412.45	32° 6' 29.888 N	103° 33' 24.813 W
6,700.0	6.00	281.65	6,676.9	90.2	-437.5	403,991.30	740,402.21	32° 6' 29.910 N	103° 33' 24.931 W
6,800.0	6.00	281.65	6,776.3	92.3	-447.7	403,993.41	740,391.97	32° 6' 29.931 N	103° 33' 25.050 W
6,900.0	6.00	281.65	6,875.8	94.4	-458.0	403,995.52	740,381.74	32° 6' 29.953 N	103° 33' 25.169 W
7,000.0	6.00	281.65	6,975.2	96.5	-468.2	403,997.63	740,371.50	32° 6' 29.975 N	103° 33' 25.288 W
7,100.0	6.00	281.65	7,074.7	98.6	-478.4	403,999.75	740,361.26	32° 6' 29.996 N	103° 33' 25.407 W
7,200.0	6.00	281.65	7,174.1	100.8	-488.7	404,001.86	740,351.02	32° 6' 30.018 N	103° 33' 25.526 W
7,300.0	6.00	281.65	7,273.6	102.9	-498.9	404,003.97	740,340.79	32° 6' 30.039 N	103° 33' 25.644 W
7,400.0	6.00	281.65	7,373.0	105.0	-509.2	404,006.08	740,330.55	32° 6' 30.061 N	103° 33' 25.763 W
7,500.0	6.00	281.65	7,472.5	107.1	-519.4	404,008.19	740,320.31	32° 6' 30.083 N	103° 33' 25.882 W
7,600.0	6.00	281.65	7,571.9	109.2	-529.6	404,010.30	740,310.07	32° 6' 30.104 N	103° 33' 26.001 W
7,700.0	6.00	281.65	7,671.4	111.3	-539.9	404,012.41	740,299.84	32° 6' 30.126 N	103° 33' 26.120 W
7,800.0	6.00	281.65	7,770.8	113.4	-550.1	404,014.52	740,289.60	32° 6' 30.147 N	103° 33' 26.239 W
7,900.0	6.00	281.65	7,870.3	115.5	-560.3	404,016.63	740,279.36	32° 6' 30.169 N	103° 33' 26.357 W
8,000.0	6.00	281.65	7,969.7	117.6	-570.6	404,018.74	740,269.13	32° 6' 30.191 N	103° 33' 26.476 W
8,100.0	6.00	281.65	8,069.2	119.8	-580.8	404,020.85	740,258.89	32° 6' 30.212 N	103° 33' 26.595 W
8,200.0	6.00	281.65	8,168.6	121.9	-591.1	404,022.96	740,248.65	32° 6' 30.234 N	103° 33' 26.714 W
8,300.0	6.00	281.65	8,268.1	124.0	-601.3	404,025.07	740,238.41	32° 6' 30.256 N	103° 33' 26.833 W
8,400.0	6.00	281.65	8,367.6	126.1	-611.5	404,027.19	740,228.18	32° 6' 30.277 N	103° 33' 26.952 W
8,500.0	6.00	281.65	8,467.0	128.2	-621.8	404,029.30	740,217.94	32° 6' 30.299 N	103° 33' 27.071 W
8,600.0	6.00	281.65	8,566.5	130.3	-632.0	404,031.41	740,207.70	32° 6' 30.320 N	103° 33' 27.189 W
