OCD Hobbs

F/F (H)

Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

HOBBS OCD
MAR 08 2019
RECEIVED

1a. Type of work: ☑ DRILL ☐ REENTER	5. Lease Serial No. NMLC0068281B
1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other	6. If Indian, Allotee or Tribe Name
1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone	7. If Unit or CA Agreement, Name and No.
	8. Lease Name and Well No. ZIA HILLS 20 FEDERAL COM 115H 325136
2. Name of Operator CONOCOPHILLIPS COMPANY (217817)	9. API Well No. 30-025-45724
3a. Address PO Box 2197 Houston TX 77252	3b. Phone No. *(include area code)* (281)293-1748
	10. Field and Pool, or Exploratory WOLFCAMP / WOLFCAMP (98081)
4. Location of Well *(Report location clearly and in accordance with any State requirements.*)* At surface NESE / 2270 FSL / 734 FEL / LAT 32.027094 / LONG -103.690964 At proposed prod. zone LOT 1 / 50 FNL / 660 FEL / LAT 32.000358 / LONG -103.690731	11. Sec., T. R. M. or Blk. and Survey or Area SEC 20 / T26S / R32E / NMP
14. Distance in miles and direction from nearest town or post office* 44.4 miles	12. County or Parish LEA / 13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drlg. unit line, if any) 734 feet	16. No of acres in lease 1841.48 / 17. Spacing Unit dedicated to this well 0
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 33 feet	19. Proposed Depth 11880 feet / 21643 feet / 20. BLM/BIA Bond No. in file FED: ES0085
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3141 feet	22. Approximate date work will start* 08/20/2019 / 23. Estimated duration 90 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Jeremy Lee / Ph: (832)486-2510	09/25/2017
Title: Regulatory Coordinator		
Approved by *(Signature)* (Electronic Submission)	Name *(Printed/Typed)* Cody Layton / Ph: (575)234-5959	Date 02/19/2019
Title: Assistant Field Manager Lands & Minerals	Office CARLSBAD	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

GC Plat 02/06/19

APPROVED WITH CONDITIONS

KR 02/12/19

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 02/19/2019

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the wen, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionany drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.
AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160
PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.
ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.
EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:
The BLM conects this information to anow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

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Additional Operator Remarks

Location of Well

1. SHL: NESE / 2270 FSL / 734 FEL / TWSP: 26S / RANGE: 32E / SECTION: 20 / LAT: 32.027094 / LONG: -103.690964 (TVD: 0 feet, MD: 0 feet)
   PPP: NENE / 0 FNL / 658 FEL / TWSP: 26S / RANGE: 32E / SECTION: 32 / LAT: 32.006164 / LONG: -103.69073 (TVD: 11880 feet, MD: 19500 feet)
   PPP: NENE / 0 FNL / 656 FEL / TWSP: 26S / RANGE: 32E / SECTION: 29 / LAT: 32.020856 / LONG: -103.690726 (TVD: 11880 feet, MD: 14200 feet)
   PPP: NESE / 2315 FSL / 660 FEL / TWSP: 26S / RANGE: 32E / SECTION: 20 / LAT: 32.027219 / LONG: -103.690725 (TVD: 11796 feet, MD: 11900 feet)
   BHL: LOT 1 / 50 FNL / 660 FEL / TWSP: 26S / RANGE: 32E / SECTION: 32 / LAT: 32.000358 / LONG: -103.690731 (TVD: 11880 feet, MD: 21643 feet)

BLM Point of Contact

Name: Priscilla Perez
Title: Legal Instruments Examiner
Phone: 5752345934
Email: pperez@blm.gov

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**CONOCOPHILLIPS COMPANY**
LEASE NO.:	**NMLC068281B**
WELL NAME & NO.:	**115H –ZIA HILLS 20 FEDERAL COM**
SURFACE HOLE FOOTAGE:	**2270'/S & 734'/E**
BOTTOM HOLE FOOTAGE	**50'/N & 660'/E**
LOCATION:	**Section 20.,T26S., R.32E., NMP**
COUNTY:	**LEA County, New Mexico**

COA

H2S	◉ Yes	○ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	○ Medium	◉ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☐ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☑ COM	☐ Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** 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 **1400** 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.

Operator shall filled 1/3rd casing with fluid while running intermediate casing to maintain collapse safety factor.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is: Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:Cement to surface. If cement does not circulate, contact the appropriate BLM office.

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.

- ❖ In High Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:
   - Cement should tie-back at least **200 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. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the 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. **Variance is approved to use a 5000 (5M) Annular which shall be tested to** Choose an item. **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.
e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. 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.

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. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
    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.

ZS 020619

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CONOCOPHILLIPS COMPANY
LEASE NO.:	NMLC068281B
WELL NAME & NO.:	115H –ZIA HILLS 20 FEDERAL COM
SURFACE HOLE FOOTAGE:	2270'/S & 734'/E
BOTTOM HOLE FOOTAGE	50'/N & 660'/E
LOCATION:	Section 20.,T26S., R.32E., 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)

Hydrology:

The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). 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 integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad 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. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production:

Construction:

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:

- The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.

- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g., caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)
- Following a rain event, all fluids will vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

Tank Battery Liners and Berms:
Tank battery locations and all facilities will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:
A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation
The following stipulations will be applied to protect cave/karst and ground water concerns:
Rotary Drilling with Fresh Water:
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.
Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:
Upon well abandonment in cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:
The operator will perform annual pressure monitoring on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

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 twenty (20) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) 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.

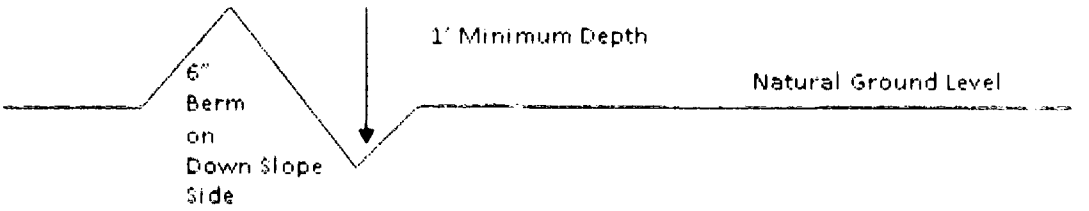
Ditching
Ditching shall be required on both sides of the road.

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:

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

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

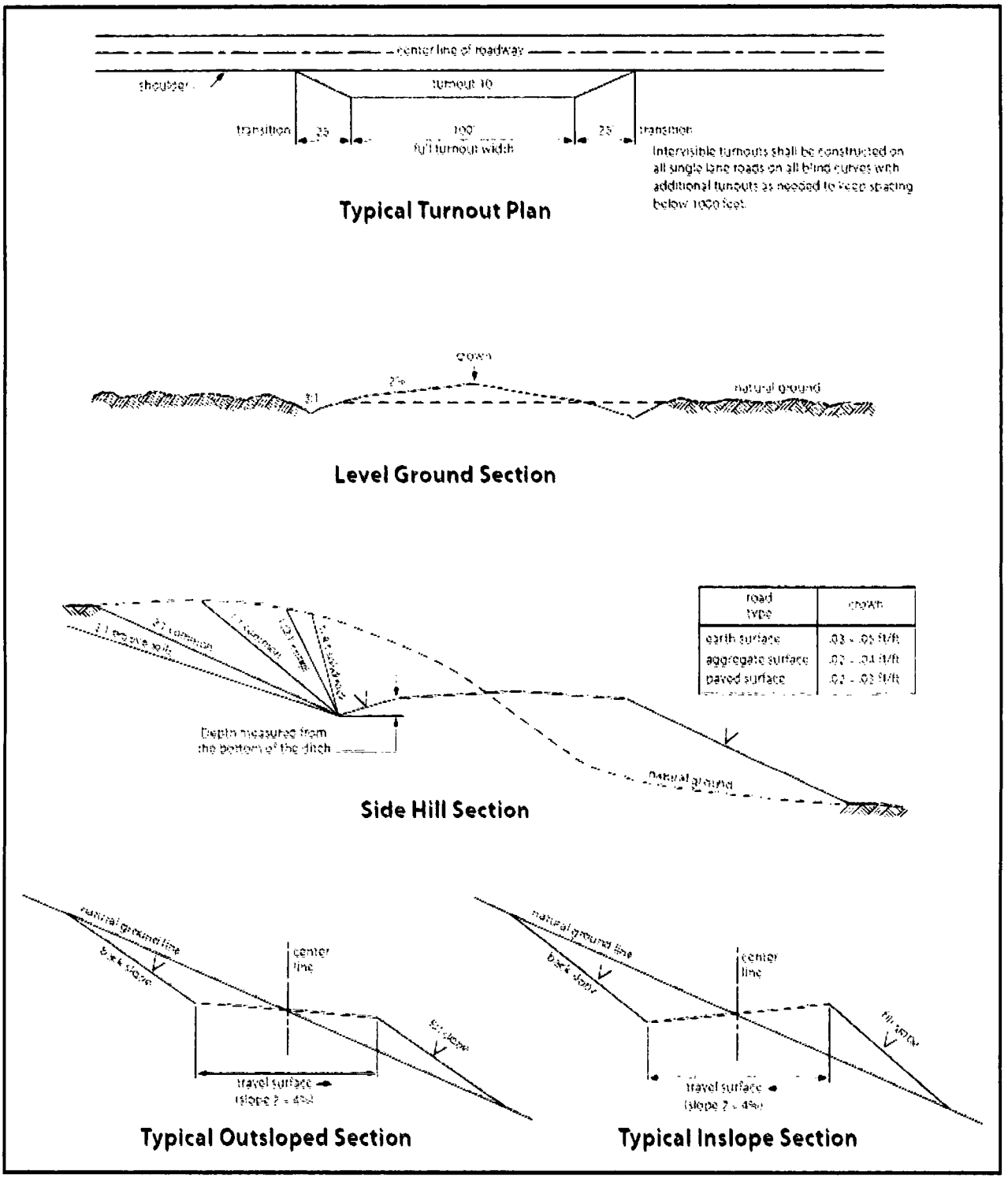


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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).

B. PIPELINES

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to

repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be **30** feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed **20** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed **30** feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

( ) seed mixture 1	( ) seed mixture 3
(X) seed mixture 2	( ) seed mixture 4
( ) seed mixture 2/LPC	( ) Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder 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 will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. 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 associated roads, 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.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

Karst:

- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer.
- If a void is encountered alignments may be rerouted to avoid the karst feature and lessen; the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
- Special restoration stipulations or realignment may be required at such intersections, if any.
- A leak detection plan **will be submitted to the BLM Carlsbad Field Office for approval** prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating values and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.
- Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

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).

Seed Mixture 2, for Sandy Sites

The 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 will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will 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). The 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. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will 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
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

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

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BUREAU OF LAND MANAGEMENT

Operator Certification Data Report

02/20/2019

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: Jeremy Lee **Signed on:** 09/27/2018

Title: Regulatory Coordinator

Street Address: PO Box 2197

City: Houston **State:** TX **Zip:** 77252

Phone: (832)486-2510

Email address: Jeremy.L.Lee@cop.com

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

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U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Application Data Report

02/20/2019

APD ID: 10400022509 **Submission Date:** 09/25/2017

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

APD ID: 10400022509 **Tie to previous NOS?** **Submission Date:** 09/25/2017

BLM Office: CARLSBAD **User:** Jeremy Lee **Title:** Regulatory Coordinator

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMLC0068281B **Lease Acres:** 1841.48

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? NO

Permitting Agent? NO **APD Operator:** CONOCOPHILLIPS COMPANY

Operator letter of designation:

Operator Organization Name: CONOCOPHILLIPS COMPANY

Operator Address: PO Box 2197 **Zip:** 77252

Operator PO Box:

Operator City: Houston **State:** TX

Operator Phone: (281)293-1748

Operator Internet Address:

Well in Master Development Plan? NO **Mater Development Plan name:**

Well in Master SUPO? NO **Master SUPO name:**

Well in Master Drilling Plan? NO **Master Drilling Plan name:**

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** WOLFCAMP **Pool Name:** WOLFCAMP

Is the proposed well in an area containing other mineral resources? USEABLE WATER

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

Describe other minerals:

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** NO **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** ZIA HILLS 20 FEDERAL PAD **Number:** 2

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 44.4 Miles **Distance to nearest well:** 33 FT **Distance to lease line:** 734 FT

Reservoir well spacing assigned acres Measurement: 0 Acres

Well plat: Zia_Hills_20_Federal_Com_115H_C102_Rev_9_5_18_20180927121223.pdf

Well work start Date: 08/20/2019 **Duration:** 90 DAYS

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number:

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	2270	FSL	734	FEL	26S	32E	20	Aliquot NESE	32.027094	-103.690964	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0068281B	3141	0	0
KOP Leg #1	2596	FSL	661	FEL	26S	32E	20	Aliquot NESE	32.027987	-103.6907217	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0068281B	-8023	11183	11164
PPP Leg #1	2315	FSL	660	FEL	26S	32E	20	Aliquot NESE	32.027219	-103.690725	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0068281B	-8655	11900	11796

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U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Drilling Plan Data Report

02/20/2019

APD ID: 10400022509 **Submission Date:** 09/25/2017

Highlighted data reflects the most recent changes

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

Show Final Text

Well Type: OIL WELL **Well Work Type:** Drill

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	QUATERNARY	3141	0	0		NONE	No
2	RUSTLER	2201	940	940	DOLOMITE,ANHYDRITE	NONE	No
3	SALADO	1721	1420	1420	SALT	NONE	No
4	CASTILE	1011	2130	2130	SALT	NONE	No
5	DELAWARE	-1199	4340	4340	SANDSTONE	NATURAL GAS,OIL	No
6	CHERRY CANYON	-2109	5250	5250	SANDSTONE	NATURAL GAS,OIL	No
7	BRUSHY CANYON	-3729	6870	6870	SANDSTONE	NATURAL GAS,OIL	No
8	BONE SPRING	-5039	8180	8180	SANDSTONE	NATURAL GAS,OIL	No
9	BONE SPRING 1ST	-6193	9334	9334	SANDSTONE	NATURAL GAS,OIL	No
10	BONE SPRING 2ND	-6838	9979	9979	SANDSTONE	NATURAL GAS,OIL	No
11	BONE SPRING 3RD	-7319	10460	10460	LIMESTONE	NATURAL GAS,OIL	No
12	WOLFCAMP	-8379	11520	11520	LIMESTONE,SHALE,SANDSTONE	NATURAL GAS,OIL	Yes

Pressure Rating (PSI): 10M **Rating Depth:** 11164

Equipment: Rotating Head, Annular Preventer, Pipe/Blind Rams, Kill Lines, Choke Lines, Adapter Spool

Requesting Variance? YES

Variance request: A variance to use flexible choke line(s) from the BOP to Choke Manifold. Testing certificate is attached in Flexhose Variance data document. A variance to use a multibowl wellhead system. Please see attached in section 3 of drilling plan. A variance is requested to use a 5M annular and test the annular to 100% of its working pressure. This variance is requested in conjunction with the attached well control plan.

Testing Procedure: BOP/BOPE will be isolated from the casing and tested by an independent service company to 250 psi

low and the high pressure indicated above per Onshore Order 2 requirements. BOPE controls will be installed prior to drilling under the surface casing and will be used until the completion of drilling operations. The intermediate interval and the production interval will be tested per 10M working system requirements. See attached "Drill Plan" document.

Choke Diagram Attachment:

Zia_Hills_20_Fed_Com_115H_Choke_20190203204614.pdf

BOP Diagram Attachment:

Zia_Hills_20_Fed_Com_115H_BOPE_20190203204623.pdf

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	1668	0	1668			1668	J-55	54.5	OTHER - BTC	2.63	3.66	DRY	8.49	DRY	8.49
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	12308	0	11880			12308	P-110	47	OTHER - BTC	2.12	1.41	DRY	1.11	DRY	1.11
3	PRODUCTION	8.5	5.5	NEW	API	N	0	21643	0	11880			21643	P-110	23	OTHER - TXP	1.33	1.51	DRY	2.35	DRY	2.35

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Zia_Hills_20_Fed_Com_115H_Csg_Design_20190203204730.pdf

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

Casing Attachments

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Zia_Hills_20_Fed_Com_115H_Csg_Design_20190203204802.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Zia_Hills_20_Pad_2__Production_csg_specification_20170920082811.pdf

Zia_Hills_20_Fed_Com_115H_Csg_Design_20190203204815.pdf

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1268	1530	1.73	12.8	2642	200	Control Set 'C' + adds	+ 1.0% CaCl2 + 1.0% SMS + 1.0% OGC-60 + ¼ lb/sk Polyflake + ½ ppb FiberBlock
SURFACE	Tail		1268	1668	660	1.33	14.8	868	200	[redacted]	[redacted]
INTERMEDIATE	Lead		0	5268	2310	1.73	11	3986	200	Thermal 35 + adds	+ 10% NaCl + 0.9% CFR + 0.7% CFL-4 + 0.1% LTR + 0.2% SPC-

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
											II + 0.4% CDF-4P + ¼ lb/sk Polyflake + ½ ppb FiberBlock
INTERMEDIATE	Lead	5268	1168	10683	1070	2.7	11	2883	70	WBL + adds	+ 0.5% CFL-4 + 0.6% LTR + 0.2% SPC-II + 0.4% CDF-4P + ¼ lb/sk Polyflake + ½ ppb FiberBlock + WBL
INTERMEDIATE	Tail		10683	12308	440	1.59	13.2	699	30	Thermal 35 + adds	+ 10% NaCl + 0.9% CFR + 0.7% CFL-4 + 0.1% LTR + 0.2% SPC-II + 0.4% CDF-4P + ¼ lb/sk Polyflake + ½ ppb FiberBlock
PRODUCTION	Lead		0	21643	0	0	0	0	0	NO LEAD	NO LEAD
PRODUCTION	Tail		10183	21643	2418	1.19	15.6	2876	10	1:1:0 Poz / Class G + adds	+ 2% FWCA-II (FWC-2) + 0.03% LTR + 0.5% CFL-4 (MCR-4) + 1% TAE-1 + SEA-0 + ¼ CFL-4 + 0.2% CFR-3 + 0.3% ASM-3 (AS-3)

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. See attached "Drill Plan" for additional information.

Describe the mud monitoring system utilized: Closed-loop mud system using steel mud containers will be on location. Mud monitoring of any changes in levels (gains or losses) will use Pressure Volume Temperature, Pason, Visual Observations. See attached "Drill Plan" for additional information.

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	21643	OIL-BASED MUD	9.5	13.5							
0	1108	OTHER : FRESH WATER	8.34	8.6							
0	12308	OIL-BASED MUD	8.6	9.2							

List of production tests including testing procedures, equipment and safety measures:

Production tests will be conducted multiple times per week, through a test separator, during first months following completion. Thereafter, tests will be less frequently. See attached "Drill Plan" for additional information.

List of open and cased hole logs run in the well:

GR

Coring operation description for the well:

No coring operation is planned, at this time.

Anticipated Bottom Hole Pressure: 8316 **Anticipated Surface Pressure:** 5702.4

Anticipated Bottom Hole Temperature(F): 285

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

ZIA_HILLS_20_PAD_2_H2S_C_Plan_20170920084416.pdf

Zia_Hills_20_Pad_2_Rig_Layout_20180926100555.pdf

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

Proposed horizontal/directional/multi-lateral plan submission:

Wellplan_Report_Zia_Hills_20_Federal_Com_115H_Design_A_20180926100636.pdf

Zia_Hills_20_Fed_Com_115H_Wellbore_Schematic_20190203204959.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Zia_Hills_20_Pad_2_Gas_Capture_Plan_20170920084627.pdf

Zia_Hills_20_Pad_2_Drill_Waste_Containment_20170922081028.pdf

ZIA_HILLS_20_Fed_Com_115H_Drilling_Plan_revised_2_1_19_20190203205015.pdf

Other Variance attachment:

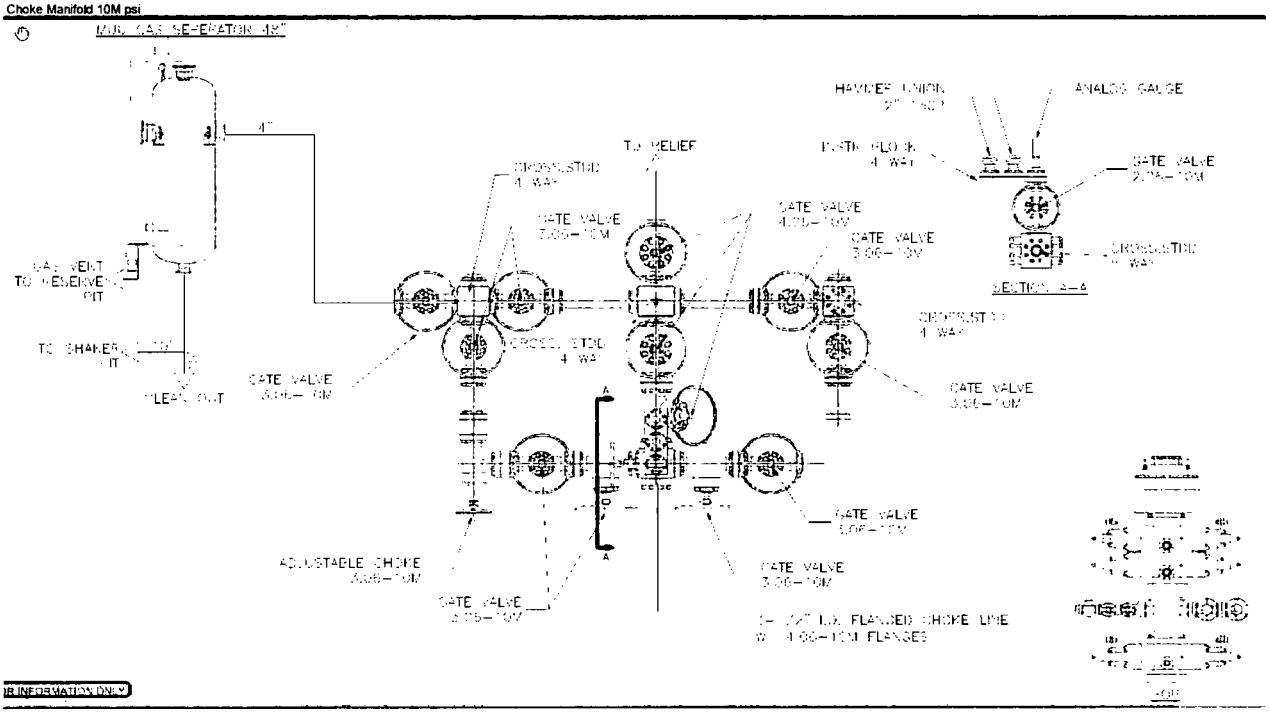
Zia_Hills_20_Pad_2_Generic_WH_20170920085851.pdf

Zia_Hills_20_Pad_2_Flexhose_Variance_20170920085907.pdf

Zia_Hills_20_Pad_2_Running_Procedure_20170920085923.pdf

Wild_Well_Control_Plan_20190203205022.pdf

Choke Manifold 10M psi



NOT FOR INFORMATION ONLY

BOPE Configuration & Specifications
13-5/8" x 10,000 psi System

Rotating Head (w/ fill up line)
13-5/8" x 10k psi

Annular Preventer
13-5/8" x 5k psi

Pipe Ram
13-5/8" x 10k psi

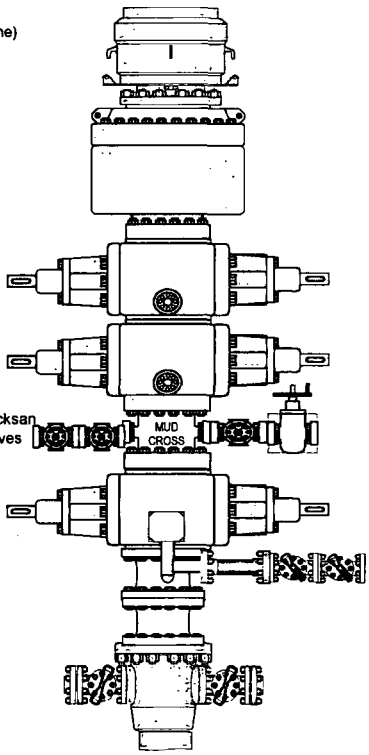
Blind Ram
13-5/8" x 10k psi

Kill Line 2-1/16" x 10k Chicksan
(2) 2-1/16" x 10k Gate Valves
Outer Check Valve

Pipe Ram
13-5/8" x 10k psi

Spacer Spool
13-5/8" x 10k psi

Casing Head
13-5/8" x 10k psi



Choke Line 6" x 3" x 10k psi
4-1/16" x 10k psi Inner Manual Valve
4 - 1/16" x 10k psi Outer Remote HCR

2" x 5k psi Gate Valves
Pressure Testing Lines

Zia Hills 20 115H | **NESE 20 T26S R32E** | **Lea, Co, NM** | **2/3/2019**

SURFACE CASING DESIGN INFORMATION

Setting Depth: 1,668' MD 1,668' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
13.375	54.5	J-55	BTC	12.612	12.459	1,130 / 960	2,730 / 2,320	909 / 772

Surface Casing Test Pressure = 1,500 psi

Pressure Test Prior to Drill Out

Minimum Design / Safety Factors COP

Burst	*Collapse*	*Tension (Body & Connection)*
1.15	*1.05*	*1.40*

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
14.375	12.612	12.459	BTC	1,130 / 960	2,730 / 2,320	909 / 772

Actual Design / Safety Factors

Burst	*Collapse*	*Tension (Body)*	
3.66	*2.63*	*8.49*	Dry
		9.78	Bouyed

INTERMEDIATE CASING DESIGN INFORMATION

Setting Depth: 12,308' MD 11,880' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	47	P-110	BTC	8.681	8.525	5,310 / 4,513	9,440 / 8,024	1,500 / 1,275.

Production Casing Test Pressure = TBD

Minimum Design / Safety Factors

Burst	*Collapse*	*Tension (Body & Connection)*
1.15	*1.05*	*1.40*

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
8.5	8.835	8.679	BTC	5,310 / 4,513	9,440 / 8,024	1,500 / 1,275.

Actual Design / Safety Factors

Burst	*Collapse*	*Tension (Body)*	
1.41	*2.12*	*1.11*	Dry
		1.29	Bouyed

PRODUCTION CASING DESIGN INFORMATION

Setting Depth: 21,643' MD 11,880' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
5.5	23	P-110	TXP	4.670	4.545	14,540 / 13,848	14,530 / 12,635	729 / 521

Production Casing Test Pressure = TBD

Minimum Design / Safety Factors

Burst	*Collapse*	*Tension (Body & Connection)*
1.15	*1.05*	*1.40*

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
6.2	4.658	4.545	TXP	14,540 / 13,848	14,530 / 12,635	729 / 521

Actual Design / Safety Factors

Burst	*Collapse*	*Tension (Body)*	
1.51	*1.33*	*2.35*	Dry
		2.95	Bouyed

Zia Hills 20 115H | **NESE 20 T26S R32E** | **Lea, Co, NM** | **2/3/2019**

SURFACE CASING DESIGN INFORMATION

Setting Depth: 1,668' MD 1,668' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
13.375	54.5	J-55	BTC	12.612	12.459	1,130 / 960	2,730 / 2,320	909 / 772

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

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14.375	12.612	12.459	BTC	1,130 / 960	2,730 / 2,320	909 / 772

Surface Casing Test Pressure = 1,500 psi

Pressure Test Prior to Drill Out

Minimum Design / Safety Factors COP		
Burst	*Collapse*	*Tension (Body &*
1.15	*1.05*	*1.40*

Actual Design / Safety Factors			
Burst	*Collapse*	*Tension (Body)*	
3.66	*2.63*	*8.49*	Dry
		9.78	Bouyed

INTERMEDIATE CASING DESIGN INFORMATION

Setting Depth: 12,308' MD 11,880' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	47	P-110	BTC	8.681	8.525	5,310 / 4,513	9,440 / 8,024	1,500 / 1,275.

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8.5	8.835	8.679	BTC	5,310 / 4,513	9,440 / 8,024	1,500 / 1,275.

Production Casing Test Pressure = TBD

Minimum Design / Safety Factors		
Burst	*Collapse*	*Tension (Body & Connection)*
1.15	*1.05*	*1.40*

Actual Design / Safety Factors			
Burst	*Collapse*	*Tension (Body)*	
1.41	*2.12*	*1.11*	Dry
		1.29	Bouyed

PRODUCTION CASING DESIGN INFORMATION

Setting Depth: 21,643' MD 11,880' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
5.5	23	P-110	TXP	4.670	4.545	14,540 / 13,848	14,530 / 12,635	729 / 521

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
6.2	4.658	4.545	TXP	14,540 / 13,848	14,530 / 12,635	729 / 521

Production Casing Test Pressure = TBD

Minimum Design / Safety Factors		
Burst	*Collapse*	*Tension (Body & Connection)*
1.15	*1.05*	*1.40*

Actual Design / Safety Factors			
Burst	*Collapse*	*Tension (Body)*	
1.51	*1.33*	*2.35*	Dry
		2.95	Bouyed

Zia Hills 20 Federal Pad #2

Production Casing Specification Sheet

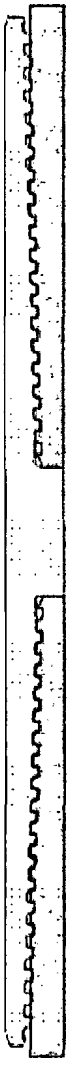
For the latest performance data, always visit our website:

August 29 2016

Tenaris

Size: 5.500 in.
Wall: 0.361 in.
Weight: 20.00 lbs/ft
Grade: P110
Min. Wall Thickness: 87.5 %

Connection: TenarisXP® BTC
Casing/Tubing: CAS
Coupling Option: REGULAR



PIPE BODY DATA

GEOMETRY

Nominal OD	**5.500** in.	Nominal Weight	**20.00** lbs/ft	Standard Drift Diameter	**4.653** in.
Nominal ID	**4.778** in.	Wall Thickness	**0.361** in.	Special Drift Diameter	**N/A**
Plain End Weight	**19.83** lbs/ft				

PERFORMANCE

Body Yield Strength	**641** x 1000 lbs	Internal Yield	**12630** psi	SMYS	**110000** psi
Collapse	**11100** psi				

TENARISXP® BTC CONNECTION DATA

GEOMETRY

Connection OD	**6.100** in.	Coupling Length	**9.450** in.	Connection ID	**4.766** in.
Critical Section Area	**5.828** sq. in.	Threads per in.	**5.00**	Make-Up Loss	**4.204** in.

PERFORMANCE

Tension Efficiency	**100** %	Joint Yield Strength	**641** x 1000 lbs	Internal Pressure Capacity(1)	**12630** psi
Structural Compression Efficiency	**100** %	Structural Compression Strength	**641** x 1000 lbs	Structural Bending(1)	**92** °/100 ft
External Pressure Capacity	**11100** psi				

ESTIMATED MAKE-UP TORQUES(3)

Minimum	**11270** ft-lbs	Optimum	**12520** ft-lbs	Maximum	**13770** ft-lbs

OPERATIONAL LIMIT TORQUES

Operating Torque	**21500** ft-lbs	Yield Torque	**23900** ft-lbs

Zia Hills 20 115H | **NESE 20 T26S R32E** | **Lea, Co, NM** | **2/3/2019**

SURFACE CASING DESIGN INFORMATION

Setting Depth: 1,668' MD 1,668' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
13.375	54.5	J-55	BTC	12.612	12.459	1,130 / 960	2,730 / 2,320	909 / 772

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
14.375	12.612	12.459	BTC	1,130 / 960	2,730 / 2,320	909 / 772

Surface Casing Test Pressure = 1,500 psi

Pressure Test Prior to Drill Out

Minimum Design / Safety Factors COP

Burst	*Collapse*	*Tension (Body &*
1.15	*1.05*	*1.40*

Actual Design / Safety Factors

Burst	*Collapse*	*Tension (Body)*	
3.66	*2.63*	*8.49*	Dry
		9.78	Bouyed

INTERMEDIATE CASING DESIGN INFORMATION

Setting Depth: 12,308' MD 11,880' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	47	P-110	BTC	8.681	8.525	5,310 / 4,513	9,440 / 8,024	1,500 / 1,275.

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
8.5	8.835	8.679	BTC	5,310 / 4,513	9,440 / 8,024	1,500 / 1,275.

Production Casing Test Pressure = TBD

Minimum Design / Safety Factors

Burst	*Collapse*	*Tension (Body & Connection)*
1.15	*1.05*	*1.40*

Actual Design / Safety Factors

Burst	*Collapse*	*Tension (Body)*	
1.41	*2.12*	*1.11*	Dry
		1.29	Bouyed

PRODUCTION CASING DESIGN INFORMATION

Setting Depth: 21,643' MD 11,880' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
5.5	23	P-110	TXP	4.670	4.545	14,540 / 13,848	14,530 / 12,635	729 / 521

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
6.2	4.658	4.545	TXP	14,540 / 13,848	14,530 / 12,635	729 / 521

Production Casing Test Pressure = TBD

Minimum Design / Safety Factors

Burst	*Collapse*	*Tension (Body & Connection)*
1.15	*1.05*	*1.40*

Actual Design / Safety Factors

Burst	*Collapse*	*Tension (Body)*	
1.51	*1.33*	*2.35*	Dry
		2.95	Bouyed

ConocoPhillips

H_2S Contingency Plan
November 2016

H_2S Contingency Plan Holders:

Attached is an H_2S Contingency Plan for COPC Permian Drilling working in the West Texas and Southeastern New Mexico areas operated by ConocoPhillips Company.

If you have any question regarding this plan, please call Matt Oster (830) 583-1297, or Ryan Vacarella (985) 217-7594.

Table of Contents

Section

ConocoPhillips

HYDROGEN SULFIDE (H_2S) OPERATIONS

Contingency Plan
For
Permian Drilling Operations

ConocoPhillips Company

Mid-Continent Business Unit
Permian Asset Area

I.PURPOSE

The purpose of this Contingency Plan is to provide an organized plan of action for alerting and protecting the public following the release of a potentially hazardous volume of hydrogen sulfide. This plan prescribes mandatory safety procedures to be followed in the event of a release of H_2S into the atmosphere from exploration and production operations included in the scope of this plan. The extent of action taken will be determined by the supervisor and will depend on the severity and extent of H_2S release. Release of H_2S must be reported to the Drilling Superintendent and documented on the IADC and in Wellview.

II. SCOPE

This Contingency plan shall cover the West Texas and Southeastern New Mexico areas, which contain H2S gas and could result in a release where the R.O.E. is greater than 100 ppm at 50' and less than 3000' and does not include a public area and 500 ppm R.O.E. does not include a public road. Radius of exposure is defined as the maximum distance from the source of release that a specified calculated average concentration of H_2S could exist under specific weather conditions.

III. PROCEDURES

First Employee on Scene

____Assess the incident and ensure your own safety.

Note the following:

—— Location of the incident.
____Nature of the incident.
—— Wind direction and weather conditions.
____Other assistance that may be needed.

____ Call local supervisory personnel (refer to Section V: Emergency Call List) until personal contact is made with a person on the list.

____ Perform emergency assessment and response as needed. The response may include rescue and/or evacuation of personnel, shutting in a system and/or notification of nearby residents/public (refer to Section VII: Public Notification/Evacuation).

____ Secure the site.

____ Follow the direction of the On-scene Incident Commander (first ConocoPhillips supervisor arriving on-scene).

First Supervisor on Scene (ConocoPhillips On-scene Incident Commander)

—— Becomes ConocoPhillips' On-scene Incident Commander upon arrival to location.

—— Follow the principles of the **D.E.C.I.D.E.** process below to assess the incident. (Note wind direction and weather conditions and ensure everyone's safety).

DETECT the problem
ESTIMATE likely harm without intervention
CHOOSE response objectives
IDENTIFY action options
DO the best option
EVALUATE the progress

____Complete the Preliminary Emergency Information Sheet (refer to Section VIII: Forms/Reports).

____Call your supervisor (refer to Section V: Emergency Call List).

____Perform emergency response as necessary. (This may include notification & evacuation of all personnel and/or nearby residents/public (refer to Section VII: Public Notification/Evacuation), requesting assistance from ConocoPhillips personnel or outside agencies (refer to Section V: Emergency Call List) and obtaining any safety equipment that may be required (refer to Section IV: Emergency Equipment and Maintenance).

—— Notify appropriate local emergency response agencies of the incident as needed. Also notify the appropriate regulatory agencies. (refer to Section V: Emergency Call List).

—— Ensure site security.

— Set barricades and /or warning signs at or beyond the calculated 100 ppm H_2S radius of exposure (ROE). All manned barricades must be equipped with an H_2S monitor and a 2-way radio.

— Set roadblocks and staging area as determined.

—— Establish the Incident Command Structure by designating appropriate on-scene response personnel as follows:

Recording Secretary _____
Public Information Officer _____
Safety/Medical Officer _____
Decontamination Officer _____

—— Have the "Recording Secretary" begin documenting the incident on the "Incident Log" (refer to Section VIII: Forms/Reports).

—— If needed, request radio silence on all channels that use your radio tower stating that, until further notice, the channels should be used for emergency communications only.

—— Perform a Site Characterization and designate the following:

Hot Zone -- Hazardous Area
Warm Zone -- Preparation & Decontamination Area
Cold Zone -- Safe Area

AND

On-Scene Incident Command Post	(Cold Zone)
Public Relations Briefing Area	(Cold Zone)
Staging Area	(Cold Zone)
Triage Area	(Cold Zone)
Decontamination Area	(Warm Zone)

____Refer all media personnel to ConocoPhillips' On-Scene Public Information Officer (refer to Section VI: Public Media Relations).

____Coordinate the attempt to stop the release of H_2S. You should consider closing upstream and downstream valves to shut-off gas supply sources, and/or plugging or clamping leaks. Igniting escaping gas to reduce the toxicity hazard should be used **ONLY AS A LAST RESORT**. (It must first be determined if the gas can be safely ignited, taking into consideration if there is a possibility of a widespread flammable atmosphere.)

____Once the emergency is over, return the situation to normal by:

Confirming the absence of H_2S and combustible gas throughout the area,

Discontinuing the radio silence on all channels, stating that the emergency incident is over,

Removing all barricades and warning signs,

Allowing evacuees to return to the area, and

Advising all parties previously notified that the emergency has ended.

____ Ensure the proper regulatory authorities/agencies are notified of the incident (refer to Section V: Emergency Call List).

____ Clean up the site. (Be sure all contractor crews have had appropriate HAZWOPER training.)

____ Report completion of the cleanup to the Asset Environmentalist. (Environmentalist will report this to the proper State and/or Federal agencies.)

____ Fill out all required incident reports and send originals to the Safety Department. (Keep a copy for your records.)

- Company employee receiving occupational injury or illnesses.

- Company employee involved in a vehicle accident while driving a company vehicle.

- Company property that is damaged or lost.

- Accident involving the public or a contractor; includes personal injuries, vehicle accidents, and property damage. Also includes any situation, which could result in a claim against the Company.

- Hazardous Material Spill/Release Report Form

- Emergency Drill Report

____ Assist the Safety Department in the investigation of the incident. Review the factors that caused or allowed the incident to occur, and modify operating, maintenance, and/or surveillance procedures as needed. Make appropriate repairs and train or retrain employees in the use and operation of the system.

____ If this incident was simulated for practice in emergency response, complete the Emergency Drill Report found in Section VIII: Forms/Reports and submit a copy to the Drilling Manager. (Keep one copy in area files to document exercising of the plan.)

Emergency Procedures
Responsibility

In the event of a release of potentially hazardous amounts of H2S, all personnel will immediately proceed upwind/ crosswind to the nearest designated briefing area. The COPC Drilling Rep. will immediately, upon assessing the situation, set this into action by taking the proper procedures to contain the gas and notify appropriate people and agencies.

1. In an emergency situation, the Drilling Rep. on duty will have complete responsibility and will take whatever action is deemed necessary in an emergency situation to insure the personnel's safety, to protect the well and to prevent property damage.

2. The Toolpusher will assume all responsibilities of the Drilling Rep. in an emergency situation in the event the Drilling Rep. becomes incapacitated.

3. Advise each contractor, service company, and all others entering the site that H2S may be encountered and the potential hazards that may exist.

4. Authorize the evacuation of local residents if H2S threatens their safety.

5. Keep the number of persons on location to a minimum during hazardous operations.

6. Direct corrective actions to control the flow of gas.

7. Has full responsibility for igniting escaping gas to reduce the toxicity hazard.

   This should be used **ONLY AS A LAST RESORT**.

IV. EMERGENCY EQUIPMENT and MAINTENANCE

Emergency Equipment Suppliers

DXP/ Safety International – Odessa, Tx. 432.580.3770
H_2S monitors
Breathing air includes cascade systems
First aid and medical supplies
Safety equipment
H2S Specialist

Total Safety US Odessa, Tx/ Hobs, NM 432.561.5049 Odessa
H_2S monitors 575.392.2973 Hobbs
Breathing air includes cascade systems
First aid and medical supplies
Safety equipment

DXP/ Indian Fire & Safety – Hobbs, NM 575.393.3093
H_2S monitors
Breathing air including cascade systems trailer mounted
30 minute air packs
Safety Equipment

TC Safety – Odessa, Tx. 432.413.8240
H_2S monitors
Cascade systems trailer mounted
30 minute air packs
Safety Equipment
H2S Specialist

Secorp Industries – Odessa, Tx. 432.614.2565
H2S Monitor Systems
Cascade Systems
H2S Specialist
H2S, CPR, First Aid Training

Emergency Equipment and Maintenance (continued)

General Information

Materials used for repair should be suitable for use where H_2S concentrations exceed 100 ppm. In general, carbon steels having low-yield strengths and a hardness below RC-22 are suitable. The engineering staff should be consulted if any doubt exists on material specifications.

Appropriate signs should be maintained in good condition at location entrance and other locations as specified in Texas Rule 36 and NMOCD Rule 118.

All notification lists should be kept current with changes in names, telephone numbers, etc.

All shutdown devices, alarms, monitors, breathing air systems, etc., should be maintained in accordance with applicable regulations.

All personnel working in H_2S areas shall have received training on the hazards, characteristics, and properties of H_2S, and on procedures and safety equipment applicable for use in H_2S areas.

H2S Safety Equipment and Monitoring Systems

An H2S emergency response package will be maintained at locations requiring H2S monitoring. The package will contain at a minimum the following:

3 – Fixed H2S sensors located as follows:
- 1 – on the rig floor
- 1 – at the Bell Nipple
- 1 – at the Shale Shaker or Flowline

1 – Entrance Warning Sign located at the main entrance to the location, with warning signs and colored flags to determine the current status for entry into the location.

2 – Windsocks that are clearly visible.

1 – Audible warning system located on rig floor

2 – Visual warning systems (Beacon Lights)
- 1 – Located at the rig floor
- 1 – Located in the mud mixing room

Note: All alarms (audible and visual) should be set to alarm at 10 ppm.

2 - Briefing areas clearly marked
- 2 - SCBA's at each briefing area
- 1- SCBA located at the Drilling Reps office

Note:
1. **All SCBA's must be positive pressure type only!!!**
2. **All SCBA's must either be Scott or Drager brand.**
3. **All SCBA's face pieces should be size large, unless otherwise specified by the Drilling Supervisor.**

5 – Emergency Escape Paks located at Top Doghouse.
Note: Ensure provisions are included for any personnel working above rig floor in derrick.

1 – Tri or Quad gas monitor located at the Drilling Reps office. This will be used to determine if the work area if safe to re-enter prior to returning to work following any alarm.

V. EMERGENCY CALL LIST:

The following is a priority list of personnel to contact in an emergency situation:

Supervisory Personnel	Office No.		Cellphone
Drilling Supt. (Unconventional) **Scott Nicholson**	432.688.9065		432.230.8010
Field Superintendents: **Clint Case.**	432.688.6878		940.231.2839
Safety Support: **Matt Oster** **Ryan Vaccarella**	830.583.1245 985.217.7594		601.540.6988 NA
Supt Operations-SEMN/Shale Mike Neuschafer	432.688.6834		713.419.9919
MCBU Safety Coordinator **James Buzan**	432.688.6860		832.630.4320
Manger GCBU/MCBU D & C **Seth Crissman**	832.486.6191		832.513.9308

EMERGENCY CALL LIST: State Officials

Regulatory Agencies

Texas Railroad Commission (District 8) Office: 432.684.5581
Midland, Texas

New Mexico Oil Conservation Commission Office: 575.393.6161
P. O. Box 1980
Hobbs, New Mexico 88240-1980

Bureau of Land Mngt.
Carlsbad Field Office
620 E. Greene St.
Carlsbad, NM 88220

Office: 575.234.5972
Fax: 575.885.9264

EMERGENCY CALL LIST: Local Officials

Refer to the Location Information Sheet

Note: The LIS should include any area residents (i.e. rancher's house, etc)

VI. Public Media Relations

The **Public Information Officer** becomes the ConocoPhillips on-scene contact (once designated by the Phillips On-Scene Incident Commander).

Confers with Houston Office's Human Relations Representative, who is responsible for assisting in the coordination of local public relations duties.

Answer media questions honestly and **only with facts.** do not speculate about the cause, amount of damage, or the potential impact of the incident of the community, company, employees, or environment. (This information will be formally determined in the incident investigation.)

If you are comfortable answering a question or if you are unsure of the answer, use terms such as the following:

- "I do not know. I will try to find out."
- I am not qualified to answer that question, but I will try to find someone who can."
- "It is under investigation."

Note:
Do Not Say "No Comment." (This implies a cover-up.)

Do Not Disclose Names of Injured or Dead! Confer with the Houston Office's Human Relations Representative, who is responsible for providing that information.

VII. Public Notification/Evacuation

Alert and/or Evacuate People within the Exposure Area

1. Public Notification – If the escape of gas could result in a hazard to area residents, the general public, or employees, the person **first** observing the leak should take **immediate** steps to cause notification of any nearby residents. The avoidance of injury or loss of life should be of prime consideration and given top priority in all cases. If the incident is of such magnitude, or at such location as to create a hazardous situation, local authorities will be requested to assist in the evacuation and roadblocks of the designated area until the situation can be returned to normal.

   Note: Bilingual employees may be needed to assist in notification of residents.

2. Evacuation Procedures – Evacuation will proceed upwind from the source of the release of H_2S. Extreme caution should be exercised in order to avoid any depressions or low-lying areas in the terrain. The public area within the radius of exposure should be evacuated in a southwesterly and southeasterly direction so as to avoid the prevailing southern wind direction.

   Roadblocks and the staging area should be established as necessary for current wind conditions.

Note: In all situations, consideration should be given to wind direction and weather conditions. H_2S is heavier than air and can settle in low spots. Shifts in wind direction can also change the location of possible hazardous areas.

VIII. FORMS & REPORTS

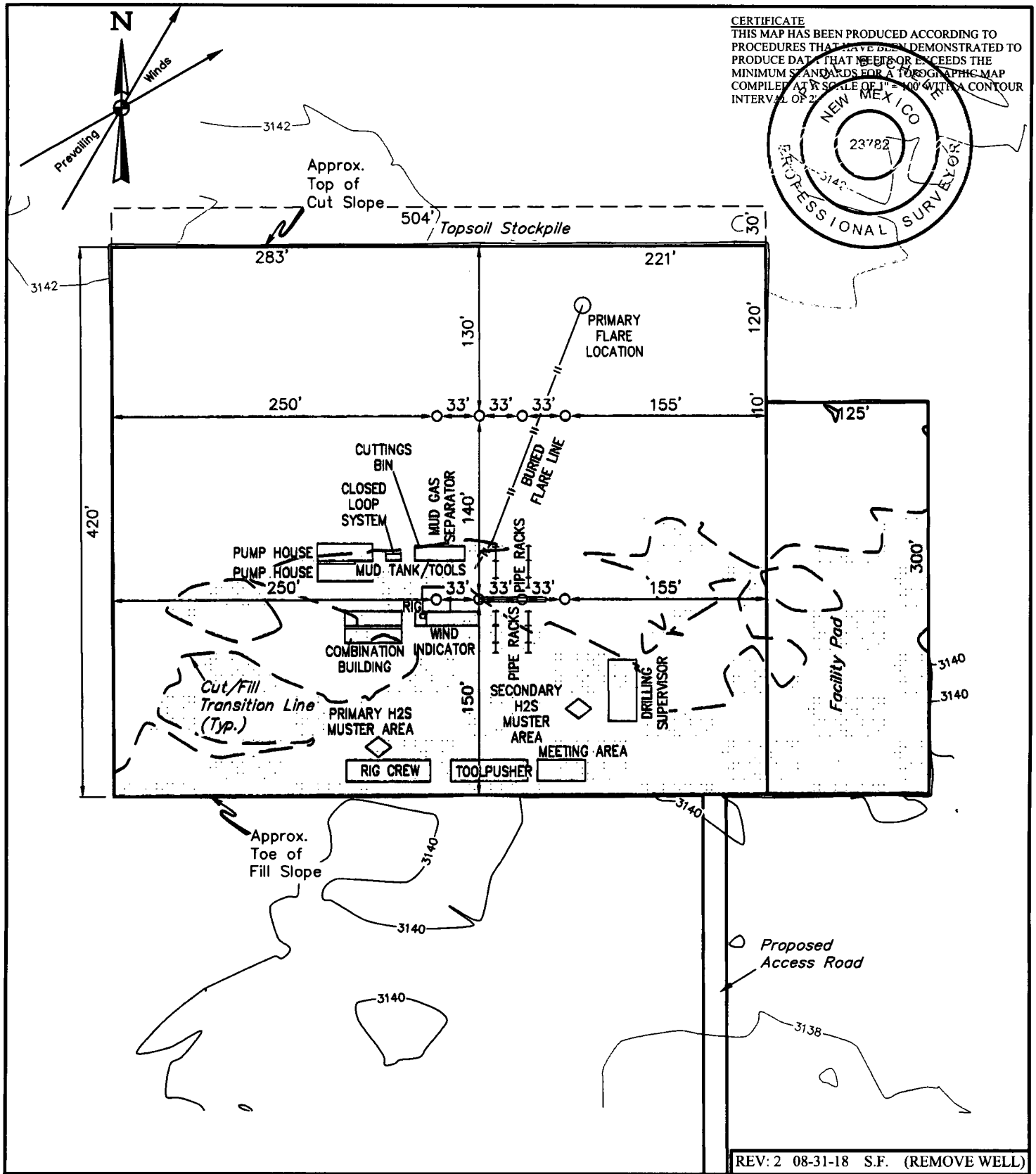
I. Incident Log

II. Preliminary Emergency Information Sheet

III. Emergency Drill Report

IV. Onshore Hazardous Material Spill/Release Report Form

V. Immediate Report of Occupational Injury or Illness
Report of Accident-Public Contractor
Report of Loss or Damage to Company Property
Report of Automotive Incident



REV: 2 08-31-18 S.F. (REMOVE WELL)

NOTES:

- Contours shown at 2' intervals.
- May have different number of Pump Houses and Combination Buildings.

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 2
NE 1/4 SE 1/4, SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	J.A.V., R.D.	05-16-17	SCALE
DRAWN BY	S.S.	06-26-17	1" = 100'

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

ConocoPhillips MCBU - Permian-Panhandle Gold Data

Planning - NM East State Zone - 3001
ZIA HILLS 20 FEDERAL COM 115H
ZIA HILLS 20 FEDERAL COM 115H

ZIA HILLS 20 FEDERAL COM 115H

Plan: Design A

Standard Planning Report

17 September, 2018

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 115H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 115H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 115H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 115H		
Design:	Design A		

Project	Planning - NM East State Zone - 3001, Permian Basin - New Mexico - East/South East, Planning Project for Permian wells in NM Zone 3001		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		Using geodetic scale factor

Site	ZIA HILLS 20 FEDERAL COM 115H				
Site Position:		**Northing:**	374,130.03 usft	**Latitude:**	32° 1' 37.09 N
From:	Map	**Easting:**	699,220.86 usft	**Longitude:**	103° 41' 25.772 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.34 °

Well	ZIA HILLS 20 FEDERAL COM 115H					
Well Position	**+N/-S**	0.00 usft	**Northing:**	374,130.03 usft	**Latitude:**	32° 1' 37.09 N
	+E/-W	0.00 usft	**Easting:**	699,220.86 usft	**Longitude:**	103° 41' 25.772 W
Position Uncertainty		2.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,141.30 usft

Wellbore	ZIA HILLS 20 FEDERAL COM 115H				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	BGGM2018	12/1/2018	6.93	59.79	47,691.87664109

Design	Design A				
Audit Notes:					
Version:	0	**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	179.24	

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 115H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 115H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 115H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 115H		
Design:	Design A		

Plan Survey Tool Program **Date** 9/17/2018

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	2,500.00	Design A (ZIA HILLS 20 FEDERA	GOOD GYRO	
				GOOD GYRO	
2	2,500.00	2,600.00	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	
3	2,600.00	3,066.64	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	
4	3,066.64	5,337.60	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	
5	5,337.60	5,804.25	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	
6	5,804.25	11,183.05	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	
7	11,183.05	12,308.05	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	
8	12,308.05	21,643.20	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,066.64	7.00	12.59	3,065.48	27.78	6.20	1.50	1.50	0.00	12.59	
5,337.60	7.00	12.59	5,319.52	297.88	66.51	0.00	0.00	0.00	0.00	
5,804.25	0.00	0.00	5,785.00	325.66	72.71	1.50	-1.50	0.00	180.00	ZIA HILLS 20 FEDER
11,183.05	0.00	0.00	11,163.80	325.66	72.71	0.00	0.00	0.00	0.00	
12,308.05	90.00	179.68	11,880.00	-390.52	76.74	8.00	8.00	0.00	179.68	
21,643.20	90.00	179.68	11,880.00	-9,725.52	129.23	0.00	0.00	0.00	0.00	ZIA HILLS 20 FEDER

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 115H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 115H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 115H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 115H		
Design:	Design A		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL: 2270' FSL, 734' FEL									
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
11 3/4" Casing									
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	1.50	12.59	2,699.99	1.28	0.29	-1.27	1.50	1.50	0.00
2,800.00	3.00	12.59	2,799.91	5.11	1.14	-5.09	1.50	1.50	0.00
2,900.00	4.50	12.59	2,899.69	11.49	2.57	-11.46	1.50	1.50	0.00
3,000.00	6.00	12.59	2,999.27	20.42	4.56	-20.36	1.50	1.50	0.00
3,066.64	7.00	12.59	3,065.48	27.78	6.20	-27.70	1.50	1.50	0.00
EOB: 2298' FSL, 728' FEL									
3,100.00	7.00	12.59	3,098.59	31.75	7.09	-31.65	0.00	0.00	0.00
3,200.00	7.00	12.59	3,197.85	43.65	9.74	-43.51	0.00	0.00	0.00
3,300.00	7.00	12.59	3,297.10	55.54	12.40	-55.37	0.00	0.00	0.00
3,400.00	7.00	12.59	3,396.36	67.43	15.06	-67.23	0.00	0.00	0.00
3,500.00	7.00	12.59	3,495.61	79.33	17.71	-79.08	0.00	0.00	0.00
3,600.00	7.00	12.59	3,594.87	91.22	20.37	-90.94	0.00	0.00	0.00
3,700.00	7.00	12.59	3,694.12	103.11	23.02	-102.80	0.00	0.00	0.00
3,800.00	7.00	12.59	3,793.37	115.01	25.68	-114.65	0.00	0.00	0.00
3,900.00	7.00	12.59	3,892.63	126.90	28.33	-126.51	0.00	0.00	0.00
4,000.00	7.00	12.59	3,991.88	138.79	30.99	-138.37	0.00	0.00	0.00
4,100.00	7.00	12.59	4,091.14	150.69	33.64	-150.23	0.00	0.00	0.00
4,200.00	7.00	12.59	4,190.39	162.58	36.30	-162.08	0.00	0.00	0.00
4,300.00	7.00	12.59	4,289.65	174.47	38.96	-173.94	0.00	0.00	0.00
4,400.00	7.00	12.59	4,388.90	186.37	41.61	-185.80	0.00	0.00	0.00
4,500.00	7.00	12.59	4,488.16	198.26	44.27	-197.65	0.00	0.00	0.00
4,600.00	7.00	12.59	4,587.41	210.15	46.92	-209.51	0.00	0.00	0.00
4,700.00	7.00	12.59	4,686.67	222.05	49.58	-221.37	0.00	0.00	0.00
4,800.00	7.00	12.59	4,785.92	233.94	52.23	-233.23	0.00	0.00	0.00

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 115H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 115H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 115H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 115H		
Design:	Design A		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,900.00	7.00	12.59	4,885.18	245.83	54.89	-245.08	0.00	0.00	0.00
5,000.00	7.00	12.59	4,984.43	257.73	57.54	-256.94	0.00	0.00	0.00
5,100.00	7.00	12.59	5,083.69	269.62	60.20	-268.80	0.00	0.00	0.00
5,200.00	7.00	12.59	5,182.94	281.51	62.86	-280.65	0.00	0.00	0.00
5,300.00	7.00	12.59	5,282.19	293.41	65.51	-292.51	0.00	0.00	0.00
5,337.60	7.00	12.59	5,319.51	297.88	66.51	-296.97	0.00	0.00	0.00
SOD: 2568' FSL, 667' FEL									
5,400.00	6.06	12.59	5,381.51	304.81	68.06	-303.88	1.50	-1.50	0.00
5,500.00	4.56	12.59	5,481.08	313.85	70.07	-312.89	1.50	-1.50	0.00
5,600.00	3.06	12.59	5,580.85	320.34	71.52	-319.36	1.50	-1.50	0.00
5,700.00	1.56	12.59	5,680.77	324.28	72.40	-323.29	1.50	-1.50	0.00
5,804.25	0.00	0.00	5,785.00	325.66	72.71	-324.67	1.50	-1.50	0.00
5,900.00	0.00	0.00	5,880.75	325.66	72.71	-324.67	0.00	0.00	0.00
6,000.00	0.00	0.00	5,980.75	325.66	72.71	-324.67	0.00	0.00	0.00
6,100.00	0.00	0.00	6,080.75	325.66	72.71	-324.67	0.00	0.00	0.00
6,200.00	0.00	0.00	6,180.75	325.66	72.71	-324.67	0.00	0.00	0.00
6,300.00	0.00	0.00	6,280.75	325.66	72.71	-324.67	0.00	0.00	0.00
6,400.00	0.00	0.00	6,380.75	325.66	72.71	-324.67	0.00	0.00	0.00
6,500.00	0.00	0.00	6,480.75	325.66	72.71	-324.67	0.00	0.00	0.00
6,600.00	0.00	0.00	6,580.75	325.66	72.71	-324.67	0.00	0.00	0.00
6,700.00	0.00	0.00	6,680.75	325.66	72.71	-324.67	0.00	0.00	0.00
6,800.00	0.00	0.00	6,780.75	325.66	72.71	-324.67	0.00	0.00	0.00
6,900.00	0.00	0.00	6,880.75	325.66	72.71	-324.67	0.00	0.00	0.00
7,000.00	0.00	0.00	6,980.75	325.66	72.71	-324.67	0.00	0.00	0.00
7,100.00	0.00	0.00	7,080.75	325.66	72.71	-324.67	0.00	0.00	0.00
7,200.00	0.00	0.00	7,180.75	325.66	72.71	-324.67	0.00	0.00	0.00
7,300.00	0.00	0.00	7,280.75	325.66	72.71	-324.67	0.00	0.00	0.00
7,400.00	0.00	0.00	7,380.75	325.66	72.71	-324.67	0.00	0.00	0.00
7,500.00	0.00	0.00	7,480.75	325.66	72.71	-324.67	0.00	0.00	0.00
7,600.00	0.00	0.00	7,580.75	325.66	72.71	-324.67	0.00	0.00	0.00
7,700.00	0.00	0.00	7,680.75	325.66	72.71	-324.67	0.00	0.00	0.00
7,800.00	0.00	0.00	7,780.75	325.66	72.71	-324.67	0.00	0.00	0.00
7,900.00	0.00	0.00	7,880.75	325.66	72.71	-324.67	0.00	0.00	0.00
8,000.00	0.00	0.00	7,980.75	325.66	72.71	-324.67	0.00	0.00	0.00
8,100.00	0.00	0.00	8,080.75	325.66	72.71	-324.67	0.00	0.00	0.00
8,200.00	0.00	0.00	8,180.75	325.66	72.71	-324.67	0.00	0.00	0.00
8,300.00	0.00	0.00	8,280.75	325.66	72.71	-324.67	0.00	0.00	0.00
8,400.00	0.00	0.00	8,380.75	325.66	72.71	-324.67	0.00	0.00	0.00
8,500.00	0.00	0.00	8,480.75	325.66	72.71	-324.67	0.00	0.00	0.00
8,600.00	0.00	0.00	8,580.75	325.66	72.71	-324.67	0.00	0.00	0.00
8,700.00	0.00	0.00	8,680.75	325.66	72.71	-324.67	0.00	0.00	0.00
8,800.00	0.00	0.00	8,780.75	325.66	72.71	-324.67	0.00	0.00	0.00
8,900.00	0.00	0.00	8,880.75	325.66	72.71	-324.67	0.00	0.00	0.00
9,000.00	0.00	0.00	8,980.75	325.66	72.71	-324.67	0.00	0.00	0.00
9,100.00	0.00	0.00	9,080.75	325.66	72.71	-324.67	0.00	0.00	0.00
9,200.00	0.00	0.00	9,180.75	325.66	72.71	-324.67	0.00	0.00	0.00
9,300.00	0.00	0.00	9,280.75	325.66	72.71	-324.67	0.00	0.00	0.00
9,400.00	0.00	0.00	9,380.75	325.66	72.71	-324.67	0.00	0.00	0.00
9,500.00	0.00	0.00	9,480.75	325.66	72.71	-324.67	0.00	0.00	0.00
9,600.00	0.00	0.00	9,580.75	325.66	72.71	-324.67	0.00	0.00	0.00
9,700.00	0.00	0.00	9,680.75	325.66	72.71	-324.67	0.00	0.00	0.00
9,800.00	0.00	0.00	9,780.75	325.66	72.71	-324.67	0.00	0.00	0.00
9,900.00	0.00	0.00	9,880.75	325.66	72.71	-324.67	0.00	0.00	0.00