8,700.0	6.00	281.65	8,665.9	132.4	-642.2	404,033.52	740,197.47	32° 6' 30.342 N	103° 33' 27.308 W
8,800.0	6.00	281.65	8,765.4	134.5	-652.5	404,035.63	740,187.23	32° 6' 30.364 N	103° 33' 27.427 W
8,900.0	6.00	281.65	8,864.8	136.6	-662.7	404,037.74	740,176.99	32° 6' 30.385 N	103° 33' 27.546 W
9,000.0	6.00	281.65	8,964.3	138.8	-673.0	404,039.85	740,166.75	32° 6' 30.407 N	103° 33' 27.665 W
9,100.0	6.00	281.65	9,063.7	140.9	-683.2	404,041.96	740,156.52	32° 6' 30.428 N	103° 33' 27.784 W
9,200.0	6.00	281.65	9,163.2	143.0	-693.4	404,044.07	740,146.28	32° 6' 30.450 N	103° 33' 27.902 W
9,300.0	6.00	281.65	9,262.6	145.1	-703.7	404,046.18	740,136.04	32° 6' 30.472 N	103° 33' 28.021 W
9,400.0	6.00	281.65	9,362.1	147.2	-713.9	404,048.29	740,125.80	32° 6' 30.493 N	103° 33' 28.140 W
9,500.0	6.00	281.65	9,461.5	149.3	-724.1	404,050.40	740,115.57	32° 6' 30.515 N	103° 33' 28.259 W
9,600.0	6.00	281.65	9,561.0	151.4	-734.4	404,052.51	740,105.33	32° 6' 30.537 N	103° 33' 28.378 W
9,700.0	6.00	281.65	9,660.4	153.5	-744.6	404,054.63	740,095.09	32° 6' 30.558 N	103° 33' 28.497 W
9,800.0	6.00	281.65	9,759.9	155.6	-754.9	404,056.74	740,084.86	32° 6' 30.580 N	103° 33' 28.615 W
9,900.0	6.00	281.65	9,859.3	157.8	-765.1	404,058.85	740,074.62	32° 6' 30.601 N	103° 33' 28.734 W
10,000.0	6.00	281.65	9,958.8	159.9	-775.3	404,060.96	740,064.38	32° 6' 30.623 N	103° 33' 28.853 W
10,100.0	6.00	281.65	10,058.2	162.0	-785.6	404,063.07	740,054.14	32° 6' 30.645 N	103° 33' 28.972 W
10,200.0	6.00	281.65	10,157.7	164.1	-795.8	404,065.18	740,043.91	32° 6' 30.666 N	103° 33' 29.091 W
10,300.0	6.00	281.65	10,257.1	166.2	-806.0	404,067.29	740,033.67	32° 6' 30.688 N	103° 33' 29.210 W
10,400.0	6.00	281.65	10,356.6	168.3	-816.3	404,069.40	740,023.43	32° 6' 30.709 N	103° 33' 29.328 W
10,500.0	6.00	281.65	10,456.0	170.4	-826.5	404,071.51	740,013.19	32° 6' 30.731 N	103° 33' 29.447 W
10,600.0	6.00	281.65	10,555.5	172.5	-836.8	404,073.62	740,002.96	32° 6' 30.753 N	103° 33' 29.566 W
10,700.0	6.00	281.65	10,655.0	174.6	-847.0	404,075.73	739,992.72	32° 6' 30.774 N	103° 33' 29.685 W

BTA

Planning Report - Geographic

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Rojo #13H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 3344.0usft
Project:	Lea County, NM	**MD Reference:**	GL @ 3344.0usft
Site:	Rojo	**North Reference:**	Grid
Well:	Rojo #13H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,800.0	6.00	281.65	10,754.4	176.7	-857.2	404,077.84	739,982.48	32° 6' 30.796 N	103° 33' 29.804 W
10,900.0	6.00	281.65	10,853.9	178.9	-867.5	404,079.95	739,972.25	32° 6' 30.818 N	103° 33' 29.923 W
11,000.0	6.00	281.65	10,953.3	181.0	-877.7	404,082.07	739,962.01	32° 6' 30.839 N	103° 33' 30.042 W
11,100.0	6.00	281.65	11,052.8	183.1	-887.9	404,084.18	739,951.77	32° 6' 30.861 N	103° 33' 30.160 W
11,200.0	6.00	281.65	11,152.2	185.2	-898.2	404,086.29	739,941.53	32° 6' 30.882 N	103° 33' 30.279 W
11,300.0	6.00	281.65	11,251.7	187.3	-908.4	404,088.40	739,931.30	32° 6' 30.904 N	103° 33' 30.398 W
11,400.0	6.00	281.65	11,351.1	189.4	-918.7	404,090.51	739,921.06	32° 6' 30.926 N	103° 33' 30.517 W
11,500.0	6.00	281.65	11,450.6	191.5	-928.9	404,092.62	739,910.82	32° 6' 30.947 N	103° 33' 30.636 W
11,600.0	6.00	281.65	11,550.0	193.6	-939.1	404,094.73	739,900.58	32° 6' 30.969 N	103° 33' 30.755 W
11,700.0	6.00	281.65	11,649.5	195.7	-949.4	404,096.84	739,890.35	32° 6' 30.991 N	103° 33' 30.873 W
11,751.4	6.00	281.65	11,700.5	196.8	-954.6	404,097.93	739,885.09	32° 6' 31.002 N	103° 33' 30.934 W
11,800.0	5.03	281.65	11,749.0	197.8	-959.2	404,098.87	739,880.51	32° 6' 31.011 N	103° 33' 30.988 W
11,900.0	3.03	281.65	11,848.7	199.2	-966.1	404,100.29	739,873.64	32° 6' 31.026 N	103° 33' 31.067 W
12,000.0	1.03	281.65	11,948.6	199.9	-969.5	404,101.00	739,870.17	32° 6' 31.033 N	103° 33' 31.108 W
12,051.4	0.00	0.00	12,000.0	200.0	-970.0	404,101.09	739,869.72	32° 6' 31.034 N	103° 33' 31.113 W
12,100.0	0.00	0.00	12,048.6	200.0	-970.0	404,101.09	739,869.72	32° 6' 31.034 N	103° 33' 31.113 W
12,126.9	0.00	0.00	12,075.5	200.0	-970.0	404,101.09	739,869.72	32° 6' 31.034 N	103° 33' 31.113 W
12,200.0	8.77	179.60	12,148.4	194.4	-970.0	404,095.51	739,869.76	32° 6' 30.979 N	103° 33' 31.113 W
12,300.0	20.77	179.60	12,244.9	169.0	-969.8	404,070.06	739,869.94	32° 6' 30.727 N	103° 33' 31.113 W
12,400.0	32.77	179.60	12,334.0	124.0	-969.5	404,025.10	739,870.25	32° 6' 30.282 N	103° 33' 31.113 W
12,500.0	44.77	179.60	12,411.8	61.5	-969.0	403,962.59	739,870.68	32° 6' 29.663 N	103° 33' 31.113 W
12,600.0	56.77	179.60	12,474.9	-15.8	-968.5	403,885.27	739,871.22	32° 6' 28.898 N	103° 33' 31.113 W
12,700.0	68.77	179.60	12,520.6	-104.6	-967.9	403,796.52	739,871.84	32° 6' 28.020 N	103° 33' 31.114 W
12,800.0	80.77	179.60	12,546.8	-200.9	-967.2	403,700.21	739,872.51	32° 6' 27.067 N	103° 33' 31.114 W
12,876.9	90.00	179.60	12,553.0	-277.5	-966.7	403,623.65	739,873.04	32° 6' 26.309 N	103° 33' 31.114 W
12,900.0	90.00	179.60	12,553.0	-300.6	-966.5	403,600.54	739,873.20	32° 6' 26.081 N	103° 33' 31.114 W