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 115H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 115H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 115H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 115H		
Design:	Design A		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,000.00	0.00	0.00	9,980.75	325.66	72.71	-324.67	0.00	0.00	0.00
10,100.00	0.00	0.00	10,080.75	325.66	72.71	-324.67	0.00	0.00	0.00
10,200.00	0.00	0.00	10,180.75	325.66	72.71	-324.67	0.00	0.00	0.00
10,300.00	0.00	0.00	10,280.75	325.66	72.71	-324.67	0.00	0.00	0.00
10,400.00	0.00	0.00	10,380.75	325.66	72.71	-324.67	0.00	0.00	0.00
10,500.00	0.00	0.00	10,480.75	325.66	72.71	-324.67	0.00	0.00	0.00
10,600.00	0.00	0.00	10,580.75	325.66	72.71	-324.67	0.00	0.00	0.00
10,700.00	0.00	0.00	10,680.75	325.66	72.71	-324.67	0.00	0.00	0.00
10,800.00	0.00	0.00	10,780.75	325.66	72.71	-324.67	0.00	0.00	0.00
10,900.00	0.00	0.00	10,880.75	325.66	72.71	-324.67	0.00	0.00	0.00
11,000.00	0.00	0.00	10,980.75	325.66	72.71	-324.67	0.00	0.00	0.00
11,100.00	0.00	0.00	11,080.75	325.66	72.71	-324.67	0.00	0.00	0.00
11,183.05	0.00	0.00	11,163.80	325.66	72.71	-324.67	0.00	0.00	0.00
KOP: 2595' FSL, 660' FEL									
11,200.00	1.36	179.68	11,180.75	325.46	72.71	-324.47	8.00	8.00	0.00
11,250.00	5.36	179.68	11,230.66	322.54	72.73	-321.54	8.00	8.00	0.00
11,300.00	9.36	179.68	11,280.24	316.14	72.77	-315.14	8.00	8.00	0.00
11,350.00	13.36	179.68	11,329.25	306.29	72.82	-305.30	8.00	8.00	0.00
11,400.00	17.36	179.68	11,377.45	293.06	72.90	-292.06	8.00	8.00	0.00
11,450.00	21.36	179.68	11,424.62	276.49	72.99	-275.49	8.00	8.00	0.00
11,500.00	25.36	179.68	11,470.51	256.67	73.10	-255.68	8.00	8.00	0.00
11,550.00	29.36	179.68	11,514.91	233.70	73.23	-232.71	8.00	8.00	0.00
11,600.00	33.36	179.68	11,557.60	207.69	73.38	-206.69	8.00	8.00	0.00
11,650.00	37.36	179.68	11,598.37	178.76	73.54	-177.77	8.00	8.00	0.00
11,700.00	41.36	179.68	11,637.02	147.06	73.72	-146.07	8.00	8.00	0.00
11,750.00	45.36	179.68	11,673.37	112.74	73.91	-111.75	8.00	8.00	0.00
11,800.00	49.36	179.68	11,707.23	75.97	74.12	-74.98	8.00	8.00	0.00
11,850.00	53.36	179.68	11,738.45	36.93	74.34	-35.94	8.00	8.00	0.00
11,900.00	57.36	179.68	11,766.87	-4.20	74.57	5.19	8.00	8.00	0.00
11,950.00	61.36	179.68	11,792.35	-47.21	74.81	48.20	8.00	8.00	0.00
12,000.00	65.36	179.68	11,814.77	-91.89	75.06	92.88	8.00	8.00	0.00
12,050.00	69.36	179.68	11,834.01	-138.02	75.32	139.01	8.00	8.00	0.00
12,100.00	73.36	179.68	11,849.99	-185.39	75.59	186.38	8.00	8.00	0.00
12,150.00	77.36	179.68	11,862.63	-233.76	75.86	234.74	8.00	8.00	0.00
12,200.00	81.36	179.68	11,871.87	-282.88	76.13	283.87	8.00	8.00	0.00
12,250.00	85.36	179.68	11,877.65	-332.54	76.41	333.52	8.00	8.00	0.00
12,300.00	89.36	179.68	11,879.96	-382.47	76.69	383.46	8.00	8.00	0.00
12,308.05	90.00	179.68	11,880.00	-390.52	76.74	391.51	8.00	8.00	0.00
LP: 1879' FSL, 660' FEL - 8 5/8" Casing									
12,400.00	90.00	179.68	11,880.00	-482.47	77.26	483.46	0.00	0.00	0.00
12,500.00	90.00	179.68	11,880.00	-582.47	77.82	583.45	0.00	0.00	0.00
12,600.00	90.00	179.68	11,880.00	-682.47	78.38	683.45	0.00	0.00	0.00
12,700.00	90.00	179.68	11,880.00	-782.47	78.94	783.45	0.00	0.00	0.00
12,800.00	90.00	179.68	11,880.00	-882.47	79.51	883.44	0.00	0.00	0.00
12,900.00	90.00	179.68	11,880.00	-982.46	80.07	983.44	0.00	0.00	0.00
13,000.00	90.00	179.68	11,880.00	-1,082.46	80.63	1,083.44	0.00	0.00	0.00
13,100.00	90.00	179.68	11,880.00	-1,182.46	81.19	1,183.43	0.00	0.00	0.00
13,200.00	90.00	179.68	11,880.00	-1,282.46	81.75	1,283.43	0.00	0.00	0.00
13,300.00	90.00	179.68	11,880.00	-1,382.46	82.32	1,383.43	0.00	0.00	0.00
13,400.00	90.00	179.68	11,880.00	-1,482.46	82.88	1,483.43	0.00	0.00	0.00
13,500.00	90.00	179.68	11,880.00	-1,582.45	83.44	1,583.42	0.00	0.00	0.00
13,600.00	90.00	179.68	11,880.00	-1,682.45	84.00	1,683.42	0.00	0.00	0.00
13,700.00	90.00	179.68	11,880.00	-1,782.45	84.57	1,783.42	0.00	0.00	0.00

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 115H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 115H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 115H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 115H		
Design:	Design A		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,800.00	90.00	179.68	11,880.00	-1,882.45	85.13	1,883.41	0.00	0.00	0.00
13,900.00	90.00	179.68	11,880.00	-1,982.45	85.69	1,983.41	0.00	0.00	0.00
14,000.00	90.00	179.68	11,880.00	-2,082.45	86.25	2,083.41	0.00	0.00	0.00
14,100.00	90.00	179.68	11,880.00	-2,182.44	86.82	2,183.41	0.00	0.00	0.00
14,200.00	90.00	179.68	11,880.00	-2,282.44	87.38	2,283.40	0.00	0.00	0.00
14,300.00	90.00	179.68	11,880.00	-2,382.44	87.94	2,383.40	0.00	0.00	0.00
14,400.00	90.00	179.68	11,880.00	-2,482.44	88.50	2,483.40	0.00	0.00	0.00
14,500.00	90.00	179.68	11,880.00	-2,582.44	89.06	2,583.39	0.00	0.00	0.00
14,600.00	90.00	179.68	11,880.00	-2,682.44	89.63	2,683.39	0.00	0.00	0.00
14,700.00	90.00	179.68	11,880.00	-2,782.44	90.19	2,783.39	0.00	0.00	0.00
14,800.00	90.00	179.68	11,880.00	-2,882.43	90.75	2,883.38	0.00	0.00	0.00
14,900.00	90.00	179.68	11,880.00	-2,982.43	91.31	2,983.38	0.00	0.00	0.00
15,000.00	90.00	179.68	11,880.00	-3,082.43	91.88	3,083.38	0.00	0.00	0.00
15,100.00	90.00	179.68	11,880.00	-3,182.43	92.44	3,183.38	0.00	0.00	0.00
15,200.00	90.00	179.68	11,880.00	-3,282.43	93.00	3,283.37	0.00	0.00	0.00
15,300.00	90.00	179.68	11,880.00	-3,382.43	93.56	3,383.37	0.00	0.00	0.00
15,400.00	90.00	179.68	11,880.00	-3,482.42	94.12	3,483.37	0.00	0.00	0.00
15,500.00	90.00	179.68	11,880.00	-3,582.42	94.69	3,583.36	0.00	0.00	0.00
15,600.00	90.00	179.68	11,880.00	-3,682.42	95.25	3,683.36	0.00	0.00	0.00
15,700.00	90.00	179.68	11,880.00	-3,782.42	95.81	3,783.36	0.00	0.00	0.00
15,800.00	90.00	179.68	11,880.00	-3,882.42	96.37	3,883.36	0.00	0.00	0.00
15,900.00	90.00	179.68	11,880.00	-3,982.42	96.94	3,983.35	0.00	0.00	0.00
16,000.00	90.00	179.68	11,880.00	-4,082.41	97.50	4,083.35	0.00	0.00	0.00
16,100.00	90.00	179.68	11,880.00	-4,182.41	98.06	4,183.35	0.00	0.00	0.00
16,200.00	90.00	179.68	11,880.00	-4,282.41	98.62	4,283.34	0.00	0.00	0.00
16,300.00	90.00	179.68	11,880.00	-4,382.41	99.18	4,383.34	0.00	0.00	0.00
16,400.00	90.00	179.68	11,880.00	-4,482.41	99.75	4,483.34	0.00	0.00	0.00
16,500.00	90.00	179.68	11,880.00	-4,582.41	100.31	4,583.33	0.00	0.00	0.00
16,600.00	90.00	179.68	11,880.00	-4,682.41	100.87	4,683.33	0.00	0.00	0.00
16,700.00	90.00	179.68	11,880.00	-4,782.40	101.43	4,783.33	0.00	0.00	0.00
16,800.00	90.00	179.68	11,880.00	-4,882.40	102.00	4,883.33	0.00	0.00	0.00
16,900.00	90.00	179.68	11,880.00	-4,982.40	102.56	4,983.32	0.00	0.00	0.00
17,000.00	90.00	179.68	11,880.00	-5,082.40	103.12	5,083.32	0.00	0.00	0.00
17,100.00	90.00	179.68	11,880.00	-5,182.40	103.68	5,183.32	0.00	0.00	0.00
17,200.00	90.00	179.68	11,880.00	-5,282.40	104.24	5,283.31	0.00	0.00	0.00
17,300.00	90.00	179.68	11,880.00	-5,382.39	104.81	5,383.31	0.00	0.00	0.00
17,400.00	90.00	179.68	11,880.00	-5,482.39	105.37	5,483.31	0.00	0.00	0.00
17,500.00	90.00	179.68	11,880.00	-5,582.39	105.93	5,583.31	0.00	0.00	0.00
17,600.00	90.00	179.68	11,880.00	-5,682.39	106.49	5,683.30	0.00	0.00	0.00
17,700.00	90.00	179.68	11,880.00	-5,782.39	107.06	5,783.30	0.00	0.00	0.00
17,800.00	90.00	179.68	11,880.00	-5,882.39	107.62	5,883.30	0.00	0.00	0.00
17,900.00	90.00	179.68	11,880.00	-5,982.38	108.18	5,983.29	0.00	0.00	0.00
18,000.00	90.00	179.68	11,880.00	-6,082.38	108.74	6,083.29	0.00	0.00	0.00
18,100.00	90.00	179.68	11,880.00	-6,182.38	109.30	6,183.29	0.00	0.00	0.00
18,200.00	90.00	179.68	11,880.00	-6,282.38	109.87	6,283.29	0.00	0.00	0.00
18,300.00	90.00	179.68	11,880.00	-6,382.38	110.43	6,383.28	0.00	0.00	0.00
18,400.00	90.00	179.68	11,880.00	-6,482.38	110.99	6,483.28	0.00	0.00	0.00
18,500.00	90.00	179.68	11,880.00	-6,582.38	111.55	6,583.28	0.00	0.00	0.00
18,600.00	90.00	179.68	11,880.00	-6,682.37	112.12	6,683.27	0.00	0.00	0.00
18,700.00	90.00	179.68	11,880.00	-6,782.37	112.68	6,783.27	0.00	0.00	0.00
18,800.00	90.00	179.68	11,880.00	-6,882.37	113.24	6,883.27	0.00	0.00	0.00
18,900.00	90.00	179.68	11,880.00	-6,982.37	113.80	6,983.26	0.00	0.00	0.00
19,000.00	90.00	179.68	11,880.00	-7,082.37	114.36	7,083.26	0.00	0.00	0.00

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 115H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 115H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 115H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 115H		
Design:	Design A		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
19,100.00	90.00	179.68	11,880.00	-7,182.37	114.93	7,183.26	0.00	0.00	0.00
19,200.00	90.00	179.68	11,880.00	-7,282.36	115.49	7,283.26	0.00	0.00	0.00
19,300.00	90.00	179.68	11,880.00	-7,382.36	116.05	7,383.25	0.00	0.00	0.00
19,400.00	90.00	179.68	11,880.00	-7,482.36	116.61	7,483.25	0.00	0.00	0.00
19,500.00	90.00	179.68	11,880.00	-7,582.36	117.18	7,583.25	0.00	0.00	0.00
19,600.00	90.00	179.68	11,880.00	-7,682.36	117.74	7,683.24	0.00	0.00	0.00
19,700.00	90.00	179.68	11,880.00	-7,782.36	118.30	7,783.24	0.00	0.00	0.00
19,800.00	90.00	179.68	11,880.00	-7,882.35	118.86	7,883.24	0.00	0.00	0.00
19,900.00	90.00	179.68	11,880.00	-7,982.35	119.42	7,983.24	0.00	0.00	0.00
20,000.00	90.00	179.68	11,880.00	-8,082.35	119.99	8,083.23	0.00	0.00	0.00
20,100.00	90.00	179.68	11,880.00	-8,182.35	120.55	8,183.23	0.00	0.00	0.00
20,200.00	90.00	179.68	11,880.00	-8,282.35	121.11	8,283.23	0.00	0.00	0.00
20,300.00	90.00	179.68	11,880.00	-8,382.35	121.67	8,383.22	0.00	0.00	0.00
20,400.00	90.00	179.68	11,880.00	-8,482.35	122.24	8,483.22	0.00	0.00	0.00
20,500.00	90.00	179.68	11,880.00	-8,582.34	122.80	8,583.22	0.00	0.00	0.00
20,600.00	90.00	179.68	11,880.00	-8,682.34	123.36	8,683.21	0.00	0.00	0.00
20,700.00	90.00	179.68	11,880.00	-8,782.34	123.92	8,783.21	0.00	0.00	0.00
20,800.00	90.00	179.68	11,880.00	-8,882.34	124.49	8,883.21	0.00	0.00	0.00
20,900.00	90.00	179.68	11,880.00	-8,982.34	125.05	8,983.21	0.00	0.00	0.00
21,000.00	90.00	179.68	11,880.00	-9,082.34	125.61	9,083.20	0.00	0.00	0.00
21,100.00	90.00	179.68	11,880.00	-9,182.33	126.17	9,183.20	0.00	0.00	0.00
21,200.00	90.00	179.68	11,880.00	-9,282.33	126.73	9,283.20	0.00	0.00	0.00
21,300.00	90.00	179.68	11,880.00	-9,382.33	127.30	9,383.19	0.00	0.00	0.00
21,400.00	90.00	179.68	11,880.00	-9,482.33	127.86	9,483.19	0.00	0.00	0.00
21,500.00	90.00	179.68	11,880.00	-9,582.33	128.42	9,583.19	0.00	0.00	0.00
21,600.00	90.00	179.68	11,880.00	-9,682.33	128.98	9,683.19	0.00	0.00	0.00
21,643.20	90.00	179.68	11,880.00	-9,725.52	129.23	9,726.38	0.00	0.00	0.00
BHL: 50' FSL, 660' FEL									

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
ZIA HILLS 20 FEDERAL - plan hits target center - Point	0.00	0.00	5,785.00	325.66	72.71	374,455.68	699,293.57	32° 1' 40.30 N	103° 41' 24.904 W
ZIA HILLS 20 FEDERAL - plan hits target center - Point	0.00	0.00	11,880.00	-9,725.52	129.23	364,404.95	699,350.08	32° 0' 0.84 N	103° 41' 24.943 W
ZIA HILLS 20 FEDERAL - plan misses target center by 124.53usft at 11950.00usft MD (11792.35 TVD, -47.21 N, 74.81 E) - Point	0.00	0.00	11,880.00	0.00	0.00	374,130.03	699,220.86	32° 1' 37.09 N	103° 41' 25.772 W

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 115H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3167.80usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 115H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 115H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 115H		
Design:	Design A		

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,500.00	2,500.00	11 3/4" Casing	11-3/4	14-3/4
12,308.05	11,880.00	8 5/8" Casing	8-5/8	10-3/4
21,643.20	11,880.00	5 1/2" Casing	5-1/2	7-7/8

Plan Annotations

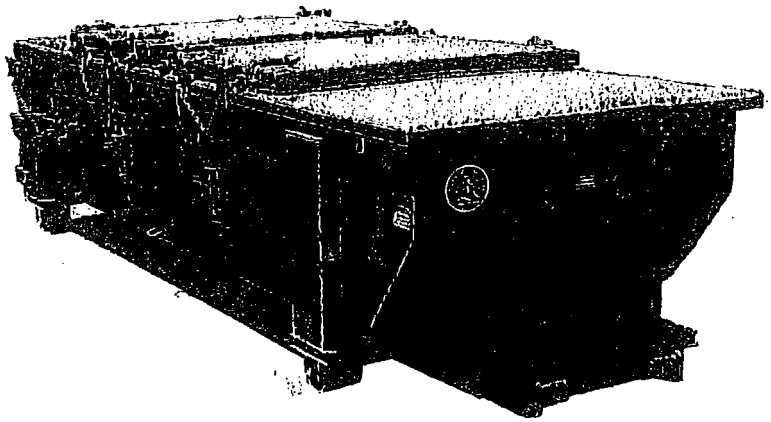
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
100.00	100.00	0.00	0.00	SHL: 2270' FSL, 734' FEL
3,066.64	3,065.48	27.78	6.20	EOB: 2298' FSL, 728' FEL
5,337.60	5,319.51	297.88	66.51	SOD: 2568' FSL, 667' FEL
11,183.05	11,163.80	325.66	72.71	KOP: 2595' FSL, 660' FEL
12,308.05	11,880.00	-390.52	76.74	LP: 1879' FSL, 660' FEL
21,643.20	11,880.00	-9,725.52	129.23	BHL: 50' FSL, 660' FEL

- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

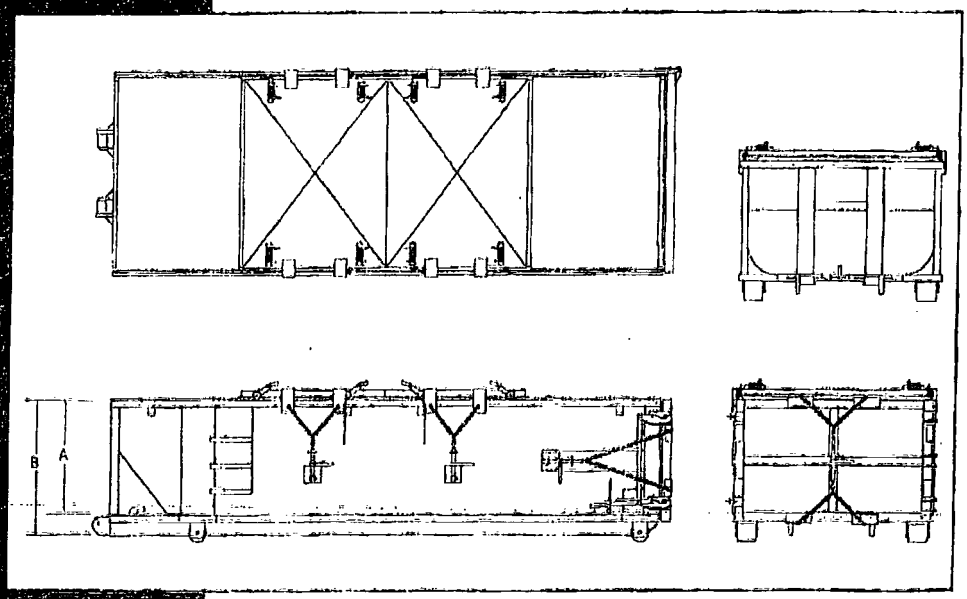
SPECIFICATIONS

FLOOR: 3/16" PL one piece
CROSS MEMBER: 3 x 4.1 channel 16" on center
WALLS: 3/16" PL solid welded with tubing top, inside liner hooks
DOOR: 3/16" PL with tubing frame
FRONT: 3/16" PL slant formed
PICK-U P: Standard cable with 2" x 6" x 1/4" rails, gusset at each crossmember
WHEELS: 10 DIA x 9 long with rease fittings
DOOR LATCH: 3 independent ratchet binders with chains, vertical second latch
GASKETS: Extruded rubber seal with metal retainers
WELDS: All welds continuous except sub-structure crossmembers
FINISH: Coated inside and out with direct to metal, rust inhibiting acrylic enamel color coat
HYDROTESTING: Full capacity static test
DIMENSIONS: 22'-11" long (21'-8" inside), 99" wide (88" inside), see drawing for height
OPTIONS: Steel grit blast and special paint, Ampliroll, Heil and Dino pickup
ROOF: 3/16" PL roof panels with tubing and channel support frame
LIDS: (2) 68" x 90" metal rolling lids spring loaded, self raising
ROLLERS: 4" V-groove rollers with delrin bearings and grease fittings
OPENING: (2) 60" x 82" openings with 8" divider centered on container
LATCH: (2) independent ratchet binders with chains per lid
GASKETS: Extruded rubber seal with metal retainers

Heavy Duty Split Metal Rolling Lid



CONT.	A	B
20 YD	41	53
25 YD	53	65
30 YD	65	77



ConocoPhillips, ZIA HILLS 20 FEDERAL COM 115H

1. Geologic Formations

TVD of target	**11,880'**	Pilot hole depth	N/A
MD at TD:	**21,543'**	Deepest expected fresh water:	300

Basin

Formation	Depth (TVD) from KB	SSTVD (ft.)	Water/Mineral Bearing/Target Zone	Hazards *
Quaternary Fill	Surface	3,141	Water	
Base of Fresh Water	326	2,842	Water	
Rustler	1,008	2,160	Water	
Top of Salt / Salado	1,568	1,600	Mineral	
Castile	2,168	1,000	Mineral	
Delaware Top / Base Salt	4,348	-1,180	O & G	
Ford Shale	4,448	-1,280	O & G	
Cherry Canyon	5,268	-2,100	O & G	Losses
Brushy Canyon	6,848	-3,680	O & G	Losses
Bone Springs	8,168	-5,000	O & G	Abnormal pressure
Bone Springs 1st Carb	9,323	-6,155	O & G	Abnormal pressure
Bone Springs 2nd Carb	9,968	-6,800	O & G	Abnormal pressure
Bone Springs 3rd Carb	10,468	-7,300	O & G	Abnormal pressure
WolfCamp	11,528	-8,360	O & G	Abnormal pressure /Hole Instability
WolfCamp 1	11,728	-8,560	O & G	Abnormal pressure /Hole Instability

*H2S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program

ConocoPhillips Company respectfully requests to approve the following 3-string casing and cementing program with the 9-5/8" casing set in the Wolfcamp. The intent for the casing and cementing program:

- Drill 17-1/2" surface hole to Rustler.
- Drill 12-1/4" hole from Rustler to Wolfcamp with the same density mud (OBM or Saturated Brine).
- Case and cement the well with 13-3/8" surface, 9-5/8" intermediate and 5-1/2" production casing (3-strings).
- Isolate the Salt & Delaware utilizing Annulus Casing Packer and Stage Tool with 2-Stage Cement or Remediate with Bradenhead Squeeze if necessary.
- Bring cement for 13-3/8" casing and 9-5/8" casing to surface. Cement 5-1/2" casing to lap inside 9-5/8" casing shoe.
- 5-1/2" TXP buttress Casing Connection in 8-1/2" OH for minimum of 0.422 in clearance per Onshore Oil and Gas Order #2 III.B.

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Burst	SF Collapse	SF Tension
17.5"	0	1668	13.375"	54.5	J55	BTC	3.66	2.63	8.49 (9.78)
12.25"	0	12308	9.625"	47.0	P110	BTC	1.41	2.12	1.11 (1.29)
8.50"	0	21643	5.5"	23.0	P110	TXP	1.51	1.33	2.35 (2.95)
				BLM Minimum Safety Factor			1.00	1.125	1.6 Dry (1.8 Wet)

**COP Collapse Design: 1/3 Partial Evacuation to the next casing depth (TVD).

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Cementing Program

Option 1:

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/sk	500# Comp. Strength (Estimated hours)	Slurry Description
Surf.	1530	12.8	1.73	9.25	8	**Lead:** Control Set 'C' + 1.0% CaCl2 + 1.0% SMS + 1.0% OGC-60 + ¼ lb/sk Polyflake + ½ ppb FiberBlock
	660	14.8	1.33	6.37	7	**Tail:** 0:1:0 'Type III' + 0.5% CaCl2 + ¼ lb/sk Polyflake + ½ ppb FiberBlock
Inter.	1070	11.0	2.7	13.5	18	**Lead:** WBL + 0.5% CFL-4 + 0.6% LTR + 0.2% SPC-II + 0.4% CDF-4P + ¼ lb/sk Polyflake + ½ ppb FiberBlock + WBL
	440	13.2	1.59	7.9	7	**Tail:** Thermal 35 + 10% NaCl + 0.9% CFR + 0.7% CFL-4 + 0.1% LTR + 0.2% SPC-II + 0.4% CDF-4P + ¼ lb/sk Polyflake + ½ ppb FiberBlock
	2310	11.0	1.73	9.25		**Tail:** Thermal 35 + 10% NaCl + 0.9% CFR + 0.7% CFL-4 + 0.1% LTR + 0.2% SPC-II + 0.4% CDF-4P + ¼ lb/sk Polyflake + ½ ppb FiberBlock
Prod.	2418	15.6	1.19	5.21	10	**Tail:** 1:1:0 'Poz:Lafarge G' + 20% Silica Flour + 8% Silica Flume + 2% FWCA-H (FWC-2) + 0.3% HTR + 0.5% CR-4 (MCR-4) + 1% TAE-1 (SEA-1) + 1% CFL-4 + 0.2% CFR-5 + 0.3% ASM-3 (AS-3)
	DV/ACP Tool: NO					

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess in OH
Surface	0'	>100%
Intermediate	0'	>30%
Production	10,183'	>10%

Include Pilot Hole Cementing specs: NO PILOT HOLE.

Pilot hole depth N/A
KOP

Plug top	Plug Bottom	% Excess	No. Sacks	Wt. lb/gal	Yld ft3/sack	Water gal/sk	Slurry Description and Cement Type

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	11" or 13-5/8"	10M	Annular	x	100% of working pressure
			Blind Ram	x	75% of working pressure
			Pipe Ram	x	
			Double Ram	x	
			Other*		
8-1/2"	11" or 13-5/8"	10M	Annular	x	100% of working pressure
			Blind Ram	x	75% of working pressure
			Pipe Ram	x	
			Double Ram	x	
			Other*		

*Specify if additional ram is utilized.
Note: A 11" or 13-5/8" BOPE will be utilize depending on availability and Rig Substructure Clearance.

BOP/BOPE will be isolated from the casing and tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. BOPE controls will be installed prior to drilling under the surface casing and will be used until the completion of drilling operations. The intermediate interval and the production interval will be tested per 10M working system requirements. A variance is requested to use a 5M annular and test the annular to 100% of its working pressure. This variance is requested in conjunction with the attached well control plan.

Pipe rams will be operationally checked each 24-hour period. Choke manifold will have one remotely operated valve and a manual adjustable valve in front of the choke manifold, as detailed in the Onshore Order 2. It currently contains one 10M hydraulic choke for a total of three choke branches (two manual and one hydraulic).Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP

equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

A Spudder Rig may be used to drill the surface and/or intermediate hole for economical reason depending on availability.

The wellhead will be installed and tested as soon as the surface casing is cemented. Prior to drilling out the surface casing, ConocoPhillips shall nipple up a 10M BOPE & choke arrangement with 10M components and test to the rated working pressure of a 10M BOPE system as it is subjected to the maximum anticipated surface pressure 5647 psi. The pressure test to MASP and 100% for annular shall be performed with a test plug after installing the casing head and nippling up the 10M BOPE system prior to drilling out the surface casing.

However, ConocoPhillips shall nipple up a 10M BOPE with 5M Annular Preventer if drilling out surface casing with Primary Rig.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or 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. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart. • See attached data sheet & certification.
N	Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. • See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1,108	Fresh Water	8.34 - 8.6	28-50	N/C
0	12,308	Cut-Brine or OBM	8.6-9.2	28-50	≤5
0	21,643	Oil Base Mud	9.5-13.5	50-70	≤5

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/MDTotco/Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing.

x	GR from 200' above KOP to TD (GR as part of the BHA while drilling).
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain
x	Dry samples taken 30' from intermediate 1 casing point to TD.

Additional logs planned		Interval
	Resistivity	
	Density	
	CBL	
x	Mud log	
	PEX	
x	Bottom hole Gauge	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	8316 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

Is this a walking operation? If yes, describe. Yes, please see below.
Will be pre-setting casing? If yes, describe. Yes, please see below.

Spudder Rig and Batch Drilling Operations:

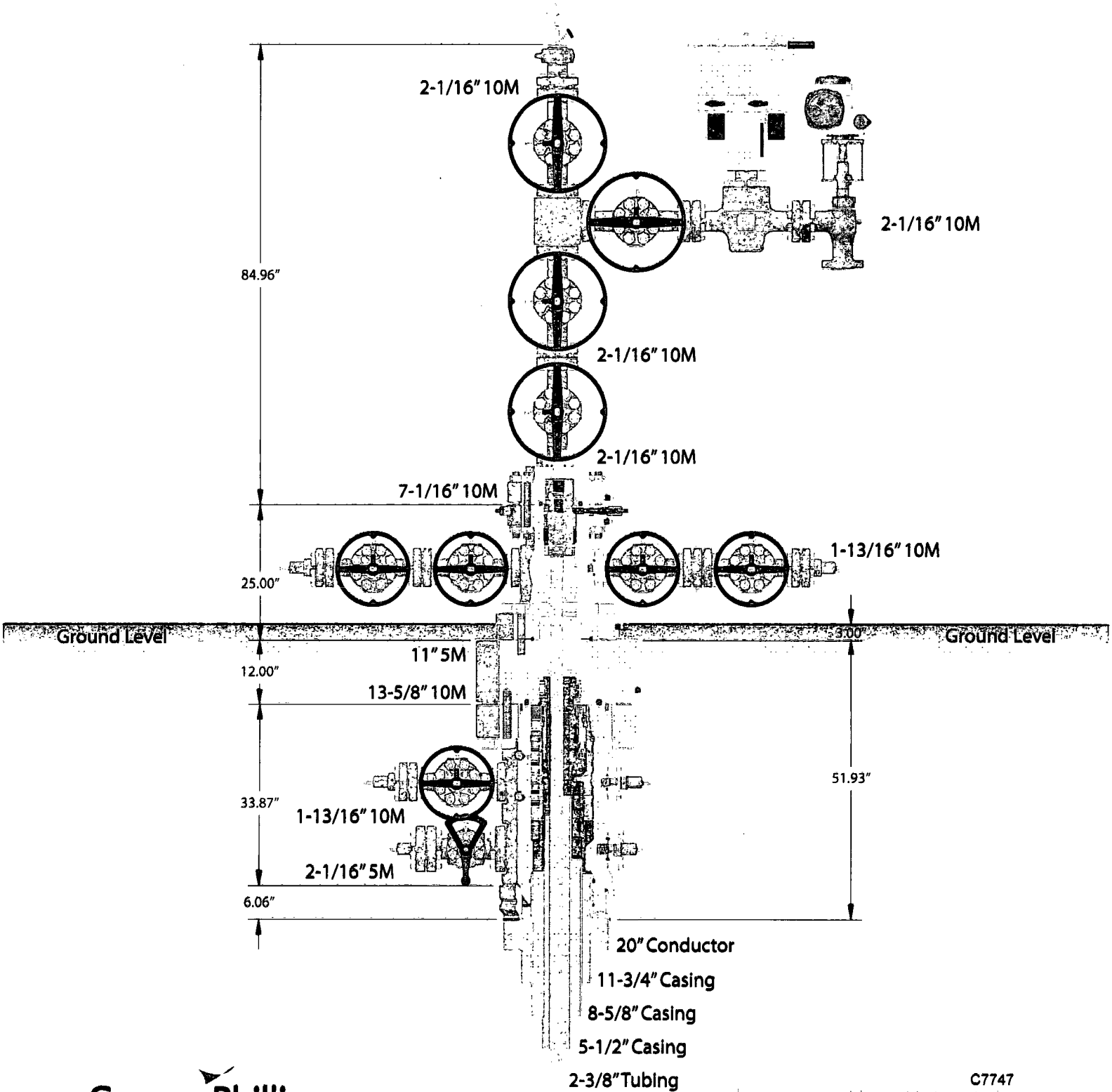
A blind flange cap of the same pressure rating as the wellhead will be secured to seal the wellbore on all casing strings. Pressure will be monitored via flanged port tied to a needle valve and pressure gauge to monitor pressures on each wellhead section and a means for intervention will be maintained while the drilling rig is not over the well.

Attachments:

Attachment#1:	Directional Plan.
Attachment#2:	Wellbore Casing & Cementing Schematic.
Attachment #3:	Special (Premium) Connections.
Attachment#4:	Wellhead Schematic.
Attachment #5:	BOP Schematic.
Attachment #6:	Choke Schematic.
Attachment #7:	Flex Hose Documentation.
Attachment #8:	Rig Layout.
Attachment #9:	Wild Well Control Plan

CAMERON
A Schlumberger Company

13-5/8" 10M MN-DS Wellhead System
with CXS Completion



ConocoPhillips

C7747

CONTITECH RUBBER Industrial Kft.	No: QC-DB- 45 / 2012
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Hose Data Sheet

CRI Order No.	516273
Customer	ContiTech Beattie Co.
Customer Order No	PO5435 STOCK
Item No	3
Hose Type	Flexible Hose
Standard	**API SPEC 16 C**
Inside dia in inches	3
Length	35 ft
Type of coupling one end	FLANGE 4 1/16" API SPEC 6A TYPE 6BX FOR 10000 PSIBX155 RING GROOVE
Type of coupling other end	FLANGE 4 1/16" API SPEC 6A TYPE 6BX FOR 10000 PSI BX155 RING GROOVE
H2S service NACE MR0175	Yes
Working Pressure	10 000 psi
Design Pressure	10 000 psi
Test Pressure	15 000 psi
Safety Factor	2,25
Marking	USUAL PHOENIX
Cover	NOT FIRE RESISTANT
Outside protection	St.steel outer wrap
Internal stripwound tube	No
Lining	OIL RESISTANT
Safety clamp	No
Lifting collar	No
Element C	No
Safety chain	No
Safety wire rope	No
Max.design temperature [°C]	100
Min.design temperature [°C]	-20
MBR operating [m]	1,60
MBR storage [m]	1,40
Type of packing	WOODEN CRATE ISPM-15

QC-08- 45/2012
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Fluid Technology

Quality Document

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 184	
PURCHASER: ContiTech Beattie Co				P.O. N°: 005438	
CONTITECH ORDER N°: 516273		HOSE TYPE: 3" ID		Choke and Kill Hose	
HOSE SERIAL N°: 61477		NOMINAL / ACTUAL LENGTH:		10,67 m / 10,71 m	
W.P. 68,9 MPa	10000 psi	T.P. 103,4 MPa	15000 psi	Duration: 60	min

Pressure test with water at ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min
→ 10 mm = 20 MPa

COUPLINGS Type	Serial N°		Quality	Heat N°
3" coupling with	10178	10173	AISI 4130	20251
4 1/16" 10K API Flange end			AISI 4130	33051

NOT DESIGNED FOR WELL TESTING

API Spec 16 C

Temperature rate:"B"

All metal parts are flawless

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

Date:	Inspector	Quality Control
30. January 2012.		ContiTech Rubber Industrial Kft. Quality Control Dept. (1) [signature]

ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE No. 182, 184, 185

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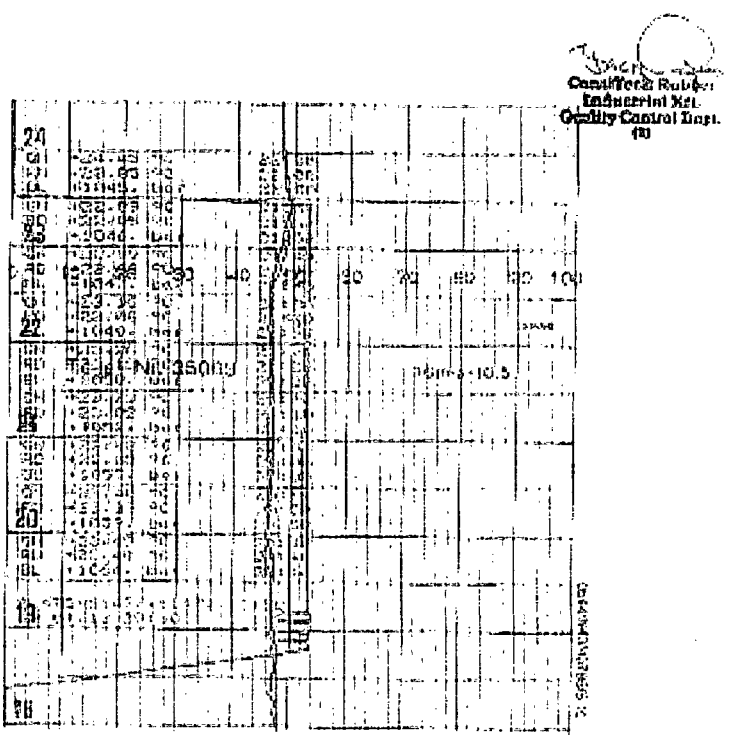
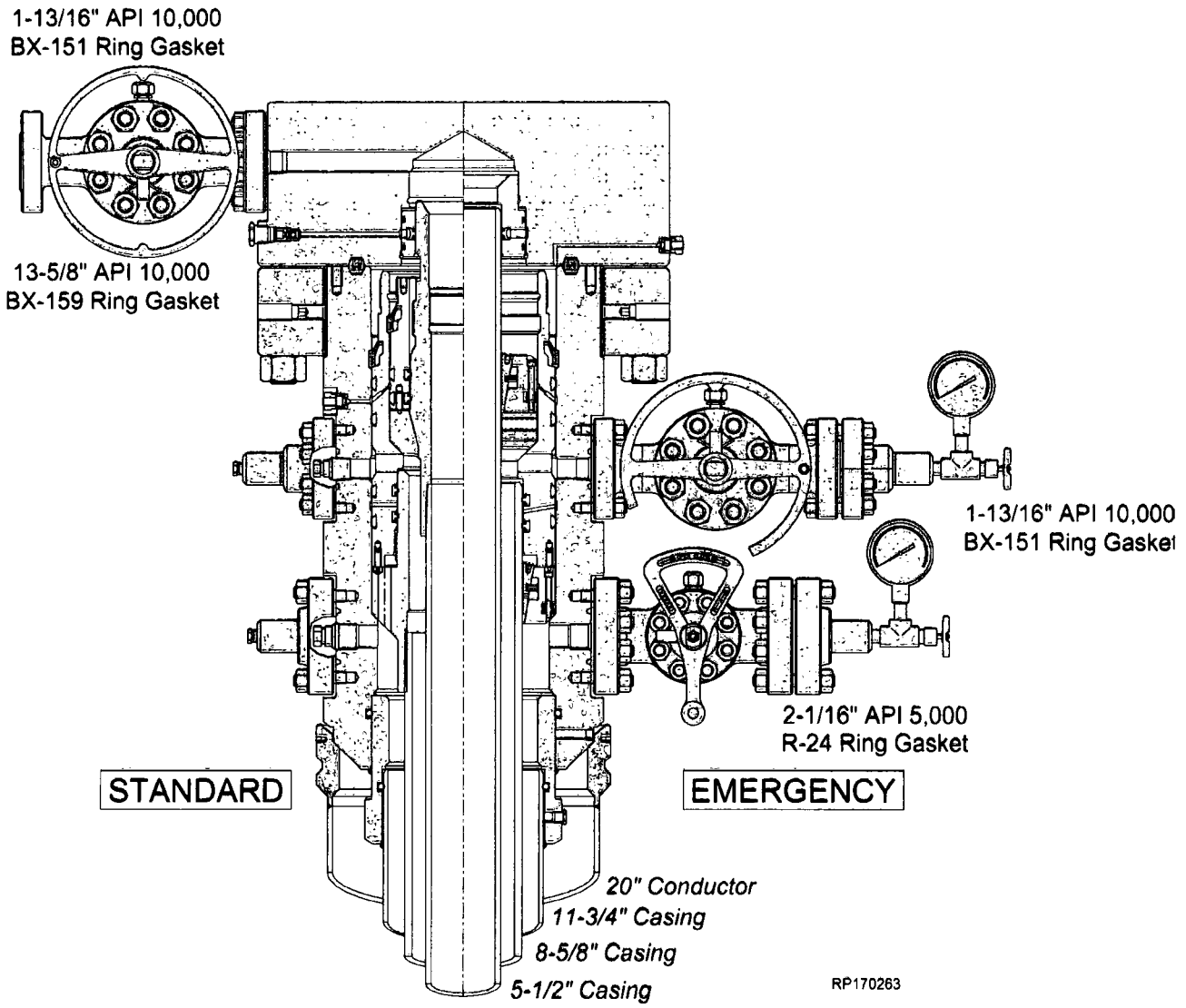


RUNNING PROCEDURE

ConocoPhillips Permian



Surface Systems Publication

CAMERON A Schlumberger Company	**13-5/8" 10K MN-DS System** **20" x 11-3/4" x 8-5/8" x 5-1/2" Casing Program**	**RP-003766** **Rev 01**

Safety Hazard Indicators

The Safety Hazard Indicators listed below will be used throughout this procedure to indicate potentially hazardous and/or personnel risks that may be encountered during the performance of the tasks outlined in this procedure.

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury

Indicates a hazardous situation which, if not avoided, could result in death or serious injury

Indicates a hazardous situation which, if not avoided, will result in death or serious injury

Preferred to address practices not related to personal injury

ES-000175-02

This version of the document completely replaces any other version, published or unpublished. Document revision information is indicated on the bottom of each page.

To confirm the correct version is in use, make sure the revision and release date match those on the controlled version of the document in SAP. Refer to the Document Control page for the document revision history.

This document alone does not qualify an individual to Install/Run the Equipment. This document is created and provided as a reference for Qualified Cameron Service Personnel and does not cover all scenarios that may occur.

Table of Contents

Table of Contents

STOP

RUNNING PROCEDURE GENERAL WARNING

READ AND UNDERSTAND ALL INSTRUCTIONS. Failure to follow may result in serious personal injury and damage not only to the equipment but also the environment.

1. Safety is a combination of staying alert, common sense, and experience with the oil field equipment and environment. Read this Running Procedure prior to operating and installing the equipment. Be familiar with the operation terminologies of oil field equipment.

2. This document includes basic installation guidance. The field service personnel shall be fully trained in all aspects of handling pressure control equipment as well as of the job that they are going to perform. If any of the procedures and policies listed in this procedure cannot be followed, contact a Cameron Representative for the best course of action.

3. Proper Personal Protective Equipment (PPE) shall be utilized according to Company policies. Always use proper tools when servicing the equipment.

4. A Job Hazard Analysis (JHA) must be performed prior to beginning any service on a well location. A JHA review meeting will be held with all affected rig personnel PRIOR to the commencement of work to review the results of the JHA, evacuation routes, emergency contacts, etc. All meeting attendees and a Company Representative will sign-off on the JHA to acknowledge this meeting has taken place.

5. Be aware of unexpected circumstances that may arise when operating or servicing the equipment. Utilize the Step Back 5X5 Process in order to assess the hazards posed before, during, and after the servicing of equipment under pressure or with the potential of hazardous chemicals present. Be familiar with the company's and facility's Lockout/Tagout program in order to ensure all sources of energy (i.e. electrical, pneumatic, pressure) are isolated and/or de-energized prior to beginning work.

6. All governmental or Company safety requirements shall be met before working on the equipment. Requirements of fully tested pressure barriers prior to servicing the equipment shall be observed. Cameron recommends that two mechanical pressure barriers is the preferred practice. Additional precautions should be taken to ensure that the mechanical pressure barriers are functioning correctly prior to any work being carried out on this particular equipment.

7. Always check for any trapped pressure before servicing the equipment. All valves downstream of the pressure barriers must be cycled several times to release any trapped pressure.

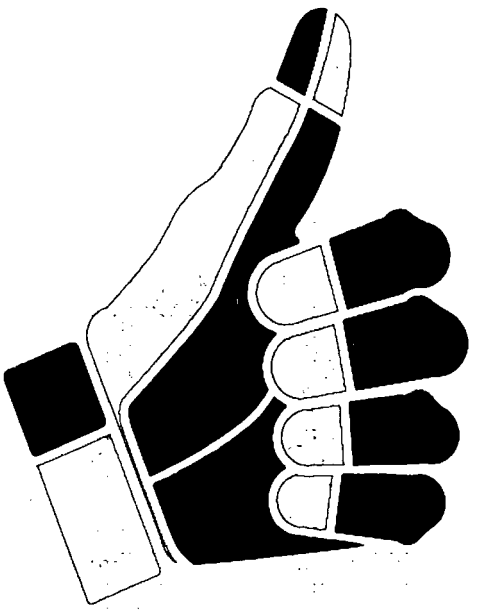
8. Ensure the chemical and physical properties of the fluid flow product inside the equipment are known. Obtain applicable Material Safety Data Sheets (MSDS) for commonly encountered chemicals such as hydrogen sulfide, cements, etc. in order to identify appropriate PPE to use, emergencies procedures, and methods of exposure control.

9. Always use correct lifting devices and follow safety rules in handling heavy products. The actual weight can vary for the system configurations. Never attempt to lift the equipment by hand.

10. Cameron manufactures a variety of oil field equipment with different features and operating requirements. Be certain of the equipment model and refer to the appropriate procedure, before attempting any operation or service on the equipment. This procedure is to assist field personnel in the operation and installation of the equipment that is listed in this document. Different procedures are available for other oil field products.

SP-145055-01 Rev 0 (ie. RP General Warning) M. Contreras 25/OCT/2010

HSE Hand Safety Rules

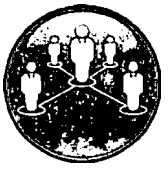


1. **No Hands on Loads**
   Select the appropriate device to control the load
2. **Hands on Handles Only**
   Use manufacturers handles or safe alternatives
3. **Permission to Touch**
   Use lifting assistance/technology for loads > 20kg or 44 lbs
4. **Hands Off...Energy On**
   Remove hands from load BEFORE setting in motion
5. **Safe Cargo Handling**
   Use pallets & crates designed to prevent tip over or loss of load
6. **Use the Correct PPE**
   Use the right glove for the job (chemical, hot work, impact, etc.)

HSE VISION: NO ONE GETS HURT; NOTHING GETS HARMED — HEALTH, SAFETY & ENVIRONMENT

HSE Tenets of Operation

Stop Work
Stop work immediately until unsafe behaviors and conditions are addressed.



Leadership & Accountability
Hold each other accountable for working safely and complying with applicable regulations.

Follow Procedures
Maintain all training and follow established HSE policies and practices.

PPE
Always wear the correct Personal Protective Equipment for the task.

Report ALL Incidents
Immediately report incidents, including injuries, illnesses, property damage, near misses, and environmental releases.

Equipment Operations
Always operate equipment and vehicles with safety devices enabled, and never beyond their capabilities, environmental limits, or designed purposes.

HSE Observations
Recognize safe behaviors and conditions, and address those at-risk.

Ask
Ask questions when in doubt, and for assistance when dealing with new or unusual situations.

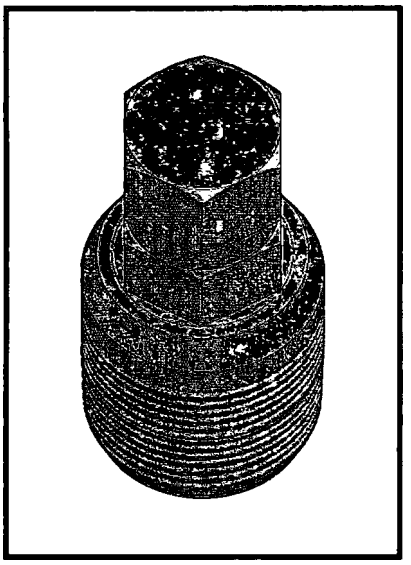
HSE VISION: NO ONE GETS HURT; NOTHING GETS HARMED — HEALTH, SAFETY & ENVIRONMENT

Valve Removal Plugs

For Installation and Removal of Valve Removal Plugs Refer to:

Publication: RP-001558

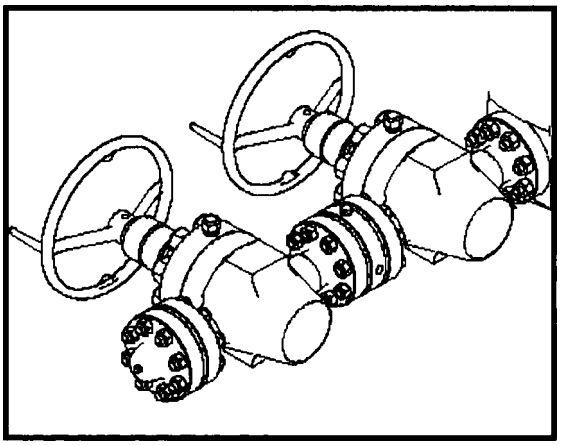
(Assembly Procedure for VR Plugs and Recommended Torque Values)



Make-up Requirements for API Flange Connections

For Make-up Requirements for API Flange Connections Refer to:

Publication: RP-002153

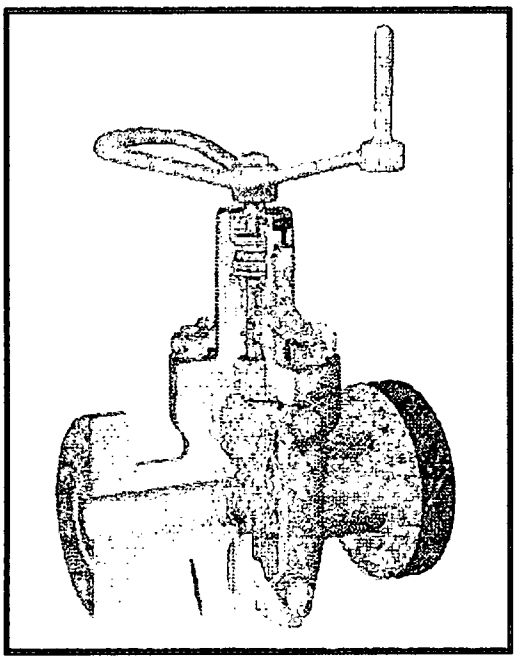


WKM Model M Power R- Seal Gate Valves

For Operation and Maintenance refer to:

Publication: TC9084-2

(Operation and Maintenance Manual)



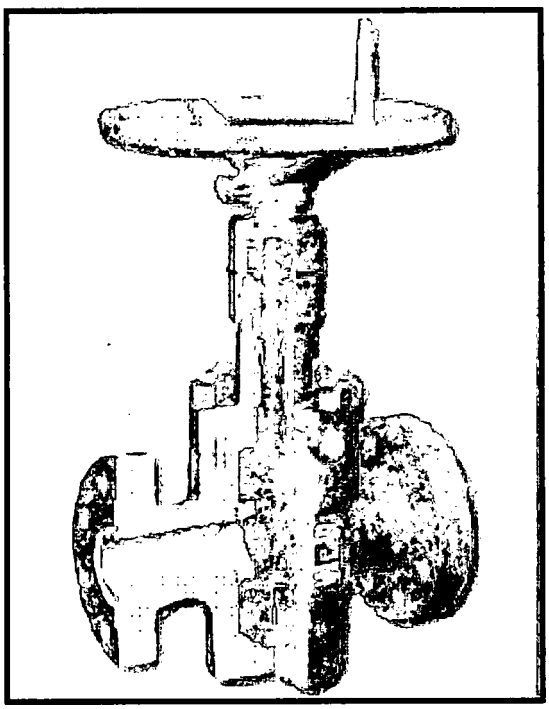
TC9084-2

Cameron Type FL & FLS Gate Valves

For Operation & Maintenance Refer to:

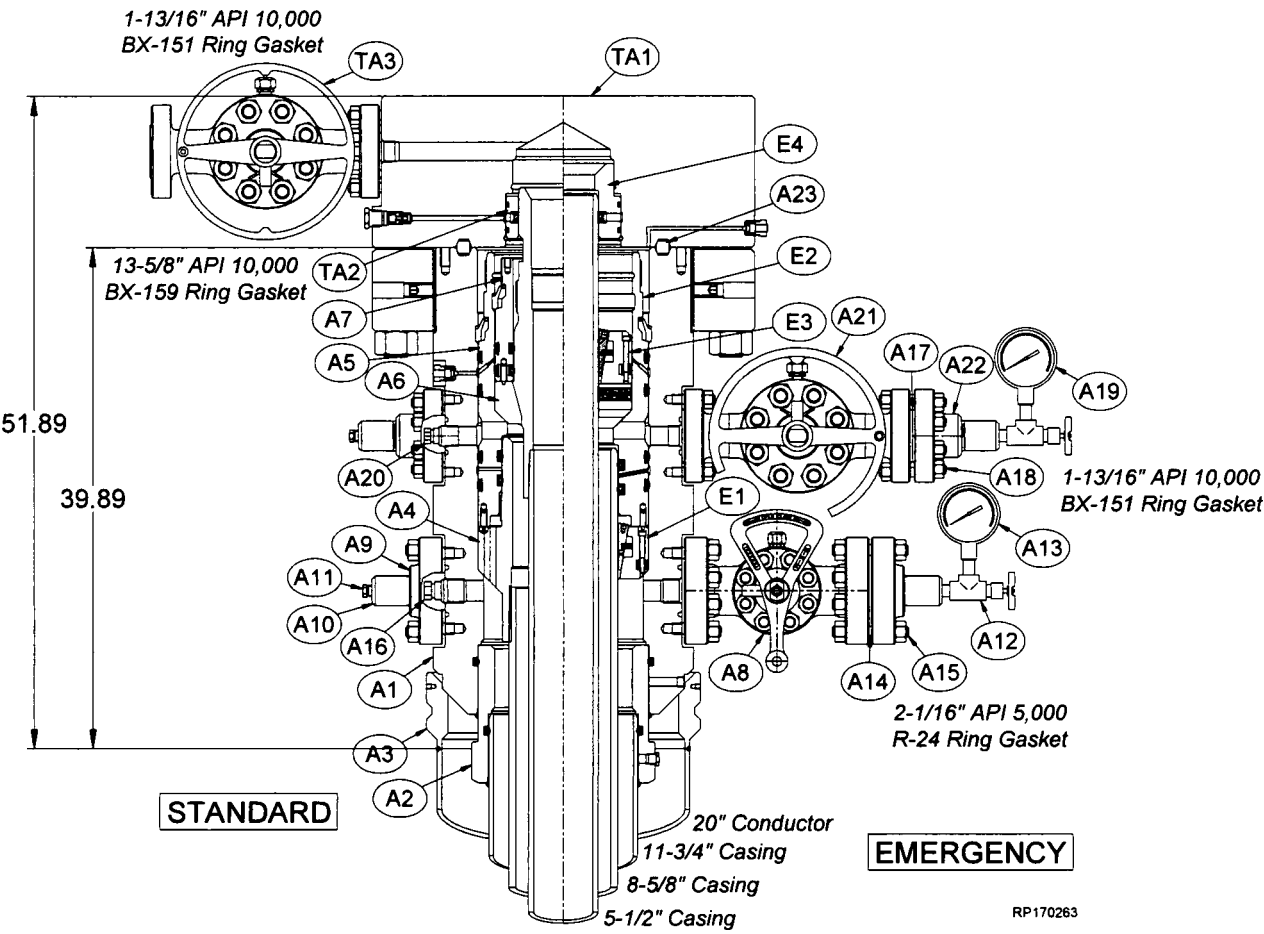
Publication: TC148-2

(FL & FLS Gate Valves Operation and Maintenance Manual)



TC148-2

System Drawing



Bill of Materials

Contact your Cameron representative for replacement part inquiries. Cameron personnel can check the latest revision of the assembly bill-of-material to obtain the appropriate and current replacement part number.

MN-DS HOUSING

Item	Qty	Description
A1	1	Conversion; Casing Head Housing, Type 'Mn-Ds', 10K, 13-5/8 Nom 10K Oec BX-159 w/ 20.500-4TPI LH Stub Acme Top f/ Thded Flg and Prep f/ Internal Snap Ring x 13-3/8 SOW Btm w/ Four Grout Ports, w/ (2) Upper 1-13/16 API 10K BX-151 Outlets w/1-1/4 API Vr Thds Part# 2031060-48-02
A2	1	Body, Bushing Reducer,13-3/8 SOW x 11-3/4 SOW Part# 2310058-03-01
A3	1	Body, Load Ring f/ 20 Casing (.375 C.S. Casing) To Accept Low Pressure Adapter Part# 2329761-07-01
A4	1	Casing Hanger, Mandrel, Type 'Mn-Ds', 13-5/8 Nom x 8-5/8 API BC Box Thd Btm x 10.000-4TPI L.H Stub Acme Running Thd, Min Bore: 8.000, 10,000 Psi Max Working Pressure, 700,000 Lbs Max Hanging Load Part# 2345509-17
A5	1	Assy; Packoff Support Bushing, Type MN-DS', 13-5/8 10K, w/ 13-5/8 Nom Dovetail Seal, and 9-5/8 Nom 'T' Seal and w/ Internal and External Lock Ring Prep, Min. Bore 8.835 Part# 2161673-01-01
A6	1	Rotating Mandrel Hanger, Type 'MN-DS'; 11 Nom, 5-1/2 20 Lb/Ft Tenaris XP Buttress Box Thd Btm X 7.500- 4 TPI Stub ACME Running Thd w/ 5.010 OD type 'H' BPV Thd w/ 7 Nom Slick Neck Top, w/ FLow-by Slots; Min Bore: 4.754 Part# 2345649-49-01

MN-DS HOUSING

Item	Qty	Description
A7	1	Assy; Seal Packoff f/ 11 Nom Type 'Mn-Ds', w/ 9.875-4TPI LH Stub Acme Thd w/ 7.75 Dbl 'T' Seals At ID and Dovetails At OD Part# 2217588-05-03
A8	1	Gate Valve, Manual, Model M Pow-R-Seal, 2-1/16 Bore, 5K Psi Psi, 2-1/16 API Flg x Flg Part# 2148451-31-22
A9	2	Companion Flange, 2-1/16 API 5K x 2" API LP Thd Part# 142362-01-03-02
A10	4	Bull Plug 2" LP w/1/2 NPT x 3.750" Lg Part# 007481-01
A11	2	Bleeder Fitting, Plug 1/2 NPT 4140 Nace Part# 2738068-02
A12	2	Needle Valve, 1/2 NPT 10000 Psi Part# 006818-23
A13	1	Pressure GaugE 0-5M Liquid Filled Part# Y52100-00300791
A14	3	Ring Gasket, R-24 Part# 702001-24-02
A15	8	Stud w/(2) Nuts 7/8" x 6" Lg Part# Y51201-20220301
A16	1	VR Plug 1-1/2 In 11-1/2 TPI - 3/4 TPF 'Vee' Tubing Thd, 2-1/16 2K - 10K Part# 2222164-02-01
A17	3	Ring Gasket, BX-151 Part# 702003-15-12
A18	8	Stud w/(2) Nuts, 3/4"-10 x 5-1/4" Lg Part# Y51201-20120201
A19	1	Pressure Gauge 0-10M Liquid Filled Part# Y52100-00301391

MN-DS HOUSING

Item	Qty	Description
A20	1	VR Plug 1-1/4 LP Thd, 1-13/16 2K - 10K Part# 2222164-01-01
A21	1	Gate Valve, Manual, Model FLS, 1-13/16 Bore, 10K Psi, 1-13/16 API Flg x Flg Part# 141510-41-91-01
A22	2	Companion Flange, 1-13/16 API 10K w/ 2" API Line Pipe, 5000 Psi WP Part# 142359-01-03-02
A23	1	Ring Gasket, BX-159 Part# 702003-15-92

Bill of Materials

NOTE: Contact your Cameron representative for replacement part inquiries. Cameron personnel can check the latest revision of the assembly bill-of-material to obtain the appropriate and current replacement part number.