13,000.0	90.00	179.60	12,553.0	-400.6	-965.8	403,500.55	739,873.90	32° 6' 25.091 N	103° 33' 31.114 W
13,100.0	90.00	179.60	12,553.0	-500.6	-965.1	403,400.55	739,874.59	32° 6' 24.101 N	103° 33' 31.115 W
13,200.0	90.00	179.60	12,553.0	-600.6	-964.4	403,300.56	739,875.29	32° 6' 23.112 N	103° 33' 31.115 W
13,300.0	90.00	179.60	12,553.0	-700.6	-963.7	403,200.56	739,875.98	32° 6' 22.122 N	103° 33' 31.115 W
13,400.0	90.00	179.60	12,553.0	-800.5	-963.0	403,100.57	739,876.68	32° 6' 21.133 N	103° 33' 31.116 W
13,500.0	90.00	179.60	12,553.0	-900.5	-962.3	403,000.57	739,877.37	32° 6' 20.143 N	103° 33' 31.116 W
13,600.0	90.00	179.60	12,553.0	-1,000.5	-961.7	402,900.58	739,878.07	32° 6' 19.154 N	103° 33' 31.116 W
13,700.0	90.00	179.60	12,553.0	-1,100.5	-961.0	402,800.58	739,878.76	32° 6' 18.164 N	103° 33' 31.116 W
13,800.0	90.00	179.60	12,553.0	-1,200.5	-960.3	402,700.59	739,879.46	32° 6' 17.174 N	103° 33' 31.117 W
13,900.0	90.00	179.60	12,553.0	-1,300.5	-959.6	402,600.59	739,880.15	32° 6' 16.185 N	103° 33' 31.117 W
14,000.0	90.00	179.60	12,553.0	-1,400.5	-958.9	402,500.60	739,880.85	32° 6' 15.195 N	103° 33' 31.117 W
14,100.0	90.00	179.60	12,553.0	-1,500.5	-958.2	402,400.60	739,881.54	32° 6' 14.206 N	103° 33' 31.117 W
14,200.0	90.00	179.60	12,553.0	-1,600.5	-957.5	402,300.61	739,882.24	32° 6' 13.216 N	103° 33' 31.118 W
14,300.0	90.00	179.60	12,553.0	-1,700.5	-956.8	402,200.61	739,882.93	32° 6' 12.227 N	103° 33' 31.118 W
14,400.0	90.00	179.60	12,553.0	-1,800.5	-956.1	402,100.62	739,883.63	32° 6' 11.237 N	103° 33' 31.118 W
14,500.0	90.00	179.60	12,553.0	-1,900.5	-955.4	402,000.62	739,884.32	32° 6' 10.247 N	103° 33' 31.119 W
14,600.0	90.00	179.60	12,553.0	-2,000.5	-954.7	401,900.63	739,885.02	32° 6' 9.258 N	103° 33' 31.119 W
14,700.0	90.00	179.60	12,553.0	-2,100.5	-954.0	401,800.63	739,885.71	32° 6' 8.268 N	103° 33' 31.119 W
14,800.0	90.00	179.60	12,553.0	-2,200.5	-953.3	401,700.64	739,886.41	32° 6' 7.279 N	103° 33' 31.119 W
14,900.0	90.00	179.60	12,553.0	-2,300.5	-952.6	401,600.64	739,887.10	32° 6' 6.289 N	103° 33' 31.120 W
15,000.0	90.00	179.60	12,553.0	-2,400.5	-951.9	401,500.65	739,887.80	32° 6' 5.300 N	103° 33' 31.120 W
15,100.0	90.00	179.60	12,553.0	-2,500.5	-951.2	401,400.65	739,888.49	32° 6' 4.310 N	103° 33' 31.120 W
15,200.0	90.00	179.60	12,553.0	-2,600.5	-950.5	401,300.66	739,889.19	32° 6' 3.320 N	103° 33' 31.120 W
15,300.0	90.00	179.60	12,553.0	-2,700.5	-949.8	401,200.66	739,889.89	32° 6' 2.331 N	103° 33' 31.121 W
15,400.0	90.00	179.60	12,553.0	-2,800.5	-949.1	401,100.67	739,890.58	32° 6' 1.341 N	103° 33' 31.121 W
15,500.0	90.00	179.60	12,553.0	-2,900.5	-948.4	401,000.67	739,891.28	32° 6' 0.352 N	103° 33' 31.121 W
15,600.0	90.00	179.60	12,553.0	-3,000.5	-947.7	400,900.68	739,891.97	32° 5' 59.362 N	103° 33' 31.122 W
15,700.0	90.00	179.60	12,553.0	-3,100.5	-947.1	400,800.68	739,892.67	32° 5' 58.373 N	103° 33' 31.122 W
15,800.0	90.00	179.60	12,553.0	-3,200.5	-946.4	400,700.69	739,893.36	32° 5' 57.383 N	103° 33' 31.122 W

BTA

Planning Report - Geographic

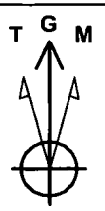
Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Rojo #13H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 3344.0usft
Project:	Lea County, NM	**MD Reference:**	GL @ 3344.0usft
Site:	Rojo	**North Reference:**	Grid
Well:	Rojo #13H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,900.0	90.00	179.60	12,553.0	-3,300.5	-945.7	400,600.69	739,894.06	32° 5' 56.394 N	103° 33' 31.122 W
16,000.0	90.00	179.60	12,553.0	-3,400.5	-945.0	400,500.70	739,894.75	32° 5' 55.404 N	103° 33' 31.123 W
16,100.0	90.00	179.60	12,553.0	-3,500.5	-944.3	400,400.70	739,895.45	32° 5' 54.414 N	103° 33' 31.123 W
16,200.0	90.00	179.60	12,553.0	-3,600.5	-943.6	400,300.71	739,896.14	32° 5' 53.425 N	103° 33' 31.123 W
16,300.0	90.00	179.60	12,553.0	-3,700.5	-942.9	400,200.71	739,896.84	32° 5' 52.435 N	103° 33' 31.123 W
16,400.0	90.00	179.60	12,553.0	-3,800.5	-942.2	400,100.71	739,897.53	32° 5' 51.446 N	103° 33' 31.124 W
16,500.0	90.00	179.60	12,553.0	-3,900.5	-941.5	400,000.72	739,898.23	32° 5' 50.456 N	103° 33' 31.124 W
16,600.0	90.00	179.60	12,553.0	-4,000.5	-940.8	399,900.72	739,898.92	32° 5' 49.467 N	103° 33' 31.124 W
16,700.0	90.00	179.60	12,553.0	-4,100.5	-940.1	399,800.73	739,899.62	32° 5' 48.477 N	103° 33' 31.125 W
16,800.0	90.00	179.60	12,553.0	-4,200.5	-939.4	399,700.73	739,900.31	32° 5' 47.487 N	103° 33' 31.125 W
16,900.0	90.00	179.60	12,553.0	-4,300.5	-938.7	399,600.74	739,901.01	32° 5' 46.498 N	103° 33' 31.125 W
17,000.0	90.00	179.60	12,553.0	-4,400.5	-938.0	399,500.74	739,901.70	32° 5' 45.508 N	103° 33' 31.125 W
17,100.0	90.00	179.60	12,553.0	-4,500.5	-937.3	399,400.75	739,902.40	32° 5' 44.519 N	103° 33' 31.126 W
17,200.0	90.00	179.60	12,553.0	-4,600.5	-936.6	399,300.75	739,903.09	32° 5' 43.529 N	103° 33' 31.126 W
17,300.0	90.00	179.60	12,553.0	-4,700.5	-935.9	399,200.76	739,903.79	32° 5' 42.540 N	103° 33' 31.126 W
17,400.0	90.00	179.60	12,553.0	-4,800.5	-935.2	399,100.76	739,904.48	32° 5' 41.550 N	103° 33' 31.126 W
17,500.0	90.00	179.60	12,553.0	-4,900.5	-934.5	399,000.77	739,905.18	32° 5' 40.560 N	103° 33' 31.127 W
17,600.0	90.00	179.60	12,553.0	-5,000.4	-933.8	398,900.77	739,905.88	32° 5' 39.571 N	103° 33' 31.127 W
17,617.5	90.00	179.60	12,553.0	-5,017.9	-933.7	398,883.30	739,906.00	32° 5' 39.398 N	103° 33' 31.127 W

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Pivot #13H BHL - plan hits target center - Point	0.00	0.00	12,553.0	-5,017.9	-933.7	398,883.30	739,906.00	32° 5' 39.398 N	103° 33' 31.127 W



Azimuths to Grid North
True North: -0.41°
Magnetic North: 7.32°

Magnetic Field
Strength: 48725.4snT
Dip Angle: 60.14°
Date: 12/31/2009
Model: IGRF200510

WELL DETAILS: Rojo #13H

Ground Level: 3344.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude
0.0	0.0	403901.10	740839.70	32° 6' 28.986 N	103° 33' 19.853 W