SERVICE TOOLS

Item	Qty	Description
ST1	1	Conversion Assy; Casing Head Torque Tool, f/ 'MN-DS' w/ Lift Plate, 13-3/8 In API 8Rnd Short Thread Casing Box Thread Top X .750-10UNC (16) Bolt Pattern Btm, (8) Torque Pins, Min Bore: 12.605 Part# 2143701-75
ST1A	1	Conversion Body; Lift Plate for Casing Head Torque Tool w/ Exrt 14.75 Stub ACMERng Thd and (2) OD O-ring Seals Part# 2143700-76
ST2	1	Assy; Test Plug, Type "C" 13-5/8" Nom f/ Use In Cactus Head w/ WQ Seal 4-1/2" IF Box X 4-1/2" IF Pin Btm, w/ Weep Hole On Top Portion Of Test Plug Part# 2247044-01-01
ST3	1	Weldment and Assy; Wear Bushing Running & Retrieving Tool IC-2,13-5/8" Nom x 4-1/2" IF Box Btm x Top Part# 2301310-02
ST4	1	Assy; Wear Bushing, f/ 13-5/8" Nom 10K Type 'Mn-Ds' Housing, Installed w/ (4) O-Rings & (4) Welded Stop Lugs Min Bore: 12.615 Part# 2367788-02
ST5	1	Assy; Running Tool, 13-5/8" Nom, w/ 8-5/8 BC Box Thd Top x 10.000-4TPI LH Stub Acme Running Thd Btm, C/ W Single O-Ring and (3) Centralizing Ribs, Min Bore: 8.00 Part# 2161757-98-01
ST6	1	Assy; Jetting Tool, 13-5/8" Nom Compact Housing, Type 'SSMC' Part# 2125914-01

SERVICE TOOLS

Item	Qty	Description
ST7	1	Running Tool, 'MN-DS' Type f/ 13-5/8" Nom Pack-off Support Bushing w/ 4-1/2" API IF Thd Top x 4-1/2" API IF Thd Btm and 12.375" 4-TPI LH Stub Acme Thd, Safe Working Load: 275K Lbf Part# 2017712-10-01
ST8	1	Assy; Test Plug, Type 'IC', 11" Nom 4-1/2" IF Box X Pin Btm, w/ Weep Hole On Top Portion Of Test Plug, w/(2)Dovetail Seal Grooves Part# 2247042-07-01
ST9	1	Weldment and Assembly, Retrieving Tool, 11" In Nom x 4-1/2" IF Box Btm x Top, Min Bore: 4.19" Part# 2367902-01-01
ST10	1	Assy; Wear Bushing, f/ 11" Nom Type 'MN-DS', Min Bore: 8.910" Part# 2125720-06
ST11	1	Assy; Rotating Fluted Mandrel Hanger Running Tool, TSDS-S; 11 Nom X 7.500-4TPI Stub ACME Thd Btm X 5-1/2 23 Lb/Ft TSH Blue Box Thd Top, w/ 1/8-27 NPT Test Port Part# 2161757-83-01
ST12	1	Running Tool; F/ 11 Nom Seal Assembly w/ 4-1/2 API IF Thd Top X 2-7/8 API IF Thd Btm and 9.875-4 TPI LH Stub ACME Thd Part# 2017712-15-01
ST13	1	Assy; Casing Head Running Tool; 14.750-4 TPI LH Internal Stub ACME Thd Btm X 11-3/4 API 8Rnd Short Thd Casing Box Thd Top; Min Bore: 11.359 Part# 2254468-04-01
ST14	1	Assy; Low Pressure Adapter; 24.00 OD X22.740 ID Part# 2222008-06-01

EMERGENCY EQUIPMENT

Item	Qty	Description
E1	1	Assy; MN-DS-IC-1 Casing Slip, 13-5/8 Nom X 8-5/8 Casing; w/ Holes F/ Antirotation Pins, (Control Height) Part# 2161741-09-01
E2	1	Assy; Emergency Bushing Packoff Support, 'MN-DS', 13-5/8, w/ 13-5/8 Dovetail; 8-5/8 'T' Seals, w/ Internal and External Lockring Prep; 10K Service Part# 2161673-20-01
E3	1	Assy; Casing Hanger, IC-2, 11" x 5-1/2", (f/ 10K Above and Below) Part# 2357372-01-01
E4	1	Assy. 'NX' Bushing Nom 11" x 5-1/2" OD Csg w/ Integral Bit Guide Part# 2161829-02-01

CAPPING FLANGE

Item	Qty	Description
TA1	1	Assy; Capping Flg, 7-1/16" API 10K BX-156 Std'd Blind Top x 13-5/8" API 10K BX-159 Std'd Btm, w/ One 1-13/16" API 10K BX-151 Std'd Side Outlet, w/ 1-13/16" API Vr Thd, w/ 11" 'NX' Btm Prep, Oal: 12" Part# 2392883-03-01
TA2	1	Assy 'NX' Bushing Nom 11" w/ 7" OD Csg Part# 608783-17
TA3	1	Gate Valve, Manual, Model FLS, 1-13/16 Bore, 10K Psi, 1-13/16 API Flg x Flg Part# 141510-41-91-01

Stage 1.0 — 20" Conductor

SAFETY NOTE: Always wear proper PPE (Personal Protective Equipment) such as safety shoes, safety glasses, hard hat, gloves, etc. to handle and install equipment.

CAUTION Threaded Devices should NEVER be permanently tightened under pressure. This includes: Flange Bolting, Pipe Plugs, Bull Plugs, Union Nuts, Tieberty/Lockscrew Glands.

CAUTION Use of Teflon tape is prohibited. Use appropriate thread compound/sealant only. TS-736 P/N: 607950-38-31-26, TF-15 P/N: 607950-38-31-26, Liquid O-Ring 104S or any other thread sealant approved by Cameron Engineering.

1.1. Install the Load Ring

1.1.1. Run the 20" Conductor and space out as required.

1.1.2. Cut the 20" Conductor 55" below the ground level.

1.1.3. Examine the ***Load Ring (Item A3).*** Verify the following:

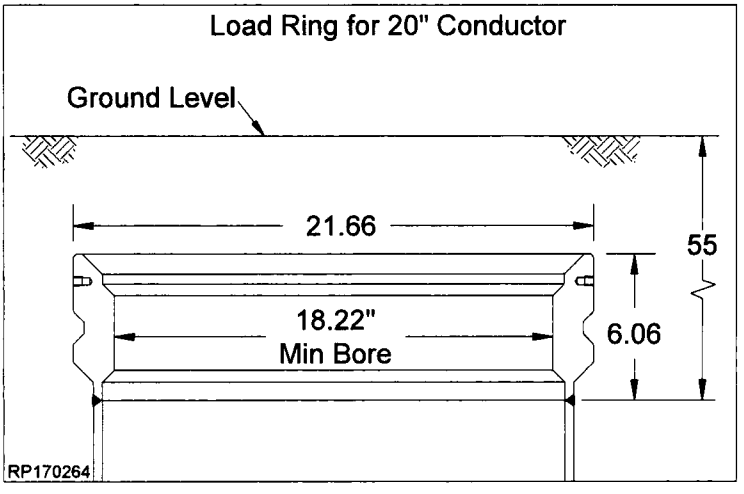
- bore is clean and free of debris
- seal area is clean and undamaged

1.1.4. Install the Load Ring as required.

1.1.5. Weld Load Ring to conductor after Load Ring is landed on conductor.

The weld should be a fillet type weld with legs no less than the wall of the casing. Legs of 1/2" to 5/8" are adequate for most jobs.

Refer to the *Recommended Procedure for Field Welding Pipe to Wellhead Parts for Pressure Seal* found at the back of this procedure for details of the welding and testing procedure.



Stage 1.0 — 20" Conductor

1.2. Install the Low Pressure Adapter

1.2.1. Examine the ***Low Pressure Adapter (Item ST14).*** Verify the following:

- bore is clean and free of debris
- seals are properly installed, clean and undamaged
- all (24) set screws are retracted from the bore

1.2.2. Orient the assembly as illustrated.

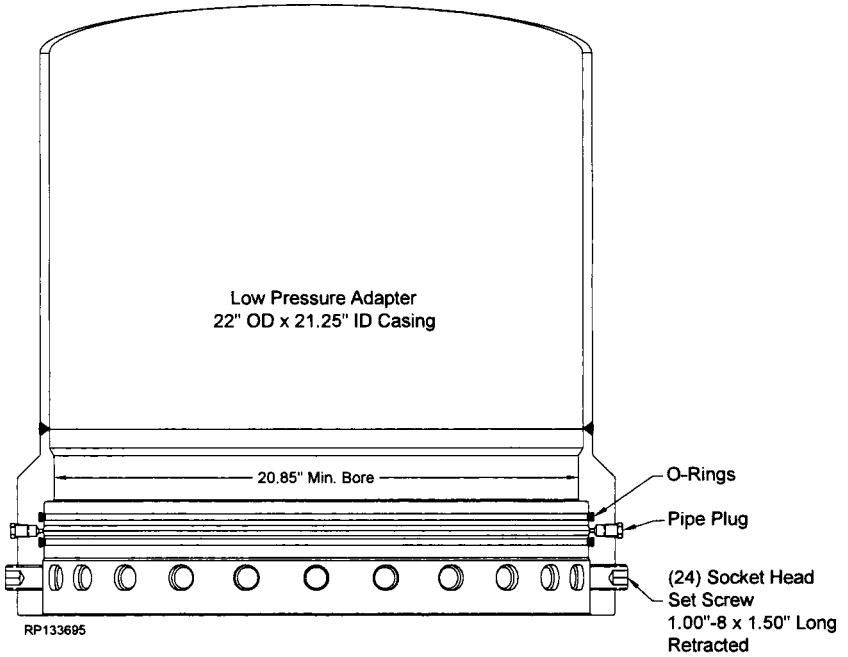
1.2.3. Wipe the ID of the Adapter seals with a light coat of oil.

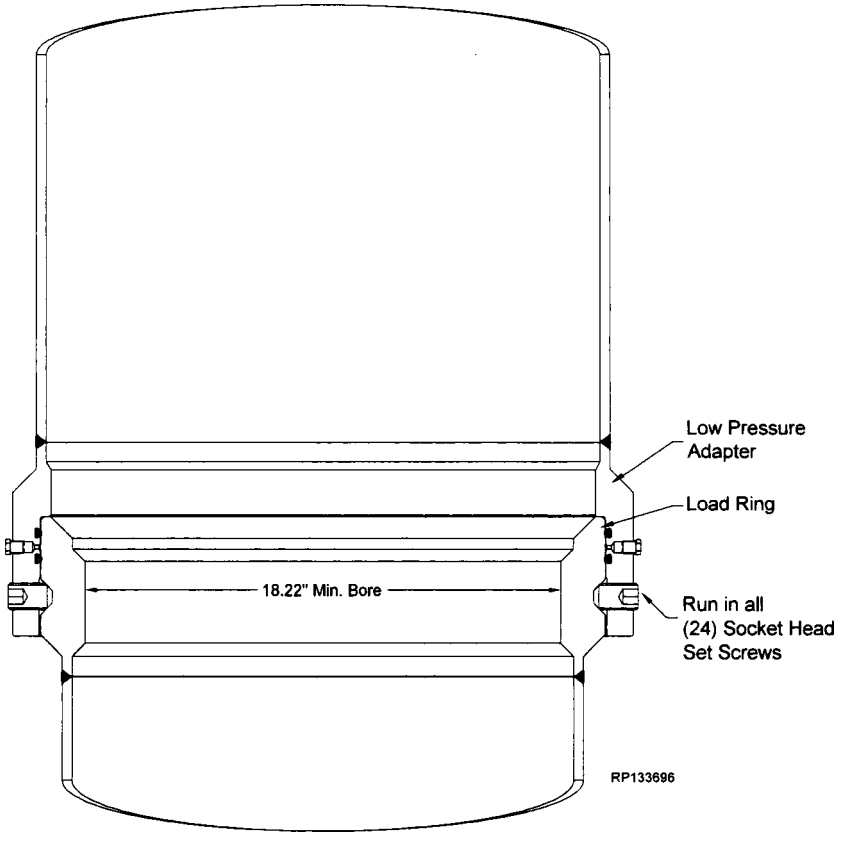
NOTE: Excessive oil may prevent a positive seal from forming.

1.2.4. Carefully slide the Adapter over the Load ring and land it on top of the load ring.

WARNING Be careful not to damage the o-rings.

1.2.5. Run in all (24) set screws into the Load ring as required.





Stage 1.0 — 20" Conductor

1.3. Test Between the Seals of the Low Pressure Adapter

1.3.1. Locate the test ports on the OD of the Adapter and remove one fitting.

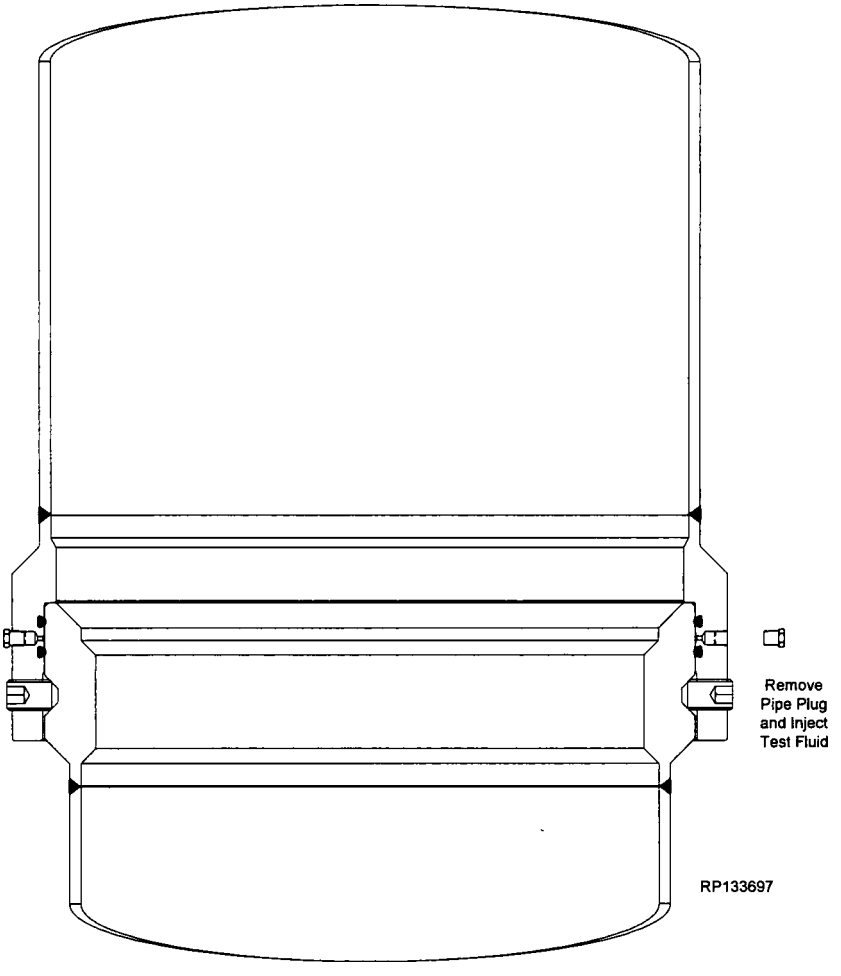
1.3.2. Install a hydraulic test pump to the open test port and inject test fluid to ***2,000 psi***

WARNING Do Not over pressurize!

1.3.3. Hold and monitor the test pressure for fifteen minutes or as required by the Drilling Supervisor.

1.3.4. Once a satisfactory test is achieved, carefully bleed off all test pressure, remove the test pump and reinstall the fitting.

1.3.5. Reinstall the pipe plug.



Stage 2.0 — 11-3/4" Casing

2.1. Install the Casing Head Housing

2.1.1. Run the 11-3/4" casing and space out as required. Retrieve the landing joint.

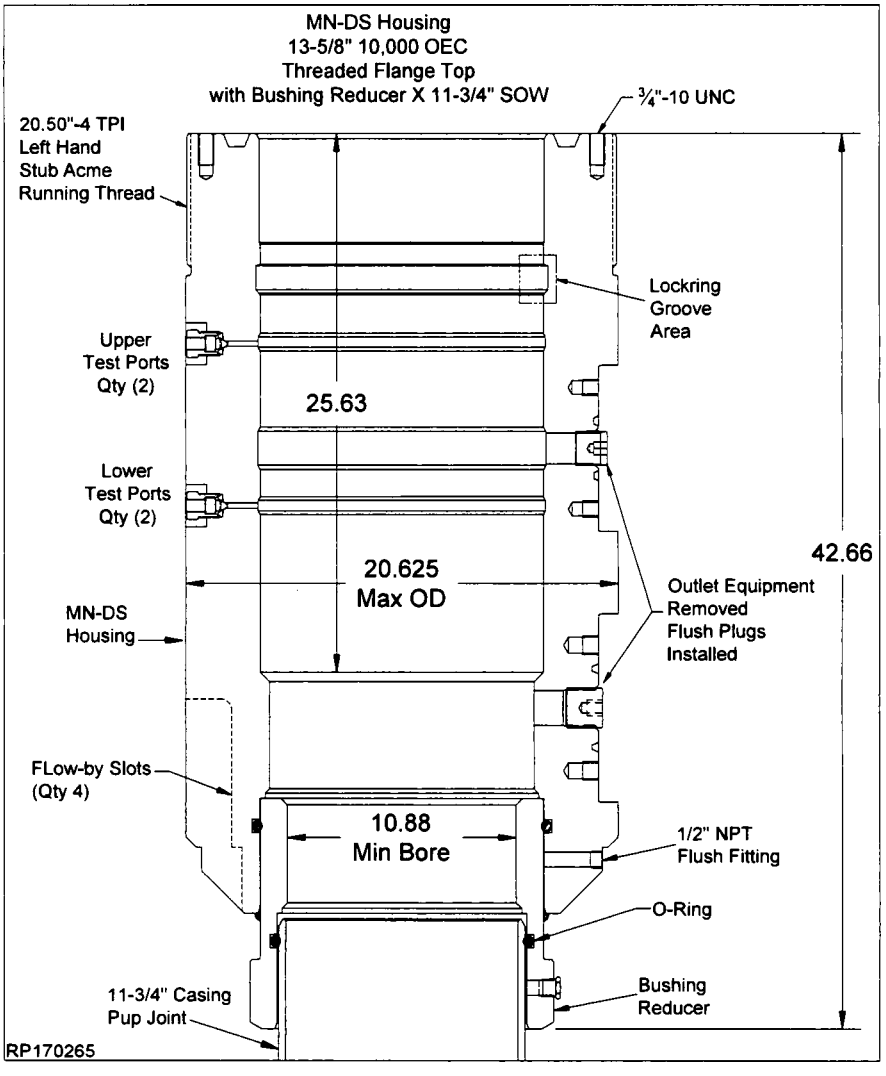
Lift plate, Running Tool, Landing Joint, Casing Head Housing, and Bushing Reducer(Step 2.1.2. through 2.1.9.) will be made up offline and shipped to location as one assembly.

OFFLINE

2.1.2. Examine the ***MN-DS Housing (Item A1).*** Verify the following:

- bore is clean and free of debris
- ring groove and seal areas are clean and undamaged
- all threads are clean and undamaged
- flow-by slots (4) are clean and free of debris
- casing pup joint is properly installed and pin connection is undamaged
- ***Bushing Reducer (Item A2)*** is properly welded onto the casing head
- ***Lift Plate and Running Tool Assembly (Item ST1A & ST13)*** are properly installed onto the top of the Housing
- outlet equipment removed and flush plugs are installed

2.1.3. Orient the assembly as illustrated.



Stage 2.0 — 11-3/4" Casing

OFFLINE

2.1.4. Examine the ***Lift Plate and Running Tool Assembly (Item ST1A & ST13).*** Verify the following:

- bore is clean and free of debris
- all threads are clean and undamaged
- o-rings are properly installed, clean and undamaged

2.1.5. Make up a landing joint to the top of the Lift Plate/Running Torque Tool Assembly.

Landing joint may be made up to the running tool in advance.

2.1.6. Wipe the o-ring of the Lift Plate and the ID of the Casing Head with a light coat of oil.

Excessive oil may prevent a positive seal from forming.

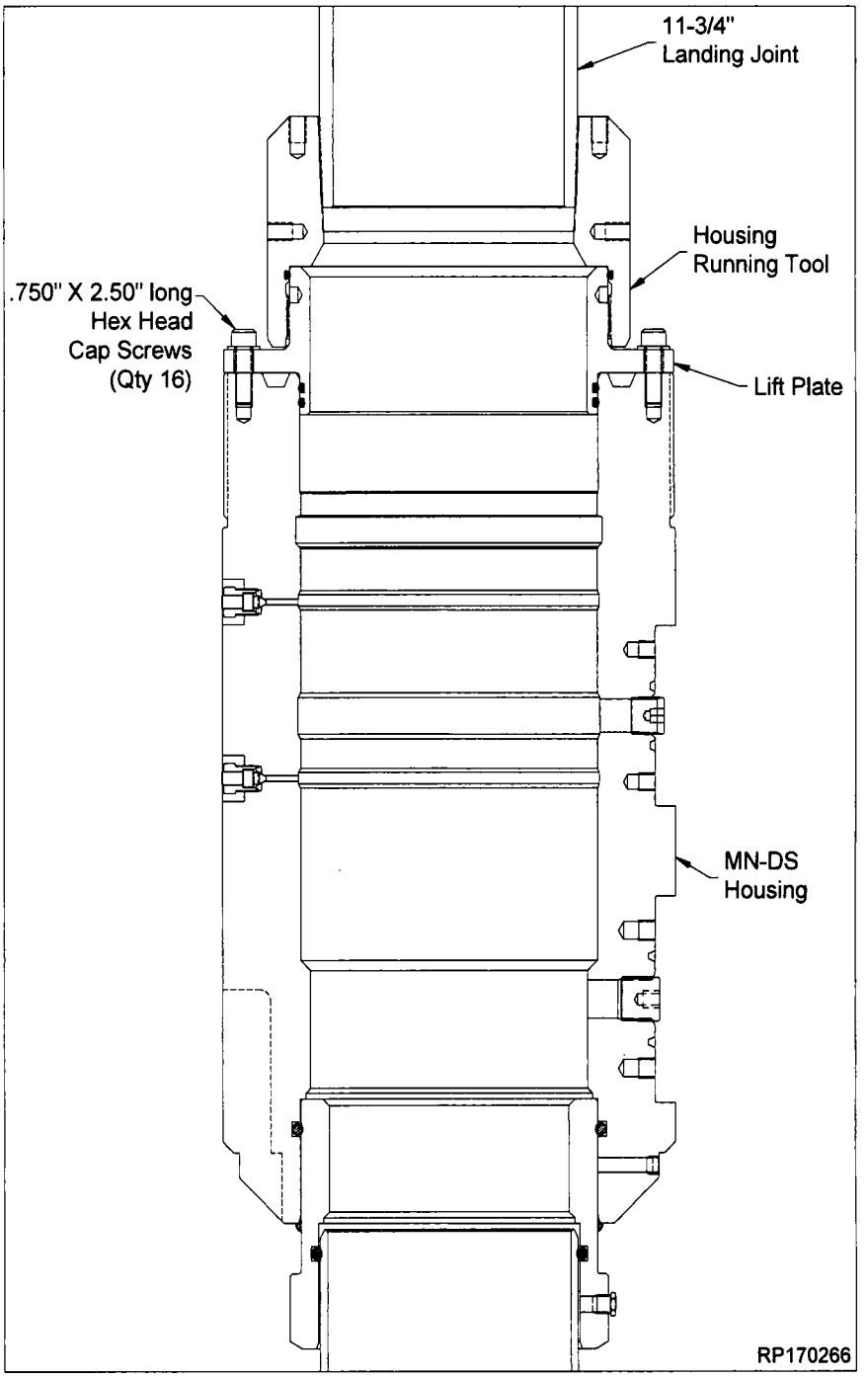
2.1.7. Lift and suspend the Assembly over the Casing Head.

2.1.8. Lower the Assembly into the Casing Head and align the cap screw holes on the Lift Plate and the threaded holes on the Casing Head.

2.1.9. Run in all (16) cap screws to a positive stop to hold the Assembly and the Casing Head together.

Cap screws will be made up and torqued offline per API 6A (referenced in the torque chart at the back of this manual).

Ensure the pin threads of the pup joint are protected by a metal protector



2.1.10. Remove the thread protector from the pin thread of the pup joint in the bottom of the MN-DS Assembly.

Do NOT remove thread protector until pup joint is ready to be made up to casing.

Stage 2.0 — 11-3/4" Casing

2.1.11. Lower the MN-DS Assembly until the mating threads of the 11-3/4" casing and the pin threads of the pup joint make contact.

2.1.12. Balancing the weight of the Assembly, such that it is unloaded, rotate the Assembly first to the left until the threads have aligned and then to the right to the thread manufacturer's recommended optimum torque.

WARNING Ensure Running Tool connection to Housing is not back off during make up of the pup joint to the casing string.

Max torque 20,000 ft/lbs.

2.1.13. Pick up and release Casing from floor slips.

2.1.14. Remove the rotary table bushing on the rig floor to allow enough room to pass the MN-DS Assembly.

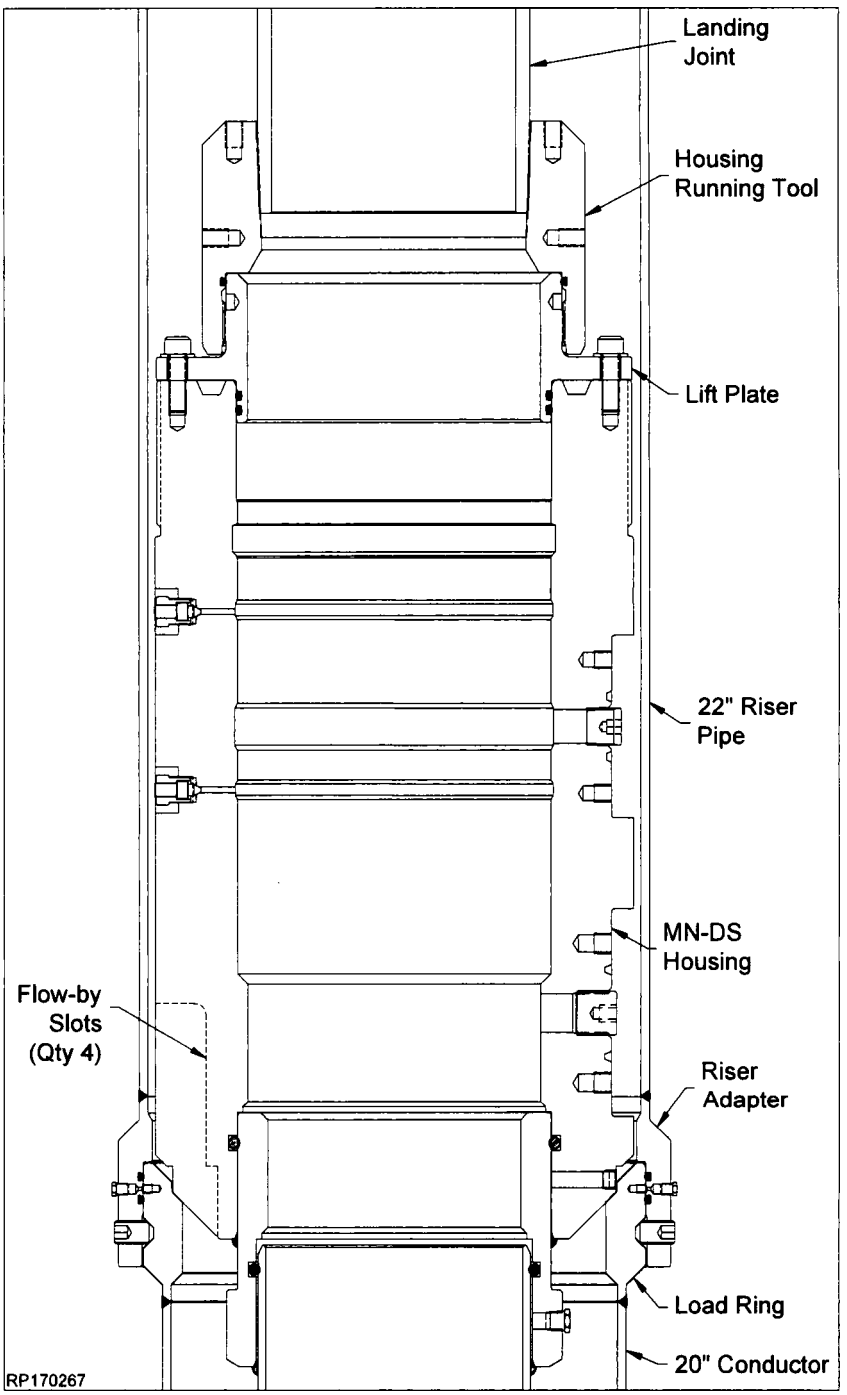
2.1.15. Orient the outlets as required and carefully lower the MN-DS Assembly through the rig floor and land on the Load Ring load shoulder.

2.1.16. Cement the casing string as required .Take the returns in the cellar until the casing cemented to the surface.

Returns may be taken through the Flow-by slots (4) of the Housing and out of the Stack.

2.1.17. Slack off the remaining casing string weight onto the conductor.

2.1.18. Verify that the pressure in the casing is bled off and the cement head is removed from the landing joint.



Verify with the Cement Supervisor and the Rig Tool Pusher that all pressure is bled off the casing before proceeding.

2.1.19. Remove the flush plugs from the outlets.

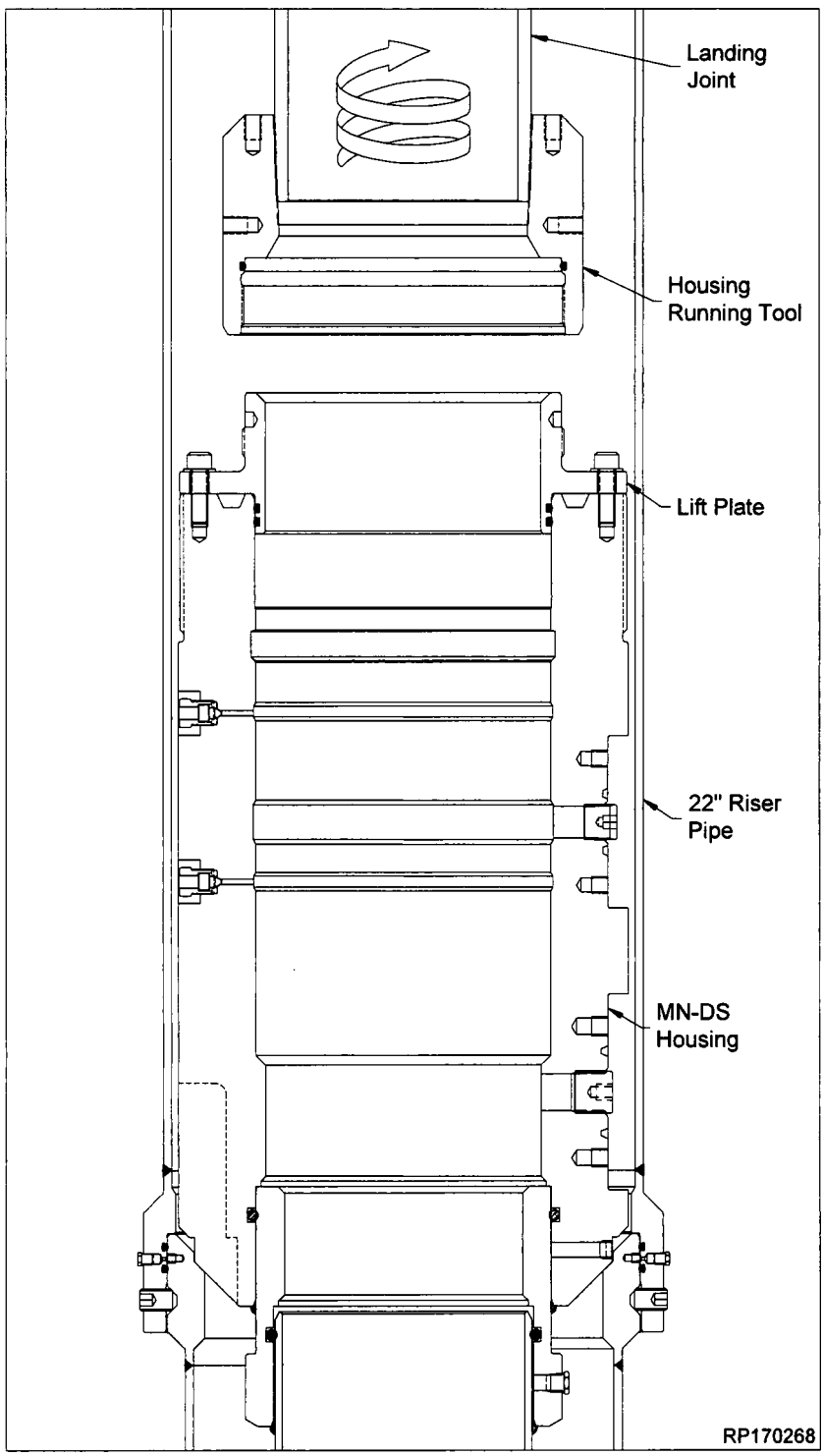
2.1.20. Washout the MN-DS system as required.

Stage 2.0 — 11-3/4" Casing

2.1.21. Rotate the landing joint to the right to remove the Running tool from the lift plate, approximately 6 turns.

2.1.22. Retrieve the Tool to the rig floor and remove it from the landing joint.

2.1.23. Clean, grease and store the Tool as required.



Stage 2.0 — 11-3/4" Casing

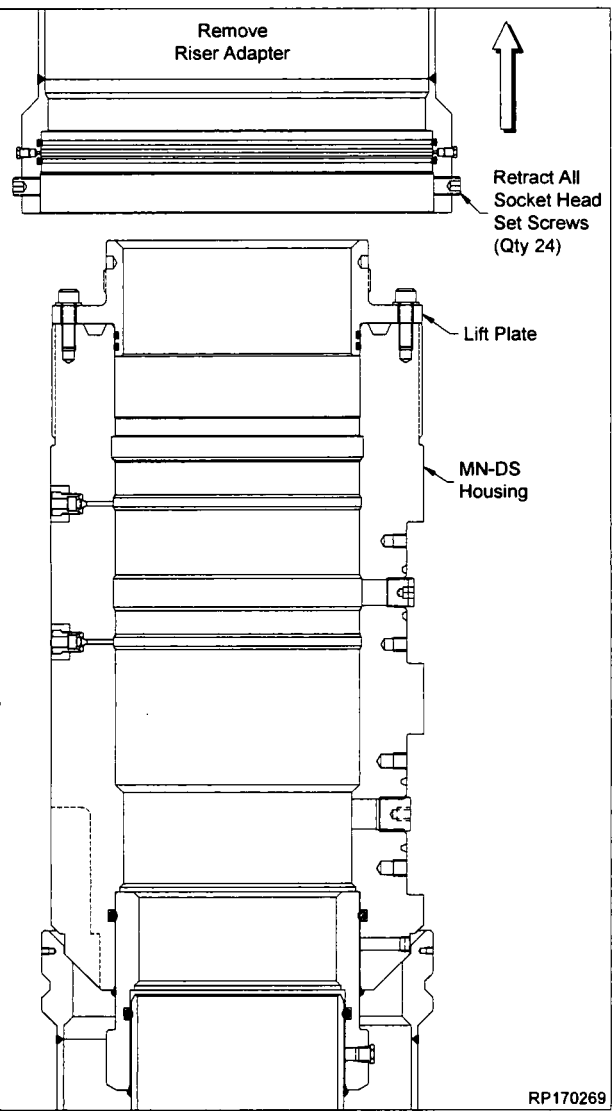
2.1.24. Install a bleeder tool to the fitting of the Riser Adapter and vent all trapped pressure.

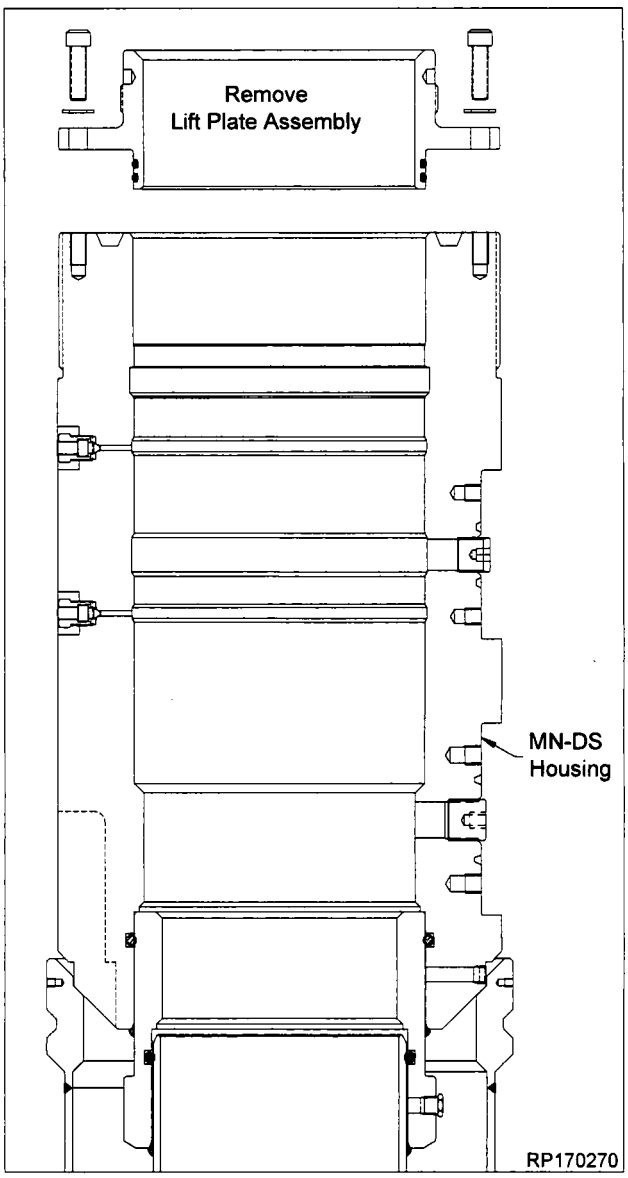
2.1.25. Retract all (24) set screws of the Riser Adapter and remove the Riser Adapter over the Casing Head Housing.

2.1.26. Clean, grease and store the Low Pressure Adapter as required.

2.1.27. Remove the Lift Plate from the top of the Housing.

2.1.28. Clean, grease and store the Tool as required.





Stage 2.0 — 11-3/4" Casing

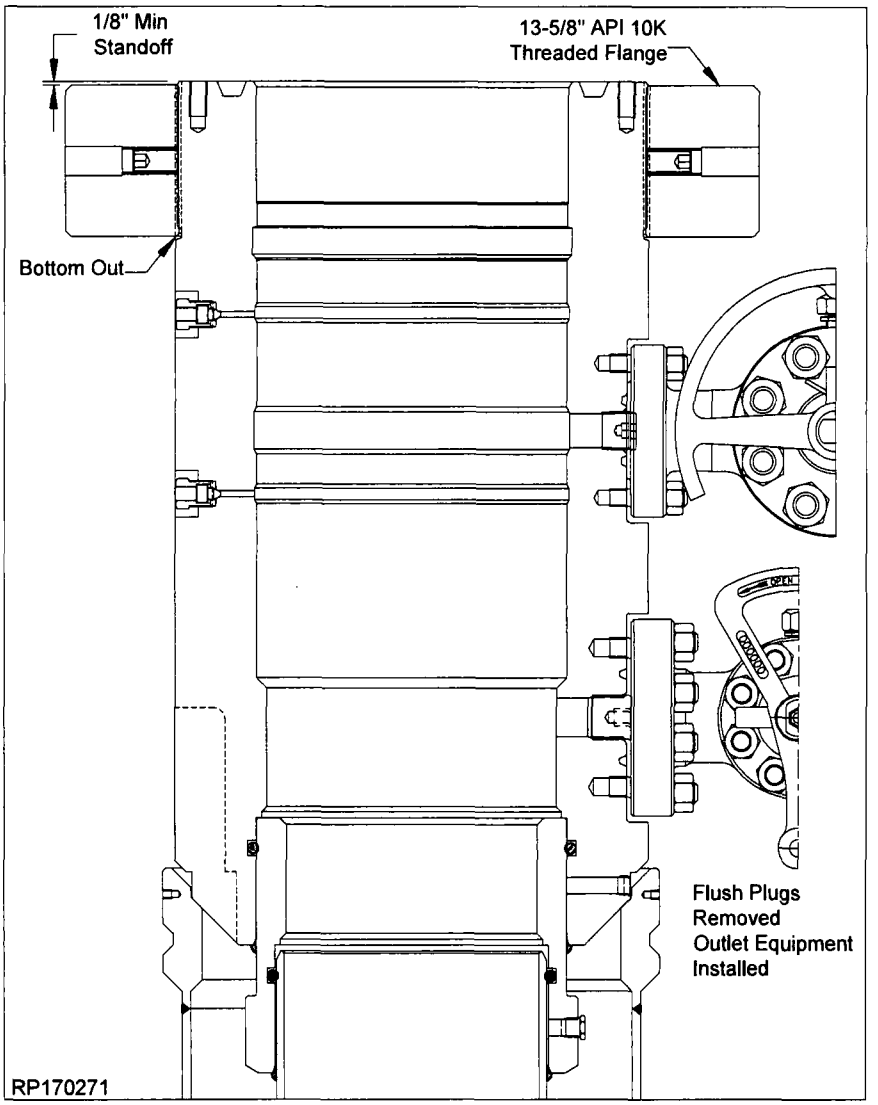
2.1.29. Install the Threaded Flange to the top of the Casing Head Housing.

2.1.30. Install upper and lower Casing Head outlet valves.

2.1.31. Install VR Plugs, and test the outlet valves to:

- Lower Valves to 5,000 psi
- Upper Valves to 10,000 psi

2.1.32. Remove VR Plugs, and close Upper and Lower outlet valves.



⚠ CAUTION

Ensure and verify Threaded Flange is properly installed to the Casing Head.

1. Rotate the threaded flange counterclockwise (left hand thread) to a positive stop and bottom out threaded flange on Casing Head flange shoulder.

2. Verify make up dimension. Dimension from the top of the threaded flange to the top of the casing head must be 1/8" or greater.

Threaded flange must remain shouldered out during installation.

Stage 3.0 — 8-5/8" Casing

3.1. Test the BOP Stack

3.1.1. Clean and inspect the BX-159 ring groove on the Housing flange. Make up the BOP stack to the Housing using a spare ***BX-159 Ring Gasket***

3.1.2. Use the ***Test Plug (Item ST2).***

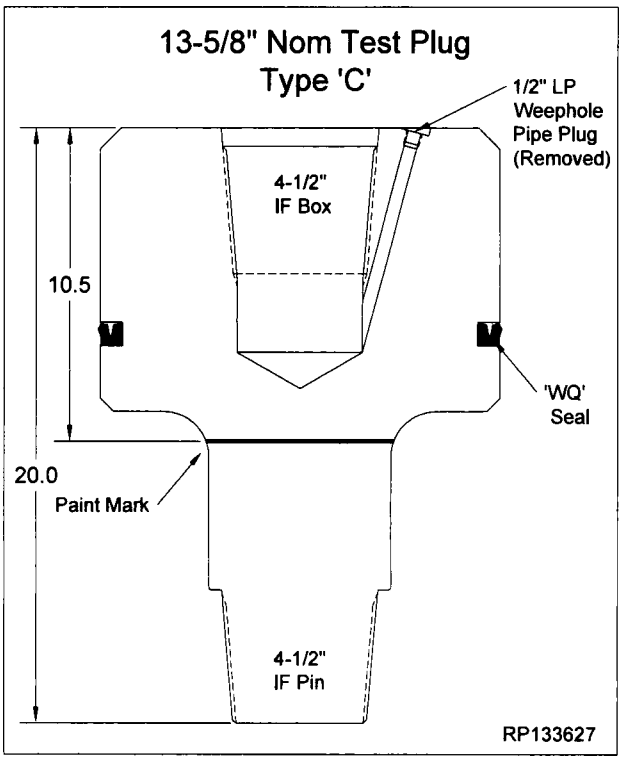
3.1.3. Place a paint mark around the Test Plug for landing verification as illustrated. Approximately 10.5" from the top.

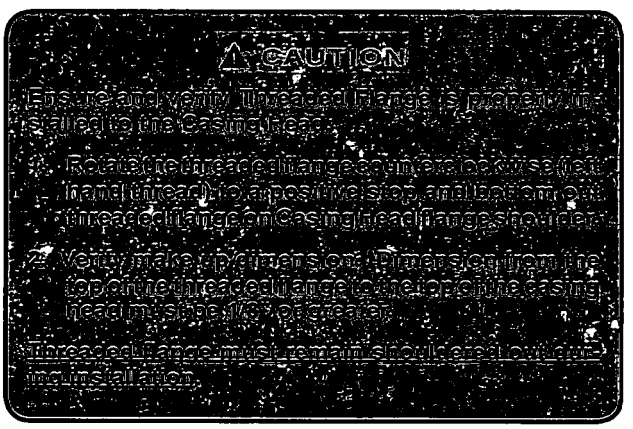
When the Test Plug is properly landed, paint mark will be visible in the center of the lowermost annulus valve of the Housing.

WARNING

SEE RP-000654

PROCEDURE FOR STANDARD IC TEST PLUG

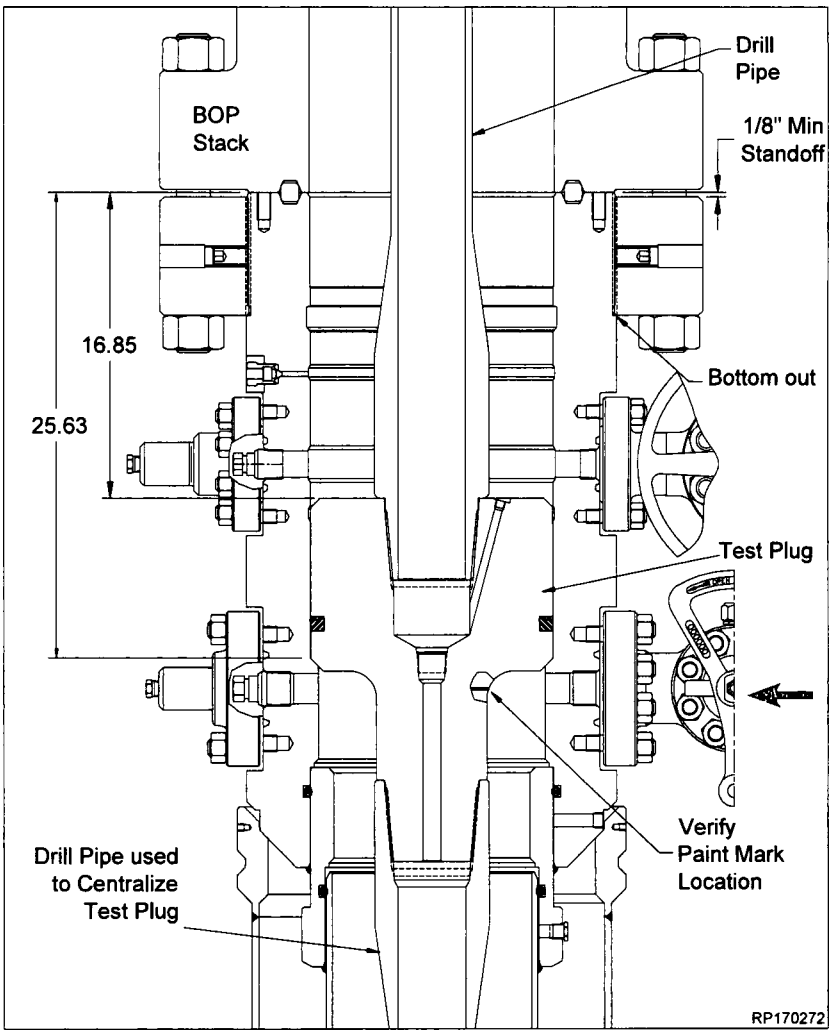




Stage 3.0 — 8-5/8" Casing

Distance from the Housing shoulder to the face of the BOP Flange is 25.63".

3.1.4. Close the BOP rams on the drill pipe and test to ***10,000 psi maximum.***



Stage 3.0 — 8-5/8" Casing

3.2. Run the Wear Bushing Before Drilling

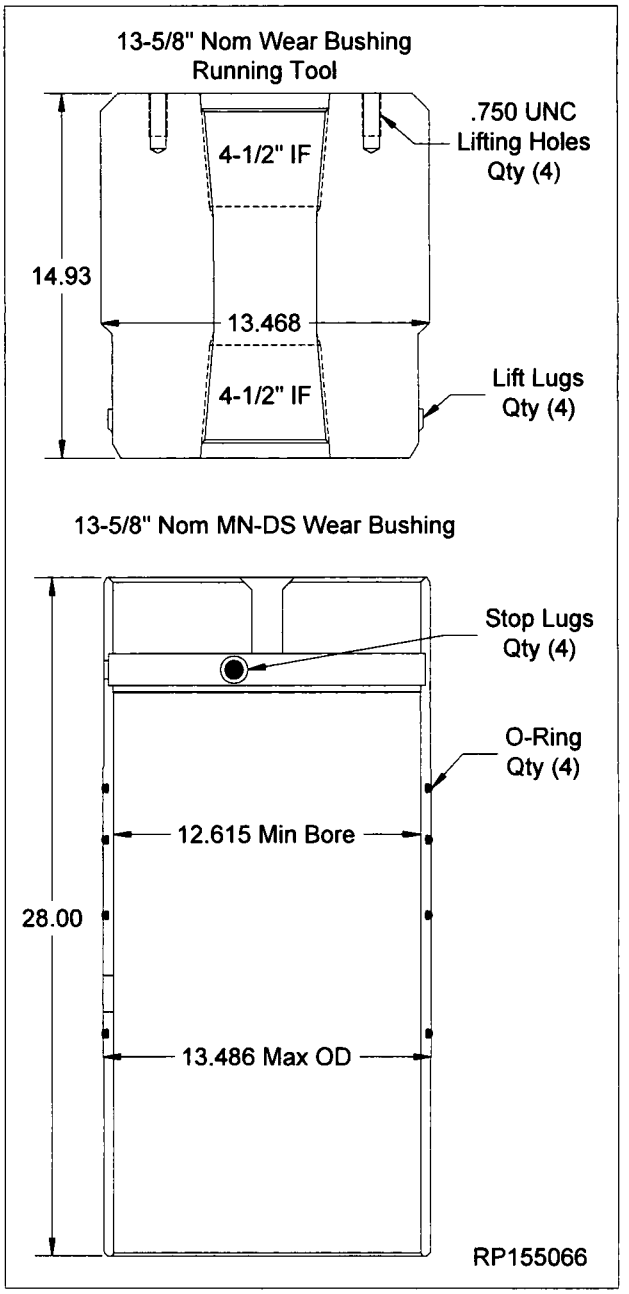
3.2.1. Use the ***Wear Bushing Running Tool (Item ST3).***

3.2.2. Use the ***Wear Bushing (Item ST4).***

WARNING

SEE RP-000655

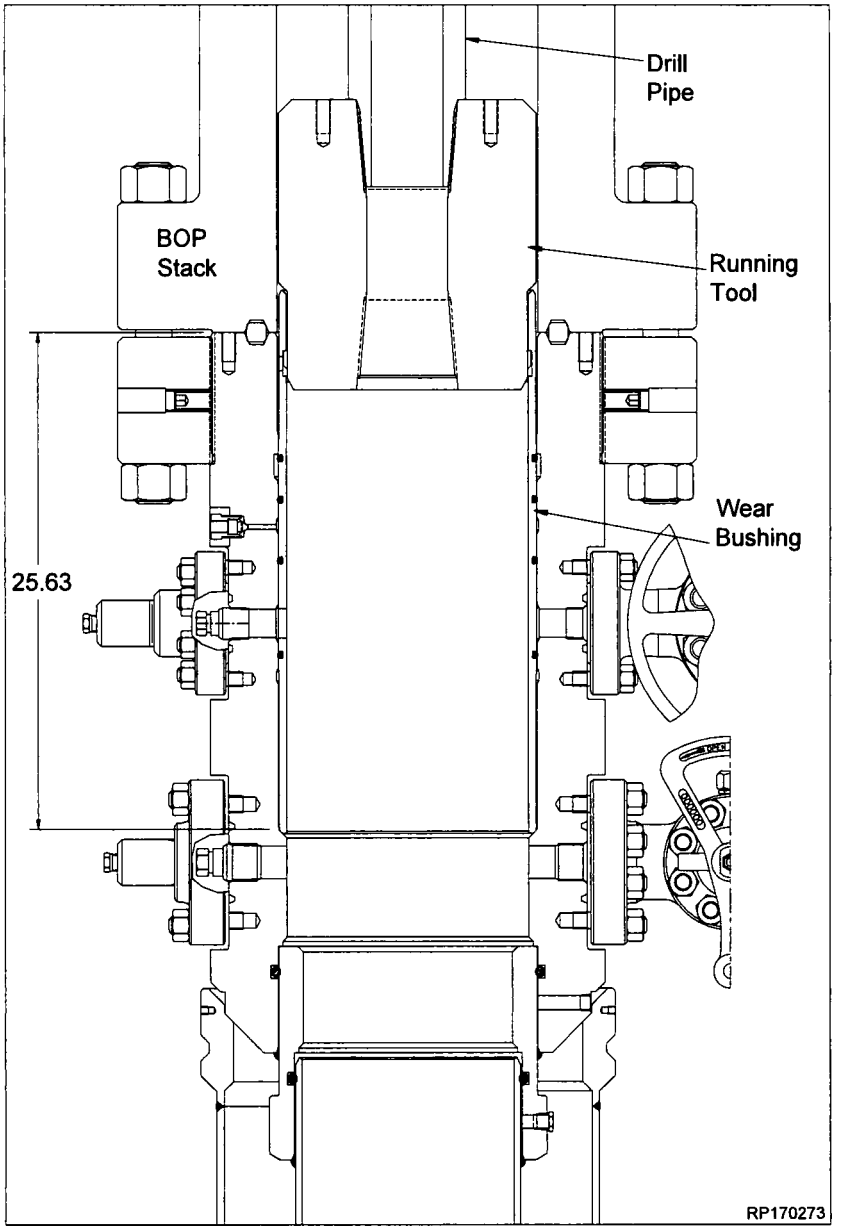
PROCEDURE FOR STANDARD IC WEAR BUSHING



Stage 3.0 — 8-5/8" Casing

Distance from the Housing shoulder to the face of the BOP Flange is 25.63".

3.2.3. Carefully lower the Tool/ Wear Bushing Assembly through the BOP stack until it lands on the load shoulder in the Housing. Measure and record. Estimated weight required to lower Wear Bushing into Housing is 2,000 lbs.



Stage 3.0 — 8-5/8" Casing

3.3. Retrieving the Wear Bushing After Drilling

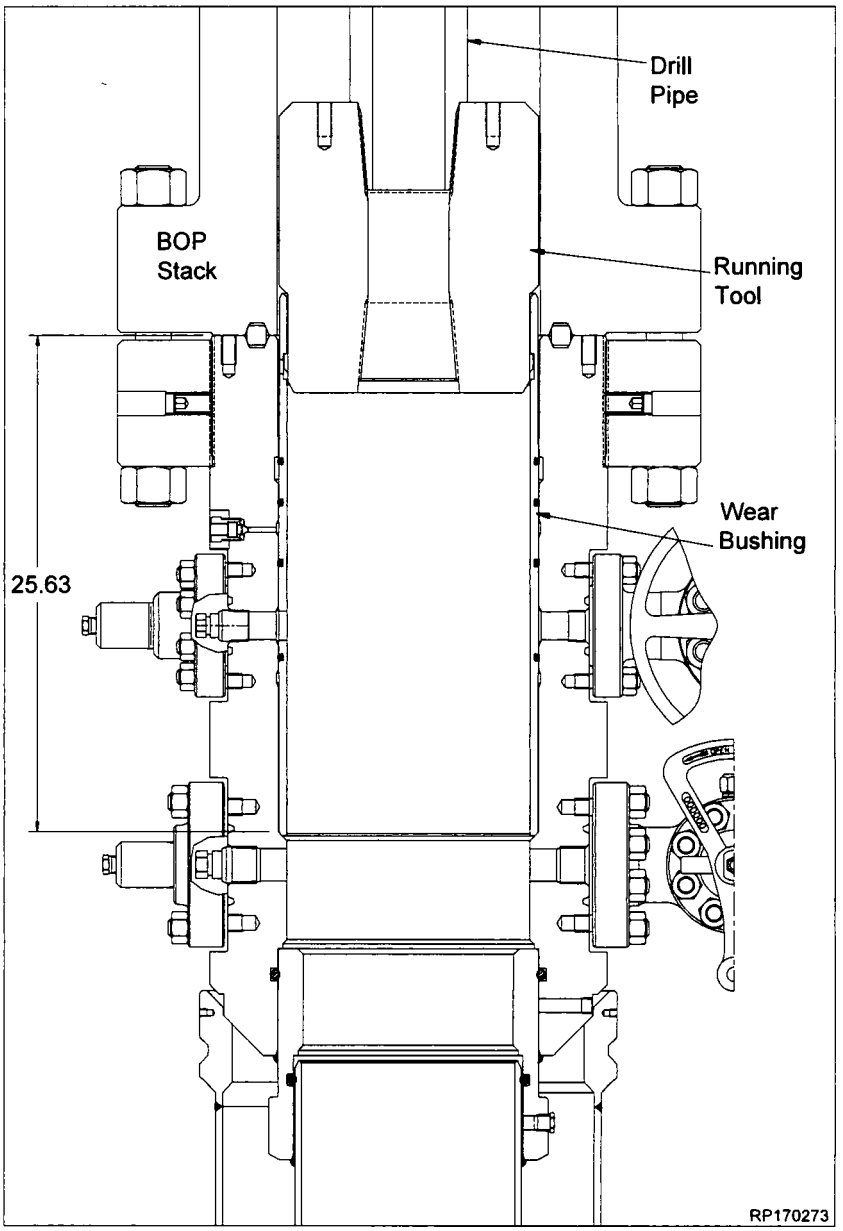
3.3.1. Make up a joint drill pipe to the ***Tool (Item ST3).***

WARNING

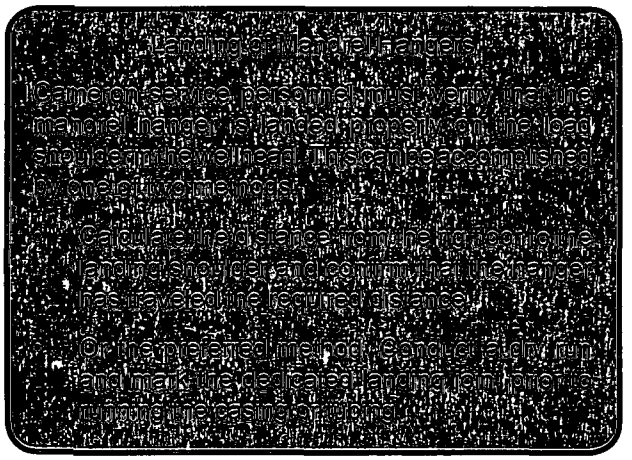
SEE RP-000655

PROCEDURE FOR STANDARD IC WEAR BUSHING

Maximum allowable pull on Wear Bushing is 25,000 lbs. Contact Surface Engineering if additional force is required.



Stage 3.0 — 8-5/8" Casing



3.4. Hang Off the Casing

In the event the 8-5/8" casing should become stuck, and the mandrel hanger is unable to be used, refer to Section 5.1. Hang off the Casing - Emergency Procedure.