BTA Oil Producers, LLC

SITE DETAILS: Rojo

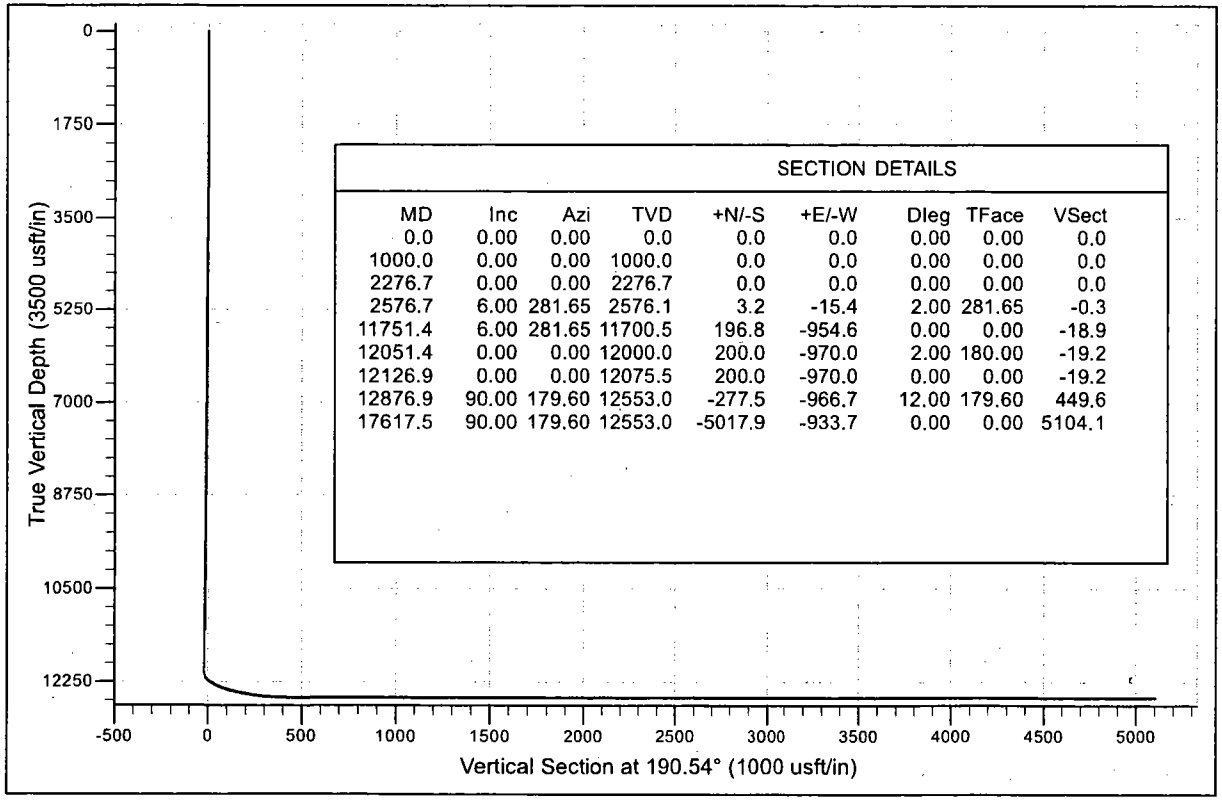
Site Centre Northing: 399019.90
Easting: 741892.00