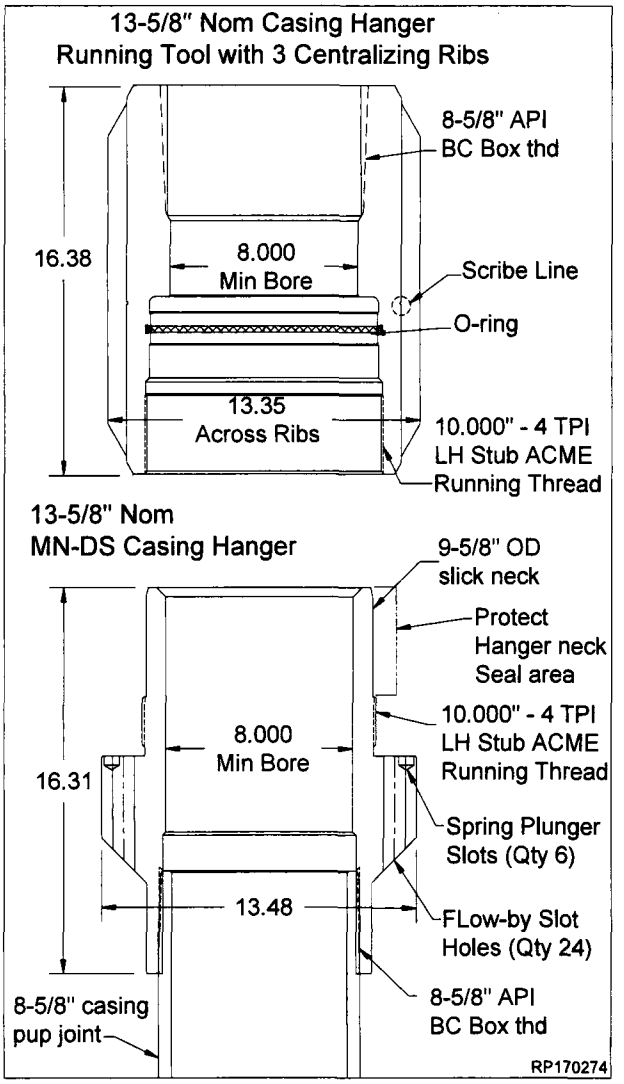
3.4.1. Use the ***Casing Hanger Running Tool (Item ST5).***

3.4.2. Use the ***Casing Hanger (Item A4).***

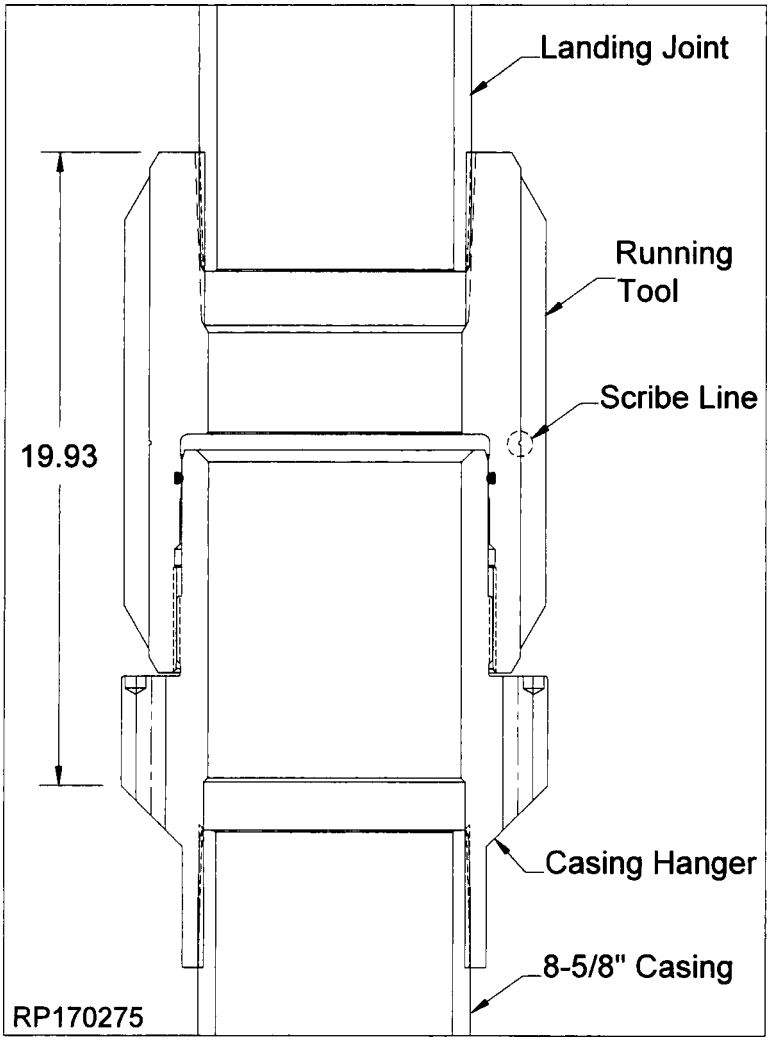
WARNING

SEE RP-003740

PROCEDURE FOR STANDARD MN-DS INTERMEDIATE CASING HANGER

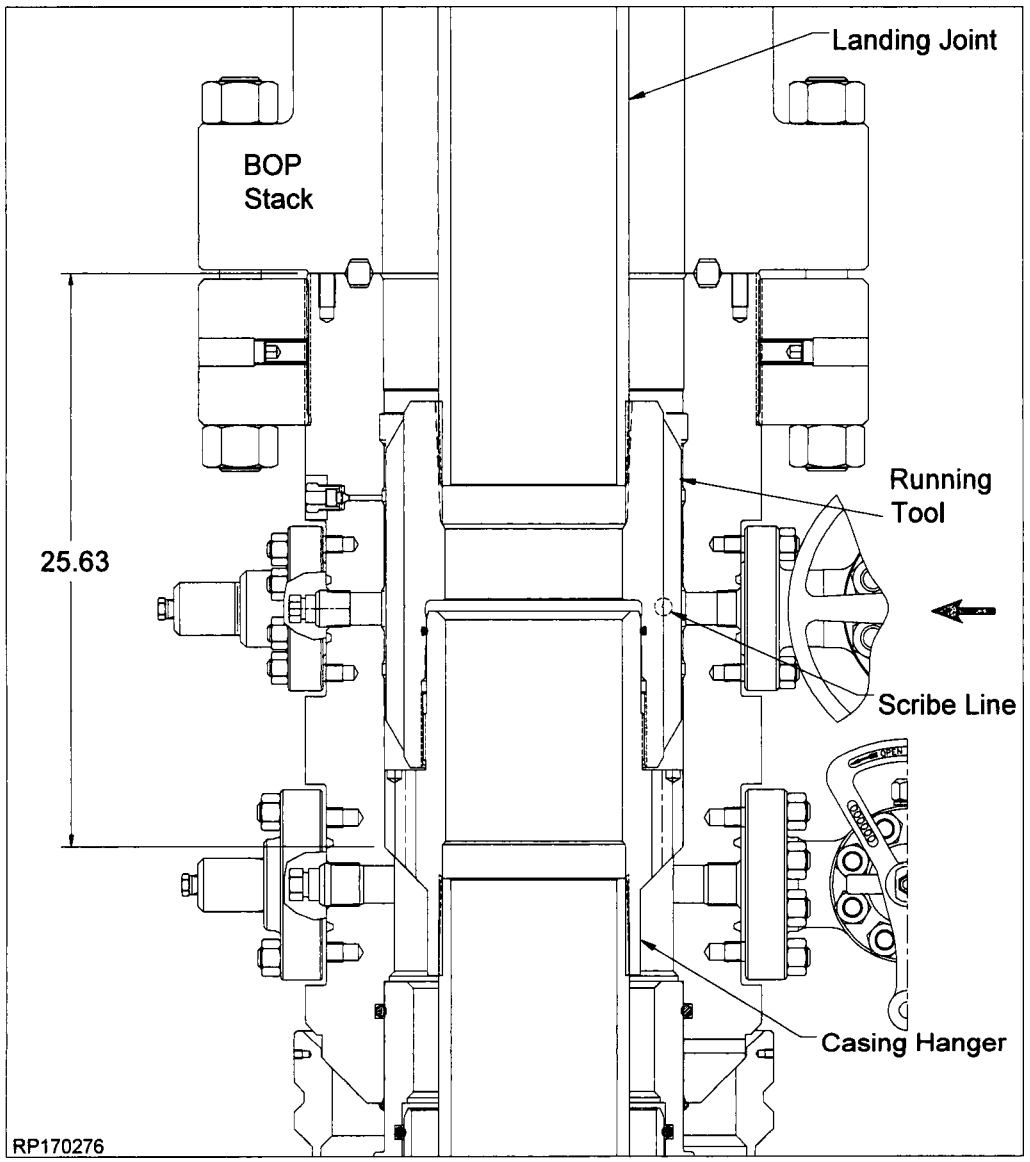


Stage 3.0 — 8-5/8" Casing



Stage 3.0 — 8-5/8" Casing

Note: Distance from the Housing load shoulder to the face of the BOP Flange is 25.63".



Stage 3.0 — 8-5/8" Casing

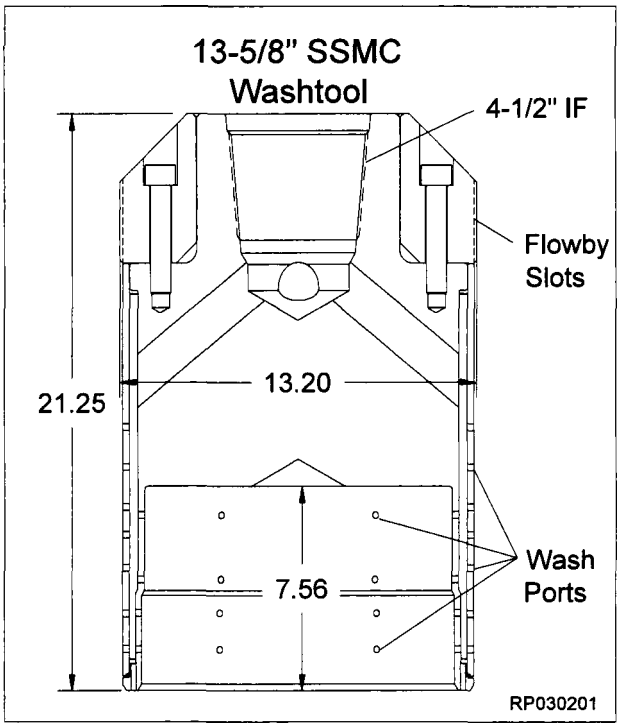
3.5. Recommended Procedure - Washout prior to landing Seal Assembly

3.5.1. Use the ***Wash tool (Item ST6).***

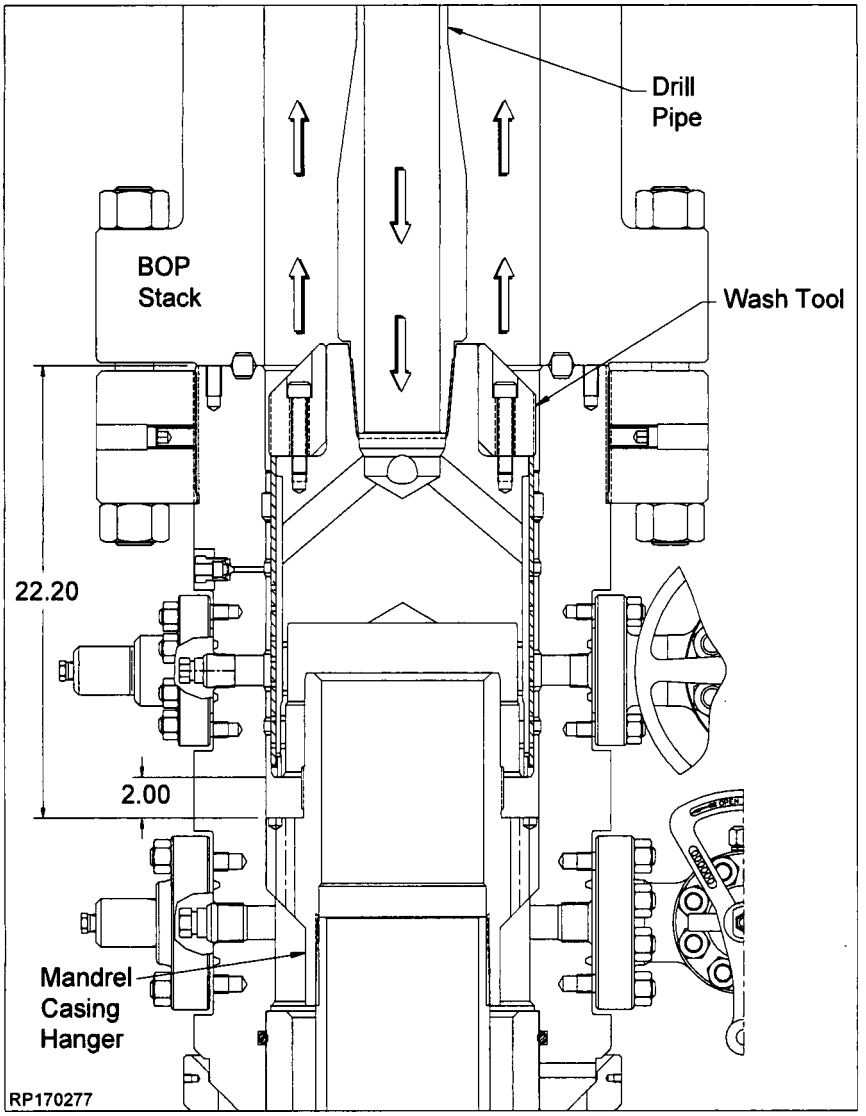
WARNING

SEE RP-003734

PROCEDURE FOR STANDARD WASH TOOL



Stage 3.0 — 8-5/8" Casing



3.6. Installing the Packoff Support Bushing

3.6.1. Use ***Packoff Support Bushing Running Tool (Item ST7).***

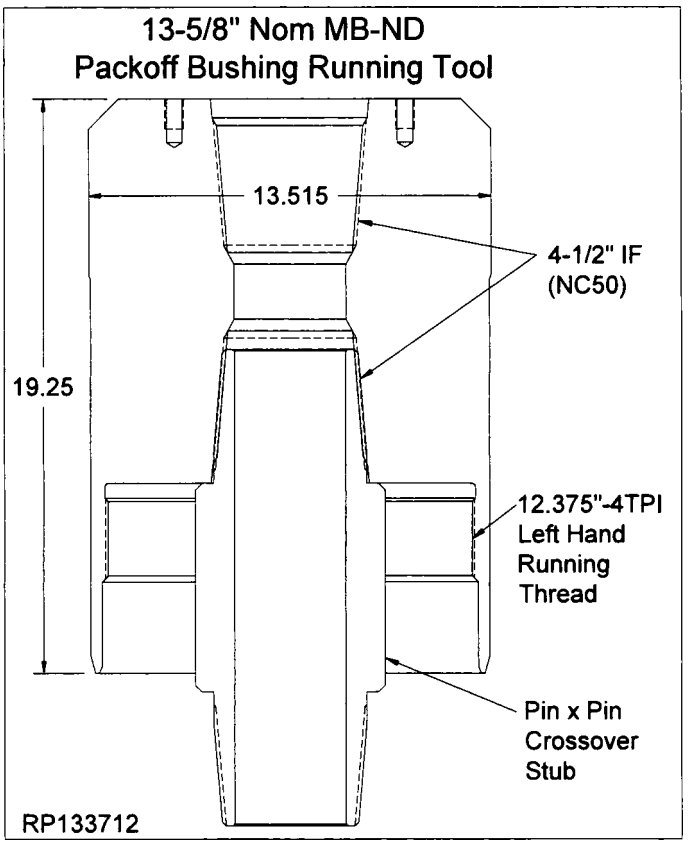
3.6.2. Use ***Packoff Support Bushing (Item A5).***

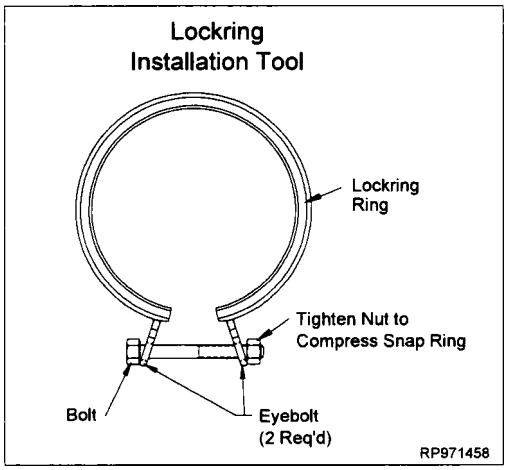
WARNING

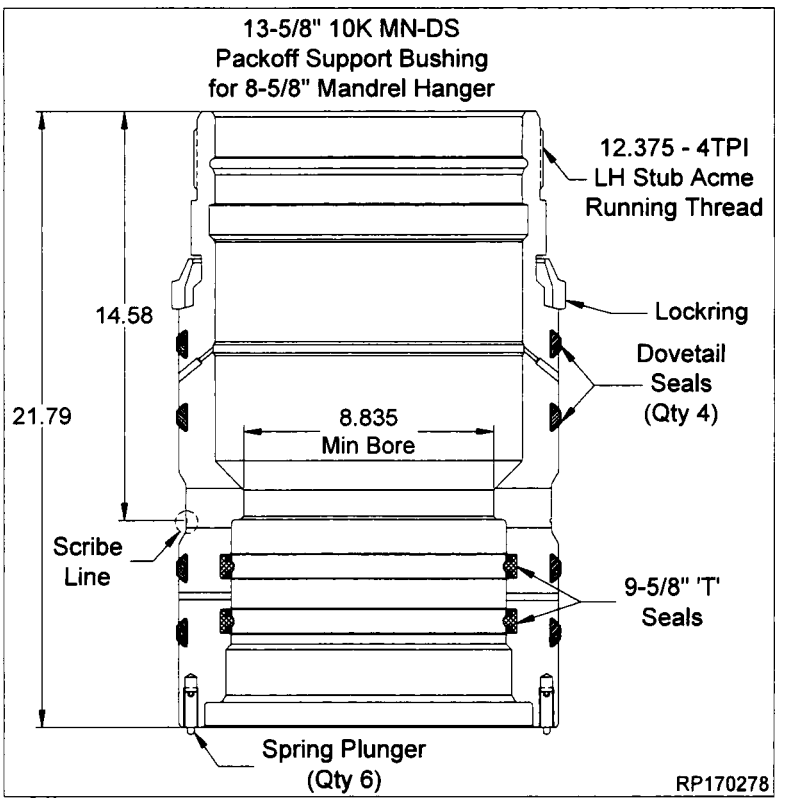
SEE RP-003741

PROCEDURE FOR STANDARD MN-DS INTERMEDIATE PACKOFF SUPPORT BUSHING

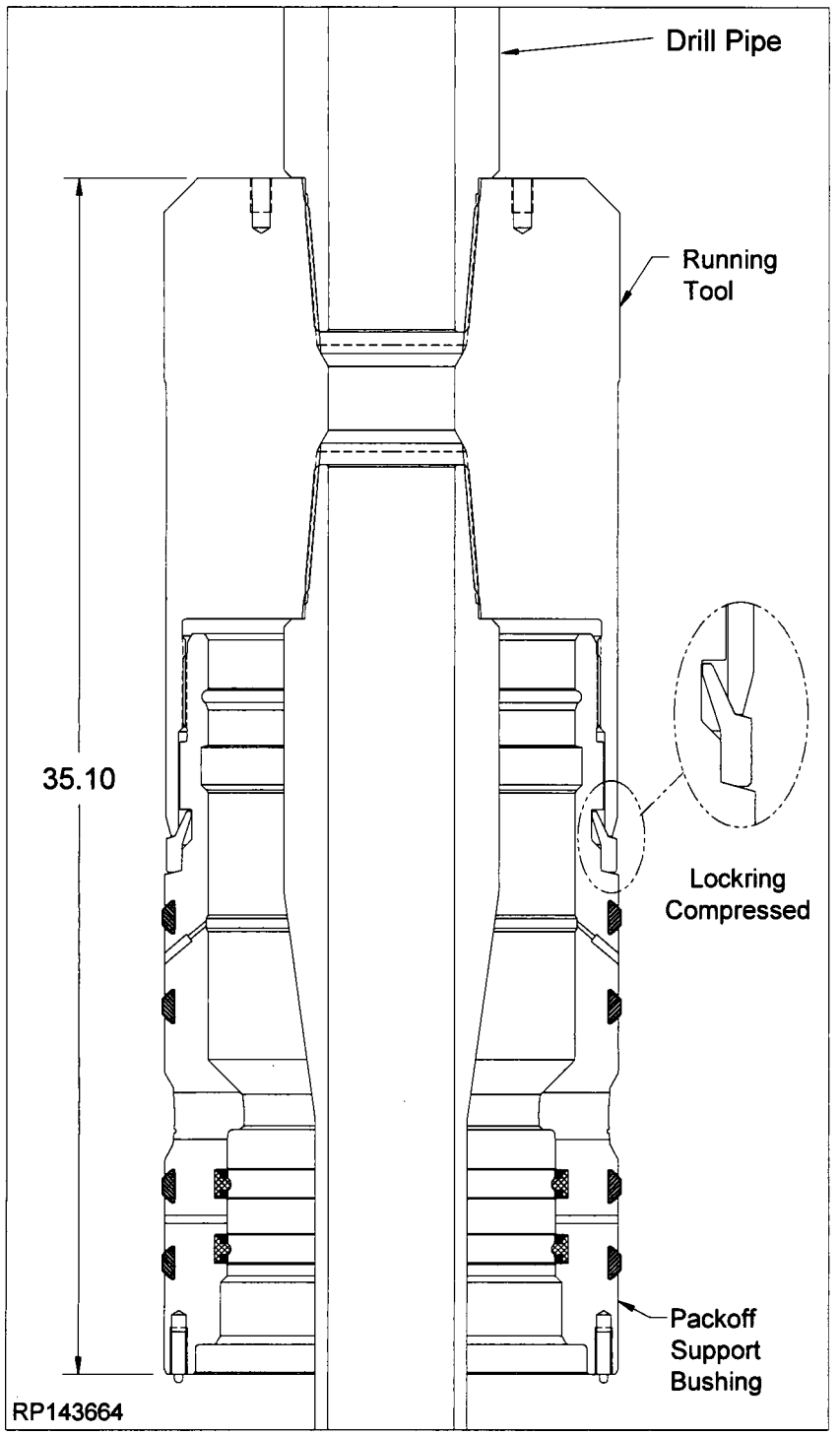
3.6.3. Use ***Lockring Installation Tool.***



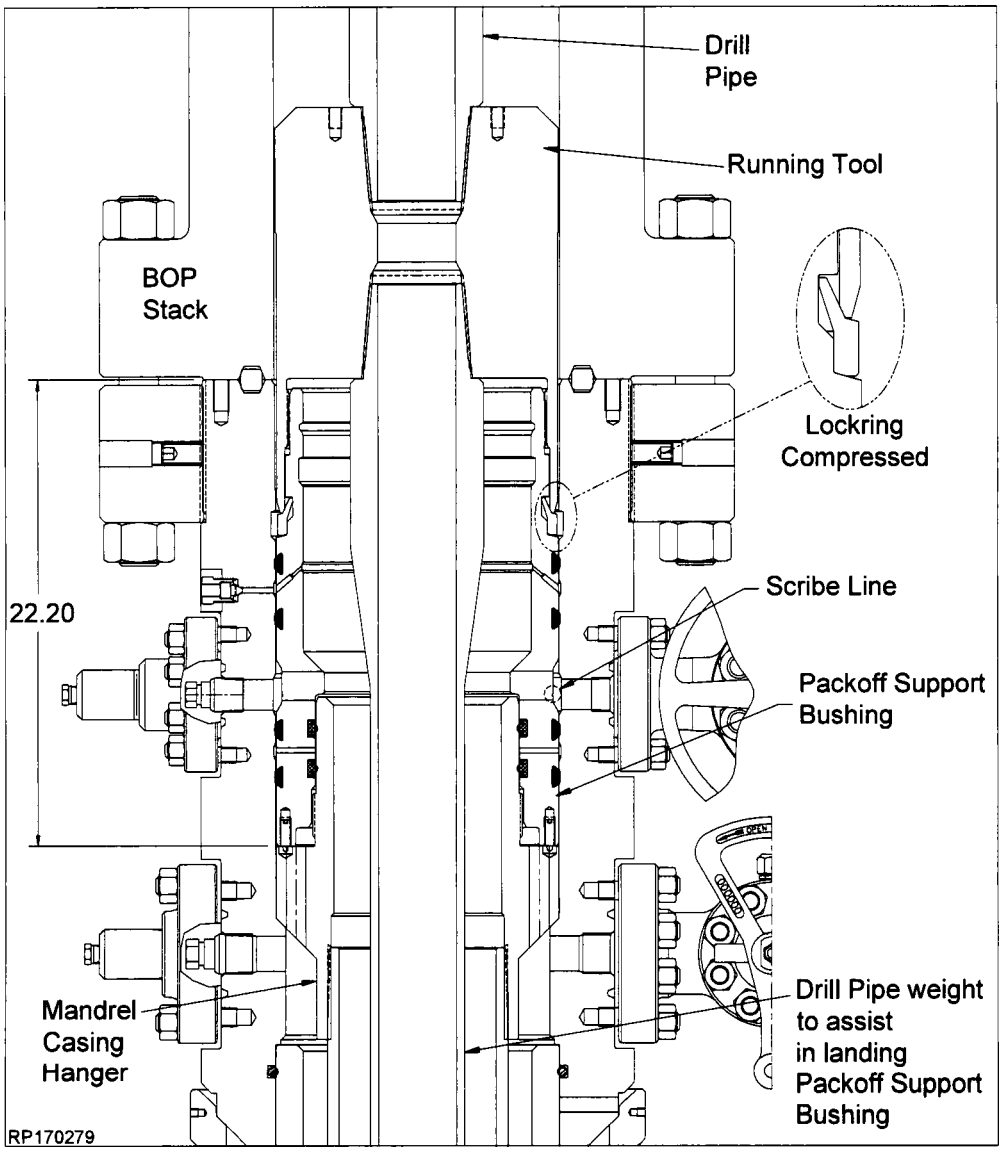




Stage 3.0 — 8-5/8" Casing



Stage 3.0 — 8-5/8" Casing



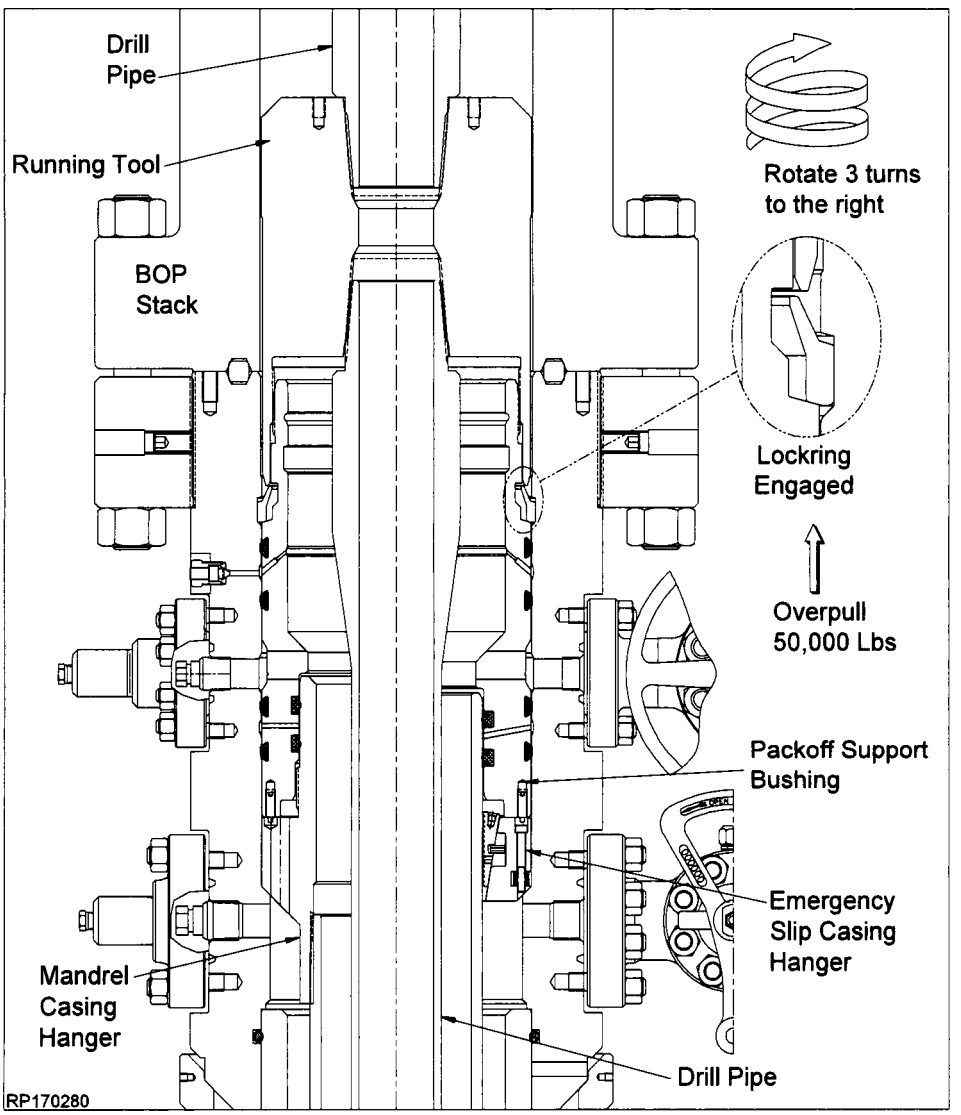
Stage 3.0 — 8-5/8" Casing

3.7. Set the Packoff Support Bushing Lockdown Ring

WARNING

SEE RP-003741

PROCEDURE FOR STANDARD MN-DS INTERMEDIATE PACKOFF SUPPORT BUSHING



Stage 3.0 — 8-5/8" Casing

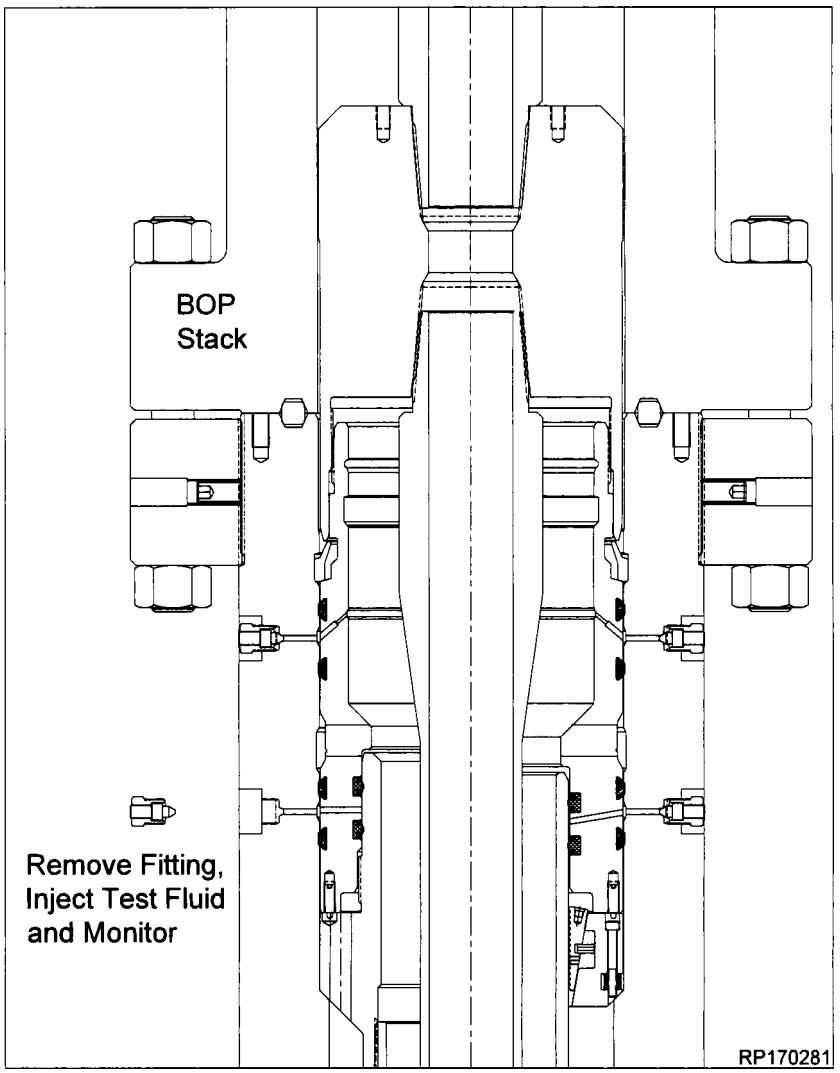
3.8. Test Between the Lower Packoff Seals (ID &OD)

WARNING

SEE RP-003741

PROCEDURE FOR STANDARD MN-DS INTERMEDIATE PACKOFF SUPPORT BUSHING

3.8.1. Test pressure to ***10,000 psi or 80% of casing collapse—whichever is less.***



Stage 3.0 — 8-5/8" Casing

3.9. Test Between the Upper Packoff Seals

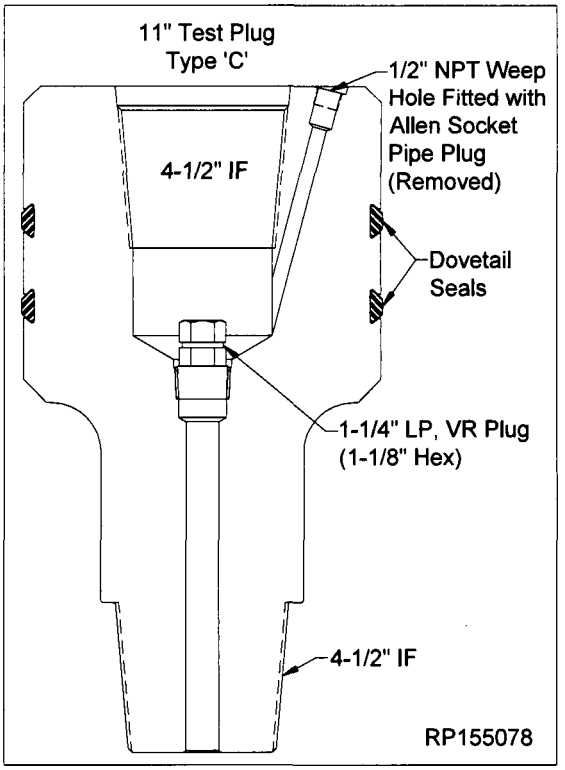
3.9.1. Use the ***Test Plug (Item ST8)***

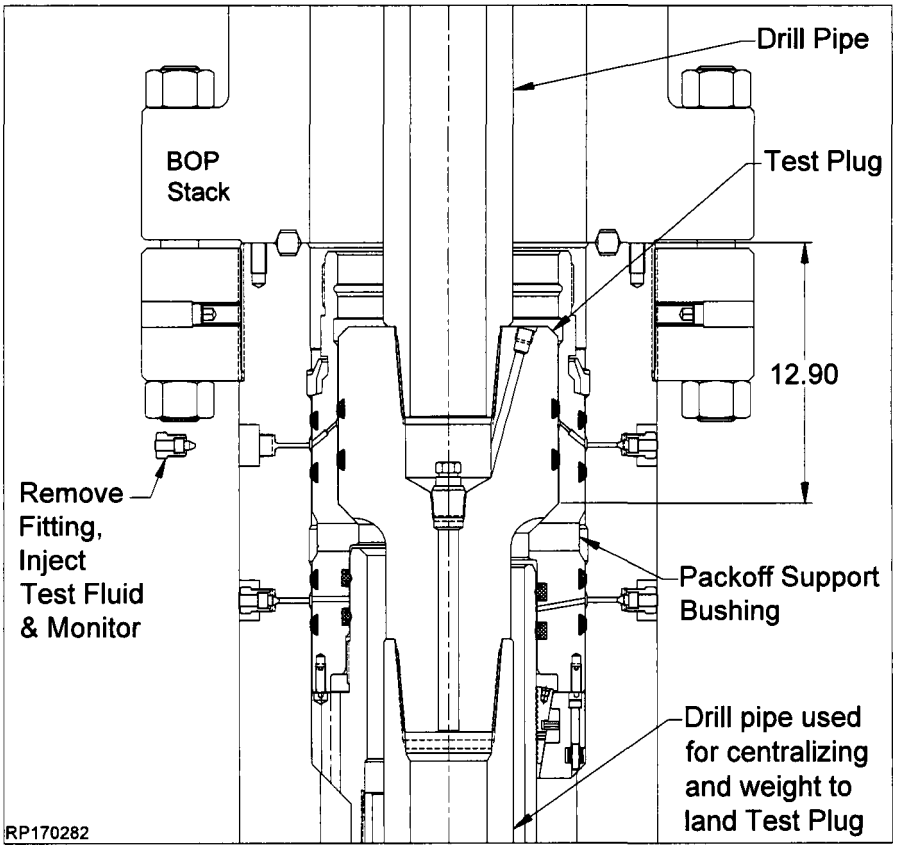
WARNING

SEE RP-003741

PROCEDURE FOR STANDARD MN-DS INTERMEDIATE PACKOFF SUPPORT BUSHING

3.9.2. Test pressure to ***10,000 psi maximum.***





CAUTION

The following procedure should be followed ONLY in the event Retrieval of the Packoff Support Bushing is necessary. If the Packoff Support Bushing Assembly was properly landed, skip this procedure.

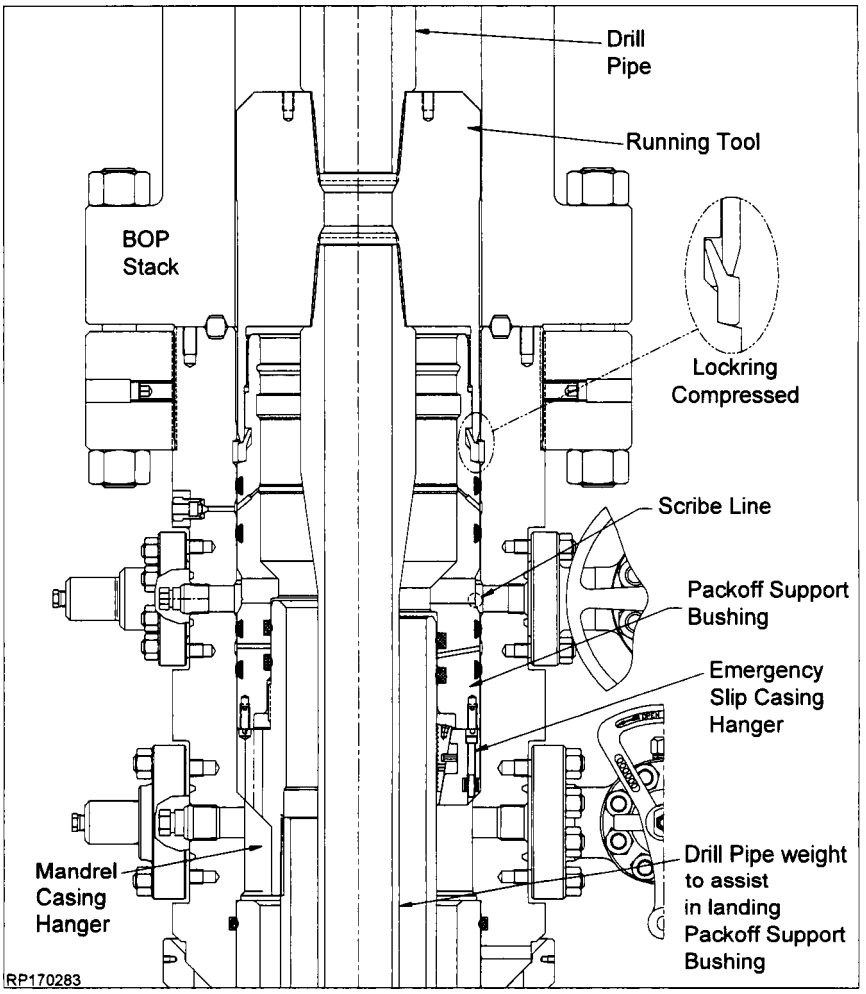
3.10. Retrieval of Packoff Support Bushing Assembly

3.10.1. Use the ***Packoff Support Bushing Running Tool (Item ST7).***

WARNING

SEE RP-003741

PROCEDURE FOR STANDARD MN-DS INTERMEDIATE PACKOFF SUPPORT BUSHING



Stage 4.0 — 5-1/2" Casing

4.1. Test the BOP Stack

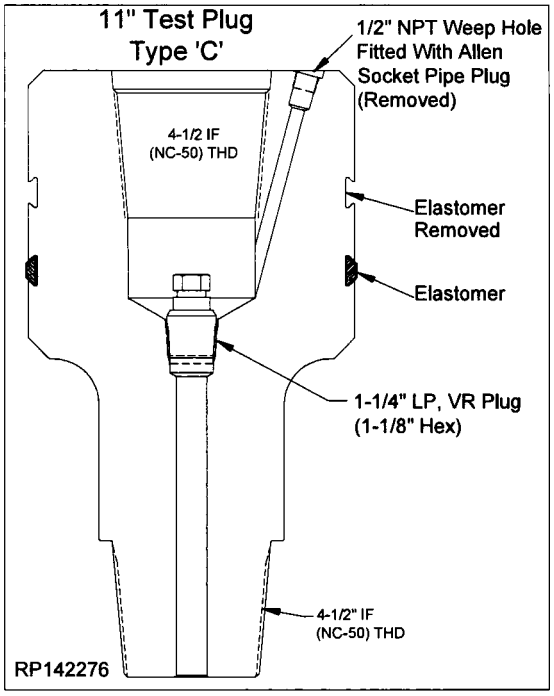
4.1.1. Use the ***Test Plug (Item ST8).***

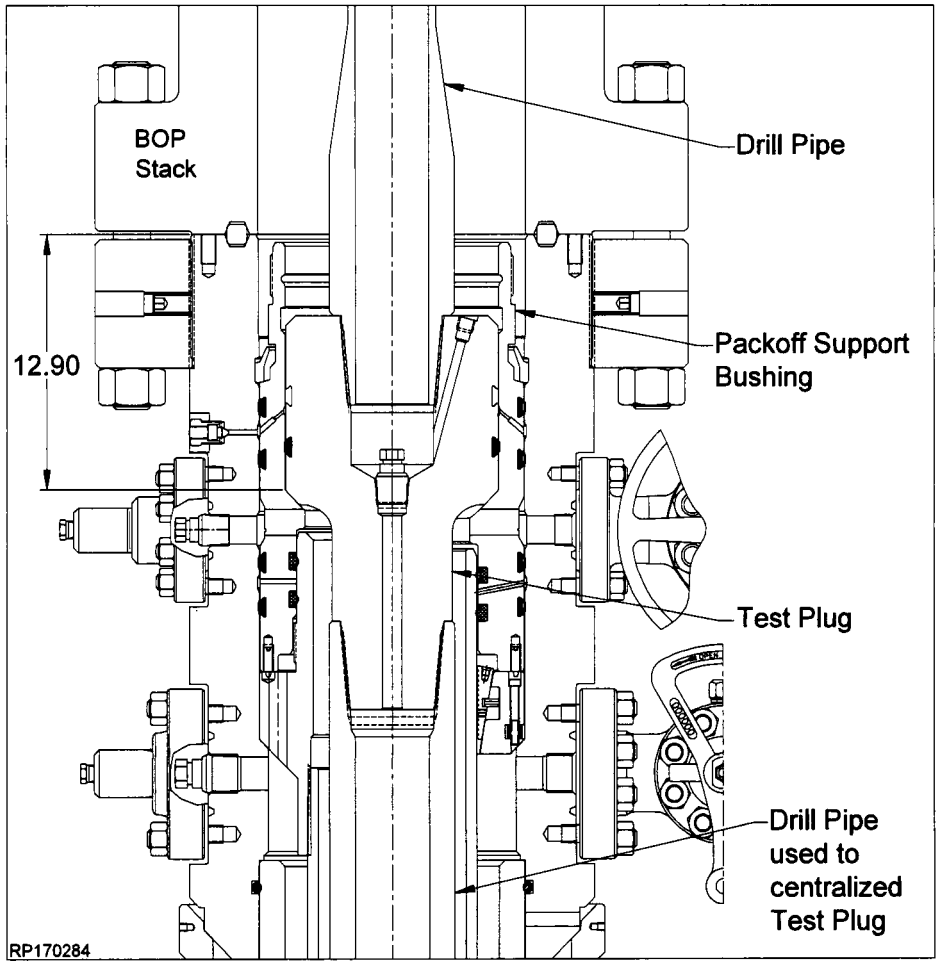
4.1.2. Close the BOP rams on the drill pipe and test to ***10,000 psi maximum.***

WARNING

SEE RP-000654

PROCEDURE FOR STANDARD IC TEST PLUG





Stage 4.0 — 5-1/2" Casing

4.2. Run the Wear Bushing Before Drilling

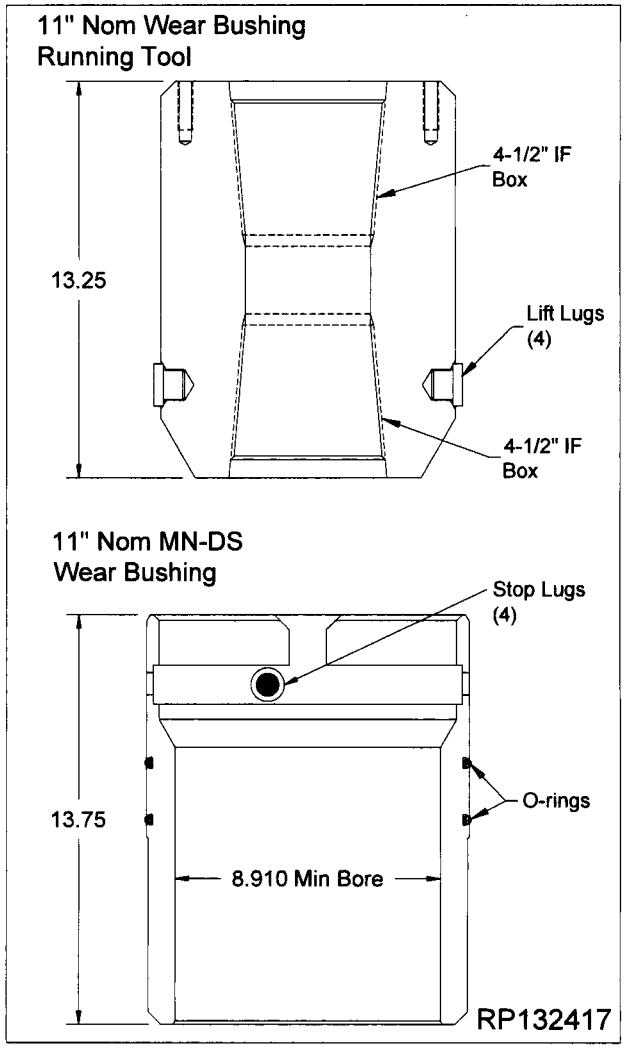
4.2.1. Use the ***Wear Bushing Running Tool (Item ST9).***

4.2.2. Use the ***Wear Bushing (Item ST10).***

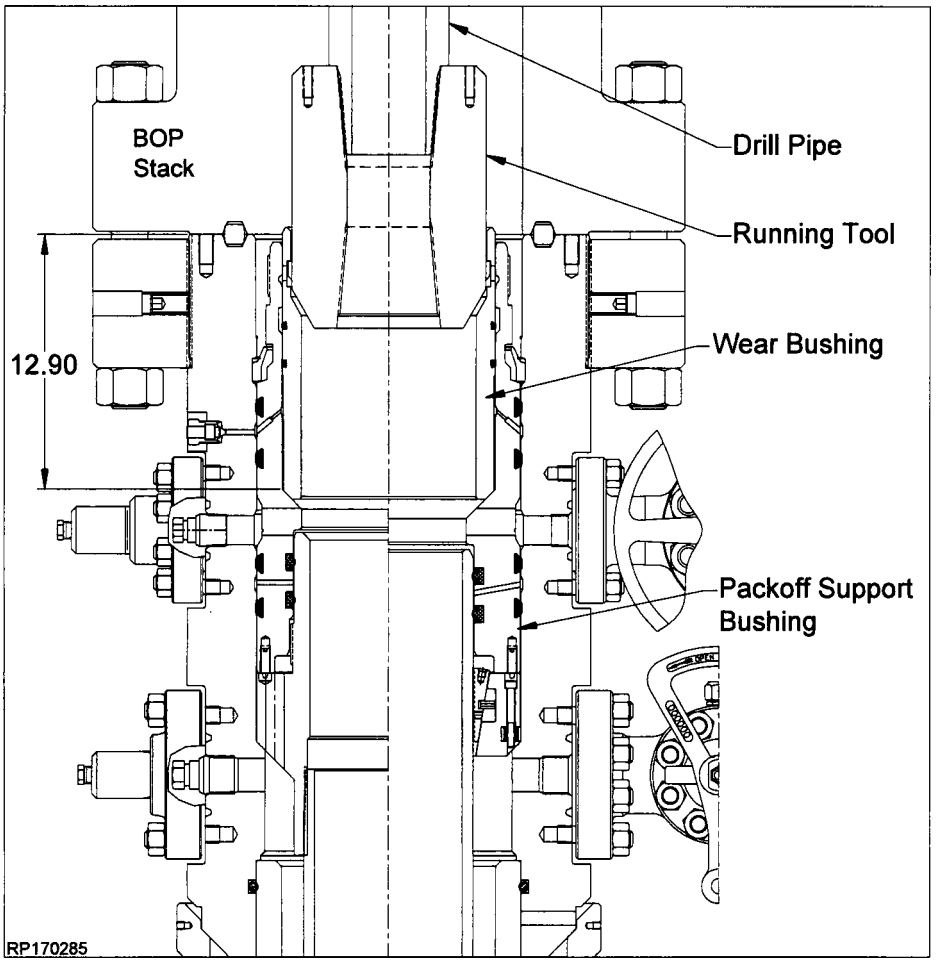
WARNING

SEE RP-000655

PROCEDURE FOR STANDARD IC WEAR BUSHING



Stage 4.0 — 5-1/2" Casing



Stage 4.0 — 5-1/2" Casing

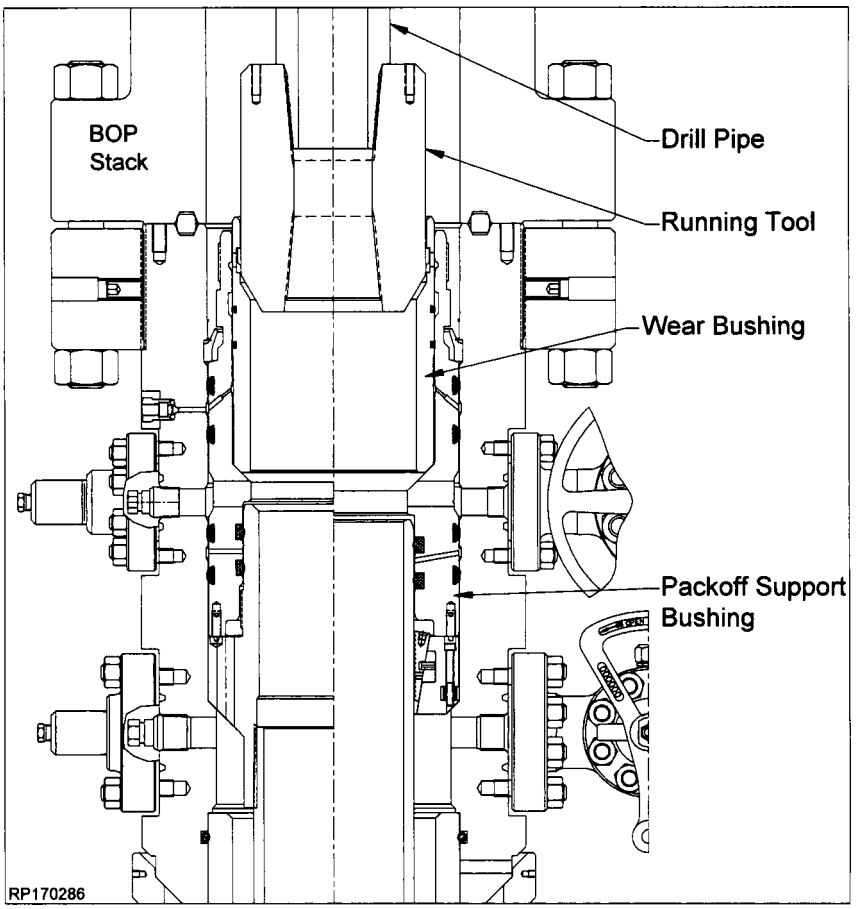
4.3. Retrieving the Wear Bushing After Drilling

4.3.1. Make up a joint drill pipe to the ***Tool (Item ST9)***.

WARNING

SEE RP-000655

PROCEDURE FOR STANDARD IC WEAR BUSHING



Landing of Mandrel Hangers

Cameron service personnel must verify that the mandrel hanger is landed properly on the load shoulder in the wellhead. This can be accomplished by one of two methods:

- Calculate the distance from the intersection the landing shoulder and confirm that the hanger has travelled the required distance.
- Or, the preferred method. Prior to running the casing or tubing, conduct a dry (drift) run using the landing joint recommended, and mark the elevated landing joint.

4.4. Hang Off the Casing

In the event the 5-1/2" casing should become stuck, and the mandrel hanger is unable to be used, refer to Section 6.1. Emergency 5-1/2" Casing.

4.4.1. Run the 5-1/2" casing and space out appropriately.

4.4.2. Hang off the last joint of casing to be run in the floor slips at height that will enable easy handling and make up of the hanger and landing joint.

Steps 4.4.3.-4.4.19. may be conducted offline and the made-up assembly shipped to the field.

4.4.3. Examine the ***Casing Hanger Running Tool (Item ST11).*** Verify the following:

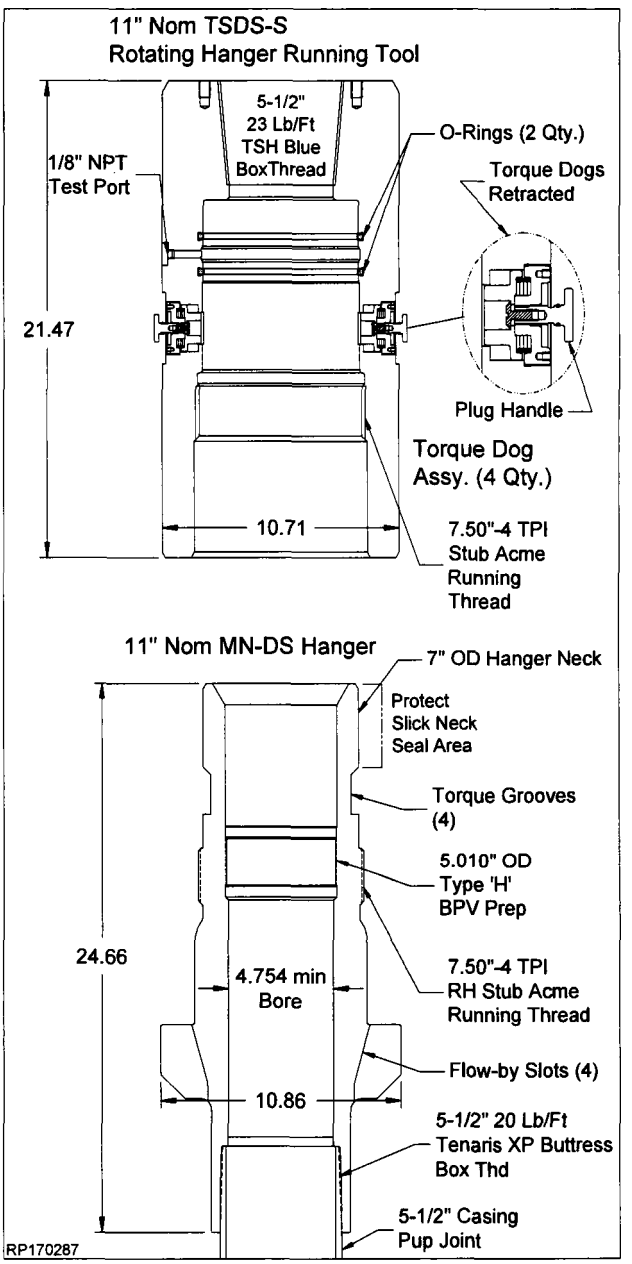
- bore is clean and free of debris
- all threads are clean and undamaged
- fitting is in place and does not protrude beyond the tool OD
- o-rings are properly installed and undamaged
- all torque dogs are properly installed, function correctly and retracted from the ID by compressing the springs

4.4.4. Fully retract the torque dogs by turning T-Handle threaded plug to the left until a positive stop is reached. Verify that the torque dogs do not protrude into the bore.

4.4.5. Orient the Running Tool with the stub acme running threads down.

4.4.6. Examine the ***Casing Hanger (Item A6).*** Verify the following:

- bore is clean and free of debris
- all threads are clean and undamaged
- neck seal area is clean and undamaged
- flow-by slots (4) are clean and free of debris



4.4.7. Orient the Hanger with the casing threads down.

OFFLINE

OFFLINE

4.4.8. Make up a joint of casing to the top of the Running Tool.

4.4.9. Wipe the running threads of both the Tool and the Hanger and the seal of the Tool with a light oil or grease.

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

4.4.10. Lift and suspend the Tool over the Hanger.

4.4.11. Lower the Tool onto the Hanger until the mating threads make contact.

4.4.12. While balancing the weight, rotate the Tool to the left until the thread 'jump' can be felt then to the right to a positive stop (approximately 10 turns) then back off the tool to the left 1/4 turn.

Right Handed running threads

WARNING DO NOT Torque the connection.

CAUTION

Do not use Top Drive to engage/disengage the running tool. Using the Top Drive will permanently damage the equipment running thread's and will require the damaged part to be replaced.

4.4.13. Turn the (4) plug handles to the right to engage all torque dogs until a positive stop can be reached.

4.4.14. Rotate the tool to the left until all torque dogs engage in their respective slots. Rotate the tool to the right until a positive stop can be felt.

WARNING DO NOT rotate more than half a turn

4.4.15. Locate the test port on the OD of the running tool.

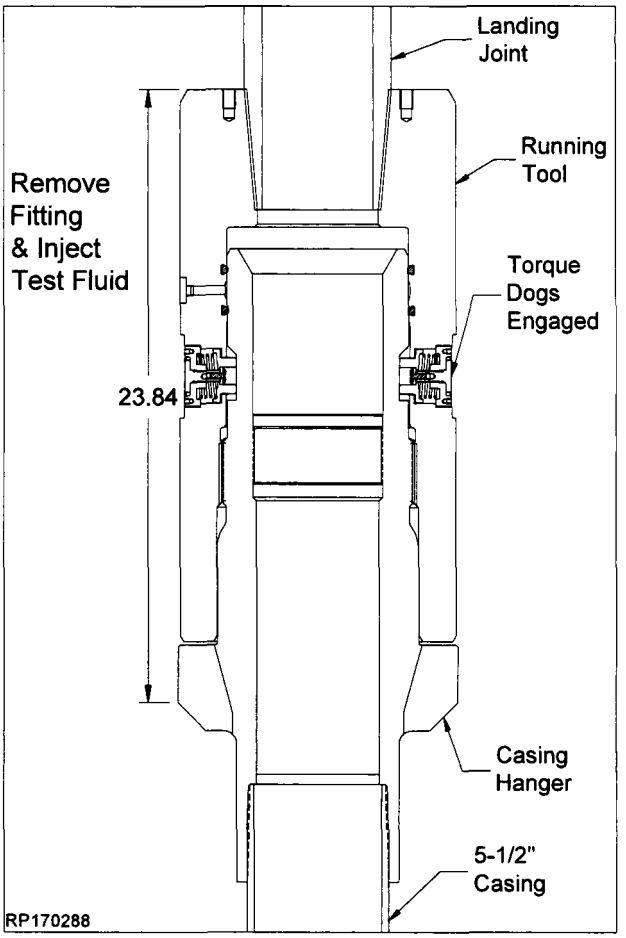
4.4.16. Remove the plug from the port and connect test pump.

4.4.17. Inject test fluid to ***10,000 psi***.

WARNING DO NOT over pressurize!

4.4.18. Hold and monitor test pressure for 5 minutes or as required by the Drilling Supervisor.

4.4.19. Once a satisfactory test has been achieved, bleed off all test pressure and remove test pump.



4.4.20. Reinstall the fitting into the test port.

4.4.21. Lift the Hanger above the casing hung off in the floor.

4.4.22. Lower the hanger assembly until the mating threads of the 5-1/2" casing make contact.

When making up the Hanger to the casing do not use the seal neck area for back up.

4.4.23. While balancing the weight, rotate the assembly to the left until the thread 'jump' can be felt then to the right to the thread manufacturer's recommended optimum torque.

WARNING Rotate Mandrel Hanger and Running Tool as a unit. DO NOT allow the Running Tool to back out of the Mandrel Hanger.

WARNING Maximum rated torque for Running Tool P/N 2161757-83-01 (Item ST11) and Mandrel Hanger P/N 2345649-49-01 (Item A6) is 20,000 ft-lbf.

Stage 4.0 — 5-1/2" Casing

4.4.24. Release the casing from the floor slips and lower it into the well, tallying the casing as it is lowered, until the Hanger lands on the load shoulder of the Packoff.

WARNING DO NOT rotate on the load shoulder.

NOTE Distance from the Pack-off load shoulder to the face of the BOP Flange is 12.90".

4.4.25. Ensure Mandrel hanger is centered in well bore.

4.4.26. Slack off all weight.

4.4.27. Verify the Hanger has landed properly.

4.4.28. Mark on the OD of the landing joint with a paint marker.

4.4.29. Raise the mandrel Hanger above the load shoulder approximately 2 feet.

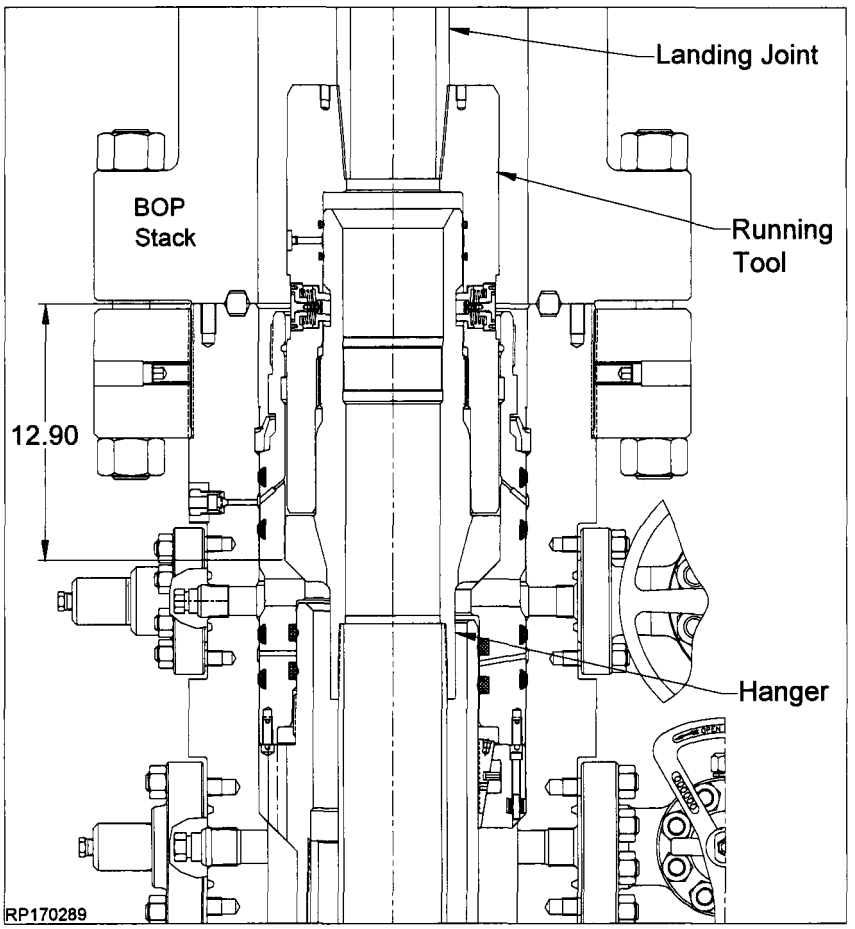
4.4.30. Cement the casing as required.

WARNING Mandrel Hanger must be lowered back to shoulder before cement is allowed to set.

NOTE Casing Hanger may be rotated while it is lowered into the well with torque limit of 20,000 ft-lbf

NOTE Cement returns may be taken through the flow-by slots of the Hanger/Running Tool and out of the BOP Stack.

4.4.31. Immediately after, carefully lower the Hanger back down until it lands on the load shoulder of the Packoff Support Bushing. Check the paint mark to ensure that the Hanger has landed properly.



4.4.32. With cementing completed, rotate the landing joint to the left to release the running tool from the Hanger, approximately 10 turns. Pins will automatically disengage when the Hanger running tool is rotated to the left.

4.4.33. Retrieve the Tool to the rig floor.

4.4.34. Examine the ***Running Tool.*** Verify the following:

- all torque dogs function properly and retract from the ID by compressing the springs
- o-rings are undamaged. Replace if necessary

4.4.35. Clean, grease and store the Tool as required.

4.5. Install the Seal Assembly

4.5.1. Examine the ***Seal Assembly Running Tool (Item ST12)***. Verify the following:

- bore is clean and free of debris
- all threads are clean and undamaged

4.5.2. Orient the Running Tool as illustrated.

4.5.3. Examine the ***Seal Assembly (Item A7)***. Verify the following:

- bore is clean and free of debris
- all elastomer seals are in place, clean and undamaged
- all threads are clean and undamaged
- lockring is in place
- ensure spring plunger pins on the inside of the Seal Assembly are properly installed and spring loaded pins retract properly.

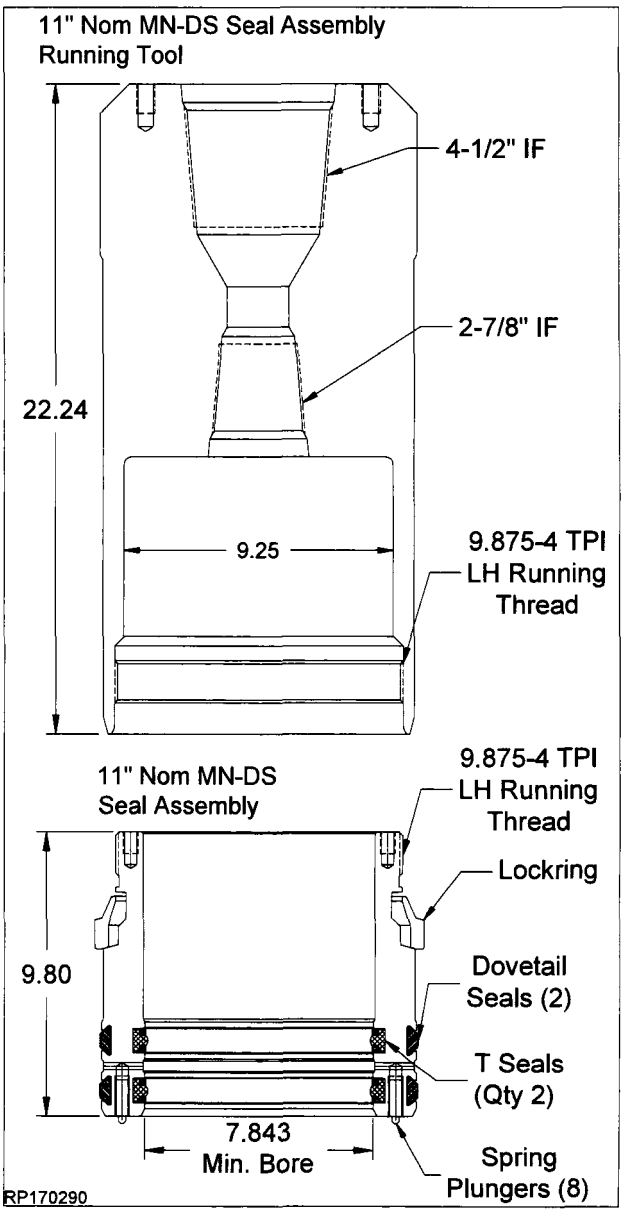
4.5.4. Orient the Seal Assembly as illustrated.

4.5.5. Lubricate the running threads of the Seal Assembly and threads of the Running Tool with a light coat of oil or grease.

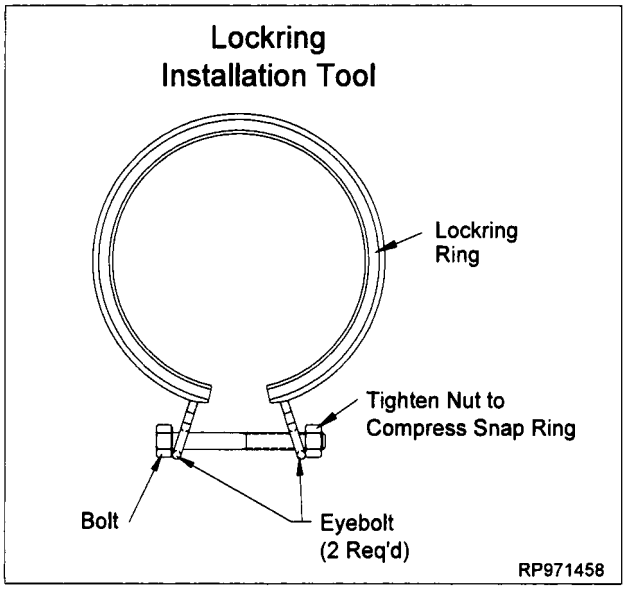
4.5.6. Run drill pipe or heavy weight collars through the rotary table and hang off in the floor slips. This will be used for weight to set the Seal assembly into position. If running heavy weight pipe, measure OD of all pipe and connection to make sure pipe will drift casing.

Heavy weight drill pipe or drill collars are used to aid in landing the Seal Assembly. Weight required to run the Seal Assembly into the Housing is approximately 3,000 lbs.

4.5.7. Make up a joint of drill pipe to the top of the Running Tool.



4.5.8. Install a ***Lockring Installation Tool (Item ST14)*** onto the lockring of the Seal Assembly.



See APPENDIX 1 for optional Lockring Installation Tool on the back of this procedure.

4.5.9. Fully compress the lockring.

The Lockring Installation Tool will assist in minimizing the length of time that the lockring is compressed.

4.5.10. Carefully lower the Running Tool onto the Seal Assembly until the threads make contact.

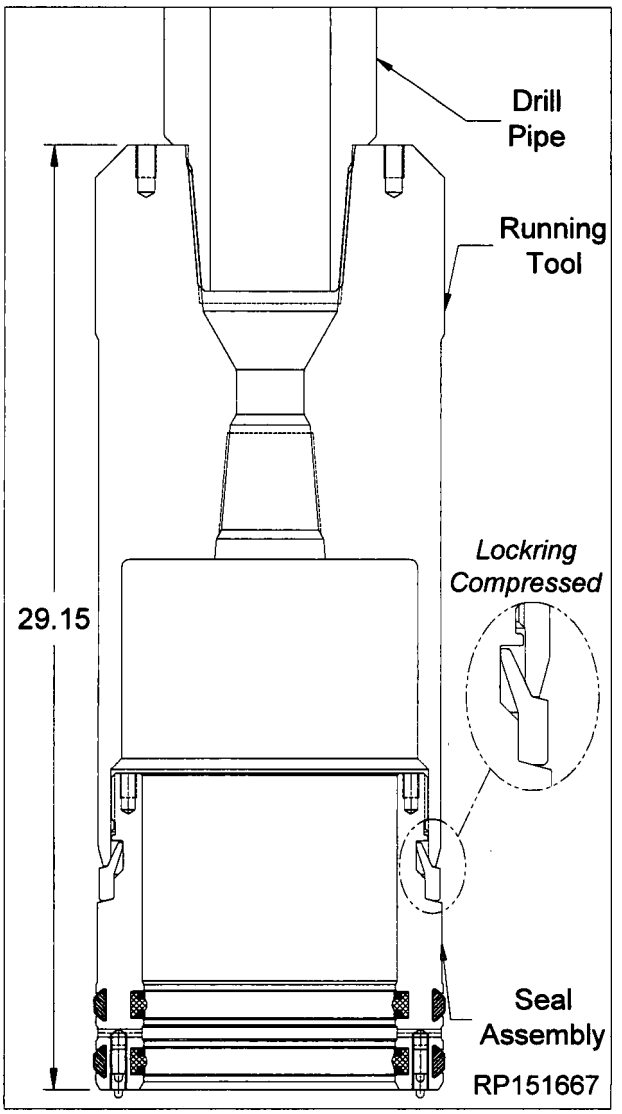
4.5.11. Make up the connection by first turning the Tool to the right to align the threads then to the left until the Tool engages the lockring.

Approximate 6-1/2 turns are required for full make-up. Write down the number of turns to make up the Tool to the Seal Assembly in the Field Service Report.

CAUTION

Do not use Top Drive to engage/disengage the running tool. Using the Top Drive will permanently damage the equipment. Running threads and will require the damaged part to be replaced.

4.5.12. Once the lockring is engaged remove the Lockring Installation Tool.



Ensure the lockring is flush or below the OD of the Seal Assembly.

4.5.13. Wipe the ID of the 'T' seals and the OD of the dovetail seals with a light coat of oil or grease.

WARNING Excessive oil or grease may prevent a positive seal from forming.

4.5.14. Lift and suspend the Seal Assembly over the drill pipe hung off in the rig floor.

4.5.15. Lower the Seal Assembly onto the threads of the drill pipe and make up the connection.

WARNING Do NOT damage the internal seals of the Packoff Support Bushing assembly.

Stage 4.0 — 5-1/2" Casing

4.5.16. Open the uppermost side outlet valves on the Housing.

The uppermost side outlet valve is to remain open during the setting of the Seal Assembly.

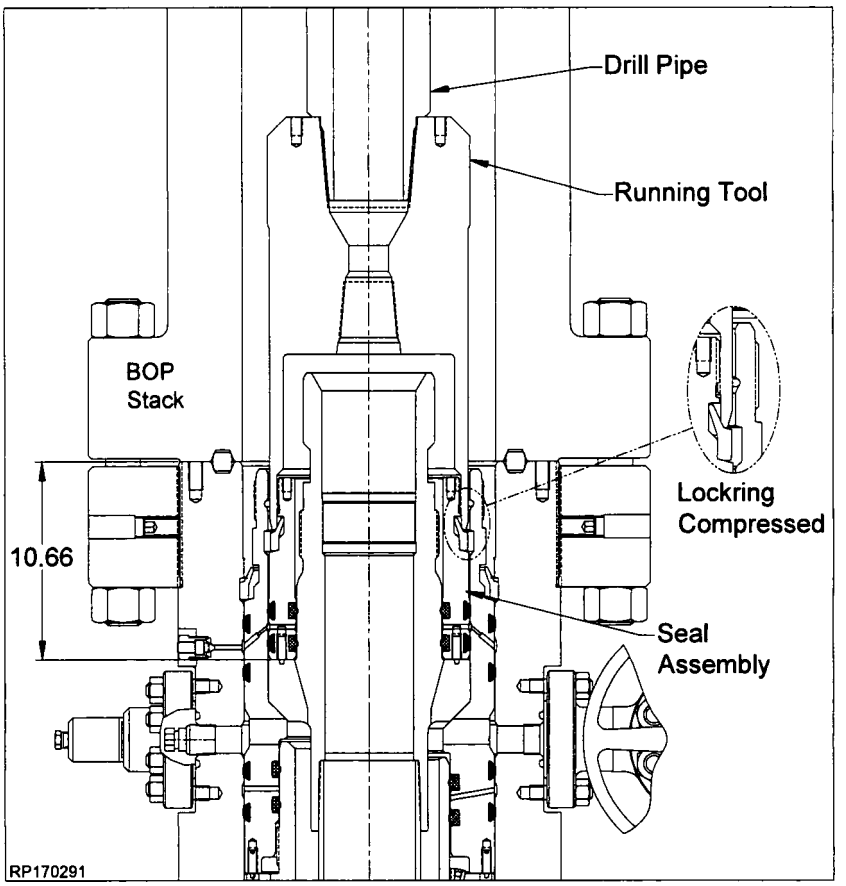
4.5.17. Center and lower the assembly through the BOP Stack and Housing, measure and record, until the Seal Assembly lands on the Casing Hanger.

Distance from the Mandrel Casing Hanger landing shoulder to the face of the BOP flange is 10.66".

4.5.18. Turn the landing joint to the left until the (8) Spring Plunger pins engage the casing hanger mating slots. When the pins engage the hanger, STOP turning when a positive stop is felt.

4.5.19. Verify the Seal assembly has landed properly.

Test between the seals of the Seal Assembly will be conducted after the Lockdown Ring has been properly engaged/ set into the Packoff Support Bushing.



Stage 4.0 — 5-1/2" Casing

4.6. Set the Seal Assembly Lockdown Ring

***NOTE:* Confirm the Seal Assembly has properly landed on Mandrel Casing Hanger.**

4.6.1. Make a vertical mark on the landing joint to monitor the number of turns.

4.6.2. Using chain tongs, back out the Tool 3 turns clockwise (right) to allow the Locking ring to expand into its mating groove in the Packoff Support Bushing.

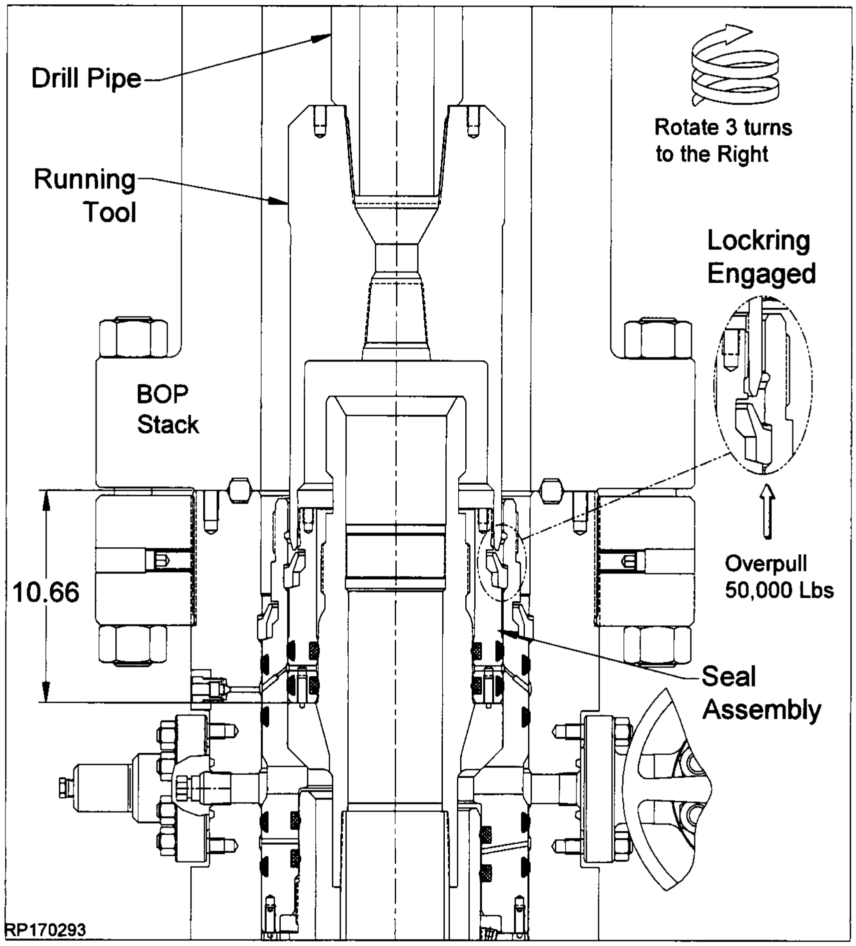
NOTE: Horizontal mark should raise no more than .75".

WARNING DO NOT ATTEMPT TO BACK OUT MORE THAN 3 TURNS.

4.6.3. Perform an over pull 50,000 lbs to confirm the lockring has properly engaged.

> **CAUTION**
> Clear out personnel from rig floor during over pull test. Precautions must be taken for personnel verifying the over pull.

> **CAUTION**
> There should be minimum upper movement on the landing joint at any point during the overpull. Actual nominal lockring clearance is 1/8". If vertical movement is greater, check and verify if Seal Assembly has been lifted out from its landed position. If such a situation arises, collapse lockring and retrieve Seal Assembly to rig floor to troubleshoot.



NOTE: If initial over pull test is unsuccessful, do not immediately collapse the lockring for a second installation attempt. Conduct the following steps prior to Support Bushing retrieval:

- Ensure Packoff Support Bushing Running Tool is backed off 3-1/2 turns.
- Re-apply the installation load (10,000 - 20,000 lbs) to force the Packoff and Lockring down into the groove of the housing.
- Re-attempt 50,000 lbs over pull test.

> **CAUTION**
> If a successful over pull test is not achieved after three installation attempts, follow step 4.5.11 to fully retract the lockring and remove the Packoff Support Bushing. Retrieve the Packoff Support Bushing and lockring to the rig floor for trouble shooting.

NOTE: Dovetail seals must be replaced prior to re-installing the Packoff Support Bushing.

4.7. Testing Between the 8-5/8" Packoff Upper Seals & 5-1/2" Packoff

4.7.1. Locate the upper test port on the MN-DS Casing Head and remove the fitting from the port.

4.7.2. Attach a hydraulic test pump to the open test port and inject fluid into the seal assembly to the ***10,000 psi maximum.***

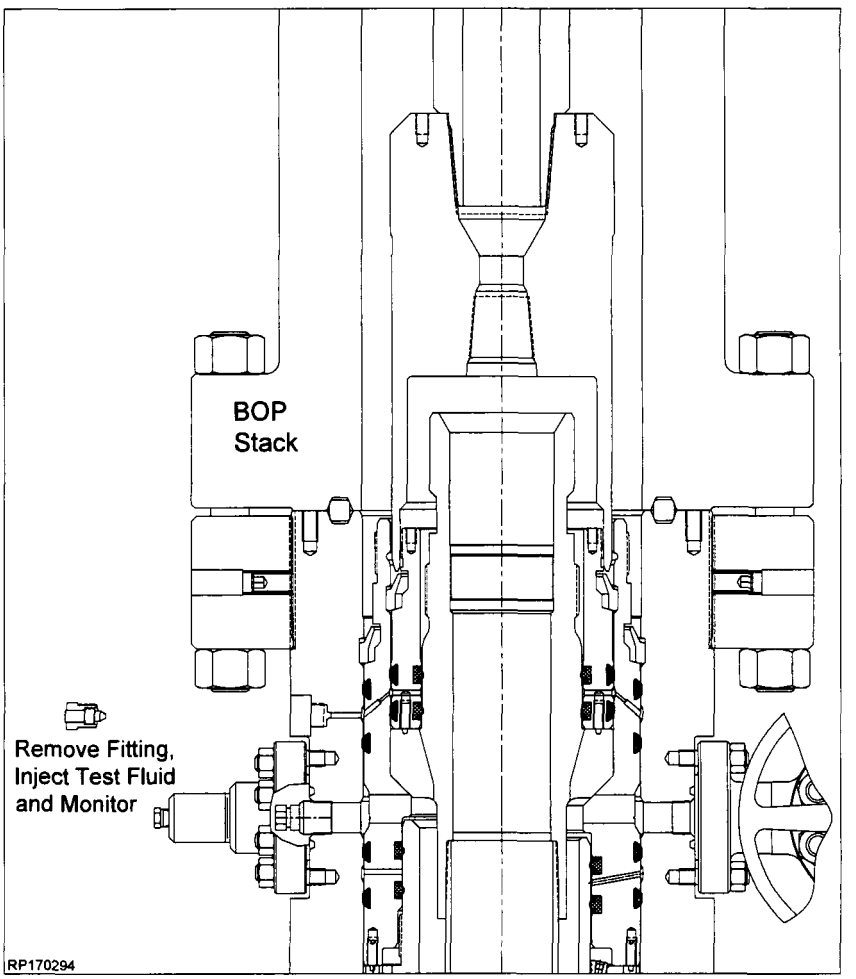
WARNING Do Not overpressurize!

4.7.3. Hold and monitor the test pressure for 15 minutes or as required by the Drilling Supervisor.

4.7.4. After a satisfactory test is achieved, carefully bleed off the test pressure, remove the test pump and install the fitting.

4.7.5. Retrieve the running tool by rotating the drill pipe (with chain tongs) to the right approximately 3-1/2 turns or until it comes free from the seal assembly. A straight lift will retrieve the running tool.

4.7.6. Remove the running tool from the drill string. Clean, grease, and store the tool as required.

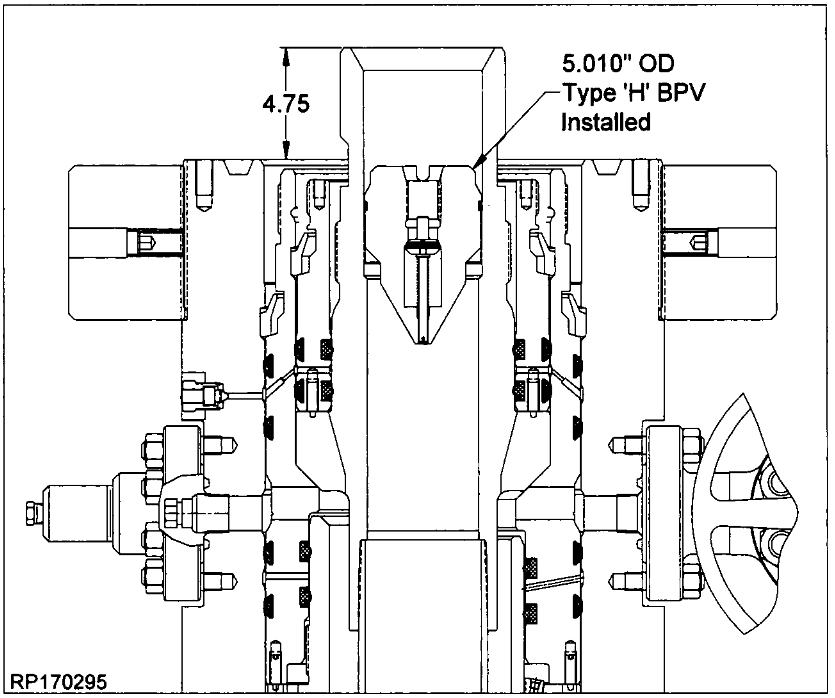


Stage 4.0 — 5-1/2" Casing

4.7.7. Install a back pressure valve into the Hanger prep.

Installation and/or removal of the Type 'H' Left Hand Back Pressure Valve to be performed only by a qualified Cameron Service Technician.

4.7.8. With the well safe and secure, nipple down the BOP stack.



⚠ CAUTION

A TWC (Two Way Check) is a tool used for testing only and shall not under any circumstances be used as a BPV (Back Pressure Valve).

DO NOT remove the Tree or BOP with a TWC in place. A BPV is used for this purpose.

If for some reason, pressure builds up unexpectedly with the TWC in place, a lubricator outfitted with the proper tool can unseat the TWC poppet to allow equalization of the pressure for safe removal of the TWC after which a BPV can be installed with the lubricator to secure the well.

Stage 4.0 — 5-1/2" Casing

⚠ CAUTION

The following procedure should be followed ONLY in the event Retrieval of the Seal Assembly is necessary. If the Seal Assembly was properly landed, skip this procedure.

4.8. Retrieval of Seal Assembly

4.8.1. Make up a joint of drill pipe to the top of the ***Seal Assembly Running Tool (Item ST12).***

4.8.2. Lower the Running Tool through BOP stack and land on top of Seal Assembly.

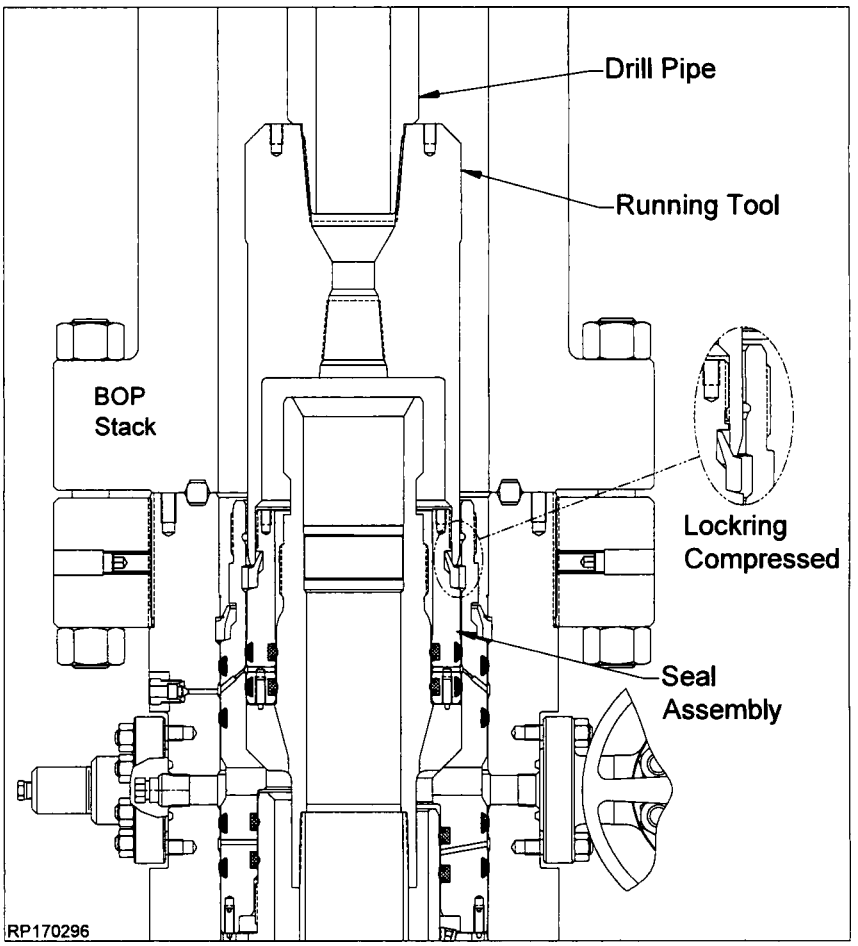
4.8.3. Rotate the Tool counter-clockwise approximately 6-1/2 turns or the number of turns documented per section 4.5, until the tool fully engages the lockring and a firm stop is encountered. Back off from this point a maximum 1/8 of a turn.

4.8.4. Retrieve the Seal Assembly by pulling vertically (approximately 3,000 lbs).

⚠ WARNING If overpull exceeds this value, repeat counter-clockwise rotation until a firm stop is encountered and repeat overpull.

4.8.5. To remove Seal Assembly from the running tool, install ***Lockring Installation Tool*** and fully compress the Lockring.

NOTE: Dovetail seals must be replaced prior to re-installing the Seal assembly.



Stage 4.0 — 5-1/2" Casing

4.9. Install the Capping Flange

4.9.1. Use the ***Capping Flange (Item TA1).***

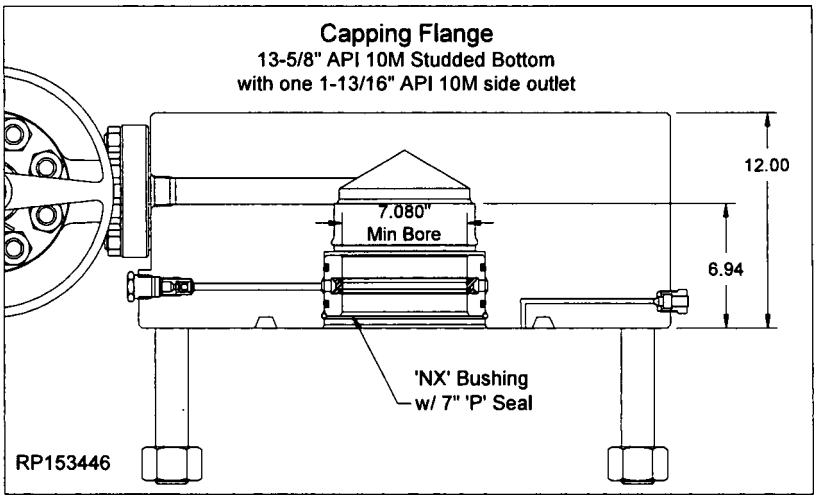
4.9.2. Use the ***'NX' Bushing (Item TA2).***

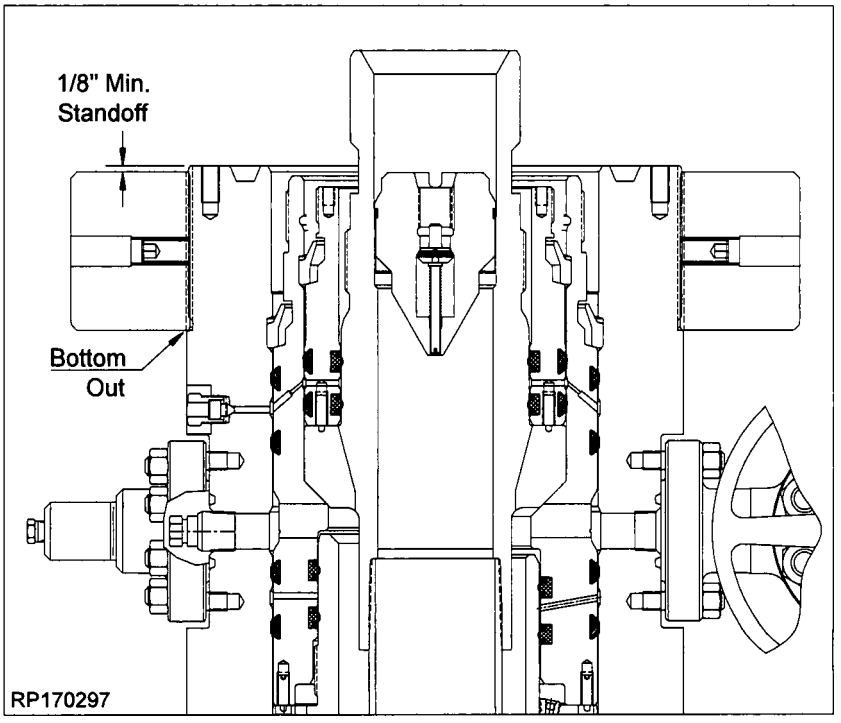
Verify Casing Head Housing Threaded Flange is two-holed over the side studded outlets and confirm make up dimension. Dimension must be 1/8" from the top of the Threaded Flange to the top of the Housing.

WARNING

SEE RP-000592

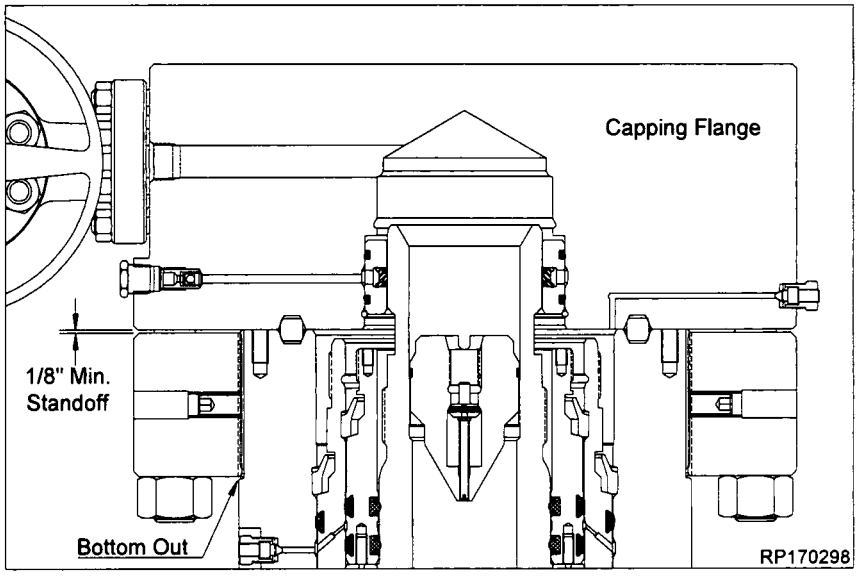
PROCEDURE FOR STANDARD 'NX' BUSHING





Stage 4.0 — 5-1/2" Casing

4.9.3. Use ***Ring Gasket BX-159 (Item A23).***



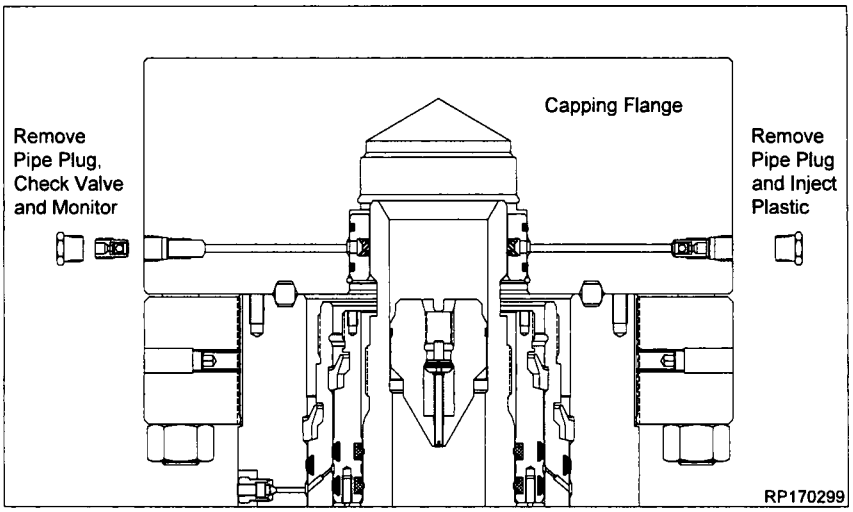
Stage 4.0 — 5-1/2" Casing

4.10. Energize the NX Bushing 'P' Seal

WARNING

SEE RP-000592

PROCEDURE FOR STANDARD 'NX' BUSHING



WARNING

SEE RP-000608

PROCEDURE FOR SINGLE 'P' SECONDARY SEAL

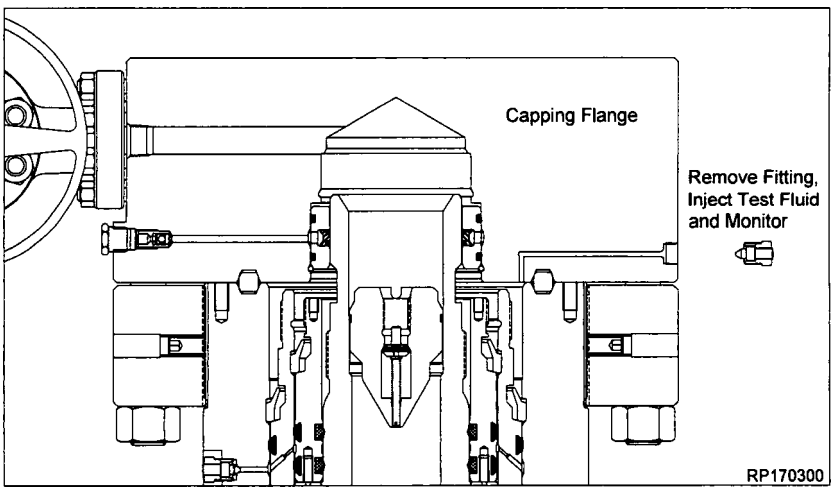
4.11. Test the Connection

4.11.1. Test pressure to ***10,000 psi maximum.***

WARNING

SEE RP-000592

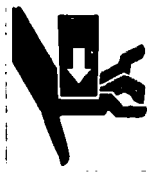
PROCEDURE FOR STANDARD 'NX' BUSHING



Stage 5.0 — Emergency 8-5/8" Casing

SAFETY NOTE: **Always wear proper PPE (Personal Protective Equipment) especially gloves to handle and install the slip type casing hanger.**

DANGER



1. **Reconfirm the Casing OD and grade. Remove and clean loose scale from Casing OD.**
2. **Verify Slip Bowl taper is smooth, clean with no corrosion and damage free.**
3. **Disassembly of the Hanger to re-orient the slips is not required.**

5.1. Hang off the Casing (Emergency)

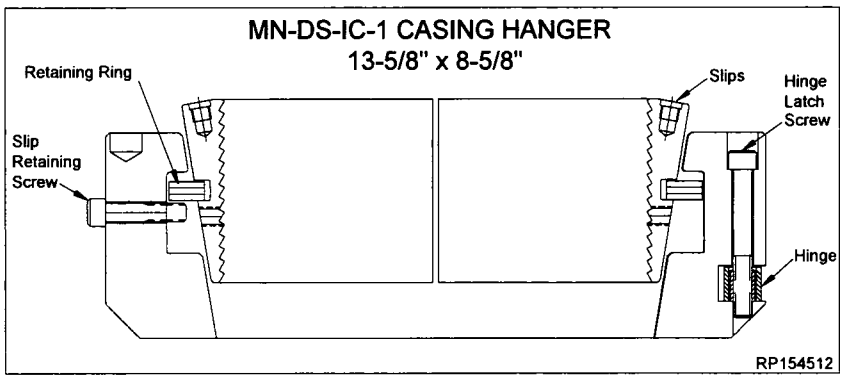
The following procedure should be followed ONLY if the casing should become stuck. If the Mandrel Casing Hanger was used, skip this stage.

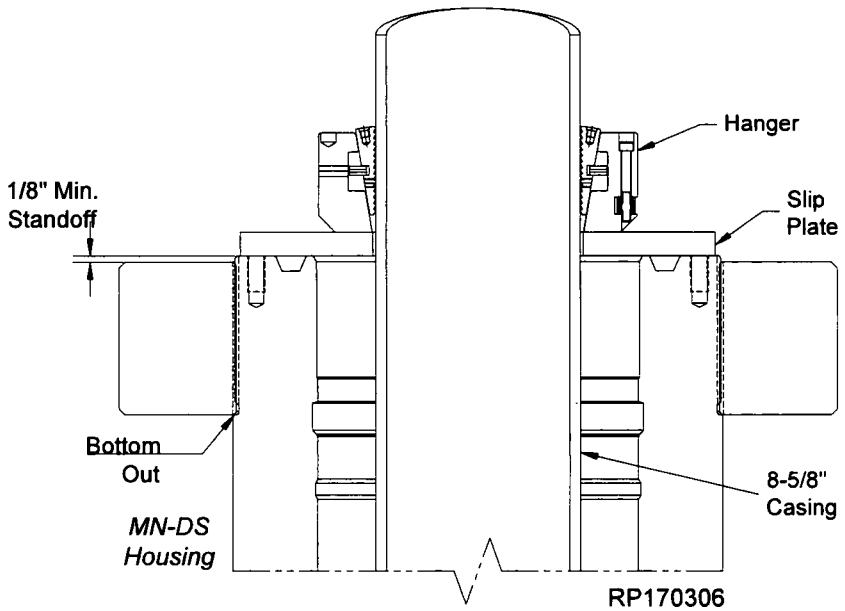
5.1.1. Use ***MN-DS-IC-1 Casing Hanger (Item E1).***

WARNING

SEE RP-000617

PROCEDURE FOR HANGING OFF IC-1 CASING HANGER





Stage 5.0 — Emergency 8-5/8" Casing

5.1.2. Rough cut the casing no less than 5-1/2" above the top flange of the Housing and move the BOP and excess casing out of the way.

5.1.3. Using an internal cutter, final cut the casing at 16" +/-1/8" below the Housing flange.

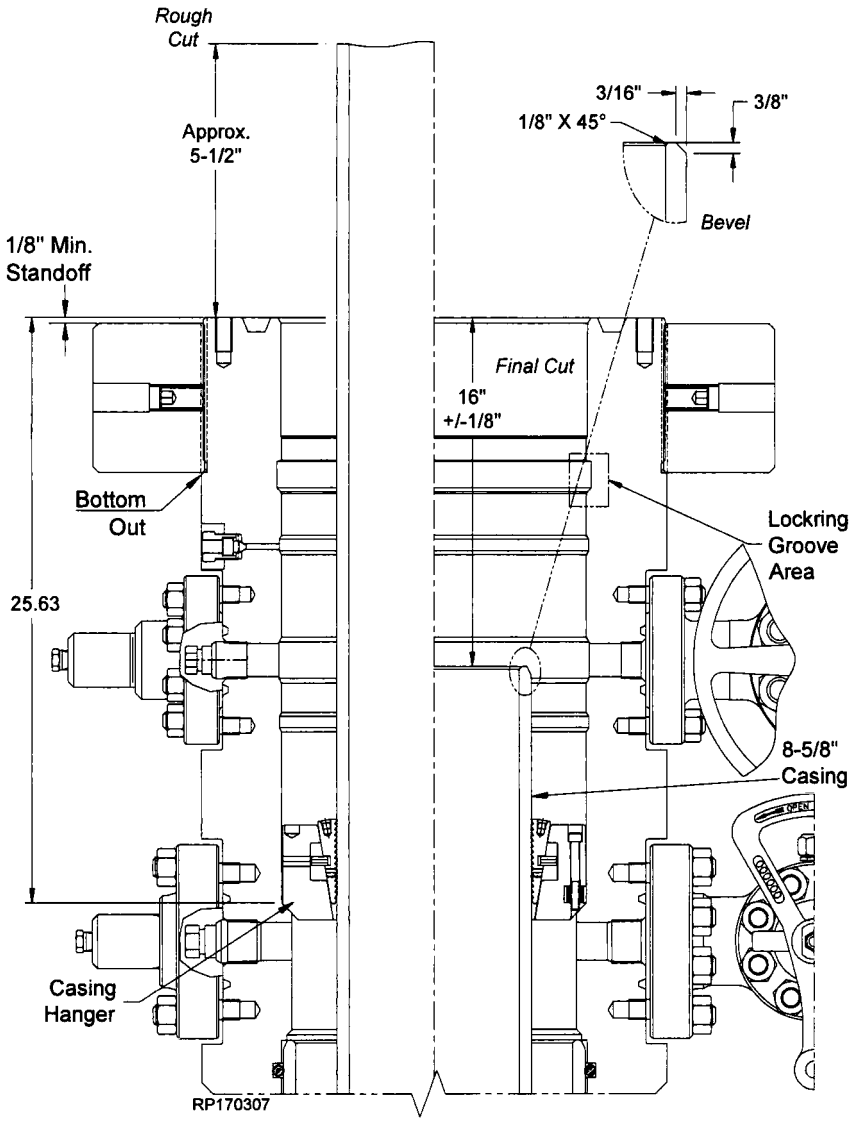
5.1.4. Place a 3/8" x 3/16" bevel on the casing stub and remove all burrs and sharp edges.

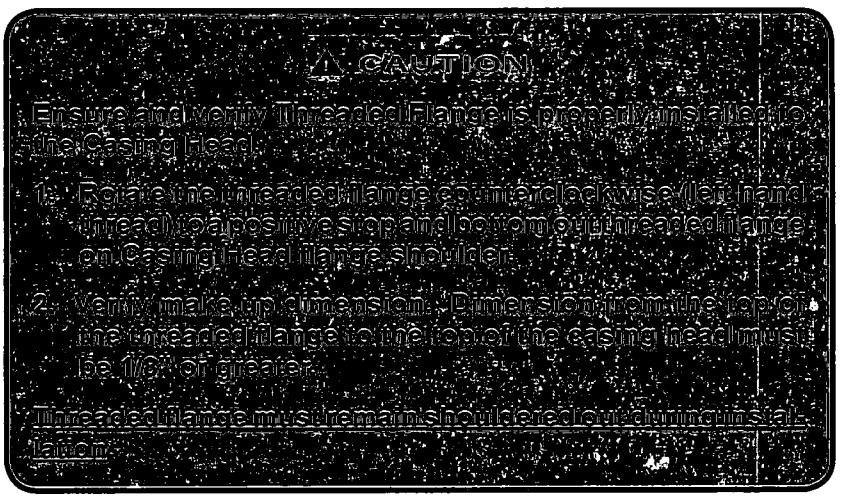
NOTE: There must not be any rough edges on the casing or the seals of the Packoff will be damaged.

5.1.5. Use a new ***BX-159 Ring Gasket (Item A23)*** in the Housing ring groove.

5.1.6. Reconnect the BOP Stack to the Housing using the ***Studs and Nuts***. Tightening the studs and nuts in an alternating cross pattern to the torque referenced in the chart in the back of this procedure.

5.1.7. Close the lower casing valve.





Stage 5.0 — Emergency 8-5/8" Casing

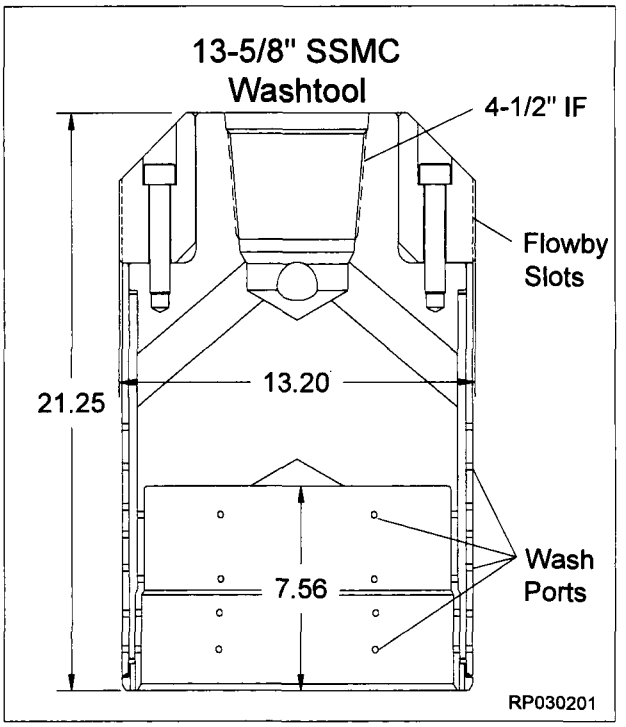
5.2. Recommended Procedure - Washout prior to landing Seal Assembly

5.2.1. Use the ***Wash tool (Item ST6).***

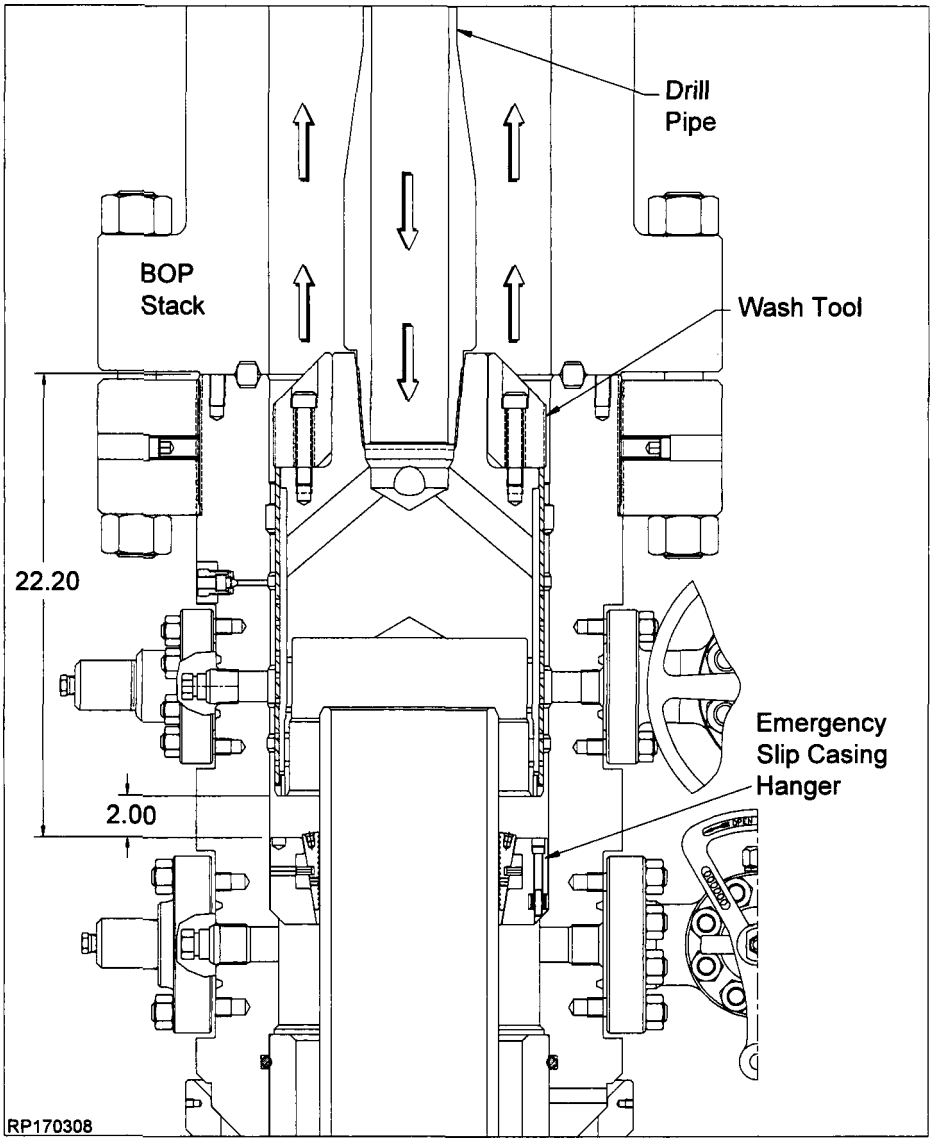
WARNING

SEE RP-003734

PROCEDURE FOR STANDARD WASH TOOL



Stage 5.0 — Emergency 8-5/8" Casing



Stage 5.0 — Emergency 8-5/8" Casing

5.3. Installing the Packoff Support Bushing

5.3.1. Use ***Packoff Support Bushing Running Tool (Item ST7).***

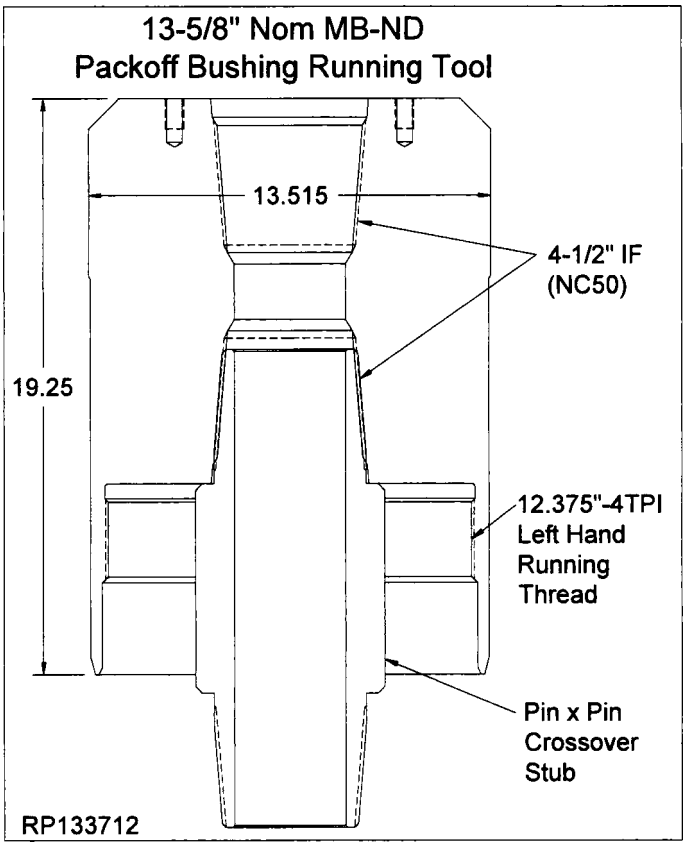
5.3.2. Use ***Emergency Packoff Support Bushing (Item E2).***

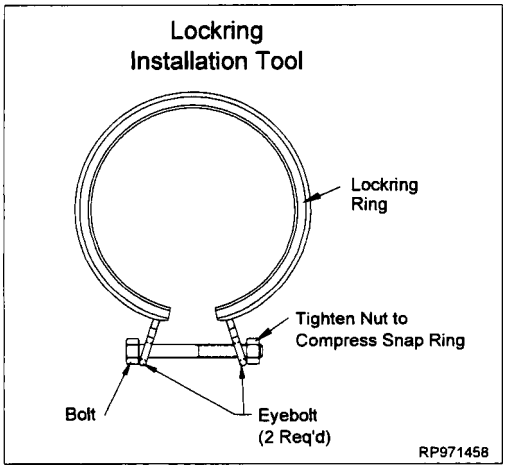
WARNING

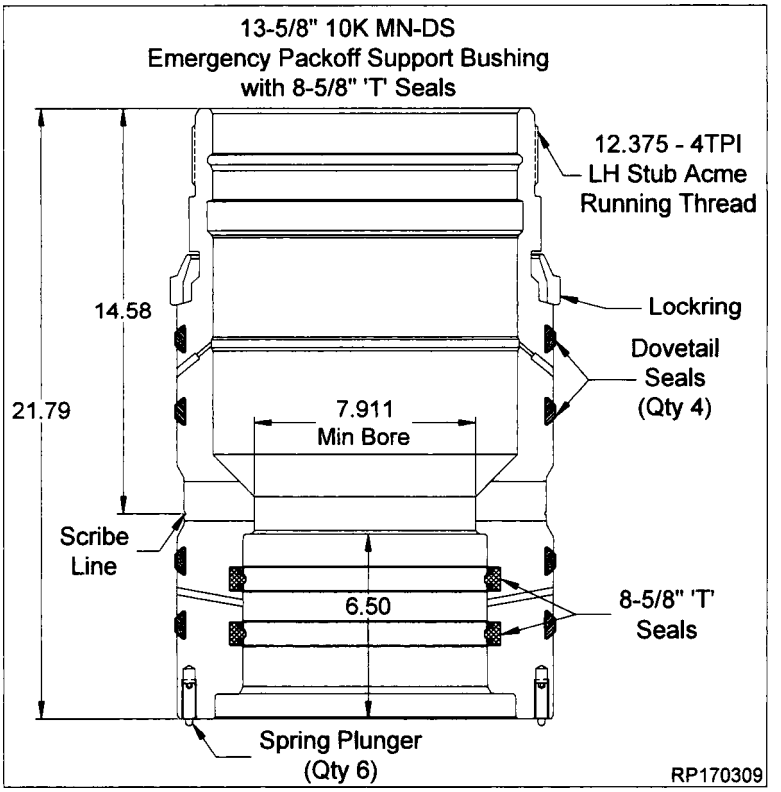
SEE RP-003741

PROCEDURE FOR STANDARD MN-DS INTERMEDIATE PACKOFF SUPPORT BUSHING

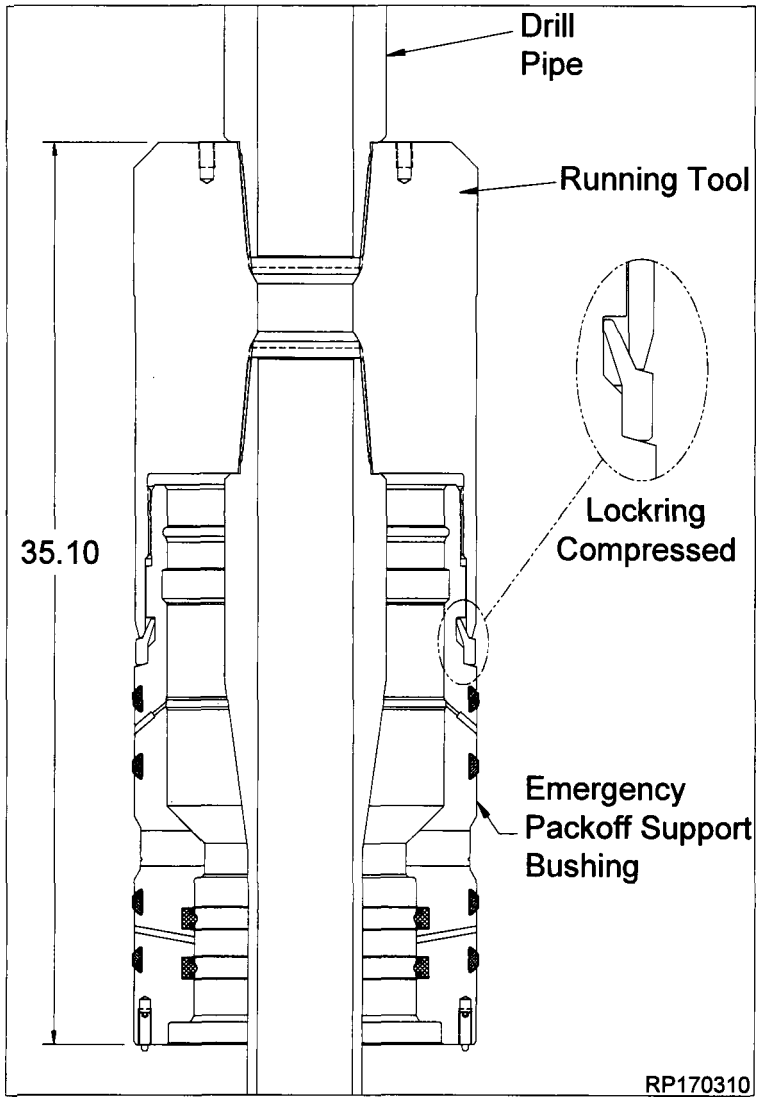
5.3.3. Use ***Lockring Installation Tool.***



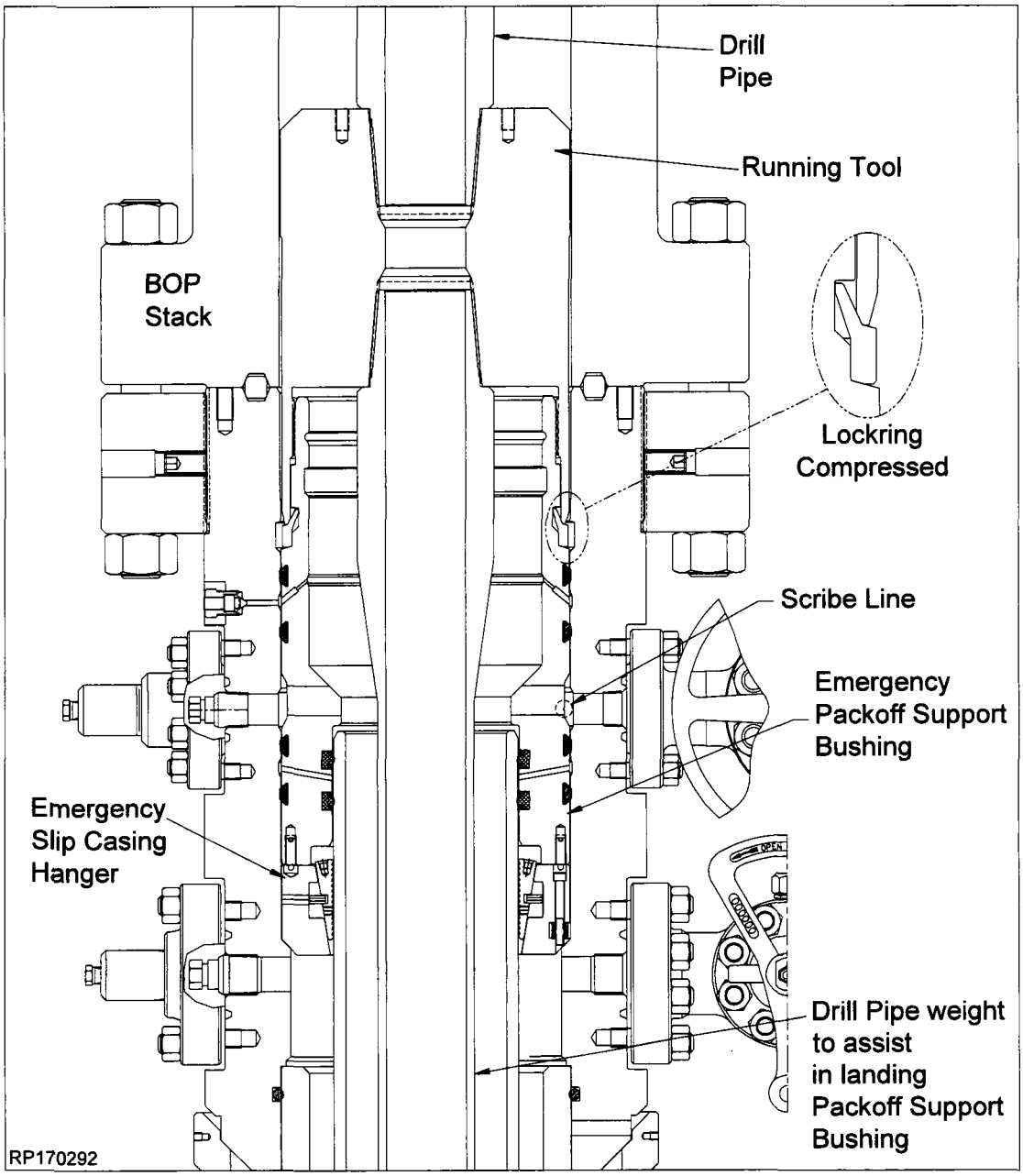




Stage 5.0 — Emergency 8-5/8" Casing



Stage 5.0 — Emergency 8-5/8" Casing



Continue Section 3.7. for system installation.

Stage 6.0 — Emergency 5-1/2" Casing

SAFETY NOTE: **Always wear proper PPE (Personal Protective Equipment) especially gloves to handle and install the slip type casing hanger.**

1. **Reconfirm the Casing OD and grade. Remove and clean loose scale from Casing OD.**
2. **Verify Slip Bowl taper is smooth, clean with no corrosion and damage free.**
3. **Disassembly of the Hanger to re-orient the slips is not required.**

6.1. Hang off the Casing (Emergency)

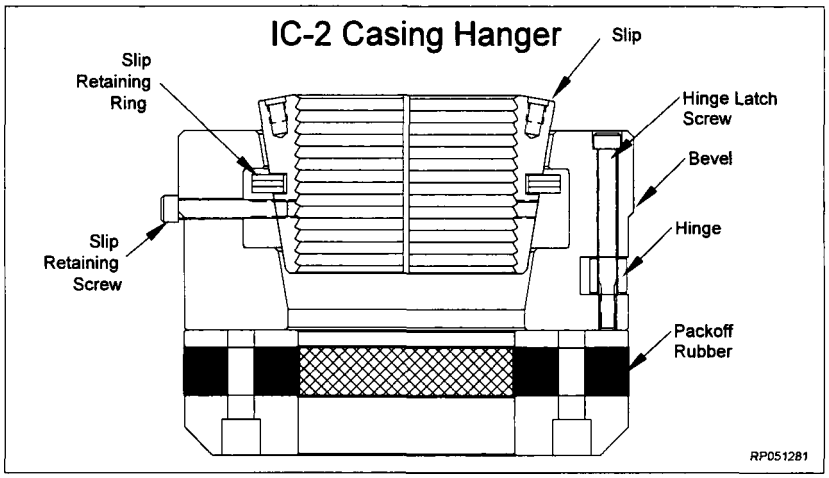
The following procedure should be followed ONLY if the casing should become stuck. If the Mandrel Casing Hanger was used, skip this stage.