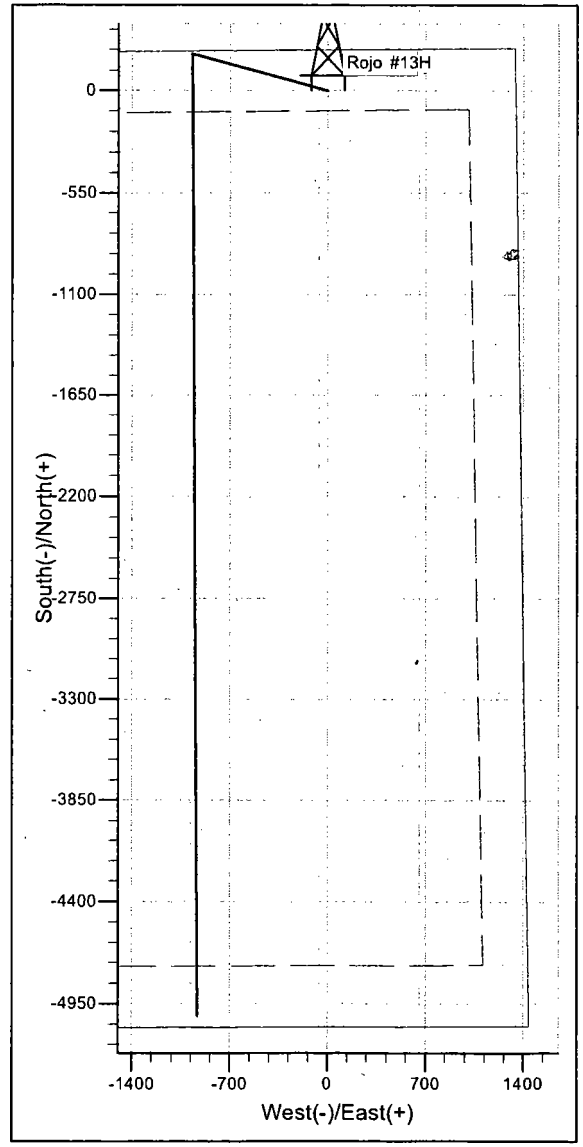
Positional Uncertainity: 0.0
Convergence: 0.42
Local North: Grid

PROJECT DETAILS: Lea County, NM

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001

System Datum: Ground Level





BTA OIL PRODUCERS LLC

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

1. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

a. The hazards and characteristics of hydrogen sulfide (H_2S).
b. The proper use and maintenance of personal protective equipment and life support systems.
c. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
d. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

a. The effects of H2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
b. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
c. The contents and requirements of the H_2S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

2. H_2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H_2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H2S. If H2S greater than 100 ppm is encountered in the gas stream we will shut in and install H2S equipment.

a. Well Control Equipment:
Flare line.
Choke manifold with remotely operated choke.
Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.
b. Protective equipment for essential personnel:
Mark II Surviveair 30-minute units located in the dog house and at briefing areas.
c. H2S detection and monitoring equipment:

2 - portable H2S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 ppm are reached.

d. Visual warning systems:
Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

e. Mud Program:
The mud program has been designed to minimize the volume of H2S circulated to the surface.

f. Metallurgy:
All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

g. Communication:
Company vehicles equipped with cellular telephone.