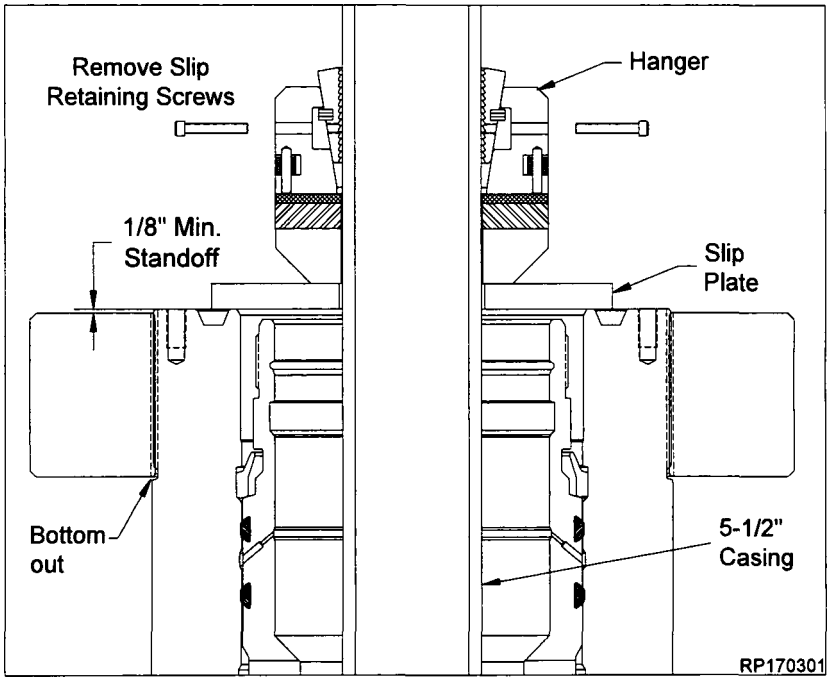
6.1.1. Use ***IC-2 Casing Hanger (Item E3).***

WARNING

SEE RP-000573

PROCEDURE FOR STANDARD IC-2 CASING HANGER



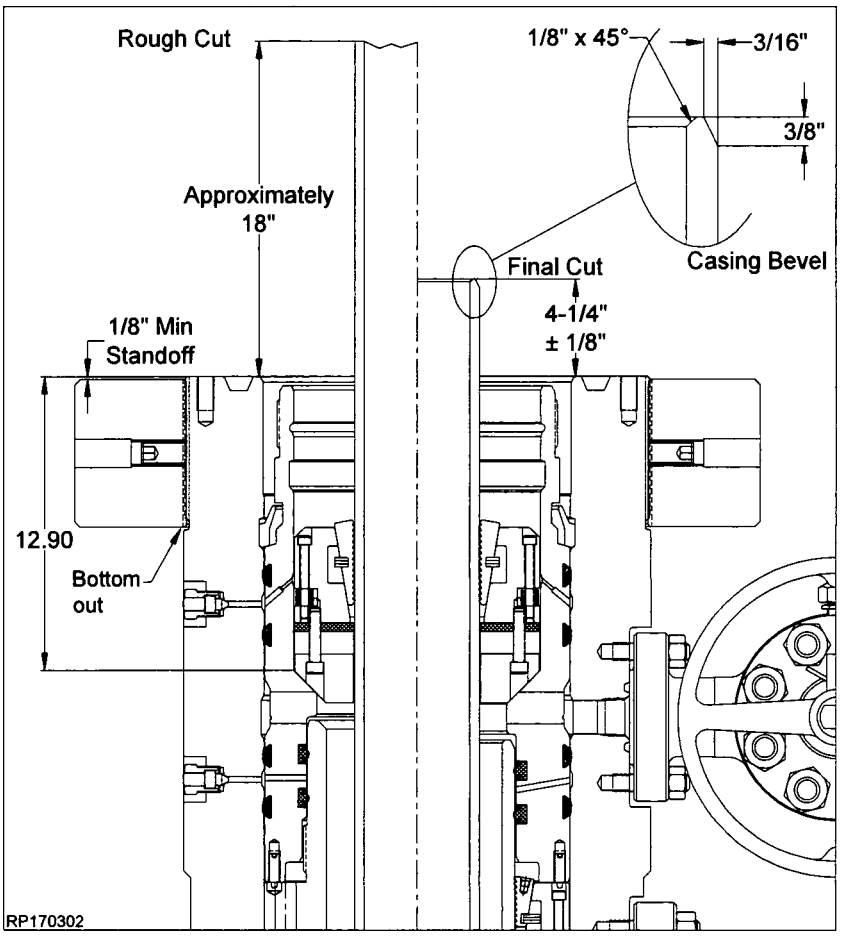


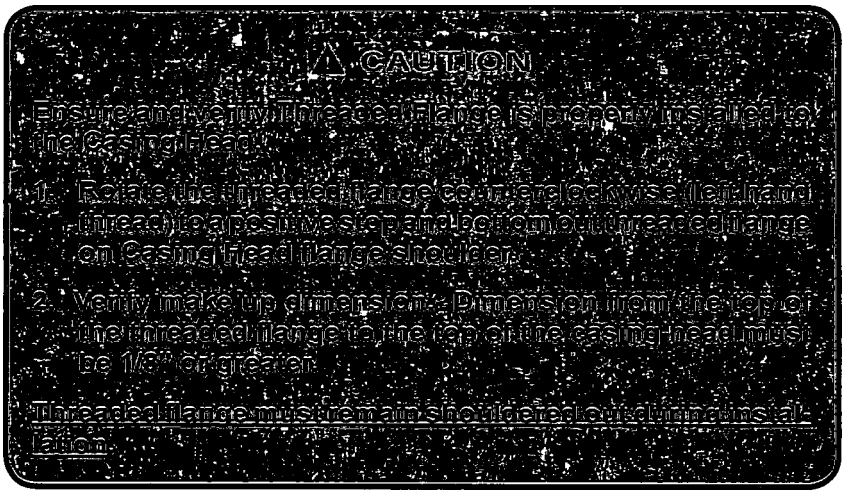
Stage 6.0 — Emergency 5-1/2" Casing

Approximately 70,000 lb is needed to set 5-1/2" packoff.

6.1.2. Rough cut the casing approximately 18" above the top of the Housing flange.

6.1.3. Final cut the casing at 4-1/4" +/- 1/8" above the top of the Housing.





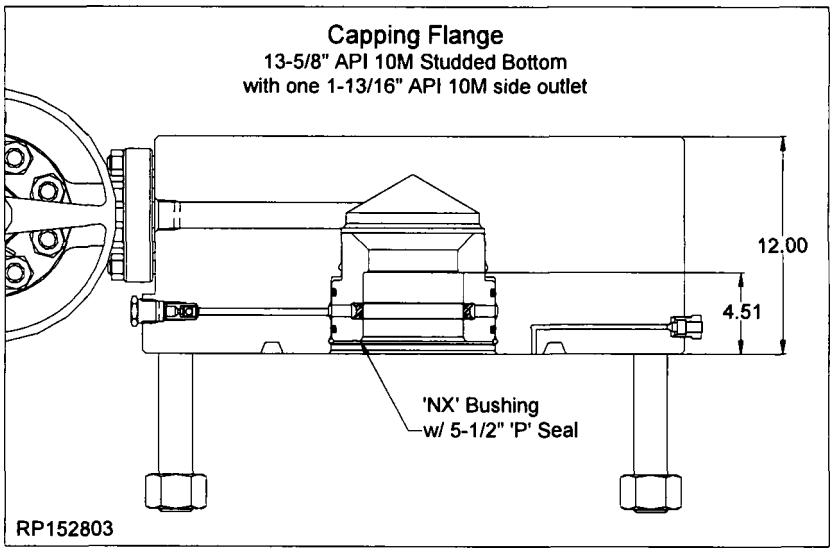
Stage 6.0 — Emergency 5-1/2" Casing

6.2. Install the Capping Flange and the Emergency 'NX' Bushing

6.2.1. Use the ***Capping Flange (Item TA1).***

6.2.2. Use the ***'NX' Bushing (Item E4).***

Verify Casing Head Housing Threaded Flange is two-holed over the side studded outlets and confirm make up dimension. Dimension must be 1/8" from the top of the Threaded Flange to the top of the Housing.

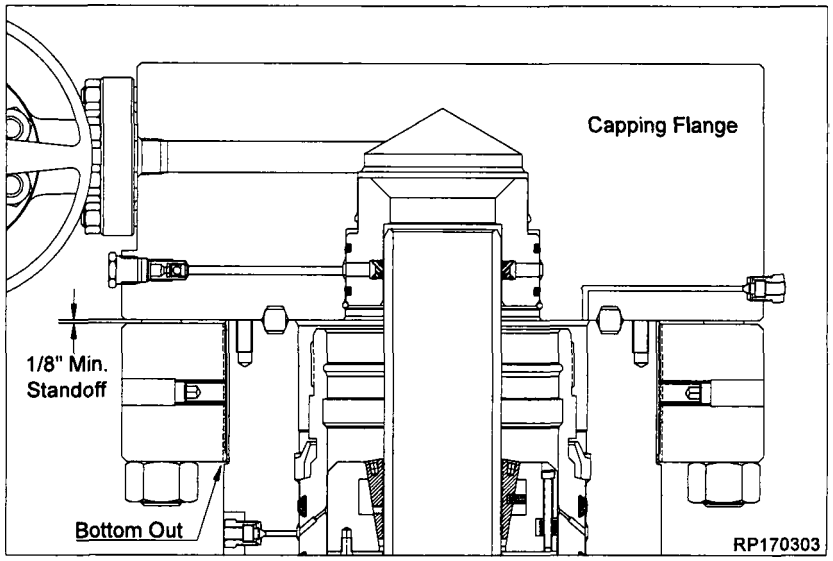


WARNING

SEE RP-000592

PROCEDURE FOR STANDARD 'NX' BUSHING

6.2.3. Use ***Ring Gasket BX-159 (Item A23).***



CAUTION

Ensure and verify Threaded Flange is properly installed to the Casing Head.

1. Rotate the threaded flange counterclockwise (left hand thread) to a positive stop and bottom out threaded flange on Casing Head flange shoulder.
2. Verify make up dimension. Dimension from the top of the threaded flange to the top of the casing head must be 1/8" or greater.

Threaded flange must remain shouldered out during installation.

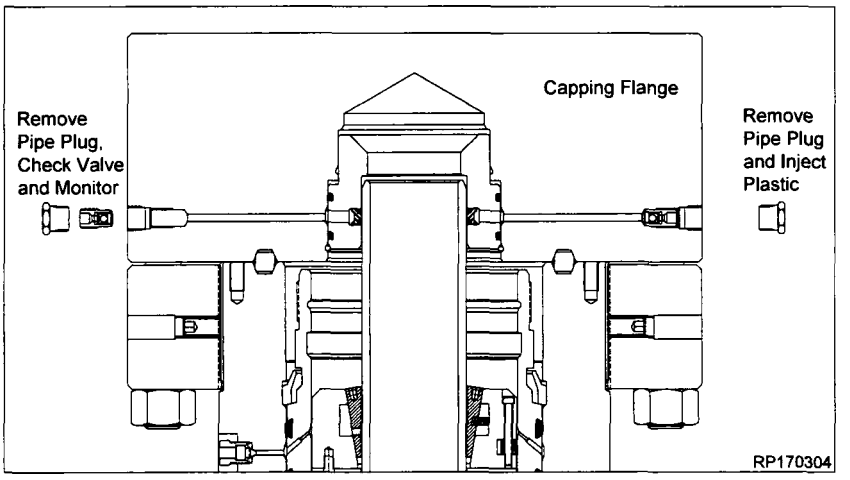
Stage 6.0 — Emergency 5-1/2" Casing

6.3. Energize the NX Bushing 'P' Seal

WARNING

SEE RP-000592

PROCEDURE FOR STANDARD 'NX' BUSHING



WARNING

SEE RP-000608

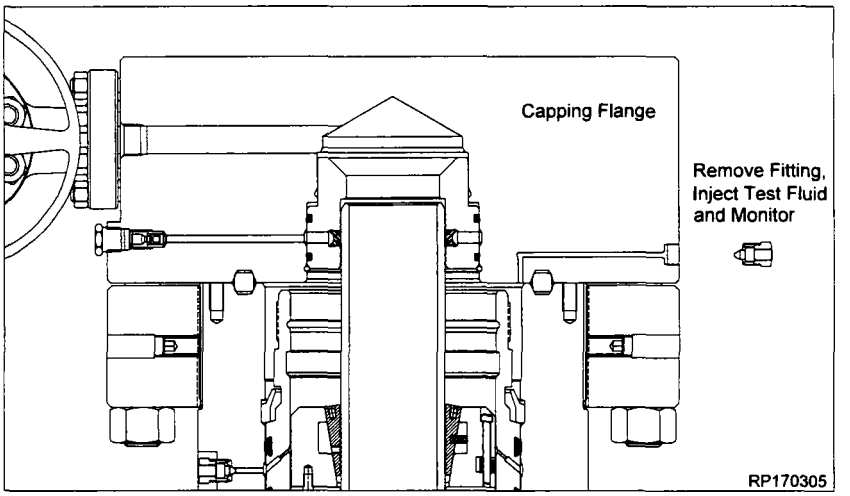
PROCEDURE FOR SINGLE 'P' SECONDARY SEAL

6.4. Test the Connection

6.4.1. Test pressure to ***10,000 psi maximum or 80% of casing collapse-whichever is less.***

Do not exceed 80% of casing collapse.

Contact the Drilling Supervisor to determine the collapse pressure of the specific grade and weight of the casing used.



WARNING

SEE RP-000592

PROCEDURE FOR STANDARD 'NX' BUSHING

Recommended Procedure for Field Welding Pipe to Wellhead Parts for Pressure Seal

The following procedure is a direct extraction (except for the numeric footnote designators) from the Fourteenth Edition of API 6A[1]. Editorial footnotes have been added to provide additional information that may be of benefit when developing procedures for specific field welding applications. The recommended procedure and footnotes are for general information purposes and it should be mentioned that Cameron is not responsible for determining or administering any field welding practices. The organization performing the welding should qualify their welding procedure(s) and welder(s) in accordance with applicable codes and standards[2]. The success of any field weld should be verified by subsequent hydrostatic test at the direction of the customer.

B.1 Introduction and Scope. - The following recommended procedure has been prepared with particular regard to attaining pressure-tight welds when attaching casing heads, flanges, etc., to casing. Although most of the high strength casing used (such as P-110) is not normally considered field weldable, some success may be obtained by using the following or similar procedures[3].

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.

1. 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.

2. **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.

B.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.

B.3 Welding. - The welding should be done by the shielded metal-arc[4] or other approved process.

B.4 Filler Metal. - After the root pass, low hydrogen electrodes or filler wires of a yield strength equal to the casing yield strength should be used[5]. The low hydrogen electrodes include classes EXX15, EXX16, EXX18, EXX28 of AWS A5.1 (latest edition): *Mild Steel Covered Arc- Welding Electrodes** and AWS A5.5 (latest edition): *Low Alloy Steel Covered Arc-Welding Electrodes**. Low hydrogen electrodes should not be exposed to the atmosphere until ready for use. Electrodes exposed to atmosphere should be dried 1 to 2 hours at 500 to 600°F *(260 to 316°C)* just before use[6].

*Available from the American Society for Testing and Materials, 1916 Race street, Philadelphia, Pa. 19103.

B.5 Preparation of Base Metal. - The area to be welded should be dry and free of any paint, grease, scale, rust or dirt.

B.6 Preheating. - Both the casing and the wellhead member should be preheated to 250-400°F *(121 to 204°C)* for a distance of at least 3 inches *(76.2 mm)* on either side of the weld location, using a suitable preheating torch. Before applying preheat, the fluid should be bailed out of the casing to a point several inches *(mm)* below the weld location. 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[7].

Preheating may have to modified because of the effect of temperature on adjacent packing elements which may be damaged by exposure to temperatures 200°F ***(93°C)*** and higher. Temperature limitations of the packing materials should be determined before the application of preheat.

WARNING If Casing Head is designed with an internal o-ring bottom prep and the internal o-ring is installed, ensure the o-ring preheat temperature does not exceed 300°F

Recommended Procedure for Field Welding Pipe to Wellhead Parts for Pressure Seal

B7. Welding technique. - Use a 1/8 or 5/32 inch *(3.2 or 4.0 mm)* E6010 electrode[8] and step weld the first bead (root pass); that is, 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). Then 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. The second pass should be made with a 5/32 *(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, and each bead after the root pass should be thoroughly peened before applying the next bead. There should be no undercutting and welds shall be workmanlike in appearance.

E7018 RODS HAVE BEEN SUCCESSFULLY USED FOR ROOT PASS.

1. Test ports should be open when welding is performed to prevent pressure build-up within the test cavity.
2. During welding the temperature of the base metal on either side of the weld should be maintained at 250°F *(121°C)* minimum.
3. 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.

B.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.

B.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.

B.10 Postheating. - For the removal of all brittle areas on high strength steel casing, a post heat temperature of 1050-1100°F *(566 to 593°C)*[9] is desirable. It is recognized, however, that this temperature is difficult or impossible to obtain in the field, and that the mechanical properties of the wellhead parts and the pipe may be considerably reduced by these temperatures. As a practical matter, the temperature range of 500-900°F *(260 to 482°C)* has been used with satisfactory results.

B.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 a blanket of asbestos[10] or other suitable insulating material. 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 250°F *(121°C)* (measured with a heat sensitive crayon) prior to permitting the mud to rise in the casing.

The above procedure is presented for the convenience of our customers. Please Contact Cameron's Land Wellhead engineering Group in Houston, Texas if any additional assistance is required.

Recommended Procedure for Field Welding Pipe to Wellhead Parts for Pressure Seal

[1]API SPECIFICATION 6A - Fourteenth Edition, March 1983, Appendix B, Page 109

[2]ASME Section IX is one such code that provides guidelines for the qualification of welding procedures and welders. It specifically assigns the responsibility of qualification of welding procedures and welders to the organization with "responsible operational control" over the production welding.

[3]Many of the high strength casing grades are weldable but weldability will vary from one casing manufacturer to another even within a given casing grade. The weldability of any base metal is determined largely by its chemical composition. Casing materials, even within a given grade vary widely in their chemical makeup. This necessitates the qualification of welding procedures, not just for a particular grade but also for each different chemical makeup. When qualifying welding procedures intended for field application, it is recommended that field welding conditions be simulated as much as is possible. It is very important that the welding parameters and techniques qualified are duplicated in the field.

[4]American Welding Society designation SMAW (Shielded Metal Arc Welding), commonly referred to as "stick welding."

[5]Finding filler metals that will match the strength of the high strength casings will be very difficult if not impossible to do. For instance, E12018M is the highest strength electrode classified by AWS A5.5. It has a minimum specified yield strength of 108 ksi. That does not meet the minimum specified yield strength for P-110 or Q-125 casing. When joining carbon and low alloy materials of different strengths, it is standard practice to use a carbon steel or low alloy filler metal that will match, as a minimum, the strength of the weaker of the two materials being joined. When dealing with the high strength casings such as N-80, P-110 and Q-125, the material to which any one of these is to be joined will probably be the weaker of the two. In such cases, filler metals should be selected based on the minimum specified strength of the weaker material. It is the responsibility of the user to specify the size of weld required based on anticipated loads and strength of weld metal being used.

[6]The reason for maintaining low moisture in the electrodes is to minimize the amount of hydrogen that is liberated at the arc during welding. When welding high strength low alloy steels, hydrogen can promote delayed cold cracking in hardened weld metals and heat affected zones. One of the ways to reduce the chance of cold cracking is to minimize the hydrogen potential of the electrodes through moisture control.

[7]Internal preheaters for preheating the casing and wellhead member from the inside are available from Cameron and are highly recommended.

[8]E6010 electrodes contain high levels of moisture in their coating. Hydrogen which is liberated from moisture under the intense heat of the electric arc, migrates into the weld metal and heat affected zone and can promote hydrogen induced cold cracking as the weld cools down. For this reason, some companies elect not to use E6010 electrodes for the first pass, even though there are benefits from the standpoint of operator appeal and penetration. If they are used, precautions must be taken to get rid of the diffusible hydrogen before the weld cools from preheating temperatures. Given enough time at elevated temperatures, the hydrogen will diffuse out of the metal. The rate of diffusion is time and temperature dependant. Therefore, the diffusion process can be promoted through the use of high preheats, post weld stress relief, post weld soaks at or above preheat temperatures and slow cooling.

E7018 RODS HAVE BEEN SUCCESSFULLY USED FOR ROOT PASS

[9]Low alloy welds that are required to meet NACE MR0175 specification must be stress relieved at 1150°F *(621°C)* minimum.

[10]For health reasons, Cameron strongly recommends **against** the use of asbestos insulating blankets. There are many good non-asbestos materials that can be used as an acceptable substitute.

Torque Chart

Recommended Makeup Torques for Flange Bolting Ft•Lbf Per API 6A: preload = .50Sy				
Bolt Size Nom OD - TPI	B7M, L7M (Sy=80 ksi)		B7, L7, 660 (Sy=105 ksi)	
	cf=0.07	cf=0.13	cf=0.07	cf=0.13
.500-13	27	45	35	59
.625-11	52	88	68	115
.750-10	90	153	118	200
.875-9	143	243	188	319
1.000-8	213	361	279	474
1.125-8	305	523	401	686
1.250-8	421	726	553	953
1.375-8	563	976	739	1280
1.500-8	733	1280	962	1680
1.625-8	934	1640	1230	2150
1.750-8	1170	2050	1530	2700
1.875-8	1440	2540	1890	3330
2.000-8	1750	3090	2300	4060
2.250-8	2500	4440	3280	5820
2.500-8	3430	6120	4500	8030
2.625-8	3970	7100	4720	8430
2.750-8	4570	8180	5420	9700
3.000-8	5930	10700	7050	12700
3.250-8	7550	13600	8970	16100
3.500-8	9430	17000	11200	20200
3.750-8	11600	21000	13800	24900
3.875-8	12800	23200	15200	27500
4.000-8	14100	25500	16700	30300

- The information in this table is based on API-6A's recommended torque for a given bolt size. The information is presented for the convenience of the user and is based on assumptions of certain coefficients of friction (cf). The coefficients of friction are based on approximations of the friction between the studs and nuts, as well as the nuts and flange face. A coefficient friction of 0.13 assumes the threads and nut bearing surfaces are bare metal and are well lubricated with thread compound. A coefficient of friction of 0.07 assumes the thread and nuts are coated with a fluoropolymer material.

- Lubrication

  It is essential that threads and nut faces be well lubricated with an appropriate grease prior to assembly. Cameron clamps and fast clamps require lubrication on the hub-clamp contact area. Acceptable lubricants include thread joint compounds which meet the formulation, evaluation and testing requirements specified in API Recommended Practice 5A3/ISO13678. (Reference - Jet Lube Grease, 1 lb can PN: 2737980-02).

  Studs and nuts coated with Xylan/PTFE compound in accordance with a Cameron procedure do not require lubrication. However, a light coat of API Recommended Practice 5A3/ISO13678 thread compound is recommended for Xyland-coated bolting as an aid to assembly.

  Material gaskets should be lightly coated with lubricant prior to assembly. Acceptable lubricants include motor oil or Cameron gate valve greases.

IC Test Plug Load Chart

IC Test Plug Maximum Load							
Bowl		Maximum Hanging Load (in 1000s lbs) at Test Pressure					
Size	Pressure	0 psi	2,000 psi	3,000 psi	5,000 psi	10,000 psi	15,000 psi
7-1/16"	2,000 to 5,000 psi	213	135	96	19	N/A	N/A
	10,000 psi	253	175	136	59	0	N/A
	15,000 psi	477	399	360	282	88	0
9"	2,000 to 10,000 psi	600	479	419	299	0	N/A
	15,000 psi	751	630	570	450	149	0
11"	2,000 to 10,000 psi	1277	1091	998	812	348	N/A
	15,000 psi	1596	1410	1317	1131	667	202
13-5/8"	2,000 to 10,000 psi	1713	1426	1283	997	281	N/A
	15,000 psi	2142	1855	1712	1426	710	5
16-3/4"	2,000 to 5,000 psi	3076	2641	2424	1990	N/A	N/A
20"	2,000 to 5,000 psi	2733	2096	1778	1142	N/A	N/A

IC-2 Casing Load Chart

Minimum Casing Load Chart for IC Type Hangers

Minimum Casing Load for IC-2 & IC-6 Casing Hangers		
Hanger Nom. Size	**Casing Size**	**Load (Pounds)**
9"	4-1/2"	46,000
	5-1/2"	42,000
11"	4-1/2"	78,000
	5"	74,000
	5-1/2"	70,000
	6-5/8"	59,000
	7"	55,000
	7-5/8"	48,000
13-5/8"	5-1/2"	120,000
	7"	106,000
	7-5/8"	99,000
	8-5/8"	86,000
	9-5/8"	72,000
	10-3/4"	54,000

Minimum Casing Load for IC-2 & IC-6 Casing Hangers		
Hanger Nom. Size	**Casing Size**	**Load (Pounds)**
16-3/4"	9-5/8"	146,000
	10-3/4"	128,000
	11-3/4"	110,000
	11-7/8"	109,000
	13-3/8"	79,000
20-3/4" 21-1/4"	10-3/4"	228,000
	13-3/8"	180,000
	13-5/8"	175,000
	16"	120,000

RP-000573

Fraction to Decimal Conversion Chart

FRACTION TO DECIMAL CONVERSION CHART													
4THS	8THS	16THS	32NDS	64THS	TO 3 PLACES	TO 2 PLACES	4THS	8THS	16THS	32NDS	64THS	TO 3 PLACES	TO 2 PLACES
				1/64	.016	.02					33/64	.516	.52
			1/32		.031	.03				17/32		.531	.53
				3/64	.047	.05					35/64	.547	.55
		1/16			.062	.06			9/16			.562	.56
				5/64	.078	.08					37/64	.578	.58
			3/32		.094	.09				19/32		.594	.59
				7/64	.109	.11					39/64	.609	.61
	1/8				.125	.12		5/8				.625	.62
				9/64	.141	.14					41/64	.641	.64
			5/32		.156	.16				21/32		.656	.66
				11/64	.172	.17					43/64	.672	.67
		3/16			.188	.19			11/16			.688	.69
				13/64	.203	.20					45/64	.703	.70
			7/32		.219	.22				23/32		.719	.72
				15/64	.234	.23					47/64	.734	.73
1/4					.250	.25	3/4					.750	.75
				17/64	.266	.27					49/64	.766	.77
			9/32		.281	.28				25/32		.781	.78
				19/64	.297	.30					51/64	.797	.80
		5/16			.312	.31			13/16			.812	.81
				21/64	.328	.33					53/64	.828	.83
			11/32		.344	.34				27/32		.844	.84
				23/64	.359	.36					55/64	.859	.86
	3/8				.375	.38		7/8				.875	.88
				25/64	.391	.39					57/64	.891	.89
			13/32		.406	.41				29/32		.906	.91
				27/64	.422	.42					59/64	.922	.92
		7/16			.438	.44			15/16			.938	.94
				29/64	.453	.45					61/64	.953	.95
			15/32		.469	.47				31/32		.969	.97
				31/64	.484	.48					63/64	.984	.98
1/2					.500	.50	1					1.000	1.00

Appendix 1

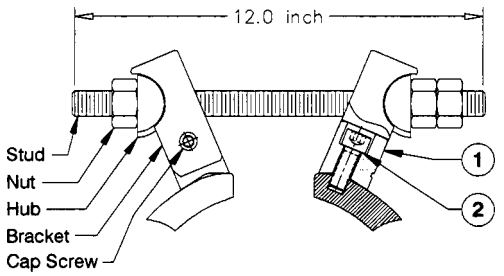
CAMERON SINGAPORE	DRAWN BY	DATE	REVISION	DOCUMENT
	Jacob Yuan	1 Mar 2010	03	RP-001601
	APPROVED BY	DATE		PAGE
	Tony Poh	1 Mar 2010		1 / 3

RECOMMENDED LOCKDOWN RING (COLLAPSING/EXPANDING) TOOL FOR SSMC AND E-LOCK

Scope

Recommended tool Top level assembly **2273869-05** contains common assembly parts with optional interchangeable adaptors and associated cap screws for specific lockdown ring size.

Table 1 lists recommended and existing tool Part numbers.

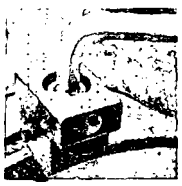


Install adaptor with Undercut Facing out

Figure 1 – Components in recommended tool top level assembly 2273869 (optional Item 1 – adaptor; comes with associated Item 2 – cap screw)

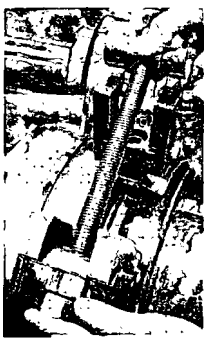
Procedure to use recommended tool 2273869-05

(A) Collapsing lockdown ring



Step 1
Power tight dedicated adaptor and cap screw to the specific lockdown ring size.

⚠ **Adaptor "Legs" must rest fully on ring profile to prevent loading stress on cap screw.**

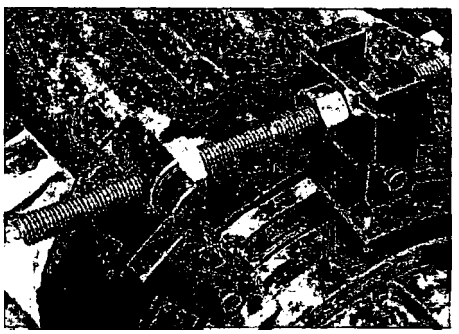


Step 2
Make up brackets to receive Hub.

Step 3
Torque nut sufficiently to collapse ring.

⚠ **Torque should not exceed 10ft-lbs. Verify collapse interference by wiggling lock ring.**

(B) Expanding lockdown ring



Step 1
Power tight dedicated adaptor and cap screw to specific lockdown ring size.

Step 2
Make up bracket to receive Hub.

Step 3
Torque nut sufficiently to expand ring.

⚠ **Similar checks as collapsing the ring.**

Appendix 1

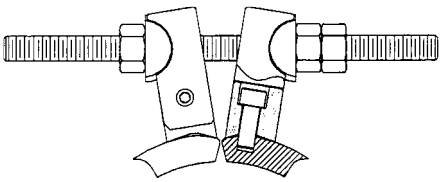
Table 1
Recommended and Existing Tool PN

Type	Size	Recommended* and Existing Tools	Tool Model (Table 2)	Adaptor (Fig 1 - Item 1)	Cap Screw (Fig 1 - Item 2)	Use on Lock Down Ring PN
SSMC	7-1/16	2273869-05*	Ⓐ	2309218-05	702550-05-00-12	2017505-01
		2017561-06	Ⓓ	NA		
	9	2273869-05*	Ⓐ	2309218-06	702550-05-00-12	2202370-01 2236286-01
		2017561-06	Ⓓ	NA		
		2017561-14	Ⓓ			
	11	2273869-05*	Ⓐ	2309218-07	702550-05-00-14	2094484-02 2094484-02-01 2094484-05 2094484-06
		2209192-01	Ⓓ	NA		
		2017561-06	Ⓓ			
		2017561-14	Ⓓ			
	13-5/8	2273869-05*	Ⓐ	2309218-02	702550-06-00-12	2062967-02 2062967-02-13 2062967-06
		2017561-02	Ⓓ	NA		
		2017561-15	Ⓓ			
		2273869-02	Ⓔ			
		2230761-02	Ⓒ			
		2230761-05	Ⓒ			
		2273869-09***	Ⓐ	2309218-12	702550-07-00-22	Y15003-31506990
	18-3/4	2273869-05*	Ⓐ	2309218-08	702550-06-00-14	2125281-01 2125281-02 2125281-04
		2017561-15	Ⓓ	NA		
		2230761-01	Ⓒ			
		2209898-01	Ⓓ			
	21-1/4	2273869-05*	Ⓐ	2309218-08	702550-06-00-14	2125281-03
		2230761-01	Ⓒ	NA		
E-LOCK	9	2273869-05*	Ⓐ	2309218-11**	702503-16-00-40	2236573-01
	11	2273869-05*	Ⓐ	2309218-01	702550-05-00-22	2216464-01 2216464-03
		2017561-13	Ⓓ	NA		
		2273869-04	Ⓑ			

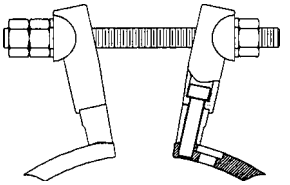
** Only to use on E-lock Union Connector with Enlarged Window (PN 2236288-03)
*** Only to use on E-15 13-1/2 Nom. Dual Load Shoulder Lock Ring

Appendix 1

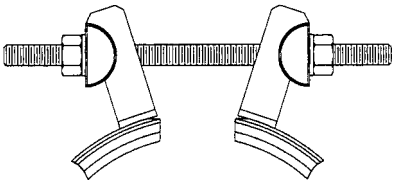
Table 2
Tool Models



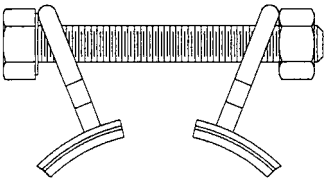
Model A - PN: 2273869-05 / 2273869-09
- **Recommended tool** for SSMC and E-lock
- Common assembly component
- Interchangeable adaptor and cap screw for specific lock ring size



Model B - PN: 2273869-04
- Specifically designed for 11" E-lock
- Adaptor not interchangeable for other lock ring sizes.

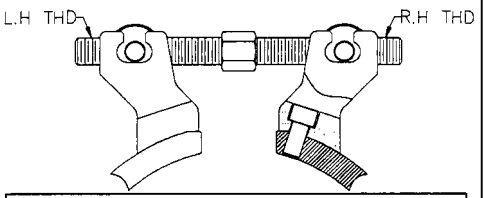


Model C - PN: 2230761
- Historically used on SSMC
- Various body components per ring size.
- Comes with extension pin for E-lock

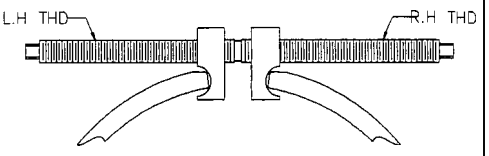


Model D - PN: 2017561 / 2209192 / 2209898
- Most common tool for SSMC and E-lock
- High occurrence to replace eyebolt

⚠ **Potential hazard due to shearing of eyebolt.**



Model E - PN: 2273869-02
- Specifically designed for 13-5/8" SSMC
- Opposite direction threaded ends to facilitate quick collapsing/expansion.



Model F - PN: 2273869-03
- Specifically designed for expanding process

Document Control

Revision History

Revision	Date	Description	Prepared by:
01	January 28, 2017	Initial Release per 650245114	Author: S. Luu

About this Revision

Owner: **Surface Systems Engineering - Running Procedures Department, Houston, TX**

Author: **Suzanne Luu**

Reviewer: **Kyle Dykhuizen, Adam Kolinek**

Approver: **Kyle Dykhuizen, Adam Kolinek**

Released by: **Neil Waghorne, SAP**

1.1 WELL CONTROL - CERTIFICATIONS

Required IADC/IWCF Well Control Certifications Supervisor Level:

Any personnel who supervises or operates the BOP must possess a valid current IADC training certification and photo identification. This would include the onsite drilling supervisor, tool pusher/rig manager, driller, and any personnel that will be acting in these capacities. Another example of this may be a wireline or snubbing crew rigged up on the rig to assist the rig, the operator of each system must also have a valid control certification for their level of operation.

BLM recognizes IADC training as the industry approved accredited training. Online self-certifications will not be acceptable. Enforcement actions for the lack of a valid Supervisory Level certificate shall be prompt action to correct the deficiency. **Enforcement actions include but are not limited to immediate replacement of personnel lacking certifications, drilling operations being shut down or installment of a 10M annular.**

IADC Driller Level for all Drillers and general knowledge for the Assistant Driller, Derrick Hands, Floor Hands and Motor Hands is recognized by the BLM; however, a Driller Level certification will need to be presented only if acting in a temporary Driller Level certification capacity.

Well Control-Position/Roles

IADC Well control training and certification is targeted toward each role, e.g., Supervisor Level toward those who direct, Driller Level to those who act, Introductory to those who need to know.

- **Supervisor Level**
  - Specifies and has oversight that the correct actions are carried out
  - Role is to supervise well control equipment, training, testing, and well control events
  - Directs the testing of BOP and other well control equipment
  - Regularly direct well control crew drills
  - Land based rigs – usually runs the choke during a well kill operation
  - Due to role on the rig, training and certification is targeted more toward management of well control and managing an influx out of the well

- **Driller Level**
  - Performs an action to prevent or respond to well control accident
  - Role is to monitor the well via electronic devices while drilling and detect unplanned influxes
  - Assist with the testing of BOP and other well control equipment
  - Regularly assist with well control crew drills
  - When influx is detected, responsible to close the BOP
  - Due to role on the rig, training and certification is targeted more toward monitoring and shutting the well in (closing the BOP) when an influx is detected

(Well Control-Positions/Roles Continued)

- **Derrick Hand, Assistant Driller Introductory Level**
  - Role is to assist Driller with kick detection by physically monitoring the well at the mixing pits/tanks
  - Regularly record mud weights/viscosity for analysis by the Supervisor level and mud engineer so pre-influx signs can be detected
  - Mix required kill fluids as directed by Supervisor or Driller
  - Due to role on the rig, training and certification is targeted more toward monitoring for influxes, either via mud samples or visual signs on the pits/tanks

- **Motorman, Floor Hand Introductory Level**
  - Role is to assist the Supervisor, Driller, or Derrick Hand with detecting influxes
  - Be certain all valves are aligned for proper well control as directed by Supervisor
  - Perform Supervisor or Driller assigned tasks during a well control event
  - Due to role on the rig, training and certification is targeted more toward monitoring for influxes

1.2 WELL CONTROL-COMPONENT AND PREVENTER COMPATIBILITY CHECKLIST

The table below, which covers the drilling and casing of the 10M Stack portion of the well, outlines the tubulars and the compatible preventers in use. This table, combined with the mud program, documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

- **Example 8-3/4" Production hole section, 10M requirement**

Component	OD	Preventer	RWP
Drill pipe	5"	Fixed lower 5" Upper 4.5-7" VBR	10M
HWDP	5"	Fixed lower 5" Upper 4.5-7" VBR	10M
Drill collars and MWD tools	6.25-6.75"	Upper 4.5-7" VBR	10M
Mud Motor	6.75"	Upper 4.5-7" VBR	10M
Production casing	5.5"	Upper 4.5-7" VBR	10M
ALL	0-13-5/8"	Annular	5M
Open-hole	-	Blind Rams	10M

- VBR = Variable Bore Ram. Compatible range listed in chart.

1.3 WELL CONTROL-BOP TESTING

BOP Test will be completed per Onshore Oil and Gas Order #2 Well Control requirements. The 5M Annular Preventer on a required 10M BOP stack will be tested to 70 % of rated working pressure including a 10 minute low pressure test. Pressure shall be maintained at least 10 minutes.

1.4 WELL CONTROL - DRILLS

The following drills are conducted and recorded in the Daily Drilling Report and the Contractor's reporting system while engaged in drilling operations:

Type	Frequency	Objective	Comments
Shallow gas kick drill - drilling	Once per well with crew on tour	Response training to a shallow gas influx	To be done prior to drilling surface hole if shallow gas is noted
Kick drill - drilling	Once per week per crew	Response training to an influx while drilling (bit on bottom)	Only one kick drill per week per crew is required, alternating between drilling and tripping.
Kick drill - tripping	Once per week per crew	Response training to an influx while tripping (bit off bottom). Practice stabbing TIW valve	
Choke drill	Once per well with crew on tour	Practice in operating the remotely operated choke with pressure in the well	Before drilling out of the last casing set above a prospective reservoir Include the scenario of flowing well with gas on drill floor as a table top
H_2S drill	Prior to drilling into a potential H_2S zone/reservoir	Practice in use of respiratory equipment	

1.5 WELL CONTROL – MONITORING

- Drilling operations which utilize static fluid levels in the wellbore as the active barrier element, a means of accurately monitoring fill-up and displacement volumes during trips are available to the driller and operator. A recirculating trip tank is installed and equipped with a volume indicator easily read from the driller's / operator's position. This data is recorded on a calibrated chart recorder or digitally. The actual volumes are compared to the calculated volumes.
- The On-Site Supervisor ensures hole-filling and pit monitoring procedures are established and documented for every rig operation.
- The well is kept full of fluid with a known density and monitored at all times even when out of the hole.
- Flow checks are a minimum of 15 minutes.
- A flow check is made:
  - In the event of a drilling break.
  - After indications of down hole gains or losses.
  - Prior to all trips out of the hole.
  - After pulling into the casing shoe.
  - Before the BHA enters the BOP stack.
  - If trip displacement is incorrect.

Well Control-Monitoring (Continued)

- Prior to dropping a survey instrument.
- Prior to dropping a core ball.
- After a well kill operation.
- When the mud density is reduced in the well.

- Flow checks may be made at any time at the sole discretion of the driller or his designate. The Onsite Supervisor ensures that personnel are aware of this authority and the authority to close the well in immediately without further consultation.
- Record slow circulating rates (SCR) after each crew change, bit trip, and 500' of new hole drilled and after any variance greater than 0.2 ppg in MW. Slow pump rate recordings should include return flow percent, TVD, MD & pressure. SCR's will be done on all pumps at 30, 40 & 50 SPM. Pressures will be recorded at the choke panel. SCR will be recorded in the IADC daily report and MRO Wellview daily report
- Drilling blind (i.e. without returns) is permissible only in known lithology where the absence of hydrocarbons has been predetermined and written approval of the Drilling Manager.
- All open hole logs to be run with pack-off, lubricator or Drilling Manager approved alternative means.
- The Drilling Contractor has a fully working pit level totalizer / monitoring system with read out for the driller and an audible alarm set to 10 BBL gain / loss volume. Systems are selectable to enable monitoring of all pits in use. Pit volumes are monitored at all times, especially when transferring fluids. Both systems data is recorded on a calibrated chart recorder or electronically.
- The Drilling Contractor has a fully working return mud flow indicator with drillers display and an audible alarm, and is adjustable to record any variance in return volumes.

1.6 WELL CONTROL – SHUT IN

- The "hard shut in" method (i.e. against a closed choke using either an annular or ram type preventer) is the Company standard.
- The HCR(s) or failsafe valves are left closed during drilling to prevent any erosion and buildup of solids. The adjustable choke should also be left closed.
- The rig specific shut in procedure, the BOP configuration along with space-out position for the tool joints is posted in the Driller's control cabin or doghouse.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Manager.
- During a well kill by circulation, constant bottom hole pressure is maintained throughout.
- Kill sheets are maintained by the Driller and posted in the Driller's control cabin or doghouse. The sheet is updated at a minimum every 500 feet.

2.1 PROCEDURE WHILE DRILLING

- Sound alarm (alert crew)
- Space out drill string – Stop rotating, pick the drill string up off bottom, and space out to ensure no tool joint is located in the BOP element selected for initial closure.
- Shut down pumps (stop pumps and observe well.)
- Shut-in Well - If flow is suspected or confirmed, close uppermost applicable BOP element. (HCR and choke will already be in the closed position.)
    - **Note:** Either the uppermost pipe ram or annular preventer can be used.
- Confirm shut-in
- Notify toolpusher/company representative
- Gather all relevant data required:
    - SIDPP and SICP
    - Hole Depth and Hole TVD
    - Pit gain
    - Time
    - Kick Volume
    - Pipe depth
    - MW in, MW out
    - SPR's (Slow Pump Rate's)
- Regroup and identify forward plan (let well stabilize, update kill sheet, inventory mud additives and mud volumes on location)
- Company Representative, Drilling Superintendent, Drilling Engineer and Drilling Manager will discuss well control kill method to be utilized. A verbal Risk Assessment and preferred kill method will be finalized. Initial Risk Assessment will be finalized within 1 hour of initial shut in.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Contractor PIC.
- Recheck all pressures and fluid volume on accumulator unit
- **If pressure has built or is anticipated during the kill to reach 2,500 psi or greater, the annular preventer CANNOT be used as per Oil Company Well Control Policy, swap to the upper BOP pipe ram.**

2.2 PROCEDURE WHILE TRIPPING

- Sound alarm (alert crew)
- Stab full opening safety valve in the drill string and close.
- Space out drill string (ensure no tool joint is located in the BOP element selected for initial closure).
- Shut down pumps (stop pumps and observe well.)
- Shut-in Well - If flow is suspected or confirmed, close uppermost applicable BOP element. (HCR and choke will already be in the closed position.)
    - **Note:** Either the uppermost pipe ram or annular preventer can be used.
- Confirm shut-in
- Notify tool pusher/company representative
- Gather all relevant data required:
    - SIDPP and SICP
    - Hole Depth and Hole TVD
    - Pit gain

Procedure While Tripping (Continued)

- Time
- Kick Volume
- Pipe depth
- MW in, MW out
- SPR's (Slow Pump Rate's)

- Regroup and identify forward plan (let well stabilize, update kill sheet, inventory mud additives and mud volumes on location)
- Company Representative, Drilling Superintendent, Drilling Engineer and Drilling Manager will discuss well control kill method to be utilized. A verbal Risk Assessment and preferred kill method will be finalized. Initial Risk Assessment will be finalized within 1 hour of initial shut in.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Contractor PIC.
- Recheck all pressures and fluid volume on accumulator unit
  If pressure has built or is anticipated during the kill to reach X,XXX psi or greater, the annular preventer CANNOT be used as per Company Well Control Policy, swap to the upper BOP pipe ram.

2.3 PROCEDURE WHILE RUNNING CASING

- Sound alarm (alert crew)
- Stab crossover and full opening safety valve and close
- Space out casing (ensure no coupling is located in the BOP element selected for initial closure).
- Shut down pumps (stop pumps and observe well.)
- Shut-in Well - If flow is suspected or confirmed, close uppermost applicable BOP element. (HCR and choke will already be in the closed position.)
  - **Note:** Either the uppermost pipe ram or annular preventer can be used.
- Confirm shut-in
- Notify tool pusher/company representative
- Gather all relevant data required:
  - SIDPP and SICP
  - Hole Depth and Hole TVD
  - Pit gain
  - Time
  - Kick Volume
  - Pipe depth
  - MW in, MW out
  - SPR's (Slow Pump Rate's)
- Regroup and identify forward plan (let well stabilize, update kill sheet, inventory mud additives and mud volumes on location)
- Company Representative, Drilling Superintendent, Drilling Engineer and Drilling Manager will discuss well control kill method to be utilized. A verbal Risk Assessment and preferred kill method will be finalized. Initial Risk Assessment will be finalized within 1 hour of initial shut in.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Contractor PIC.
- Recheck all pressures and fluid volume on accumulator unit
  If pressure has built or is anticipated during the kill to reach 2,500 psi or greater, the annular preventer CANNOT be used, swap to the upper BOP pipe ram.

2.4 PROCEDURE WITH NO PIPE IN HOLE (OPEN HOLE)

- Sound alarm (alert crew)
- Shut-in with blind rams or BSR. (HCR and choke will already be in the closed position.)
- Confirm shut-in
- Notify toolpusher/company representative
- Gather all relevant data required:
    - Shut-In Pressure
    - Hole Depth and Hole TVD
    - Pit gain
    - Time
    - Kick Volume
    - MW in, MW out
    - SPR's (Slow Pump Rate's)
- Regroup and identify forward plan (let well stabilize, update kill sheet, inventory mud additives and mud volumes on location)
- Company Representative, Drilling Superintendent, Drilling Engineer and Drilling Manager will discuss well control kill method to be utilized. A verbal Risk Assessment and preferred kill method will be finalized. Initial Risk Assessment will be finalized within 1 hour of initial shut in.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Contractor PIC.
- Recheck all pressures and fluid volume on accumulator unit.

2.5 PROCEDURE WHILE PULLING BHA THRU STACK

- PRIOR to pulling last joint of drill pipe thru the stack.
- Perform flow check, if flowing.
- Sound alarm (alert crew).
- Stab full opening safety valve and close
- Space out drill string with tool joint just beneath the upper pipe ram.
- Shut-in using upper pipe ram. (HCR and choke will already be in the closed position).
- Confirm shut-in.
- Notify toolpusher/company representative
- Read and record the following:
    - SIDPP and SICP
    - Pit gain
    - Time
- Regroup and identify forward plan

- **With BHA in the stack and compatible ram preventer and pipe combo immediately available.**
    - Sound alarm (alert crew)
    - Stab crossover and full opening safety valve and close
    - Space out drill string with upset just beneath the compatible pipe ram.
    - Shut-in using compatible pipe ram. (HCR and choke will already be in the closed position.)
    - Confirm shut-in
    - Notify toolpusher/company representative
    - Read and record the following:
        - SIDPP and SICP
        - Pit gain

Procedures While Pulling BHA thru Stack (Continued)

    - Time
  - Regroup and identify forward plan

- **With BHA in the stack and <u>NO</u> compatible ram preventer and pipe combo immediately available.**
  - Sound alarm (alert crew)
  - If possible to pick up high enough, pull string clear of the stack and follow "Open Hole" scenario.
  - If impossible to pick up high enough to pull the string clear of the stack:
  - Stab crossover, make up one joint/stand of drill pipe, and full opening safety valve and close
  - Space out drill string with tool joint just beneath the upper pipe ram.
  - Shut-in using upper pipe ram. (HCR and choke will already be in the closed position.)
  - Confirm shut-in
  - Notify toolpusher/company representative
  - Read and record the following:
    - SIDPP and SICP
    - Pit gain
    - Time

APD ID: 10400022509 **Submission Date:** 09/25/2017

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Will existing roads be used? YES

Existing Road Map:

Zia_Hills_20__Pad_2_Existing_Road_Map_20170920090029.pdf

Existing Road Purpose: ACCESS **Row(s) Exist?** NO

ID:

Do the existing roads need to be improved? YES

Existing Road Improvement Description: The roads from the well pad to the Facility are existing roads and will be upgraded.

Existing Road Improvement Attachment:

Will new roads be needed? YES

New Road Map:

Zia_Hills_20__Pad_2_Access_Road_Map_20170920090157.pdf

New road type: RESOURCE

Length: 292 Feet **Width (ft.):** 30

Max slope (%): 2 **Max grade (%):** 2

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 20

New road access erosion control: The inside slope of the side ditches shall be 3:1. Any topsoil removed from the access road will be conserved as appropriate and with low profile. This access road is on fairly level ground. No additional erosion control is planned.

New road access plan or profile prepared? NO

New road access plan attachment:

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

Access road engineering design? NO

Access road engineering design attachment:

Access surfacing type: OTHER

Access topsoil source: OFFSITE

Access surfacing type description: caliche

Access onsite topsoil source depth:

Offsite topsoil source description: Caliche will be from a BLM approved source or third-party commercial location. Material meets BLM requirements and standards.

Onsite topsoil removal process:

Access other construction information:

Access miscellaneous information: The access road and existing road right of way will be 30' wide for a 20' wide drive-able surface and 5' on each side to accommodate the size of the rig. 292' is new road and the remainder is existing road that will be upgraded. The wells will share the road. Only 1 access road will be built.

Number of access turnouts: **Access turnout map:**

New road drainage crossing: OTHER

Drainage Control comments: The proposed road to the location is surveyed and staked with stations set along the centerline at specific intervals. The road will be centerline crowned with a 2% crown for appropriate drainage. The inside slope of the side ditches shall be 3:1. Any topsoil removed from the access road will be conserved as appropriate. This access road is on level ground.

Road Drainage Control Structures (DCS) description: No additional road drainage is needed other than standard BLM requirements for this area and those discussed in the BLM "Gold Book". This access road is on level ground.

Road Drainage Control Structures (DCS) attachment:

Additional Attachment(s):

Existing Wells Map? YES

Attach Well map:

Zia_Hills_20_Federal_Com_115H_APD_Deficiency_onemileradius_20180926100949.pdf

Existing Wells description:

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

Submit or defer a Proposed Production Facilities plan? DEFER

Estimated Production Facilities description: Zia Hills Buck CF1 is located in Section 19, T26S, R32E and was staked on 4/18/17. Dimensions are 1000'X500'. The Battery was submitted with the Zia Hills 19 Pad #1 APDs. Zia Hills 19 Federal COM 101H- APD ID#10400015368 Zia Hills 19 Federal COM 102H-APD ID# 10400015572 Zia Hills 19 Federal COM 103H- APD ID# 10400015525 Zia Hills 19 Federal COM 104H- APD ID# 10400015588 Zia Hills 19 Federal COM 105H- APD ID#10400015608 Zia Hills 19 Federal COM 106H- APD ID# 10400015609 Zia Hills 19 Federal COM 107H- APD ID# 10400015610 Zia Hills 19 Federal COM 108H- APD ID# 10400015651

Water source use type: STIMULATION **Water source type:** GW WELL

Describe type:

Source latitude: 31.970142 **Source longitude:** -103.75827

Source datum: NAD27

Water source permit type: WATER WELL

Source land ownership: FEDERAL

Water source transport method: PIPELINE

Source transportation land ownership: FEDERAL

Water source volume (barrels): 66666.664 **Source volume (acre-feet):** 8.592873

Source volume (gal): 2800000

Water source and transportation map:

Zia_Hills_20__Pad_2_Water_Wells_20170920092543.pdf

Water source comments: Water will be trucked from the water wells in Texas to the Lois Lane frac ponds and from the frac ponds the water will be sent via temp pipe lines. However, COP plans to use additional/ different water well(s) depending on availability at the time of fracturing the wells but the locations will meet BLM requirements and standards. The Lois Lane frac pond contains 15.243 acres and is located in the NW/NE and extends into the SW/NE of Section 27, T26S, 32E, N.M.P.M
New water well? NO

Well latitude: **Well Longitude:** **Well datum:**

Well target aquifer:

Est. depth to top of aquifer(ft): **Est thickness of aquifer:**

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Construction Materials description: Clean caliche will be used to construct well pad, road, and facility pad. Our first source for caliche will be from Kiehne's pit is located in Section 21, T26S, R32E, Lea County, NM and the second source will be State Pit 643-Eddy located in Section 15, T25S, R27E, Eddy County, NM. However, COP plans to use additional caliche source(s) depending on caliche availability at the time of location construction and material will meet BLM requirements and standards. Trucking for source material will utilize authorized roads as per Access Road Topo A attached.
Construction Materials source location attachment:

Waste type: DRILLING

Waste content description: Drilling fluid and cuttings

Amount of waste: 2300 barrels

Waste disposal frequency : Daily

Safe containment description: Cuttings will be held in a closed-loop system and trucked to an approved disposal facility.

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL
Disposal type description:

Disposal location description: Trucked to approved disposal facility

Waste type: SEWAGE

Waste content description: Sewage will be disposed of in strict conformance with county and state requirements in a portable chemical toilet at a portable sewage treatment plant.
Amount of waste: 9000 gallons

Waste disposal frequency : Weekly

Safe containment description: Inside a portable chemical toilet.

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE
Disposal type description:

Disposal location description: Sewage treatment plant.

Waste type: PRODUCED WATER

Waste content description: Production water or testing tanks will be located and/or diked so that any spilled fluids will flow into the onsite containers. Production water tanks will not be placed on topsoil stockpiles.
Amount of waste: 40 barrels

Waste disposal frequency : Weekly

Safe containment description: Production water or testing tanks will be located and/or diked so that any spilled fluids will flow into the onsite containers. Production water tanks will not be placed on topsoil stockpiles.
Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE
Disposal type description:

Disposal location description: Will be taken to an approved disposal facility.

Waste type: CHEMICALS

Waste content description: Drilling fluids, chemical, and salt.

Amount of waste: 1 barrels

Waste disposal frequency : Weekly

Safe containment description: Fluids will be captured in catch basins and will be removed from location.

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE
Disposal type description:

Disposal location description: These will be disposed of in a state approved facility.

Waste type: GARBAGE

Waste content description: Portable dumpsters will be used for all trash.

Amount of waste:

Waste disposal frequency : Weekly

Safe containment description: Inside a portable dumpster.

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE
Disposal type description:

Disposal location description: All trash will be hauled off site.

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

Cuttings area length (ft.) **Cuttings area width (ft.)**

Cuttings area depth (ft.) **Cuttings area volume (cu. yd.)**

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Well Site Layout Diagram:

ZIA_HILLS_20_FEDERAL_PAD_2_Arch_Boundary___Revised_9_5_2018_20180926101059.pdf
ZIA_HILLS_20_FEDERAL_PAD_2_Location_Layout___Revised_9_5_2018_20180926101114.pdf
Comments:

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

Type of disturbance: New Surface Disturbance **Multiple Well Pad Name:** ZIA HILLS 20 FEDERAL PAD

Multiple Well Pad Number: 2

Recontouring attachment:

Drainage/Erosion control construction: Topsoil will be stripped and set along designated side of the wellsite. The next layer of dirt (stockpile) is done with the cut and fill method whereby the highest portion of the wellsite is pushed to lower portion(s) to balance the pad. The access road is done in a similar manner. To the greatest extent practicable, the location is placed so that the least amount of dirt is to be cut and disturbed, and so a good balance can be maintained during project. Topsoil stockpile will have lowest practicable profile to reduce wind erosion. For more detail please see attached Surface Use Plan of Operations.

Drainage/Erosion control reclamation: Upon project completion, if this well is a producer, excess caliche is removed from the interim reclamation portion of pad. Topsoil stockpile is balanced back onto the unused portion of the well pad and re-contoured as appropriate. Any drainage ditches will not be blocked with topsoil and/or organic material. Lowering the profile of the topsoil stockpile will reduce wind erosion. Erosion controls will be maintained per BLM guidelines and conditions. For more detail please see attached Surface Use Plan of Operations. Reclamation activities are planned to be accomplished within six months of project completion, contingent upon weather. A site specific "Reclamation Diagram" interim plan is attached. At such time as well is permanently abandoned, ConocoPhillips Company will contact the BLM for development of final rehabilitation plan. Upon abandonment, a dry hole marker will be installed as directed by Authorized BLM Officer at the time, in accordance with 43 CFR 3162.6. An above ground dry hole marker sealing the casing will have a weep hole which will allow pressure to dissipate and make detection of any fluid seepage easier. If below ground "well marker" is directed, ConocoPhillips Company will follow BLM requirements and standards for that method of abandonment. During final reclamation erosion is to be minimized through lower profile of any soil piles. Please see attached Surface Use Plan of Operations for more information.

Wellpad long term disturbance (acres): 4.407

Wellpad short term disturbance (acres): 1.694

Access road long term disturbance (acres): 0.2

Access road short term disturbance (acres): 0

Pipeline long term disturbance (acres): 2.172865

Pipeline short term disturbance (acres): 0

Other long term disturbance (acres): 0

Other short term disturbance (acres): 0

Total long term disturbance: 6.779865

Total short term disturbance: 1.694

Disturbance Comments: All other disturbance was accounted for in the Zia Hills 19 Pad #1 APDs.

Reconstruction method: If this well is a producer site rehabilitation will be completed within six months, weather permitting. Excess caliche will be removed, as appropriate and either disposed of in a permitted facility or, if clean, stored for future use. Topsoil from the stockpile will be spread along areas to be interim reclaimed. Any drainage ditches will not be blocked with topsoil. Under normal weather conditions, the timetable for rehabilitation will allow two to three months to complete any re-contouring and top-soiling necessary. At such time as well is permanently abandoned, ConocoPhillips Company will contact BLM for development of final rehabilitation plan. Upon abandonment, a dry hole marker will be installed as directed by Authorized BLM Officer at the time, in accordance with 43 CFR 3162.6. An above ground dry hole marker sealing the casing will have a weep hole which will allow pressure to dissipate and make detection of any fluid seepage easier. If below ground "well marker" is directed, ConocoPhillips Company will follow BLM requirements and standards for that method of abandonment. Excess caliche will be removed, as appropriate and either disposed of in a permitted facility. Location soil may be "flipped" with BLM concurrence, clean topsoil spread and re-contoured to blend with surrounding area. This method will be accomplished in accordance to BLM standards set forth by the Authorized Officer.

Topsoil redistribution: Areas planned for interim reclamation will be re-contoured to the extent feasible. Topsoil will be evenly re-spread and re-vegetated over the disturbed area not needed for continuing production operations. At such time as well is abandoned, disturbed areas will be re-contoured to a contour that blends with surrounding landscape. Topsoil will be redistributed evenly over the entire disturbed site to depth of 4-6 inches.

Soil treatment: The topsoil will be stripped and set along the designated perimeter of the wellsite. The next layer of dirt is moved with the cut and fill method whereby the highest point of the wellsite is cut into and then pushed to a lower side to

balance the well pad. Upon well completion, the soil will be balanced back onto portions of the pad not needed for long-term operations. Erosion will be minimized by maintaining a lower stockpile profile.
Existing Vegetation at the well pad: Based on an existing EA in the vicinity, the proposed area is expected to be classified as transitional between the Plains-Mesa Sand Scrub and Chihuahuan Desert Scrub plant communities. The area surrounding the location is expected to have dominant shrub species including white thorn acia, range ratany, javelin bushy, honey mesquite, invading creosote and a few althorns. Dominant grass species in the project included but not limited to sand and mesa dropseed, roa grande bristlegrass, black grama and burrograss. An EA will be performed that will list species in the area.
Existing Vegetation at the well pad attachment:

Zia_Hills_20_Pad_2__Location_Photos_20170920093136.pdf

Existing Vegetation Community at the road:

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline:

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances:

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed type: **Seed source:**

Seed name:

Source name: **Source address:**

Source phone:

Seed cultivar:

Seed use location:

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

PLS pounds per acre: **Proposed seeding season:**

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation attachment:

First Name: JEREMY **Last Name:** LEE

Phone: (832)486-2510 **Email:** JEREMY.L.LEE@COP.COM

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: Two Class B noxious weed species, African rue and Malta starthistle and two Class C noxious weed species, Russian olive and salt cedar are of concern. ConocoPhillips Company will consult with BLM for acceptable weed control methods, if the need arises. Any weed control would follow USEPA and BLM requirements and standards. No noxious weed species are expected in the project area.
Weed treatment plan attachment:

Monitoring plan description: Weeds will be controlled on disturbed areas within the exterior limits of the well pad. Monitoring will be in accordance with Best Management Practices and guidelines established by BLM.
Monitoring plan attachment:

Success standards: Reclamation success standards will utilize BLM approved methods.