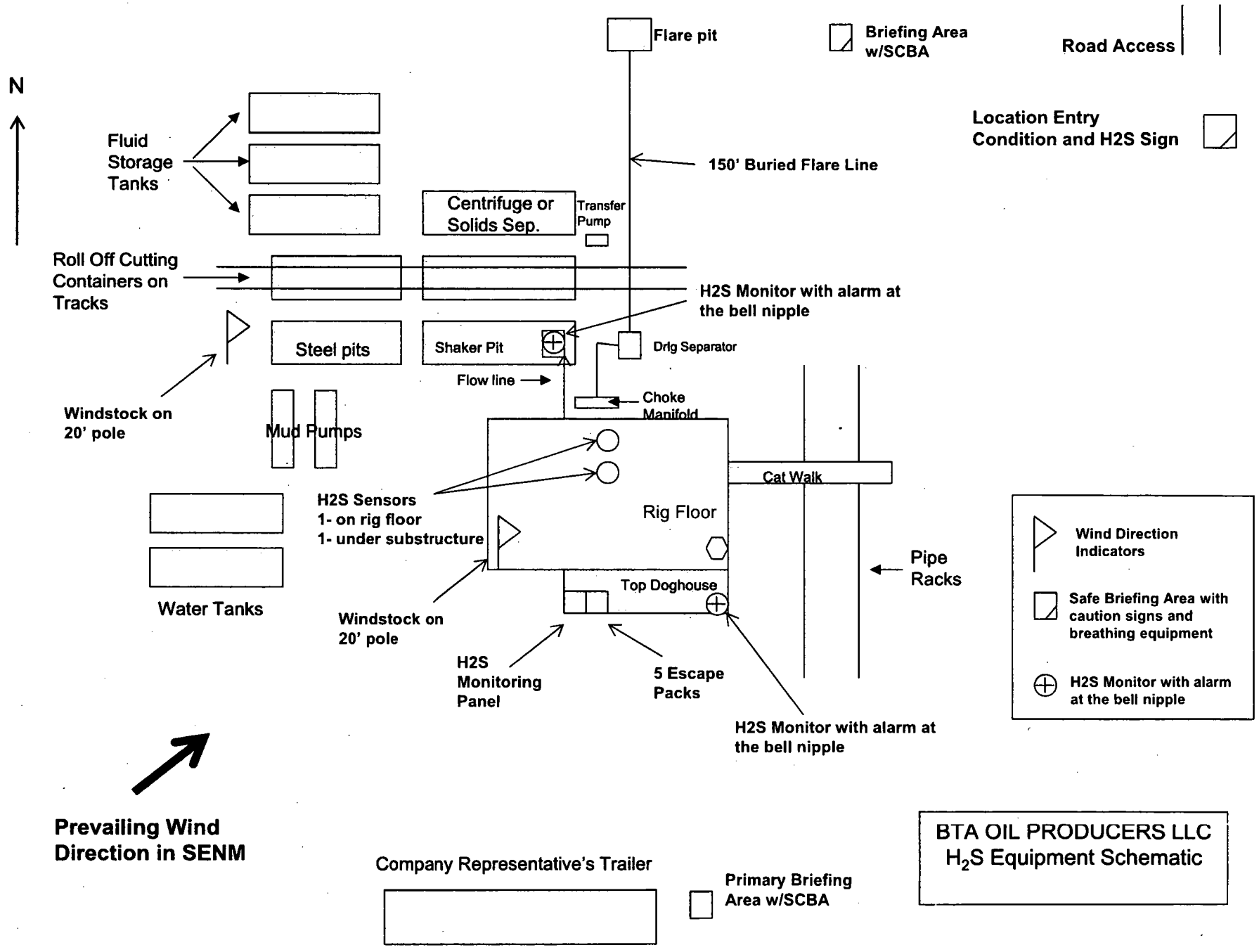
WARNING

YOU ARE ENTERING AN H_2S AREA
AUTHORIZED PERSONNEL ONLY

1. ***BEARDS OR CONTACT LENSES NOT ALLOWED***
2. ***HARD HATS REQUIRED***
3. ***SMOKING IN DESIGNATED AREAS ONLY***
4. ***BE WIND CONSCIOUS AT ALL TIMES***
5. ***CK WITH BTA OIL PRODUCERS LLC FOREMAN AT MAIN OFFICE***

BTA OIL PRODUCERS LLC

1-432-682-3753



BTA OIL PRODUCERS LLC
H_2S Equipment Schematic

EMERGENCY CALL LIST

	OFFICE	MOBILE
BTA Oil Producers LLC OFFICE	432-682-3753	
BEN GRIMES, Operations	432-682-3753	432-559-4309
NICK EATON, Drilling	432-682-3753	432-260-7841
TRACE WOHLFAHRT, Completions	432-682-3753	

EMERGENCY RESPONSE NUMBERS

	OFFICE
STATE POLICE	575-748-9718
EDDY COUNTY SHERIFF	575-746-2701
EMERGENCY MEDICAL SERVICES (AMBULANCE)	911 or 575-746-2701
EDDY COUNTY EMERGENCY MANAGEMENT (HARRY BURGESS)	575-887-9511
STATE EMERGENCY RESPONSE CENTER (SERC)	575-476-9620
CARLSBAD POLICE DEPARTMENT	575-885-2111
CARLSBAD FIRE DEPARTMENT	575-885-3125
NEW MEXICO OIL CONSERVATION DIVISION	575-748-1283
INDIAN FIRE & SAFETY	800-530-8693
HALLIBURTON SERVICES	800-844-8451