Pit closure description: No pits will be used, a closed-loop system will be in place

Pit closure attachment:

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: PIPELINE

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Right of Way needed? YES **Use APD as ROW?** YES

ROW Type(s): 281001 ROW - ROADS,288100 ROW – O&G Pipeline,288101 ROW – O&G Facility Sites,289001 ROW-O&G Well Pad

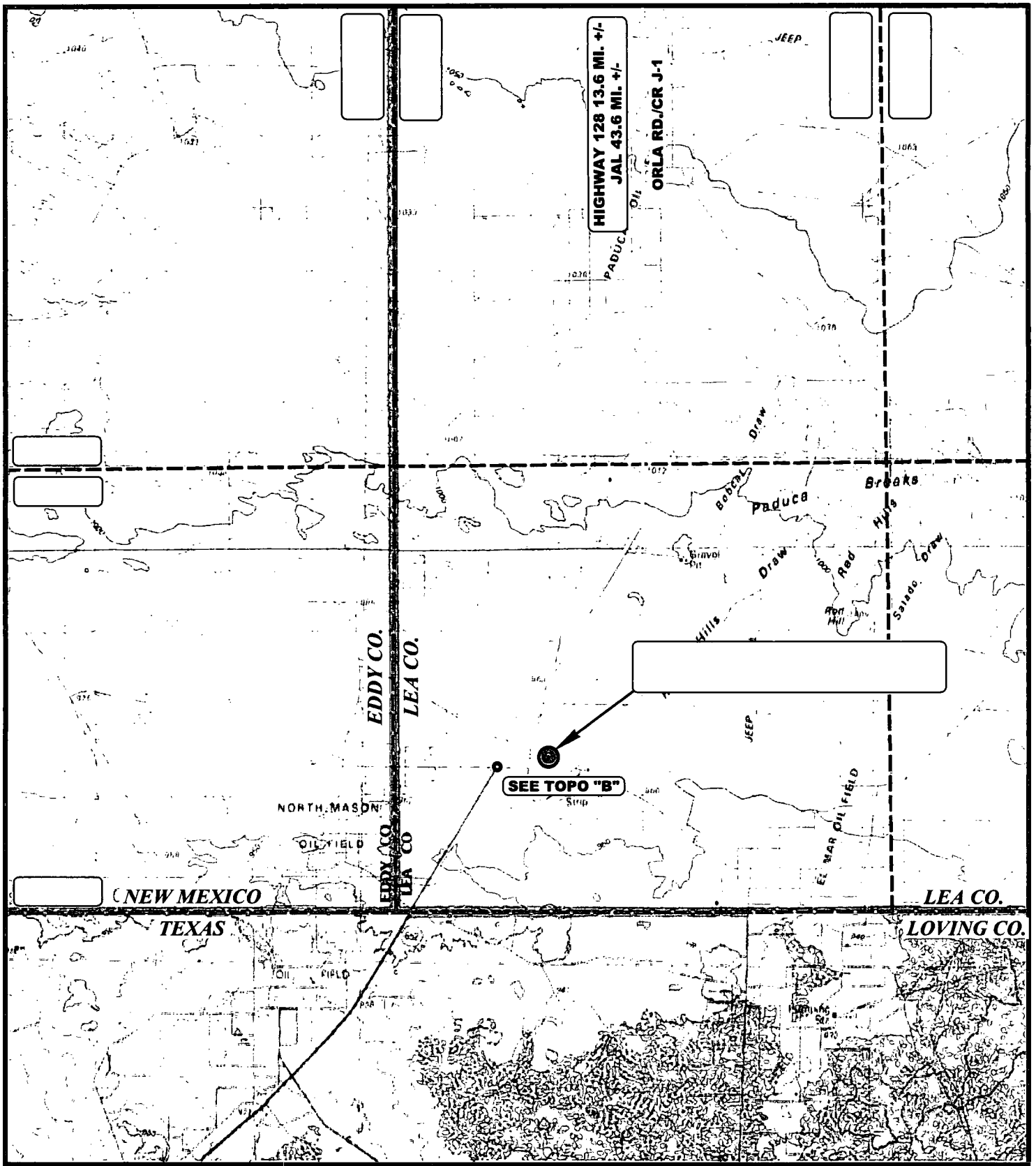
Zia_Hills_20_Pad_2_SF299_20170920093413.pdf

SUPO Additional Information: Onsite was conducted 4/18/17. SF299 (ROW Application) will be submitted separately.

Use a previously conducted onsite? NO

Previous Onsite information:

Zia_Hills_20_Pad_2_CTB_Location_20170920093541.pdf
ZIA_HILLS_BUCK_CF1_20170920093739.pdf
ZIA_HILLS_BUCK_CF1_Access_Road_20170920093949.pdf
ZIA_HILLS_BUCK_CF1_Pipelines_20170920094022.pdf
ZIA_HILLS_BUCK_CF1_Power_Line_20170920094034.pdf
ZIA_HILLS_BUCK_CF1_Preliminary_Plot_Plan_20170920094049.pdf
Zia_Hills_20__Pad_2_Pipelines_20170922081117.pdf
ZIA_HILLS_20_FEDERAL_PAD_2_Reclamation_Diagram_20180926101242.pdf
Zia_Hills_20_Federal_COM_115H_Surface_Use_Plan_20180926101354.pdf



LEGEND:

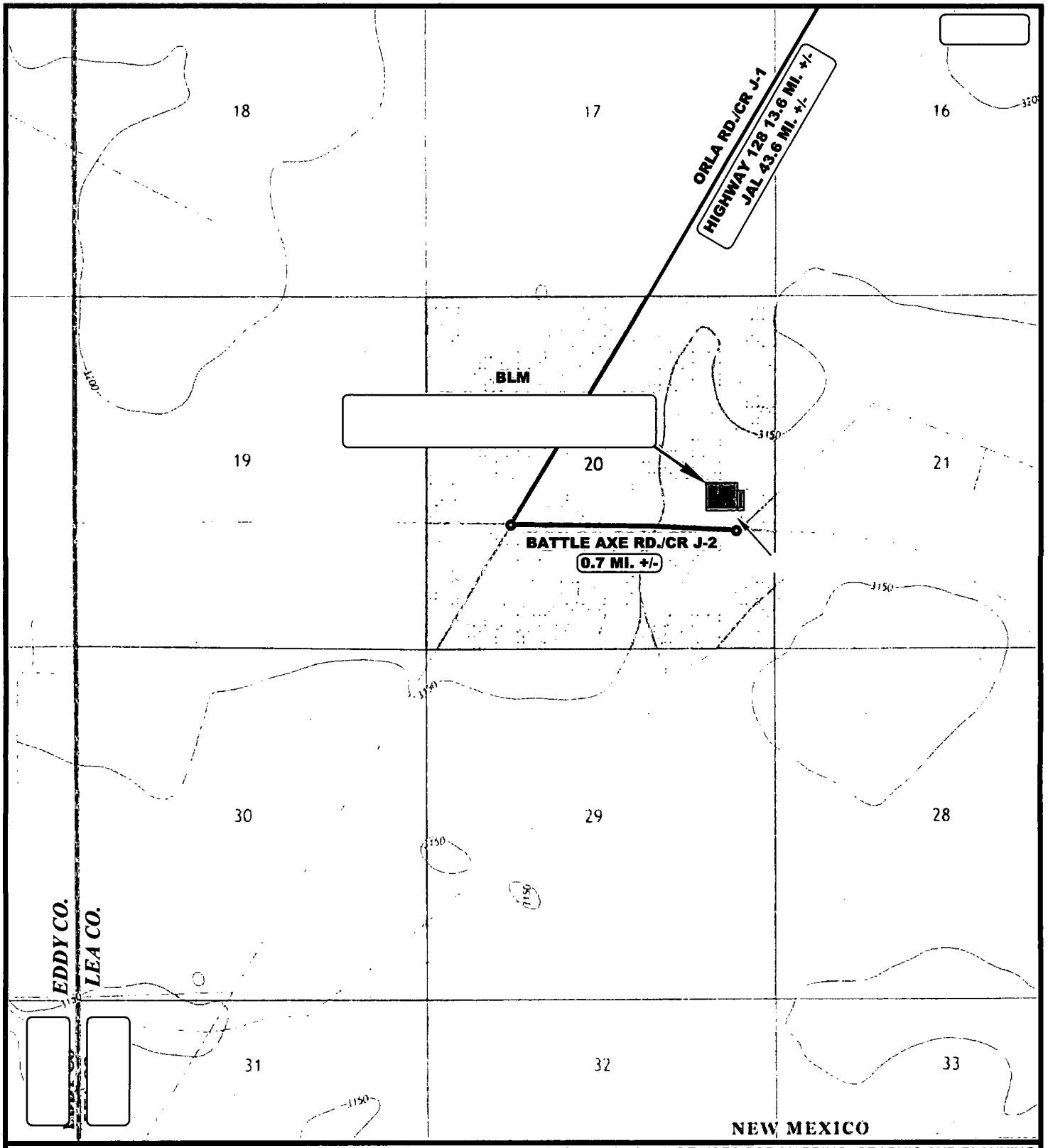
PROPOSED LOCATION

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 2
NE 1/4 SE 1/4, SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	J.A.V., R.D.	05-16-17	SCALE
DRAWN BY	J.B.	05-31-17	1 : 100,000

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017



NOTE: PARCEL DATA SHOWN HAS BEEN OBTAINED FROM VARIOUS SOURCES AND SHOULD BE USED FOR MAPPING, GRAPHIC AND PLANNING PURPOSES ONLY. NO WARRANTY IS MADE BY UINTAH ENGINEERING AND LAND SURVEYING (UELS) FOR ACCURACY OF THE PARCEL DATA.

LEGEND:

EXISTING ROAD

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 2
NE 1/4 SE 1/4, SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

SURVEYED BY	J.A.V., R.D.	05-16-17	SCALE
DRAWN BY	J.B.	05-31-17	1 : 24,000

BEGINNING AT THE INTERSECTION OF HIGHWAY 18 AND HIGHWAY 128 PROCEED IN A WESTERLY, THEN NORTHWESTERLY, THEN WESTERLY DIRECTION FROM JAL, NEW MEXICO ALONG HIGHWAY 128 APPROXIMATELY 30.0 MILES TO THE JUNCTION OF THIS ROAD AND ORLA RD./CR J-1 TO THE SOUTH; TURN LEFT AND PROCEED IN A SOUTHERLY, THEN SOUTHWESTERLY DIRECTION APPROXIMATELY 13.6 MILES TO THE JUNCTION OF THIS ROAD AND BATTLE AXE RD./CR J-2 TO THE EAST; TURN LEFT AND PROCEED IN AN EASTERLY DIRECTION APPROXIMATELY 0.7 MILES TO THE BEGINNING OF THE PROPOSED ACCESS ROAD TO THE NORTH; FOLLOW ROAD FLAGS IN A NORTHERLY DIRECTION APPROXIMATELY 293' TO THE PROPOSED LOCATION.

TOTAL DISTANCE FROM JAL, NEW MEXICO TO THE PROPOSED WELL LOCATION IS APPROXIMATELY 44.4 MILES.

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 2
NE 1/4 SE 1/4, SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

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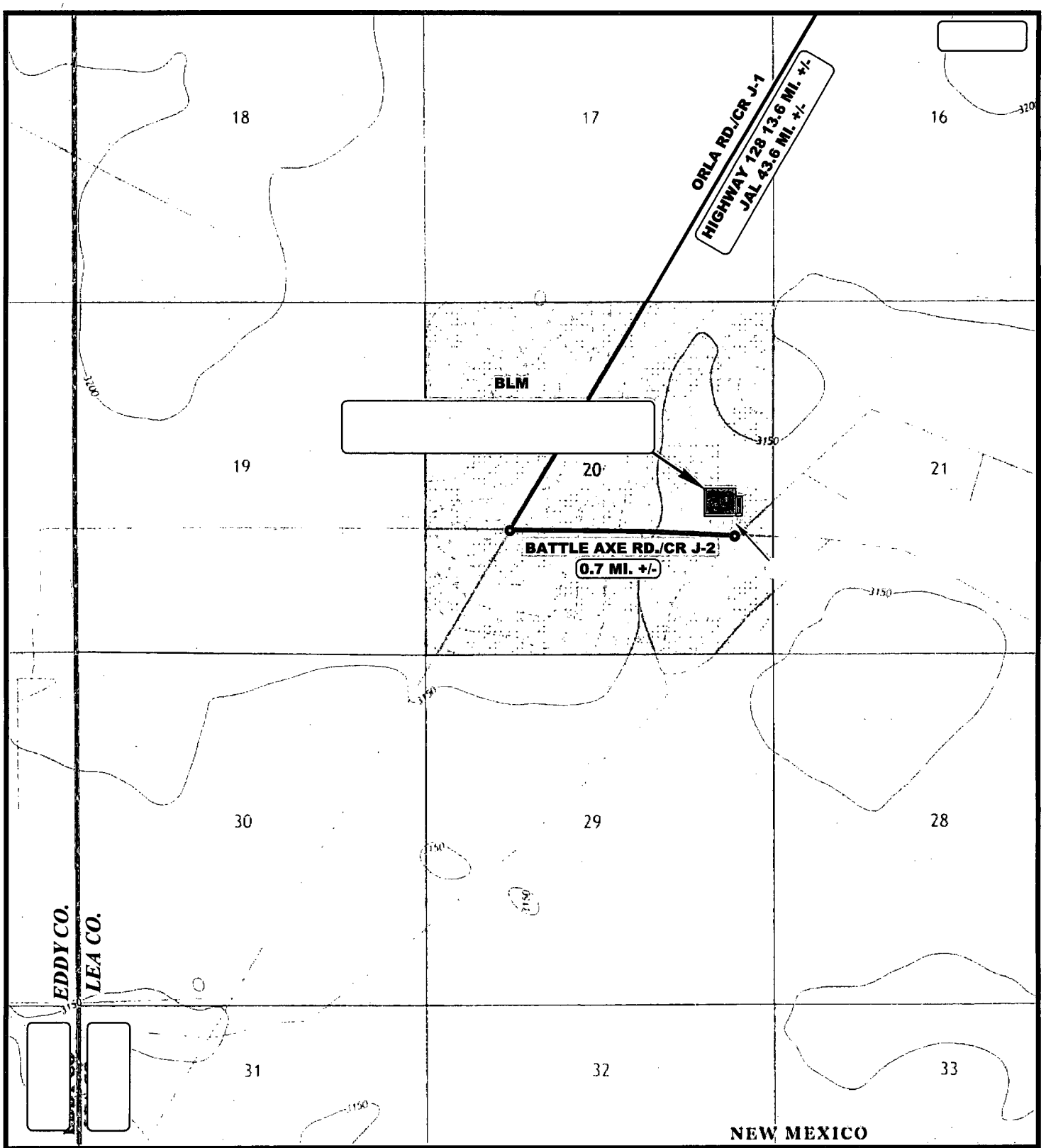
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

SURVEYED BY	J.A.V., R.D.	05-16-17	
DRAWN BY	J.B.	05-31-17	



NOTE: PARCEL DATA SHOWN HAS BEEN OBTAINED FROM VARIOUS SOURCES AND SHOULD BE USED FOR MAPPING, GRAPHIC AND PLANNING PURPOSES ONLY. NO WARRANTY IS MADE BY UINTAH ENGINEERING AND LAND SURVEYING (UELS) FOR ACCURACY OF THE PARCEL DATA.

LEGEND:

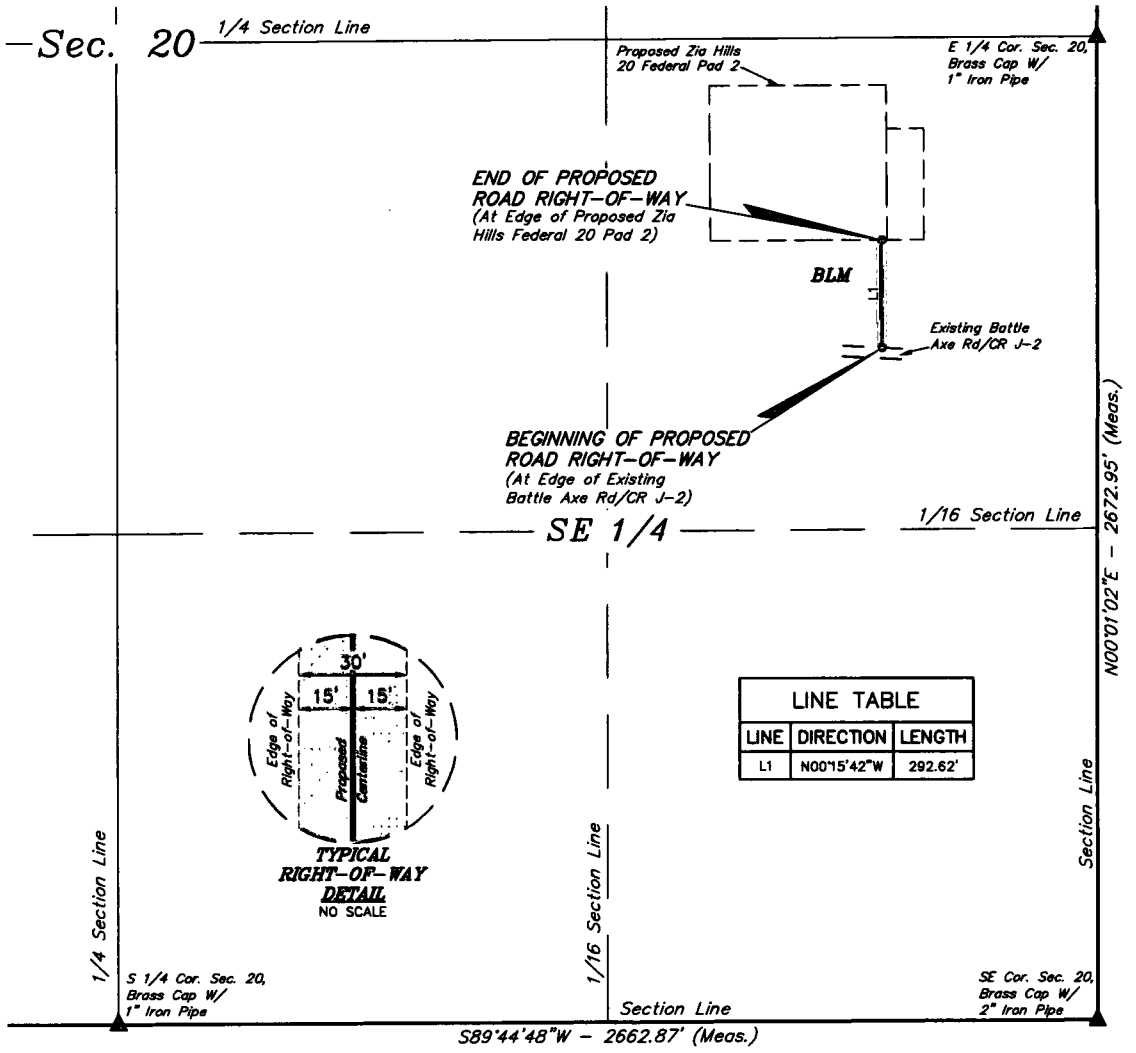
EXISTING ROAD

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 2
NE 1/4 SE 1/4, SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

SURVEYED BY	J.A.V., R.D.	05-16-17	SCALE
DRAWN BY	J.B.	05-31-17	1 : 24,000



ROAD RIGHT-OF-WAY DESCRIPTION

A 30' WIDE RIGHT-OF-WAY 15' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

BEGINNING AT A POINT IN THE NE 1/4 SE 1/4 OF SECTION 20, T26S, R32E, N.M.P.M., WHICH BEARS S34°33'23"W 1029.80' FROM THE EAST 1/4 CORNER OF SAID SECTION 20, THENCE N00°15'42"W 292.62' TO A POINT IN THE NE 1/4 SE 1/4 OF SAID SECTION 20, WHICH BEARS S46°30'16"W 807.06' FROM THE EAST 1/4 CORNER OF SAID SECTION 20. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. BASIS OF BEARINGS IS A TRANSVERSE MERCATOR PROJECTION WITH A CENTRAL MERIDIAN OF W103°53'00". CONTAINS 0.202 ACRES MORE OR LESS.

BEGINNING OF ROAD BEARS S34°33'23"W 1029.80' FROM THE EAST 1/4 CORNER OF SECTION 20, T26S, R32E, N.M.P.M.

END OF ROAD BEARS S46°30'16"W 807.06' FROM THE EAST 1/4 CORNER OF SECTION 20, T26S, R32E, N.M.P.M.

400' 200' 0' 400'

ACREAGE / LENGTH TABLE

	OWNERSHIP	FEET	RODS	ACRES
SEC. 20 (SE 1/4)	BLM	292.62	17.73	0.202

▲ = SECTION CORNERS LOCATED.

CERTIFICATE
THIS IS TO CERTIFY THAT THIS EASEMENT PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION, THAT I AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO, AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NEW MEXICO 23782 PROFESSIONAL SURVEYOR

FILE: 61978

NOTES:
- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

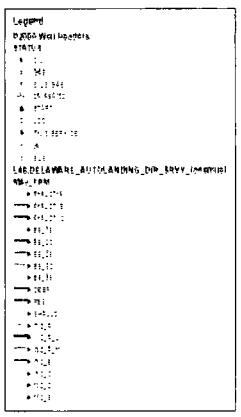
ConocoPhillips Company

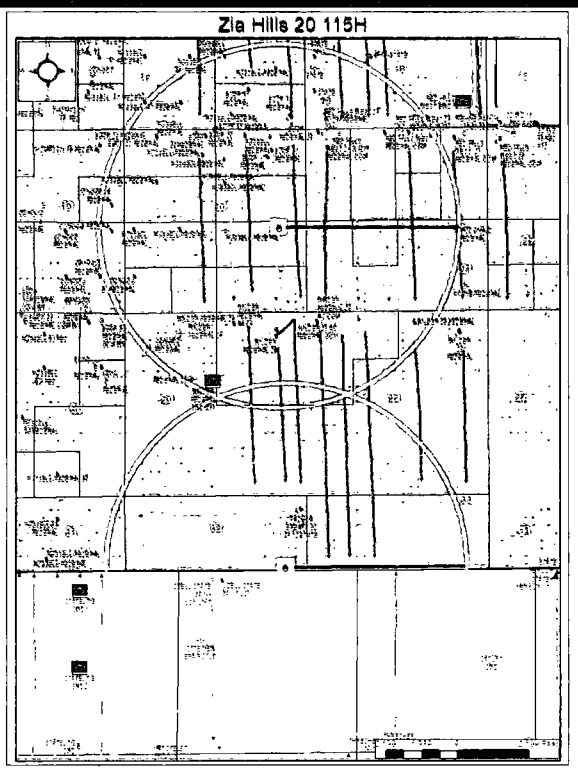
ZIA HILLS 20 FEDERAL PAD 2
SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	J.A.V., R.D.	05-16-17	SCALE
DRAWN BY	B.D.H.	07-27-17	1" = 400'

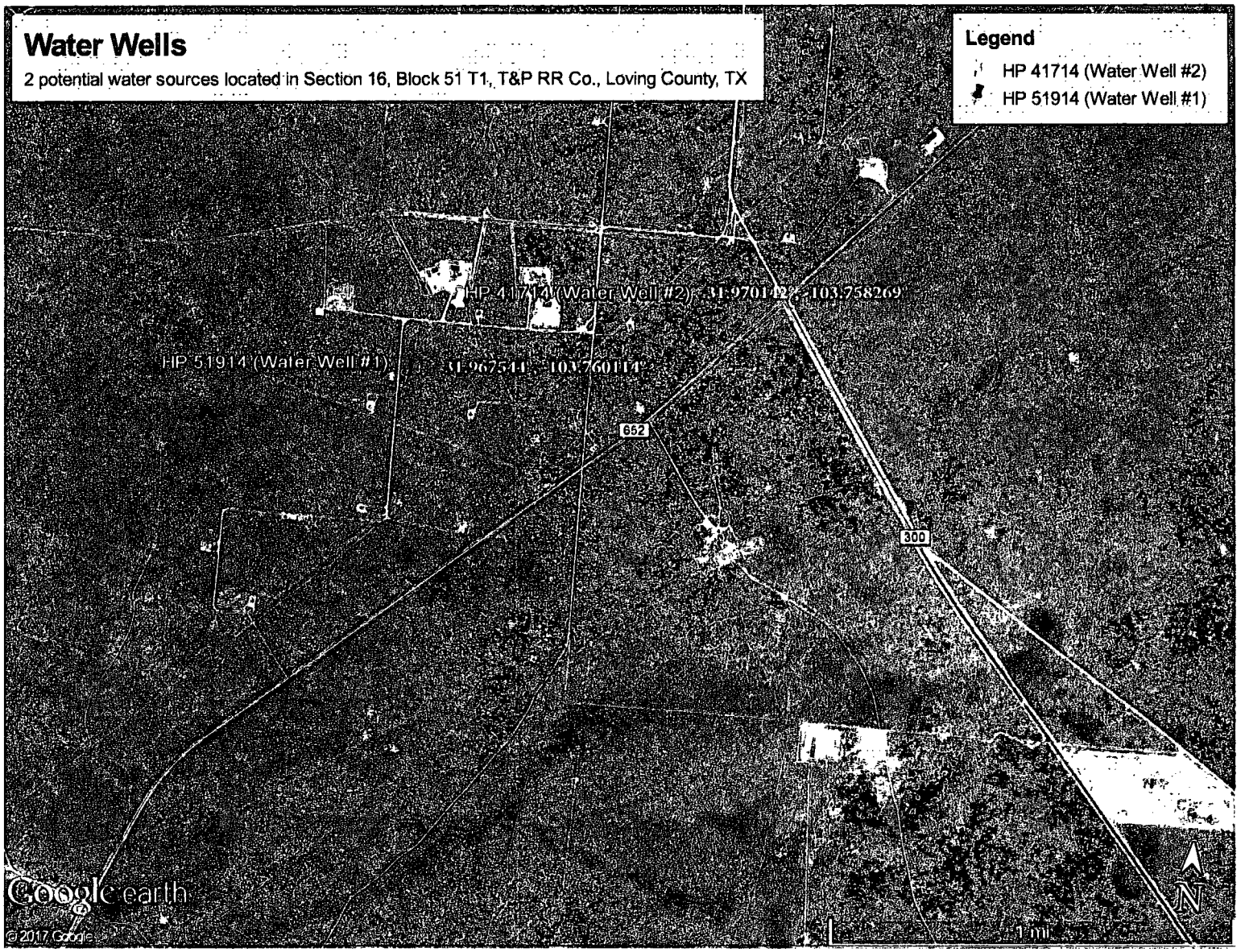
UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

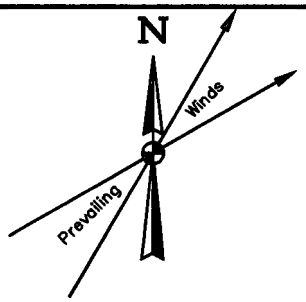
Zia Hills 20 Federal Com 115H

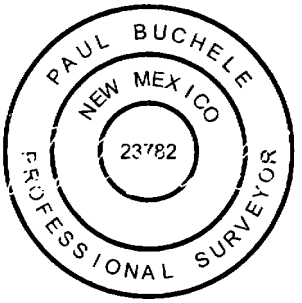


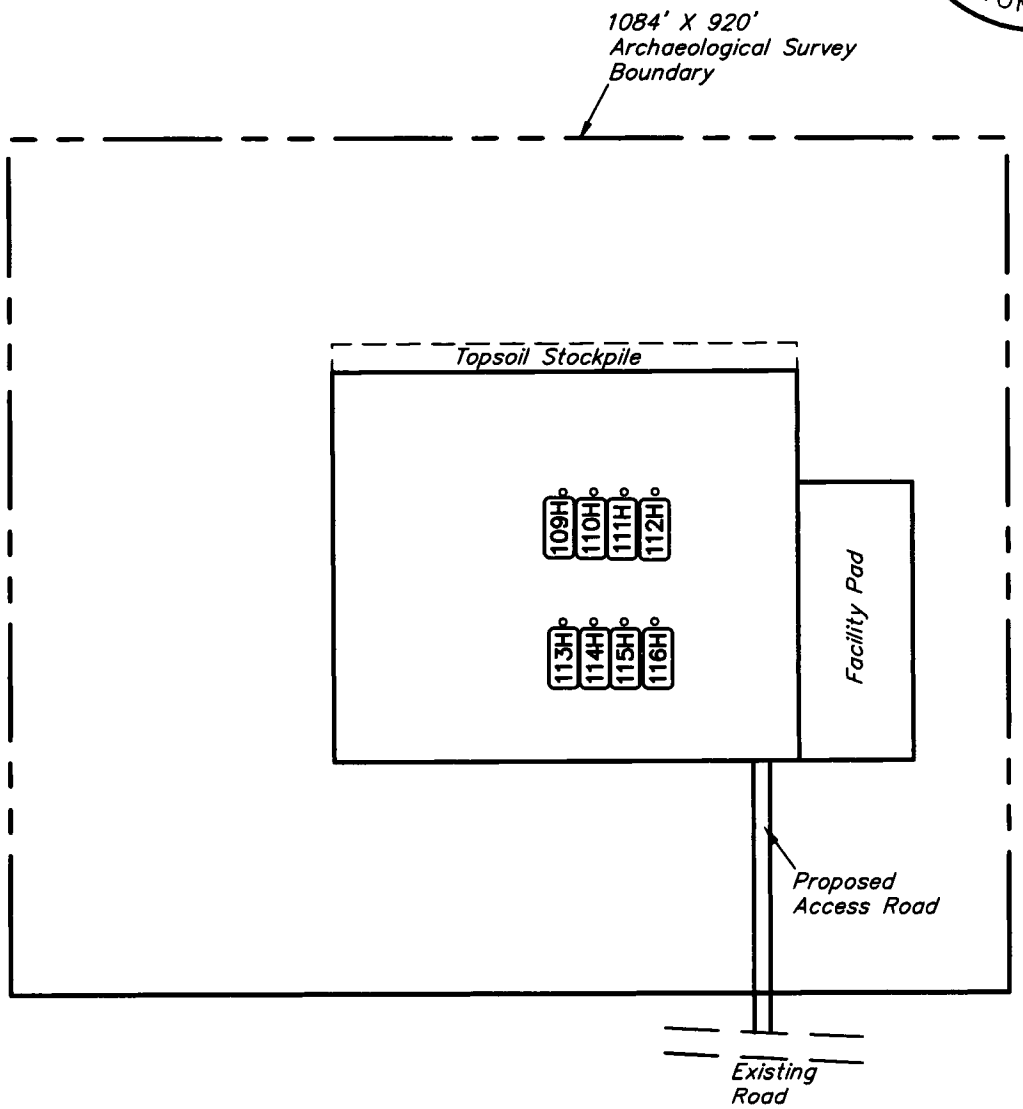


ConocoPhillips


Water Wells
2 potential water sources located in Section 16, Block 51 T1, T&P RR Co., Loving County, TX
Legend
HP 41714 (Water Well #2)
HP 51914 (Water Well #1)
HP 41714 (Water Well #2) 31.970142, -103.758269
HP 51914 (Water Well #1) 31.967541, -103.760114
652
300
Google earth
© 2017 Google
1 mi
N







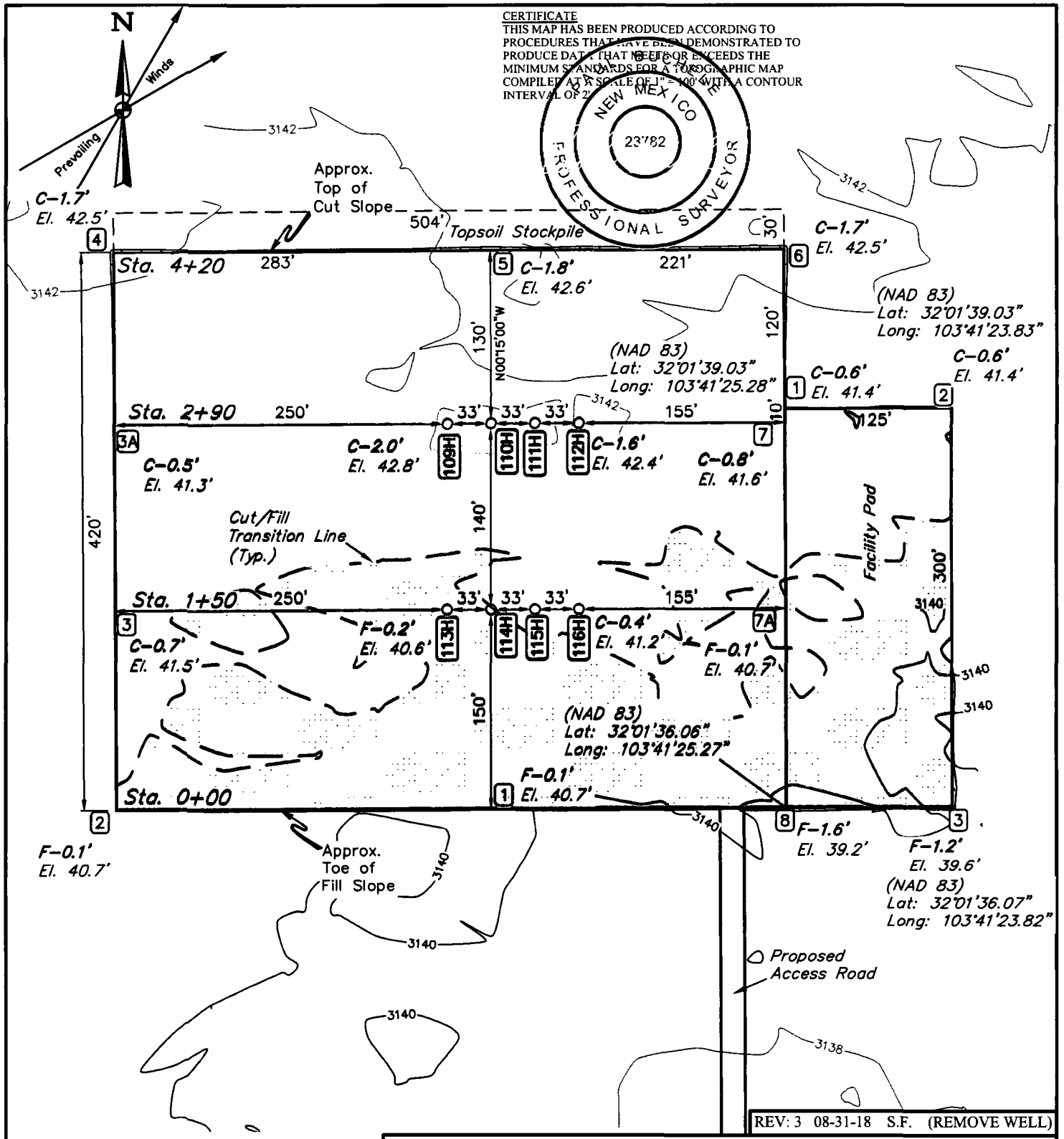
REV: 3 08-31-18 S.F. (REMOVE WELL)

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 2
NE 1/4 SE 1/4, SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

SURVEYED BY	J.A.V., R.D.	05-16-17	**SCALE**
DRAWN BY	S.S.	06-26-17	1" = 200'



REV: 3 08-31-18 S.F. (REMOVE WELL)

NOTE: Earthwork Calculations Require a Fill @ Some Location Stakes For Balance. All Fill is to be Compacted to a Minimum of 95% of the Maximum Dry Density Obtained by AASHTO Method t-99.

FINISHED GRADE ELEVATION = 3140.8'

NOTES:

- Contours shown at 2' intervals.

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 2
NE 1/4 SE 1/4, SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

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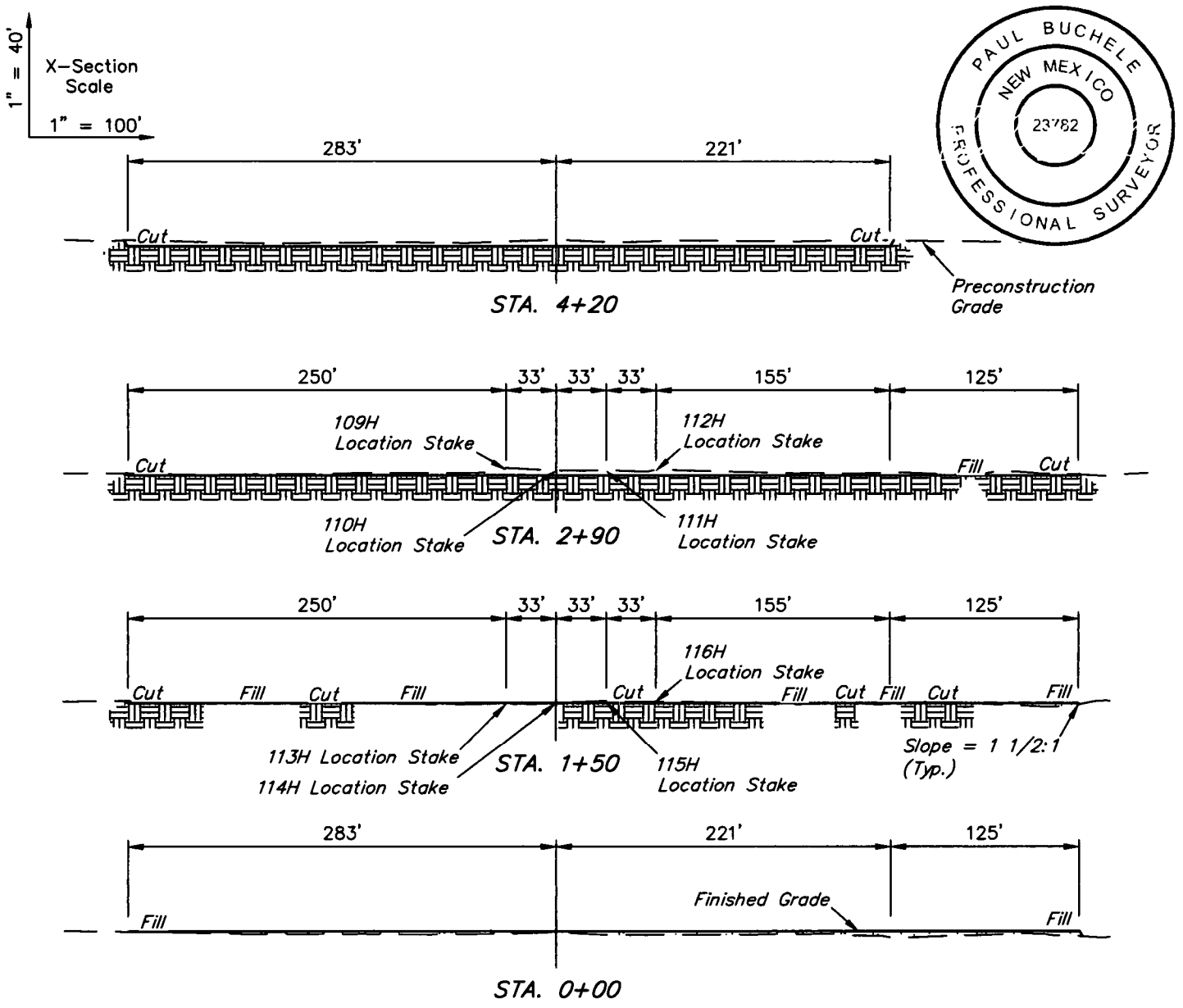
SURVEYED BY	J.A.V., R.D.	05-16-17	SCALE
DRAWN BY	S.S.	06-26-17	1" = 100'



PAUL BUCHELE
NEW MEXICO
23782
PROFESSIONAL SURVEYOR

APPROXIMATE EARTHWORK QUANTITIES	
(3") TOPSOIL STRIPPING	2,330 Cu. Yds.
REMAINING LOCATION	2,380 Cu. Yds.
TOTAL CUT	**4,710 Cu. Yds.**
FILL	**2,380 Cu. Yds.**
EXCESS MATERIAL	2,330 Cu. Yds.
TOPSOIL	2,330 Cu. Yds.
EXCESS UNBALANCE (After Interim Rehabilitation)	**0 Cu. Yds.**

APPROXIMATE SURFACE DISTURBANCE AREAS		
	DISTANCE	**ACRES**
WELL SITE DISTURBANCE	NA	±6.101
30' WIDE ACCESS ROAD R-O-W DISTURBANCE	±292.62'	±0.202
50' WIDE PIPELINE R-O-W DISTURBANCE	±1893.08'	±2.173
TOTAL SURFACE USE AREA		**±8.476**

REV: 3 08-31-18 S.F. (REMOVE WELL)

NOTES:

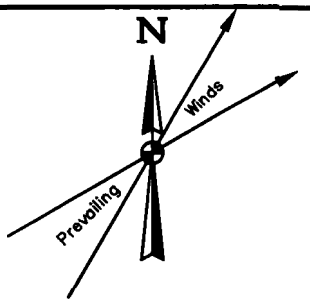
- Fill quantity includes 5% for compaction.

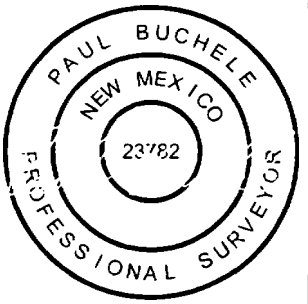
ConocoPhillips Company

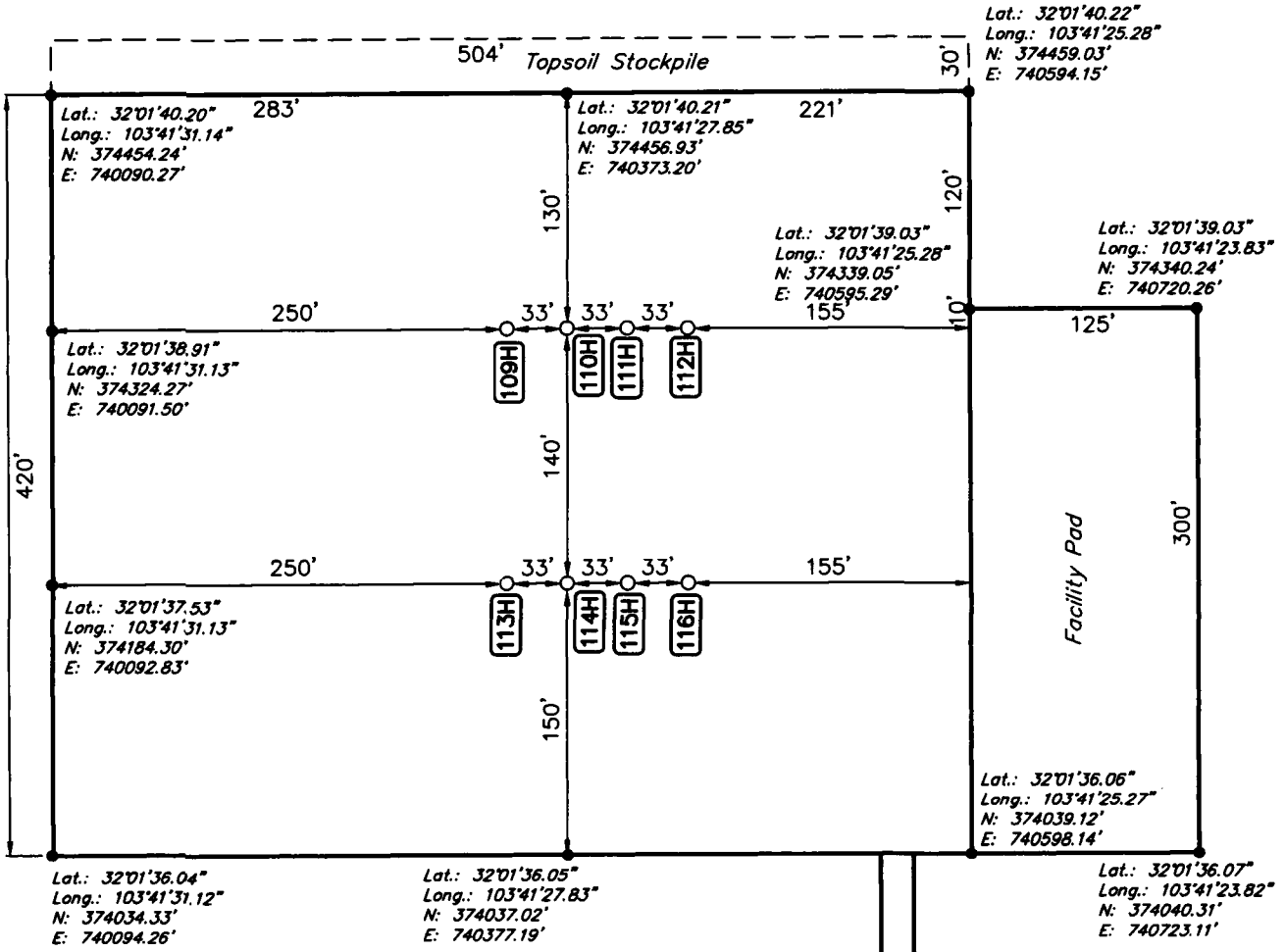
ZIA HILLS 20 FEDERAL PAD 2
NE 1/4 SE 1/4, SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

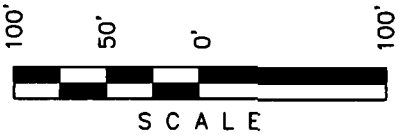
UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

SURVEYED BY	J.A.V., R.D.	05-16-17	SCALE
DRAWN BY	S.S.	06-26-17	AS SHOWN









REV: 3 08-31-18 S.F. (REMOVE WELL)

NOTES:

- Latitude and Longitude Coordinates are NAD 83.
- Coordinates shown are New Mexico coordinate system of of 1983 in U.S. survey feet, East zone.

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 2
NE 1/4 SE 1/4, SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

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Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

SURVEYED BY	J.A.V., R.D.	05-16-17	SCALE
DRAWN BY	S.S.	06-26-17	1" = 100'

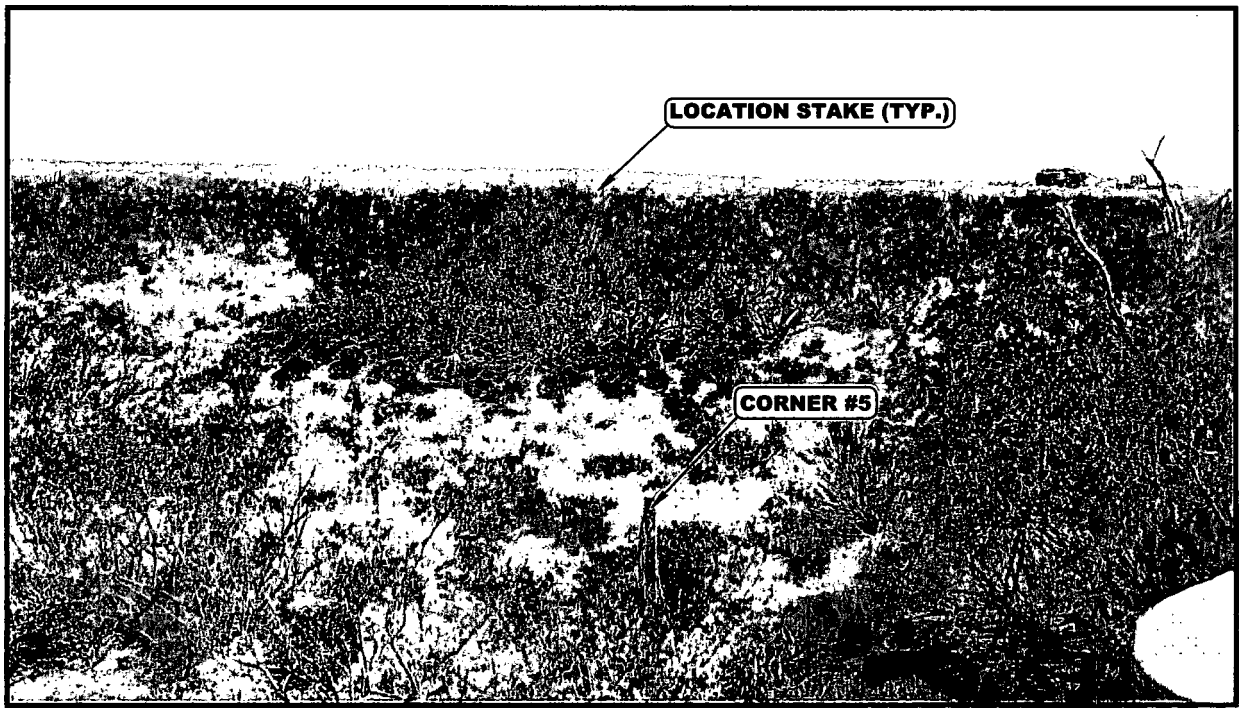


PHOTO: VIEW FROM CORNER #5 TO LOCATION STAKES CAMERA ANGLE: SOUTHERLY

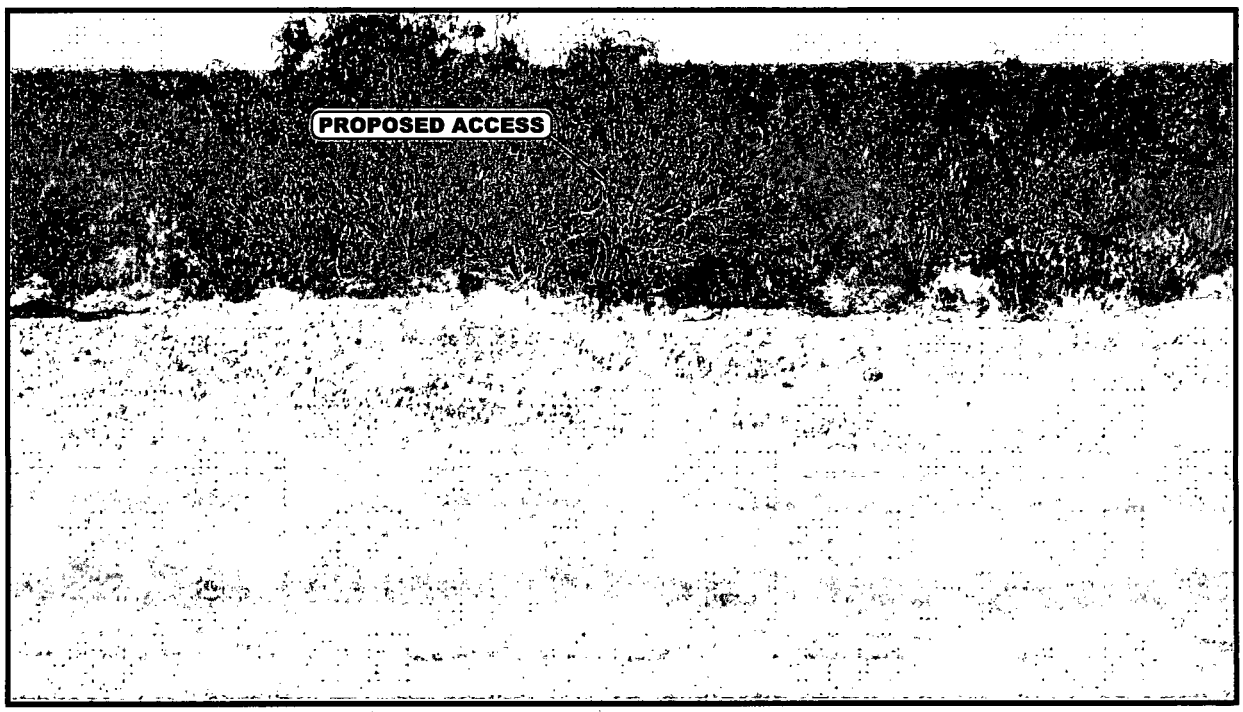


PHOTO: VIEW FROM BEGINNING OF PROPOSED ACCESS CAMERA ANGLE: NORTHERLY

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 2
NE 1/4 SE 1/4, SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

TAKEN BY	J.A.V., R.D.	05-16-17	
DRAWN BY	J.B.	05-31-17	

STANDARD FORM 299 (05/2009)
Prescribed by DOI/USDA/DOT
P.L. 96-487 and Federal
Register Notice 5-22-95

APPLICATION FOR TRANSPORTATION AND UTILITY SYSTEMS AND FACILITIES ON FEDERAL LANDS

FORM APPROVED
OMB Control Number: 0596-0082
Expiration Date: 1/31/2017

FOR AGENCY USE ONLY

Application Number

Date Filed

NOTE: Before completing and filing the application, the applicant should completely review this package and schedule a preapplication meeting with representatives of the agency responsible for processing the application. Each agency may have specific and unique requirements to be met in preparing and processing the application. Many times, with the help of the agency representative, the application can be completed at the preapplication meeting.

1. Name and address of applicant *(include zip code)*

ConocoPhillips Company
P.O. Box 51810
Midland, Texas 79710

2. Name, title, and address of authorized agent if different from item 1 *(include zip code)*

Ashley Bergen
Associate Regulatory
P.O. Box 51810
Midland, Texas 79710

3. Telephone (area code)
432-688-6938

Applicant
ConocoPhillips Company

Authorized Agent
Ashley Bergen

4. As applicant are you? *(check one)*

a. D Individual
b. D Corporation*
c. D Partnership/Association*
d. D State GovernmenUState Agency
e. D Local Government
f. D Federal Agency

* *If checked, complete supplemental page*

5. Specify what application is for: *(check one)*

a. D New authorization
b. D Renewing existing authorization No.
c. D Amend existing authorization No.
d. D Assign existing authorization No.
e. D Existing use for which no authorization has been received *
f. D Other*

* *If checked, provide details under item 7*

6. If an individual, or partnership are you a citizen(s) of the United States? D Yes D No

7. Project description (describe in detail): (a) Type of system or facility, *(e.g., canal, pipeline, road);* (b) related structures and facilities; (c) physical specifications *(Length, width, grading,* etc.); (d) term of years needed: (e) time of year of use or operation; (f) Volume or amount of product to be transported; (g) duration and timing of construction; and (h) temporary work areas needed for construction *(Attach additional sheets, if additional space is needed.)*

8. Attach a map covering area and show location of project proposal

9. State or Local government approval: D Attached D Applied for D Not Required

10. Nonreturnable application fee: D Attached D Not required

11. Does project cross international boundary or affect international waterways? D Yes D No *(if "yes," indicate on map)*

12. Give statement of your technical and financial capability to construct, operate, maintain, and terminate system for which authorization is being requested.

13a. Describe other reasonable alternative routes and modes considered.

b. Why were these alternatives not selected?

c. Give explanation as t o why it is necessary to cross Federal Lands.

14. List authorizations and pending applications filed for similar projects which may provide information to the authorizing agency. *(Specify number, date, code, or name)*

15. Provide statement of need for project, including the economic feasibility and items such as: (a) cost of proposal (construction, operation, and maintenance); (b) estimated cost of next best alternative; and (c) expected public benefits.

16. Describe probable effects on the population in the area, including the social and economic aspects, and the rural lifestyles.

17. Describe likely environmental effects that the proposed project will have on: (a) air quality; (b) visual impact; (c) surface and ground water quality and quantity; (d) the control or structural change on any stream or other body of water; (e) existing noise levels; and (f) the surface of the land, including vegetation, permafrost, soil, and soil stability.

18. Describe the probable effects that the proposed project will have on (a) populations of fish, plantlife, wildlife, and marine life, including threatened and endangered species; and (b) marine mammals, including hunting, capturing, collecting, or killing these animals.

19. State whether any hazardous material, as defined in this paragraph, will be used, produced, transported or stored on or within the right-of-way or any of the right-of-way facilities, or used in the construction, operation, maintenance or termination of the right-of-way or any of its facilities. "Hazardous material" means any substance, pollutant or contaminant that is listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. 9601 et seq., and its regulations. The definition of hazardous substances under CERCLA includes any "hazardous waste" as defined in the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, 42 U.S.C. 6901 et seq., and its regulations. The term hazardous materials also includes any nuclear or byproduct material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et seq. The term does not include petroleum, including crude oil or any fraction thereof that is not otherwise specifically listed or designated as a hazardous substance under CERCIA Section 101(14), 42 U.S.C. 9601(14), nor does the term include natural gas.

20. Name all the Department(s)/Agency(ies) where this application is being filed.

I HEREBY CERTIFY, That I am of legal age and authorized to do business in the State and that I have personally examined the information contained in the application and believe that the information submitted is correct to the best of my knowledge.

~~Signature of Applicant~~ | Date

Title 18, U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

GENERAL INFORMATION
ALASKA NATIONAL INTEREST LANDS

This application will be used when applying for a right-of-way, permit, license, lease, or certificate for the use of Federal lands which lie within conservation system units and National Recreation or Conservation Areas as defined in the Alaska National Interest lands Conservation Act. Conservation system units include the National Park System, National Wildlife Refuge System, National Wild and Scenic Rivers System, National Trails System, National Wilderness Preservation System, and National Forest Monuments.

Transportation and utility systems and facility uses for which the application may be used are:

1. Canals, ditches, flumes, laterals, pipes, pipelines, tunnels, and other systems for the transportation of water.

2. Pipelines and other systems for the transportation of liquids other than water, including oil, natural gas, synthetic liquid and gaseous fuels, and any refined product produced therefrom.

3. Pipelines, slurry and emulsion systems, and conveyor belts for transportation of solid materials.

4. Systems for the transmission and distribution of electric energy.

5. Systems for transmission or reception of radio, television, telephone, telegraph, and other electronic signals, and other means of communications.

6. Improved right-of-way for snow machines, air cushion vehicles, and all-terrain vehicles.

7. Roads, highways, railroads, tunnels, tramways, airports, landing strips, docks, and other systems of general transportation.

This application must be filed simultaneously with each Federal department or agency requiring authorization to establish and operate your proposal.

In Alaska, the following agencies will help the applicant file an application and identify the other agencies the applicant should contact and possibly file with:

Department of Agriculture
Regional Forester, Forest Service (USFS)
Federal Office Building,
P.O. Box 21628
Juneau, Alaska 99802-1628
Telephone: (907) 586-7847 *(or a local Forest Service Office)*

Department of the Interior
Bureau of Indian Affairs (BIA)
Juneau Area Office
Federal Building Annex
9109 Mendenhall Mall Road, Suite 5
Juneau, Alaska 99802
Telephone: (907) 586-7177

Department of the Interior
Bureau of Land Management
222 West 7th Avenue
P.O. Box 13
Anchorage, Alaska 99513-7599
Telephone: (907) 271-5477 (or a local BLM Office)

U.S. Fish & Wildlife Service (FWS)
Office of the Regional Director
1011 East Tudor Road
Anchorage, Alaska 99503
Telephone: (907) 786-3440

National Park Service (NPA)
Alaska Regional Office, 2225
Gambell St., Rm. 107
Anchorage, Alaska 99502-2892
Telephone: (907) 786-3440

Note - Filings with any Interior agency may be filed with any office noted above or with the Office of the Secretary of the Interior, Regional Environmental Office, P.O. Box 120, 1675 C Street, Anchorage, Alaska 9513.

Department of Transportation
Federal Aviation Administration
Alaska Region AAL-4, 222 West 7th Ave., Box 14
Anchorage, Alaska 99513-7587
Telephone: (907) 271-5285

NOTE - The Department of Transportation has established the above central filing point for agencies within that Department. Affected agencies are: Federal Aviation Administration (FAA), Coast Guard (USCG), Federal Highway Administration (FHWA), Federal Railroad Administration (FRA).

OTHER THAN ALASKA NATIONAL INTEREST LANDS

Use of this form is not limited to National Interest Conservation Lands of Alaska.

Individual department/agencies may authorize the use of this form by applicants for transportation and utility systems and facilities on other Federal lands outside those areas described above.

For proposals located outside of Alaska, applications will be filed at the local agency office or at a location specified by the responsible Federal agency.

SPECIFIC INSTRUCTIONS
(Items not listed are self-explanatory)

7 Attach preliminary site and facility construction plans. The responsible agency will provide instructions whenever specific plans are required.

8 Generally, the map must show the section(s), township(s), and range(s) within which the project is to be located. Show the proposed location of the project on the map as accurately as possible. Some agencies require detailed survey maps. The responsible agency will provide additional instructions.

9, 10, and 12 The responsible agency will provide additional instructions.

13 Providing information on alternate routes and modes in as much detail as possible, discussing why certain routes or modes were rejected and why it is necessary to cross Federal lands will assist the agency(ies) in processing your application and reaching a final decision. Include only reasonable alternate routes and modes as related to current technology and economics.

14 The responsible agency will provide instructions.

15 Generally, a simple statement of the purpose of the proposal will be sufficient. However, major proposals located in critical or sensitive areas may require a full analysis with additional specific information. The responsible agency will provide additional instructions.

16 through 19 Providing this information is as much detail as possible will assist the Federal agency(ies) in processing the application and reaching a decision. When completing these items, you should use a sound judgment in furnishing relevant information. For example, if the project is not near a stream or other body of water, do not address this subject. The responsible agency will provide additional instructions.

Application must be signed by the applicant or applicant's authorized representative.

EFFECT OF NOT PROVIDING INFORMATION: Disclosure of the information is voluntary. If all the information is not provided, the application may be rejected.

DATA COLLECTION STATEMENT

The Federal agencies collect this information from applicants requesting right-of-way, permit, license, lease, or certification for the use of Federal lands. The Federal agencies use this information to evaluate the applicant's proposal. The public is obligated to submit this form if they wish to obtain permission to use Federal lands.

SUPPLEMENTAL

NOTE: The responsible agency(ies) will provide instructions	CHECK APPROPRIATE BLOCK	
I - PRIVATE CORPORATIONS	ATTACHED	FILED*
a. Articles of Incorporation	D	D
b. Corporation Bylaws	D	D
c. A certification from the State showing the corporation is in good standing and is entitled to operate within the State	D	D
d Copy of resolution authorizing filing	D	D
e. The name and address of each shareholder owning 3 percent or more of the shares, together with the number and percentage of any class of voting shares of the entity which such shareholder is authorized to vote and the name and address of each affiliate of the entity together with, in the case of an affiliate controlled by the entity, the number of shares and the percentage of any class of voting stock of that affiliate owned, directly or indirectly, by that entity, and in the case of an affiliate which controls that entity, the number of shares and the percentage of any class of voting stock of that entity owned, directly or indirectly, by the affiliate.	D	D
f. If application is for an oil or gas pipeline, describe any related right- of-way or temporary use permit applications, and identify previous applications.	D	D
g. If application is for an oil and gas pipeline, identify all Federal lands by agency impacted by proposal.	D	D
11 - PUBLIC CORPORATIONS		
a. Copy of law forming corporation	D	D
b. Proof of organization	D	D
c. Copy of Bylaws	D	D
d. Copy of resolution authorizing filing	D	D
e. If application is for an oil or gas pipeline, provide information required by item "I - f' and "I - g" above.	D	D
111 - PARTNERSHIP OR OTHER UNINCORPORATED ENTITY		
a. Articles of association, if any	D	D
b. If one partner is authorized to sign, resolution authorizing action is	D	D
c. Name and address of each participant, partner, association, or other	D	D
d. If application is for an oil or gas pipeline, provide information required by item "I - f' and "I - g" above.	D	D

*If the required information is already filed with the agency processing this application and is current, check block entitled "Filed." Provide the file identification information *(e.g., number, date, code, name)*. If not on file or current, attach the requested information.

NOTICES

Note: This applies to the Department of Agriculture/Forest Service (FS)

This information is needed by the Forest Service to evaluate the requests to use National Forest System lands and manage those lands to protect natural resources, administer the use, and ensure public health and safety. This information is required to obtain or retain a benefit. The authority for that requirement is provided by the Organic Act of 1897 and the Federal Land Policy and Management Act of 1976, which authorize the secretary of Agriculture to promulgate rules and regulations for authorizing and managing National Forest System lands. These statutes, along with the Term Permit Act, National Forest Ski Area Permit Act, Granger-Thye Act, Mineral Leasing Act, Alaska Term Permit Act, Act of September 3, 1954, Wilderness Act, National Forest Roads and Trails Act, Act of November 16, 1973, Archeological Resources Protection Act, and Alaska National Interest Lands Conservation Act, authorize the Secretary of Agriculture to issue authorizations or the use and occupancy of National Forest System lands. The Secretary of Agriculture's regulations at 36 CFR Part 251, Subpart B, establish procedures for issuing those authorizations.

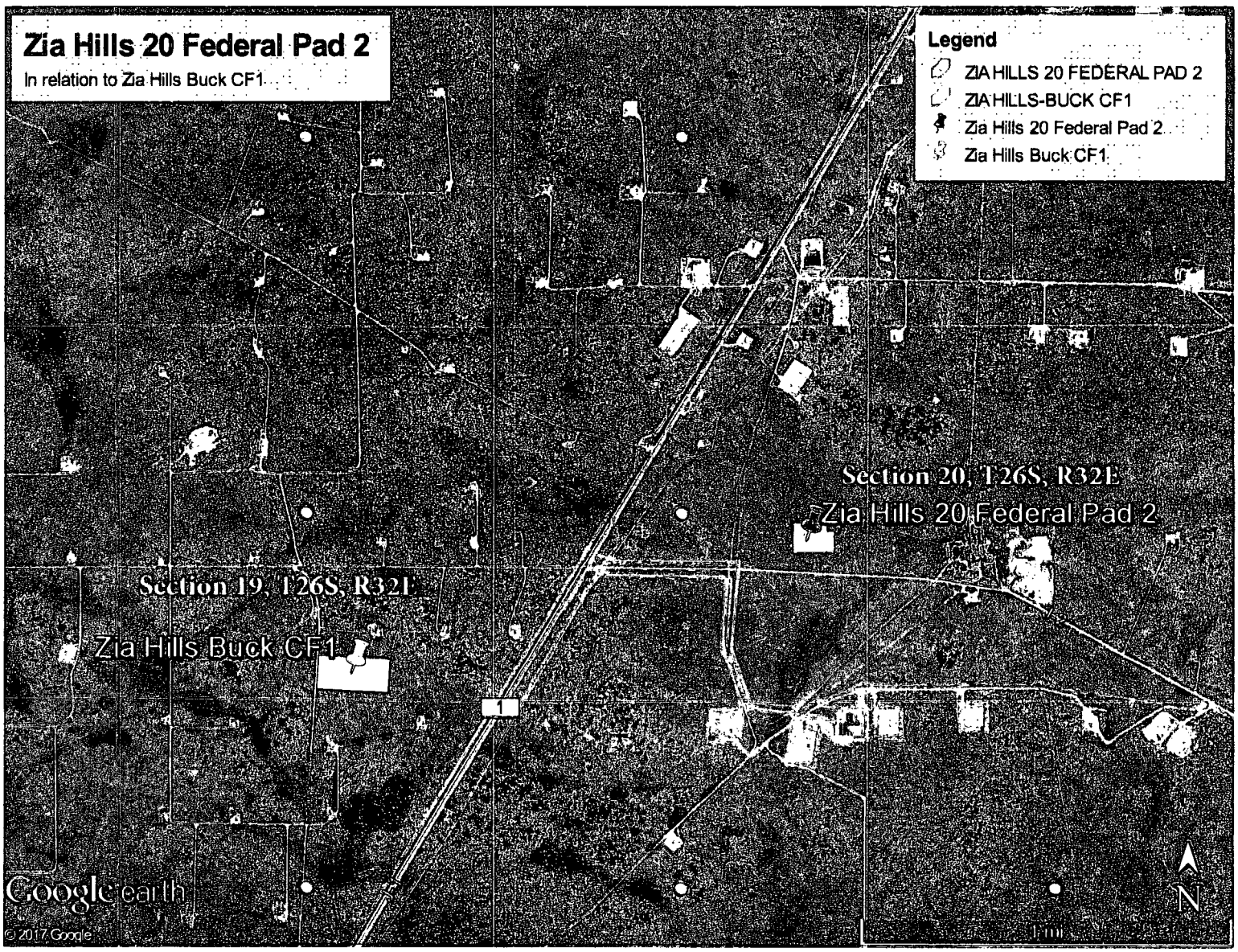
BURDEN AND NONDISCRIMINATION STATEMENTS

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082. The time required to complete this information collection is estimated to average 8 hours hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.


Zia Hills 20 Federal Pad 2
In relation to Zia Hills Buck CF1
Legend
ZIA HILLS 20 FEDERAL PAD 2
ZIA HILLS-BUCK CF1
Zia Hills 20 Federal Pad 2
Zia Hills Buck CF1
Section 20, T26S, R32E
Zia Hills 20 Federal Pad 2
Section 19, T26S, R32E
Zia Hills Buck CF1
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Google earth
© 2017 Google
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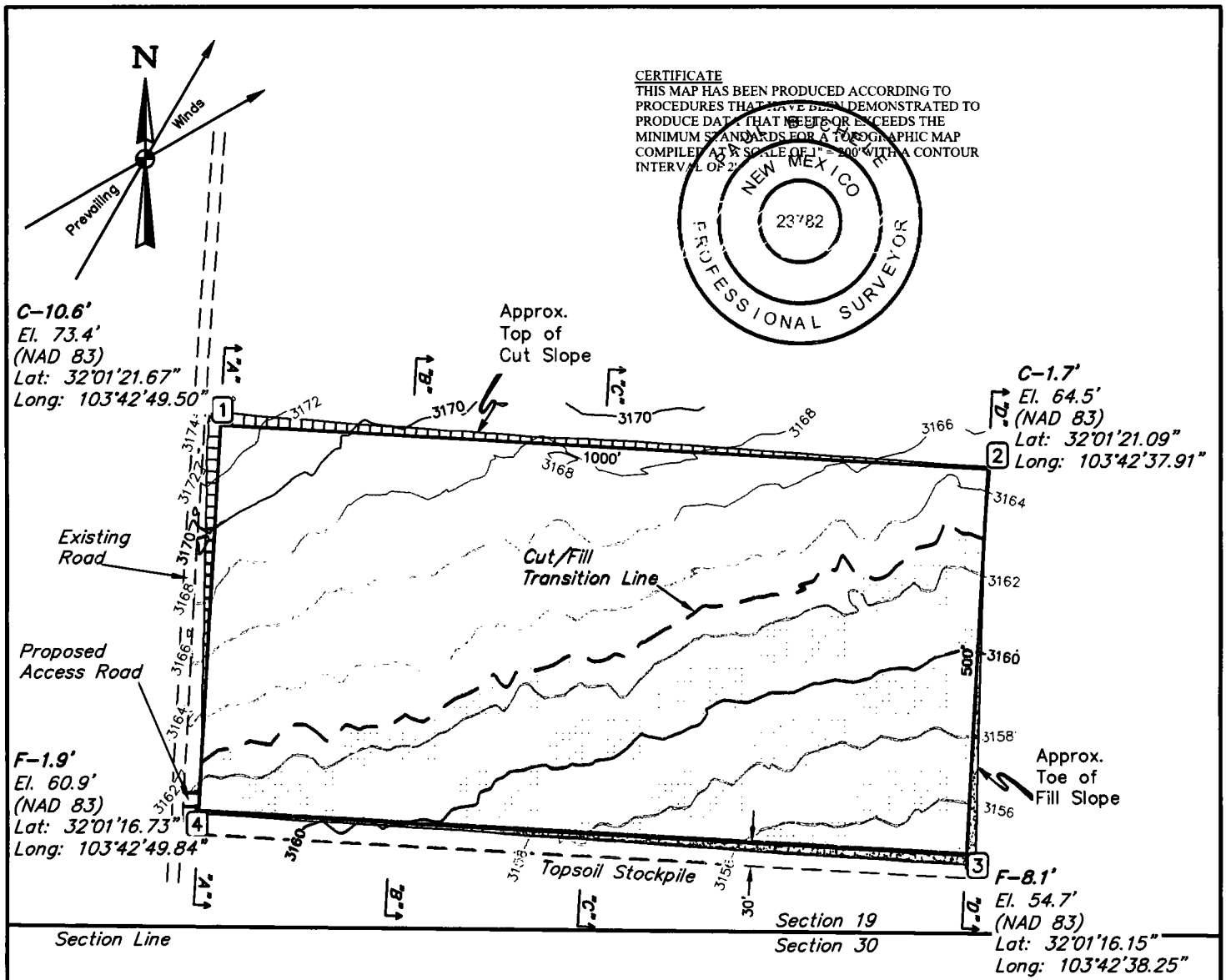
1 mi

Already submitted with Zia Hill 19 Pad #1 APDs



FINISHED GRADE ELEVATION = **3162.8'**

NOTES:

- Contours shown at 2' intervals.

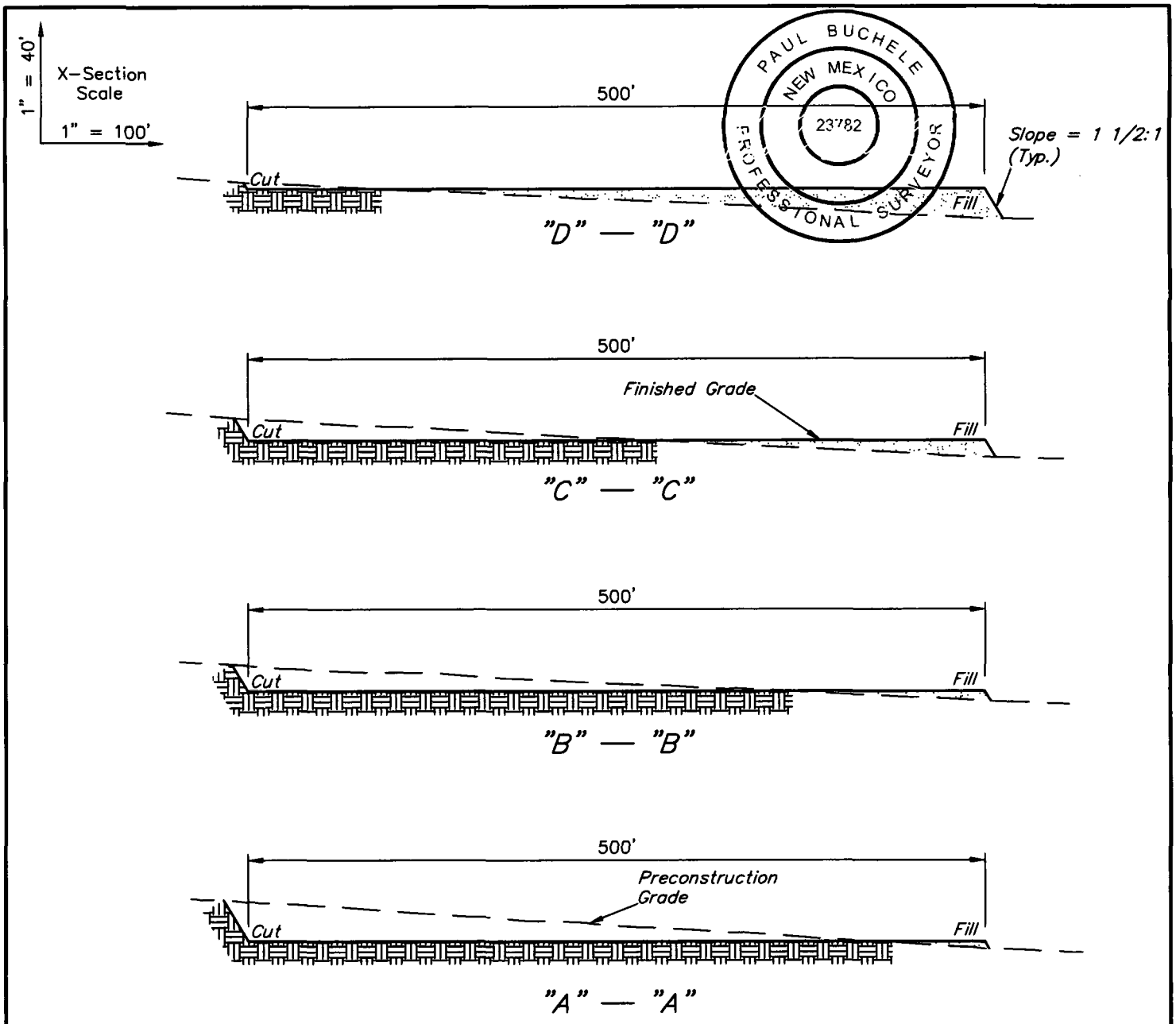
ConocoPhillips Company

ZIA HILLS-BUCK CF1
SW 1/4 SE 1/4, SECTION 19, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

SURVEYED BY	A.V., R.O.	05-12-17	SCALE
DRAWN BY	C.D.	05-19-17	1" = 200'

Already submitted with Zia Hill 19 Pad #1 APDs



APPROXIMATE EARTHWORK QUANTITIES	
(3") TOPSOIL STRIPPING	4,840 Cu. Yds.
REMAINING LOCATION	29,480 Cu. Yds.
TOTAL CUT	**34,320 Cu. Yds.**
FILL	**29,480 Cu. Yds.**
EXCESS MATERIAL	4,840 Cu. Yds.
TOPSOIL & PIT BACKFILL	4,840 Cu. Yds.
EXCESS UNBALANCE (After Interim Rehabilitation)	**0 Cu. Yds.**

APPROXIMATE SURFACE DISTURBANCE AREAS		
	DISTANCE	**ACRES**
WELL SITE DISTURBANCE	NA	±12.514
30' WIDE ACCESS ROAD R-O-W DISTURBANCE	±1,905.83'	±1.313
40' WIDE PIPELINE R-O-W DISTURBANCE	±2,182.90'	±2.004
30' WIDE POWER LINE R-O-W DISTURBANCE	±1,598.09'	±1.101
TOTAL SURFACE USE AREA		**±16.932**

REV: 2 06-15-17 B.D.H. (ADDED POWER LINE DISTURBANCE)

NOTES:

- Fill quantity includes 5% for compaction.

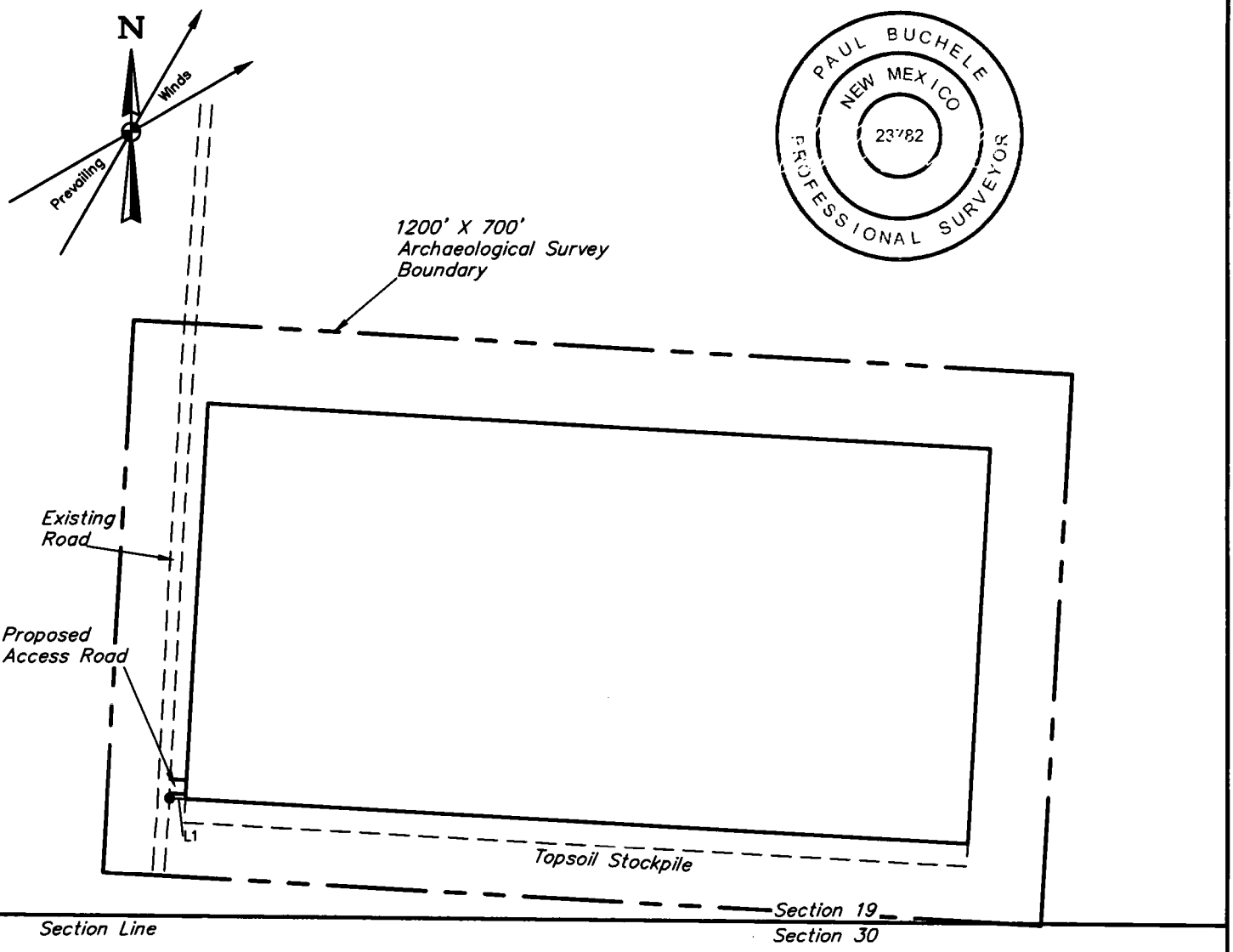
ConocoPhillips Company

ZIA HILLS-BUCK CF1
SW 1/4 SE 1/4, SECTION 19, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

SURVEYED BY	A.V., R.O.	05-12-17	**SCALE**
DRAWN BY	C.D.	05-19-17	AS SHOWN

Already submitted with Zia Hill 19 Pad #1 APDs



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	N89°W	20'

ConocoPhillips Company

ZIA HILLS-BUCK CF1
SW 1/4 SE 1/4, SECTION 19, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

UELS, LLC
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SURVEYED BY	A.V., R.O.	05-12-17	**SCALE**
DRAWN BY	C.D.	05-19-17	1" = 200'

Already submitted with Zia Hill 19 Pad #1 APDs

BEGINNING AT THE INTERSECTION OF HIGHWAY 18 AND HIGHWAY 128 PROCEED IN A WESTERLY, THEN NORTHWESTERLY, THEN WESTERLY DIRECTION FROM JAL, NEW MEXICO ALONG HIGHWAY 128 APPROXIMATELY 30.0 MILES TO THE JUNCTION OF THIS ROAD AND ORLA RD./CR J-1 TO THE SOUTH; TURN LEFT AND PROCEED IN A SOUTHERLY, THEN SOUTHWESTERLY DIRECTION APPROXIMATELY 13.6 MILES TO THE JUNCTION OF THIS ROAD AND THE PROPOSED ACCESS ROAD FOR THE ZIA HILLS 19 PAD 1 TO THE WEST; TURN RIGHT AND PROCEED IN A WESTERLY DIRECTION APPROXIMATELY 4,126' TO THE BEGINNING OF THE PROPOSED ACCESS ROAD TO THE SOUTH; FOLLOW ROAD FLAGS IN A SOUTHERLY DIRECTION APPROXIMATELY 1,906' TO THE PROPOSED LOCATION.

TOTAL DISTANCE FROM JAL, NEW MEXICO TO THE PROPOSED WELL LOCATION IS APPROXIMATELY 44.8 MILES.

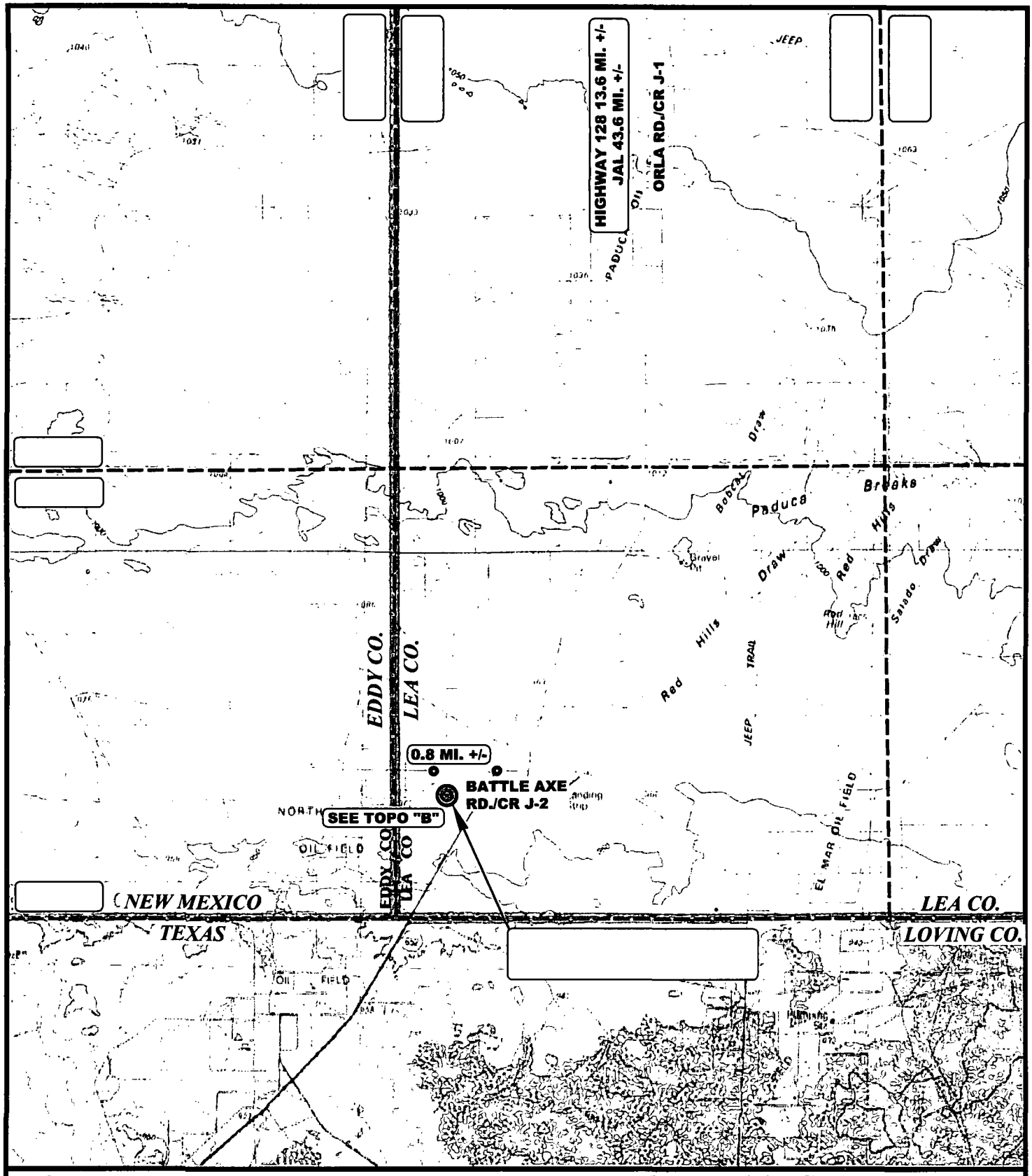
ConocoPhillips Company

ZIA HILLS-BUCK CF1
SW 1/4 SE 1/4, SECTION 19, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

SURVEYED BY	A.V., R.O.	05-12-17	
DRAWN BY	J.B.	05-17-17	

Already submitted with Zia Hill 19 Pad #1 APDs



LEGEND:

PROPOSED LOCATION

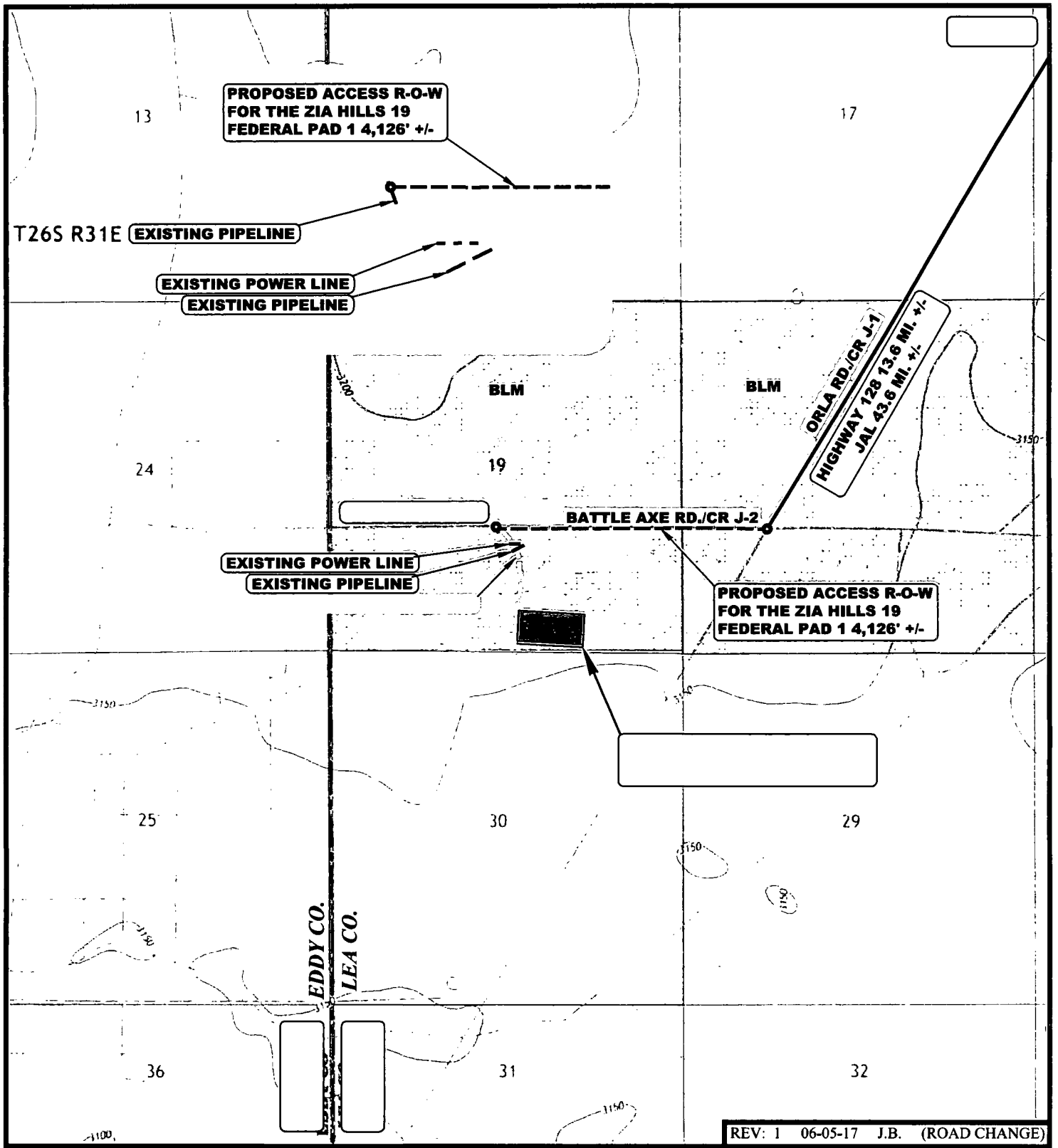
ConocoPhillips Company

ZIA HILLS-BUCK CF1
SW 1/4 SE 1/4, SECTION 19, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

SURVEYED BY	A.V., R.O.	05-12-17	SCALE
DRAWN BY	J.B.	05-17-17	1 : 100,000

Already submitted with Zia Hill 19 Pad #1 APDs



REV: 1 06-05-17 J.B. (ROAD CHANGE)

NOTE: PARCEL DATA SHOWN HAS BEEN OBTAINED FROM VARIOUS SOURCES AND SHOULD BE USED FOR MAPPING, GRAPHIC AND PLANNING PURPOSES ONLY. NO WARRANTY IS MADE BY UINTAH ENGINEERING AND LAND SURVEYING (UELS) FOR ACCURACY OF THE PARCEL DATA.

LEGEND:

- EXISTING ROAD
- PROPOSED ROAD (SERVICING OTHER WELLS)
- EXISTING PIPELINE
- EXISTING POWER LINE

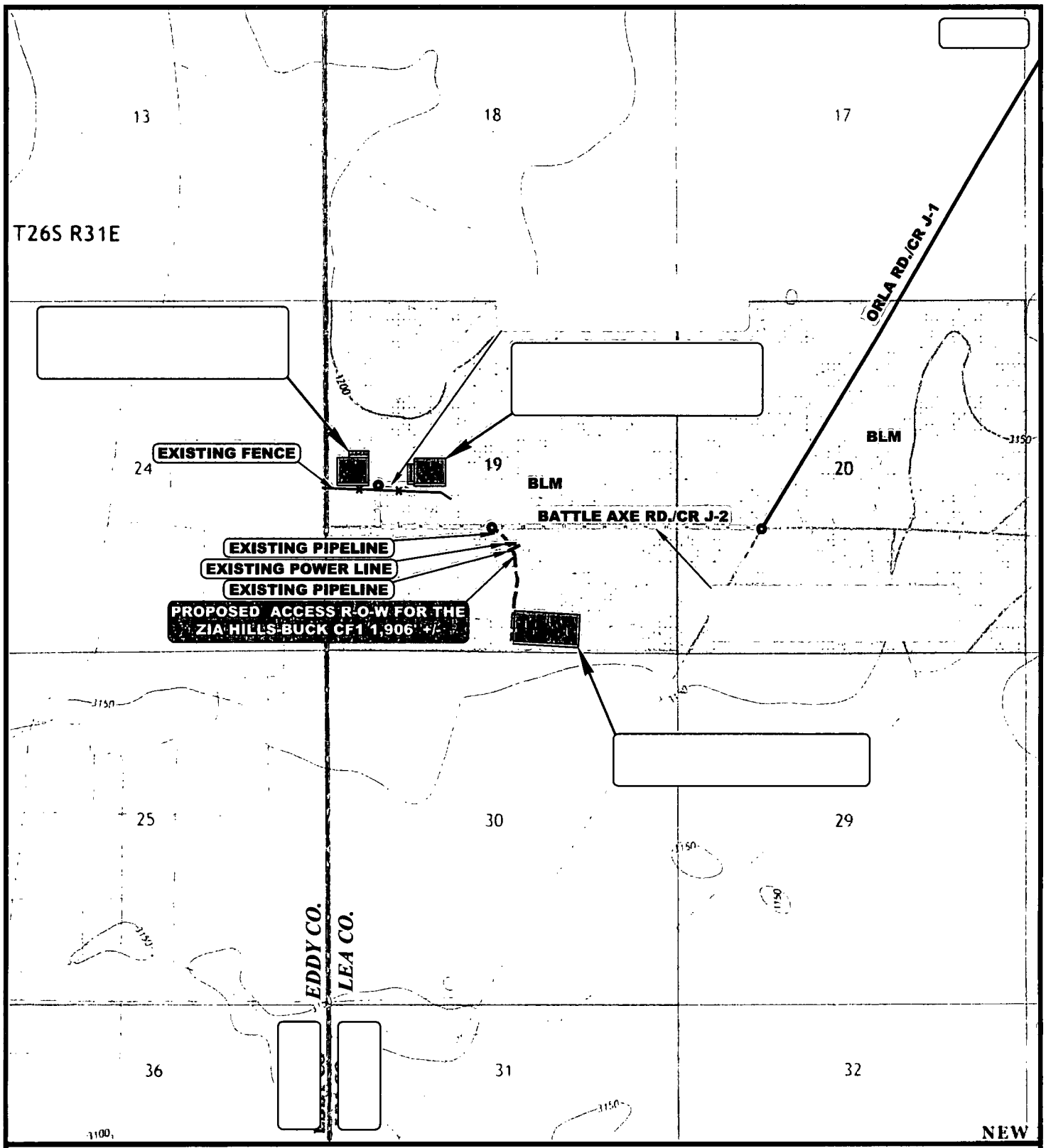
UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

ConocoPhillips Company

ZIA HILLS-BUCK CF1
SW 1/4 SE 1/4, SECTION 19, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	A.V., R.O.	05-12-17	SCALE
DRAWN BY	J.B.	05-17-17	1 : 24,000

Already submitted with Zia Hill 19 Pad #1 APDs



NOTE: PARCEL DATA SHOWN HAS BEEN OBTAINED FROM VARIOUS SOURCES AND SHOULD BE USED FOR MAPPING, GRAPHIC AND PLANNING PURPOSES ONLY. NO WARRANTY IS MADE BY UINTAH ENGINEERING AND LAND SURVEYING (UELS) FOR ACCURACY OF THE PARCEL DATA.

LEGEND:

- EXISTING ROAD
- EXISTING FENCE
- EXISTING PIPELINE
- EXISTING POWER LINE

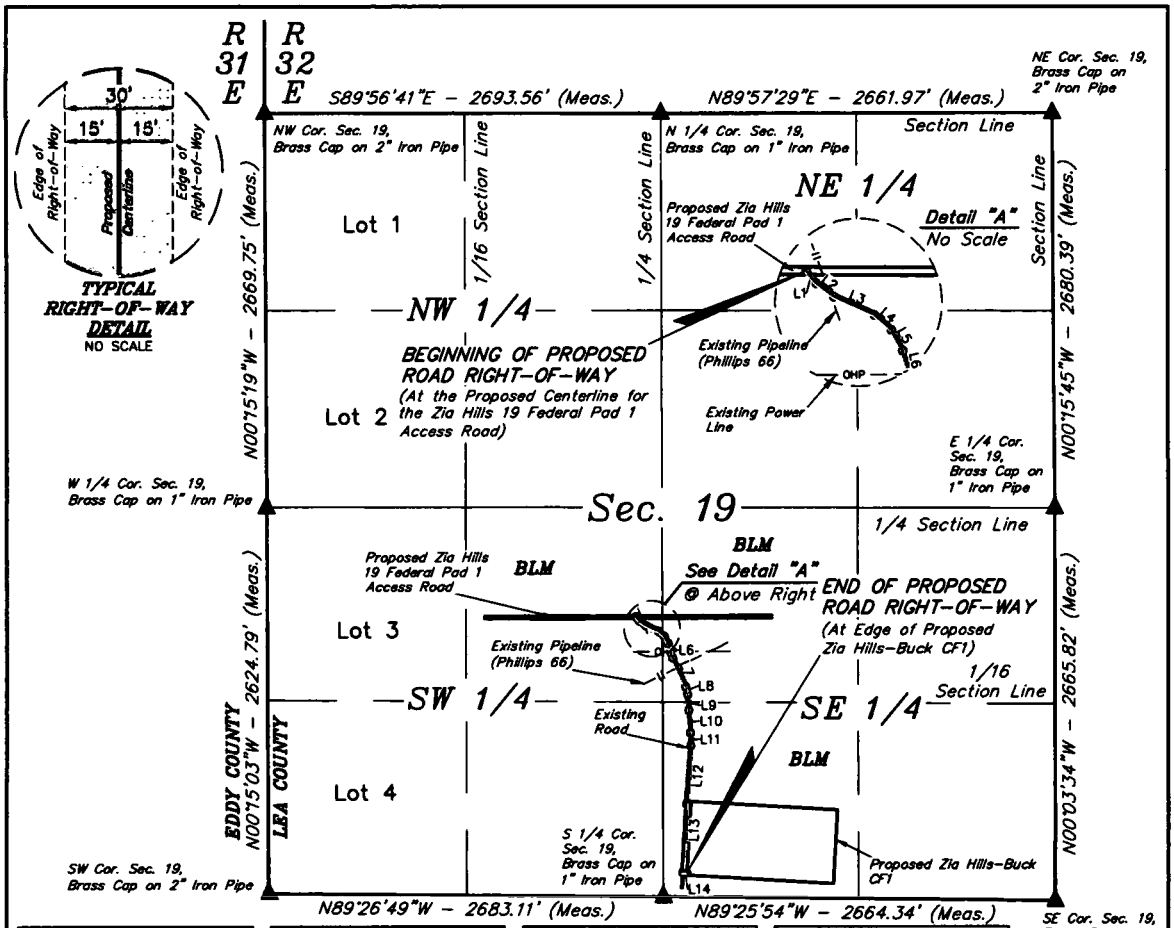
ConocoPhillips Company

ZIA HILLS 19 FEDERAL ROAD R-O-W MAP
SECTION 19, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

SURVEYED BY	A.V., R.O.	05-12-17	SCALE
DRAWN BY	J.B.	06-07-17	1 : 24,000

Already submitted with Zia Hill 19 Pad #1 APDs



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S39°33'22"E	36.21'
L2	S53°08'33"E	50.00'
L3	S65°42'39"E	102.45'
L4	S48°53'23"E	50.68'

LINE TABLE		
LINE	DIRECTION	LENGTH
L5	S28°36'55"E	54.27'
L6	S16°57'11"E	102.02'
L7	S24°18'13"E	216.72'
L8	S14°36'46"E	54.21'

LINE TABLE		
LINE	DIRECTION	LENGTH
L9	S04°32'38"E	107.02'
L10	S03°42'19"E	153.95'
L11	S01°19'21"E	87.78'
L12	S04°01'49"W	397.04'

LINE TABLE		
LINE	DIRECTION	LENGTH
L13	S03°12'39"W	465.54'
L14	S87°11'37"E	27.96'

ROAD RIGHT-OF-WAY DESCRIPTION

A 30' WIDE RIGHT-OF-WAY 15' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

BEGINNING AT A POINT IN THE NE 1/4 SW 1/4 OF SECTION 19, T26S, R32E, N.M.P.M., WHICH BEARS N05°35'42"W 1910.63' FROM THE SOUTH 1/4 CORNER OF SAID SECTION 19, THENCE S39°33'22"E 36.21'; THENCE S53°08'33"E 50.00'; THENCE S65°42'39"E 102.45'; THENCE S48°53'23"E 50.68'; THENCE S28°36'55"E 54.27'; THENCE S16°57'11"E 102.02'; THENCE S24°18'13"E 216.72'; THENCE S14°36'46"E 54.21'; THENCE S04°32'38"E 107.02'; THENCE S03°42'19"E 153.95'; THENCE S01°19'21"E 87.78'; THENCE S04°01'49"W 397.04'; THENCE S03°12'39"W 465.54'; THENCE S87°11'37"E 27.96' TO A POINT IN THE SW 1/4 SE 1/4 OF SAID SECTION 19, WHICH BEARS N44°46'05"E 229.12' FROM THE SOUTH 1/4 CORNER OF SAID SECTION 19. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. BASIS OF BEARINGS IS A TRANSVERSE MERCATOR PROJECTION WITH A CENTRAL MERIDIAN OF W103°53'00". CONTAINS 1.313 ACRES MORE OR LESS.

BEGINNING OF ROAD BEARS N05°35'42"W 1910.63' FROM THE SOUTH 1/4 CORNER OF SECTION 19, T26S, R32E, N.M.P.M.

END OF ROAD BEARS N44°46'05"E 229.12' FROM THE SOUTH 1/4 CORNER OF SECTION 19, T26S, R32E, N.M.P.M.

1000' 500' 0' 1000'

ACREAGE / LENGTH TABLE				
	OWNERSHIP	FEET	RODS	ACRES
SEC. 19 (SW 1/4)	BLM	222.57	13.49	0.153
SEC. 19 (SE 1/4)	BLM	1683.26	102.02	1.159
TOTAL		1905.83	115.50	1.313

▲ = SECTION CORNERS LOCATED.

CERTIFICATE
THIS IS TO CERTIFY THAT THIS EASEMENT PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION, THAT I AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO, AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

23782 PROFESSIONAL SURVEYOR

FILE: 61680

REV: 1 06-03-17 C.D. (ROAD RE-ROUTE)

NOTES:
- The maximum grade of existing ground for the proposed access road is ±5.16%.
- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

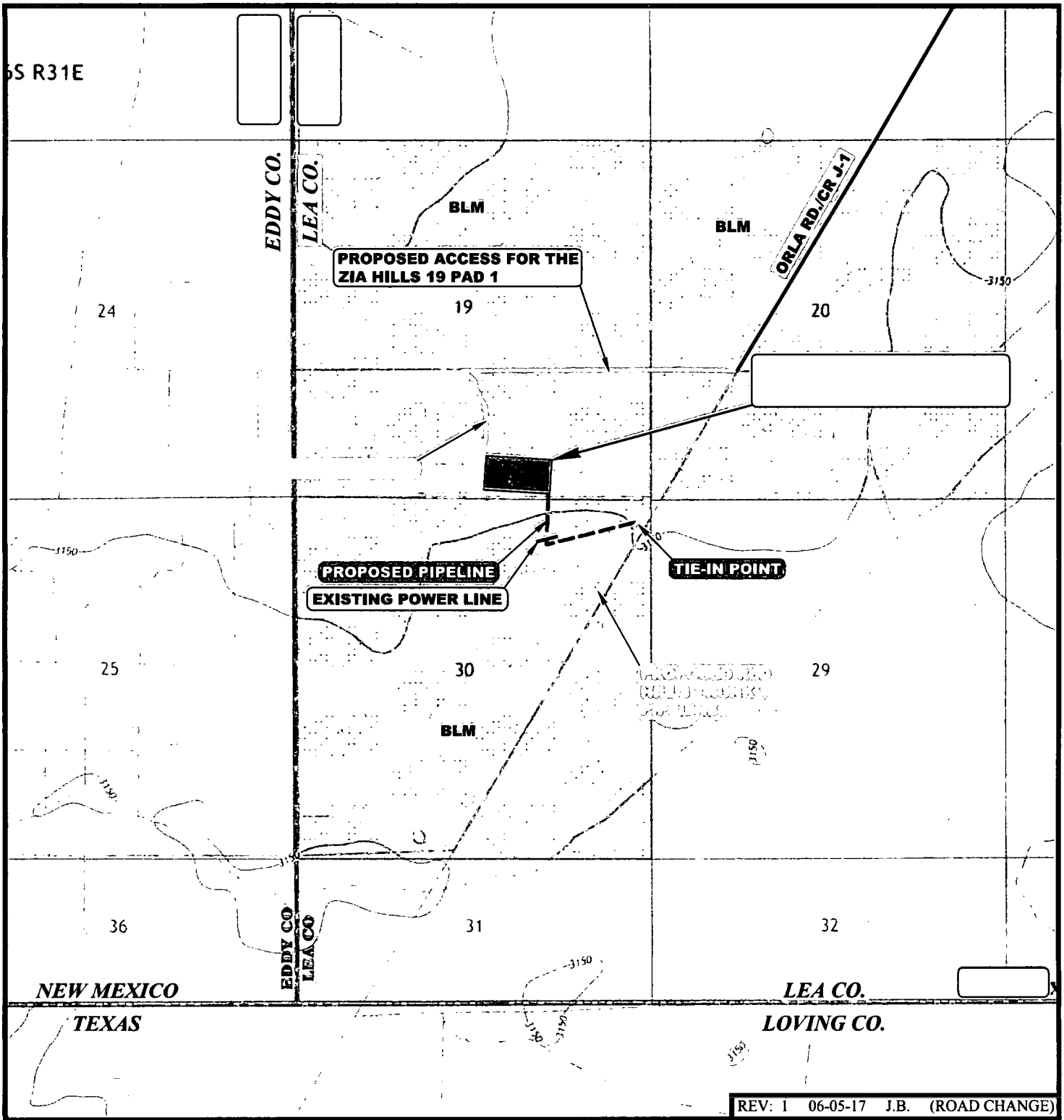
ConocoPhillips Company

ZIA HILLS-BUCK CF1
SECTION 19, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	A.V., R.O.	05-12-17	SCALE
DRAWN BY	C.D.	05-19-17	1" = 1000'

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

Already submitted with Zia Hill 19 Pad #1 APDs



REV: 1 06-05-17 J.B. (ROAD CHANGE)

APPROXIMATE TOTAL PIPELINE DISTANCE = 2,183' +/-

NOTE: PARCEL DATA SHOWN HAS BEEN OBTAINED FROM VARIOUS SOURCES AND SHOULD BE USED FOR MAPPING, GRAPHIC AND PLANNING PURPOSES ONLY. NO WARRANTY IS MADE BY UINTAH ENGINEERING AND LAND SURVEYING (UELS) FOR ACCURACY OF THE PARCEL DATA.

LEGEND:

EXISTING ROAD

PROPOSED PIPELINE

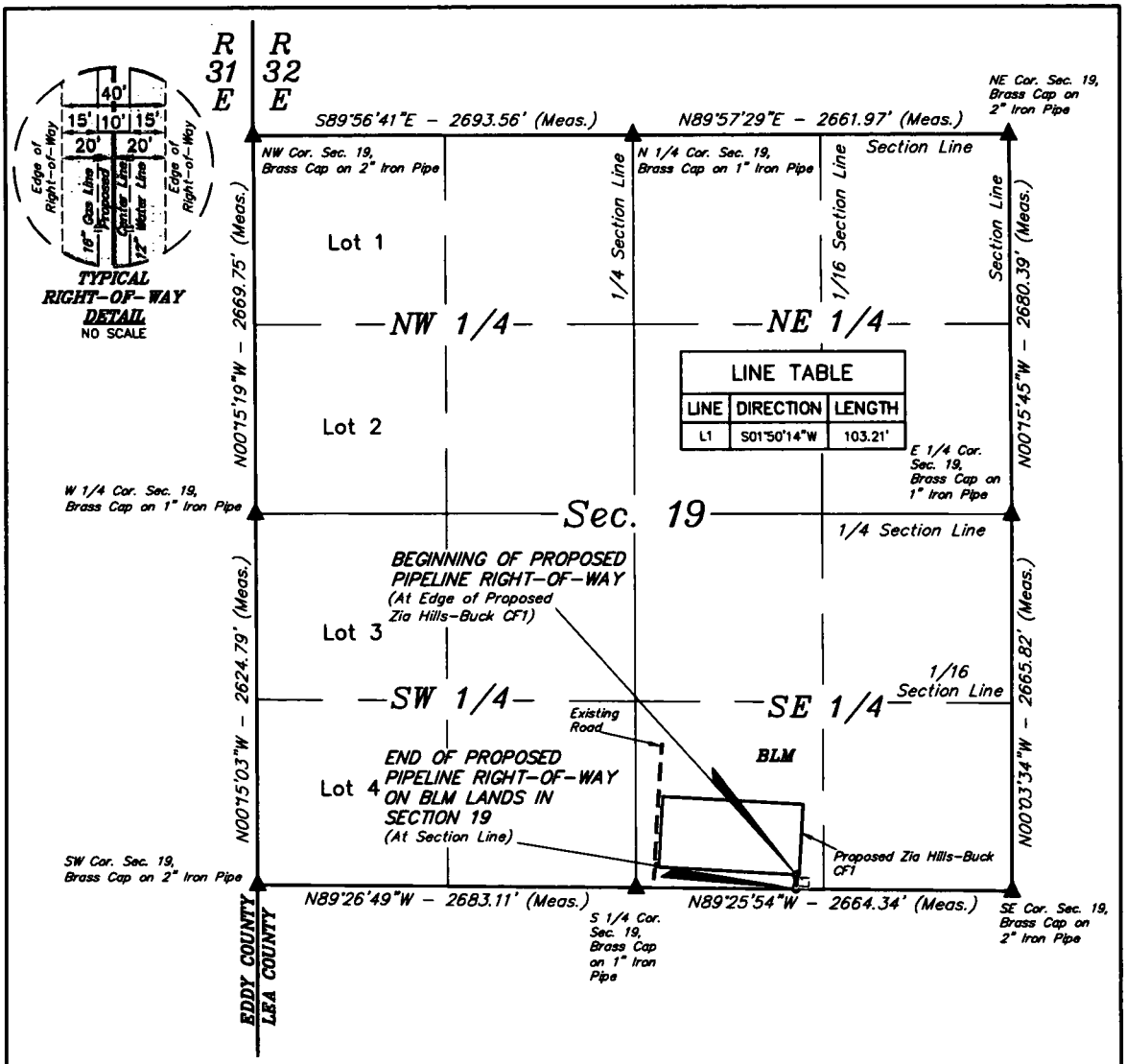
EXISTING POWER LINE

ConocoPhillips Company

ZIA HILLS-BUCK CF1
SW 1/4 SE 1/4, SECTION 19, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

SURVEYED BY	A.V., R.O.	05-12-17	SCALE
DRAWN BY	J.B.	05-17-17	1 : 24,000



PIPELINE RIGHT-OF-WAY DESCRIPTION ON BLM LANDS IN SECTION 19

A 40' WIDE RIGHT-OF-WAY 20' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

BEGINNING AT A POINT IN THE SW 1/4 SE 1/4 OF SECTION 19, T26S, R32E, N.M.P.M., WHICH BEARS N85°23'13"E 1142.59' FROM THE SOUTH 1/4 CORNER OF SAID SECTION 19, THENCE S01°50'14"W 103.21' TO A POINT ON THE SOUTH LINE OF THE SW 1/4 SE 1/4 OF SAID SECTION 19, WHICH BEARS S89°25'54"E 1135.63' FROM THE SOUTH 1/4 CORNER OF SAID SECTION 19. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. BASIS OF BEARINGS IS A TRANSVERSE MERCATOR PROJECTION WITH A CENTRAL MERIDIAN OF W103°53'00". CONTAINS 0.095 ACRES MORE OR LESS.

BEGINNING OF PIPELINE BEARS N85°23'13"E 1142.59' FROM THE SOUTH 1/4 CORNER OF SECTION 19, T26S, R32E, N.M.P.M.

END OF PIPELINE ON BLM LANDS IN SECTION 19 BEARS S89°25'54"E 1135.63' FROM THE SOUTH 1/4 CORNER OF SECTION 19, T26S, R32E, N.M.P.M.

1000' 500' 0' 1000'

ACREAGE / LENGTH TABLE

	OWNERSHIP	FEET	RODS	ACRES
SEC. 19 (SE 1/4)	BLM	103.21	6.255	0.095

▲ = SECTION CORNERS LOCATED.

CERTIFICATE
THIS IS TO CERTIFY THAT THIS EASEMENT PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON 23782 PROFESSIONAL SURVEYOR

FILE: 61681-A | REV: 1 06-03-17 C.D. (UPDATED R-O-W DETAIL)

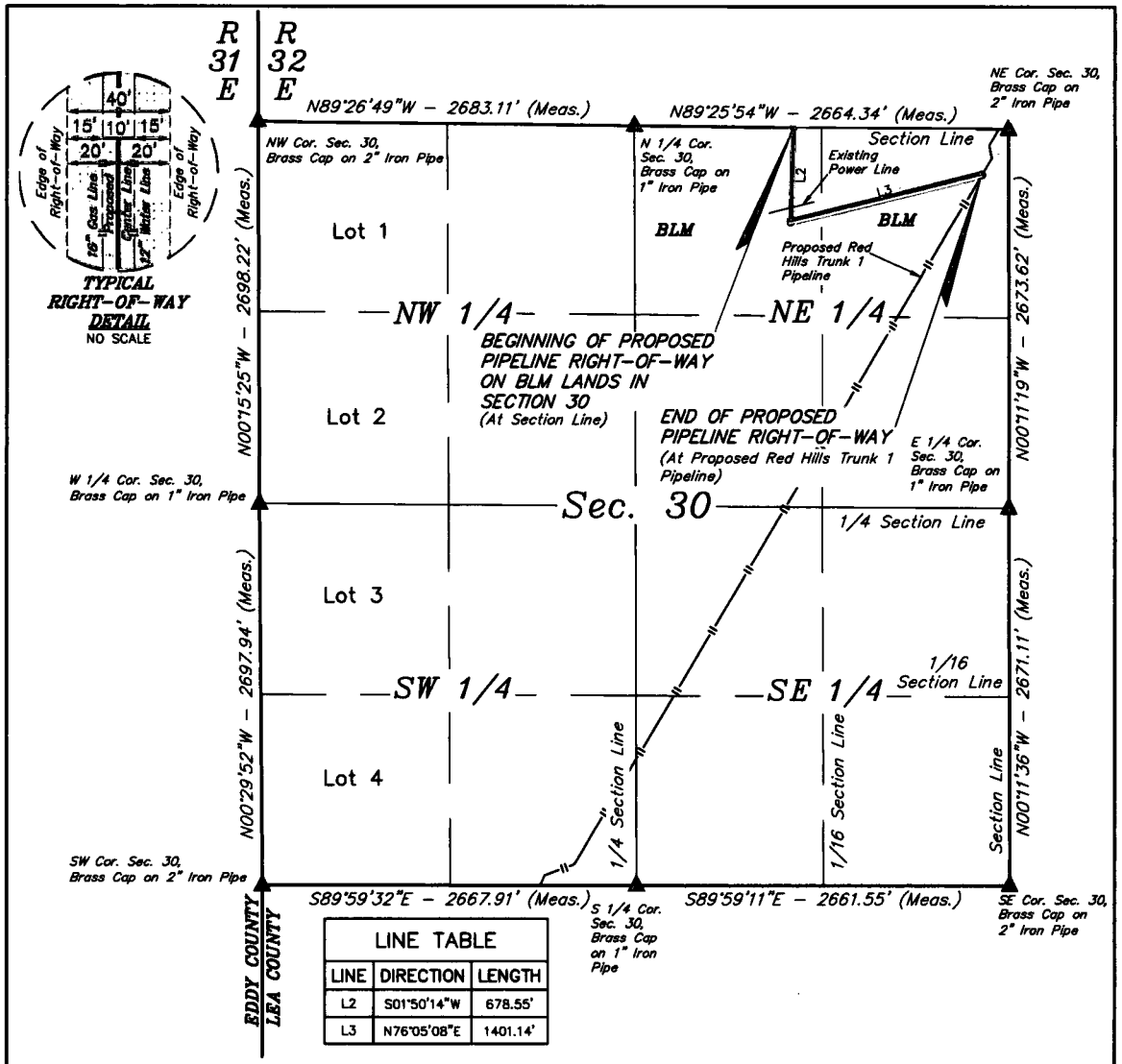
NOTES:
- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

ConocoPhillips Company

ZIA HILLS-BUCK CF1
SECTION 19, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	A.V., R.O.	05-12-17	SCALE
DRAWN BY	C.D.	05-19-17	1" = 1000'

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017



LINE TABLE		
LINE	DIRECTION	LENGTH
L2	S01°50'14"W	678.55'
L3	N76°05'08"E	1401.14'

PIPELINE RIGHT-OF-WAY DESCRIPTION ON BLM LANDS IN SECTION 30

A 40' WIDE RIGHT-OF-WAY 20' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

BEGINNING AT A POINT ON THE NORTH LINE OF THE NW 1/4 NE 1/4 OF SECTION 30, T26S, R32E, N.M.P.M., WHICH BEARS S89°25'54"E 1135.63' FROM THE NORTH 1/4 CORNER OF SAID SECTION 30, THENCE S01°50'14"W 678.55'; THENCE N76°05'08"E 1401.14' TO A POINT IN THE NE 1/4 NE 1/4 OF SAID SECTION 30, WHICH BEARS S30°16'26"W 377.60' FROM THE NORTHEAST CORNER OF SAID SECTION 30. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. BASIS OF BEARINGS IS A TRANSVERSE MERCATOR PROJECTION WITH A CENTRAL MERIDIAN OF W103°53'00". CONTAINS 1.910 ACRES MORE OR LESS.

BEGINNING OF PIPELINE ON BLM LANDS IN SECTION 30 BEARS S89°25'54"E 1135.63' FROM THE NORTH 1/4 CORNER OF SECTION 30, T26S, R32E, N.M.P.M.

END OF PIPELINE BEARS S30°16'26"W 377.60' FROM THE NORTHEAST CORNER OF SECTION 30, T26S, R32E, N.M.P.M.

1000' 500' 0' 1000'

ACREAGE / LENGTH TABLE				
	OWNERSHIP	FEET	RODS	ACRES
SEC. 30 (NE 1/4)	BLM	2079.69	126.04	1.910

▲ = SECTION CORNERS LOCATED.

CERTIFICATE
THIS IS TO CERTIFY THAT THIS EASEMENT PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

STATE OF NEW MEXICO 23782 PROFESSIONAL SURVEYOR

FILE: 61681-B | REV: 1 06-03-17 C.D. (UPDATED R-O-W DETAIL)

NOTES:
- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

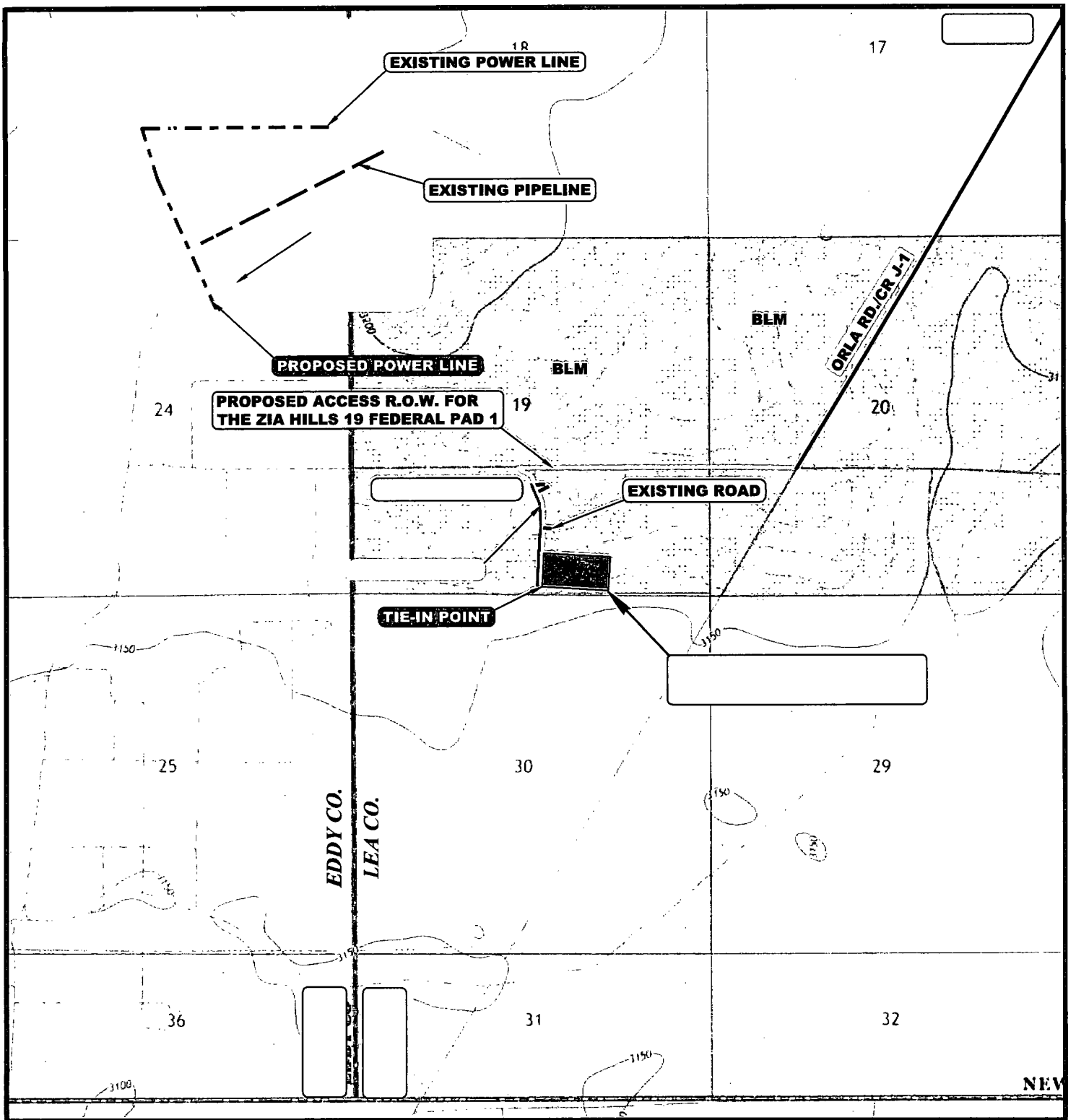
ConocoPhillips Company

ZIA HILLS-BUCK CF1
SECTION 30, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	A.V., R.O.	05-12-17	SCALE
DRAWN BY	C.D.	05-19-17	1" = 1000'

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

Already submitted with Zia Hill 19 Pad #1 APDs



APPROXIMATE TOTAL POWER LINE DISTANCE = 1,598' +/-

NOTE: PARCEL DATA SHOWN HAS BEEN OBTAINED FROM VARIOUS SOURCES AND SHOULD BE USED FOR MAPPING, GRAPHIC AND PLANNING PURPOSES ONLY. NO WARRANTY IS MADE BY UINTAH ENGINEERING AND LAND SURVEYING (UELS) FOR ACCURACY OF THE PARCEL DATA.

LEGEND:

- EXISTING ROAD
- PROPOSED POWER LINE
- EXISTING PIPELINE
- EXISTING POWER LINE

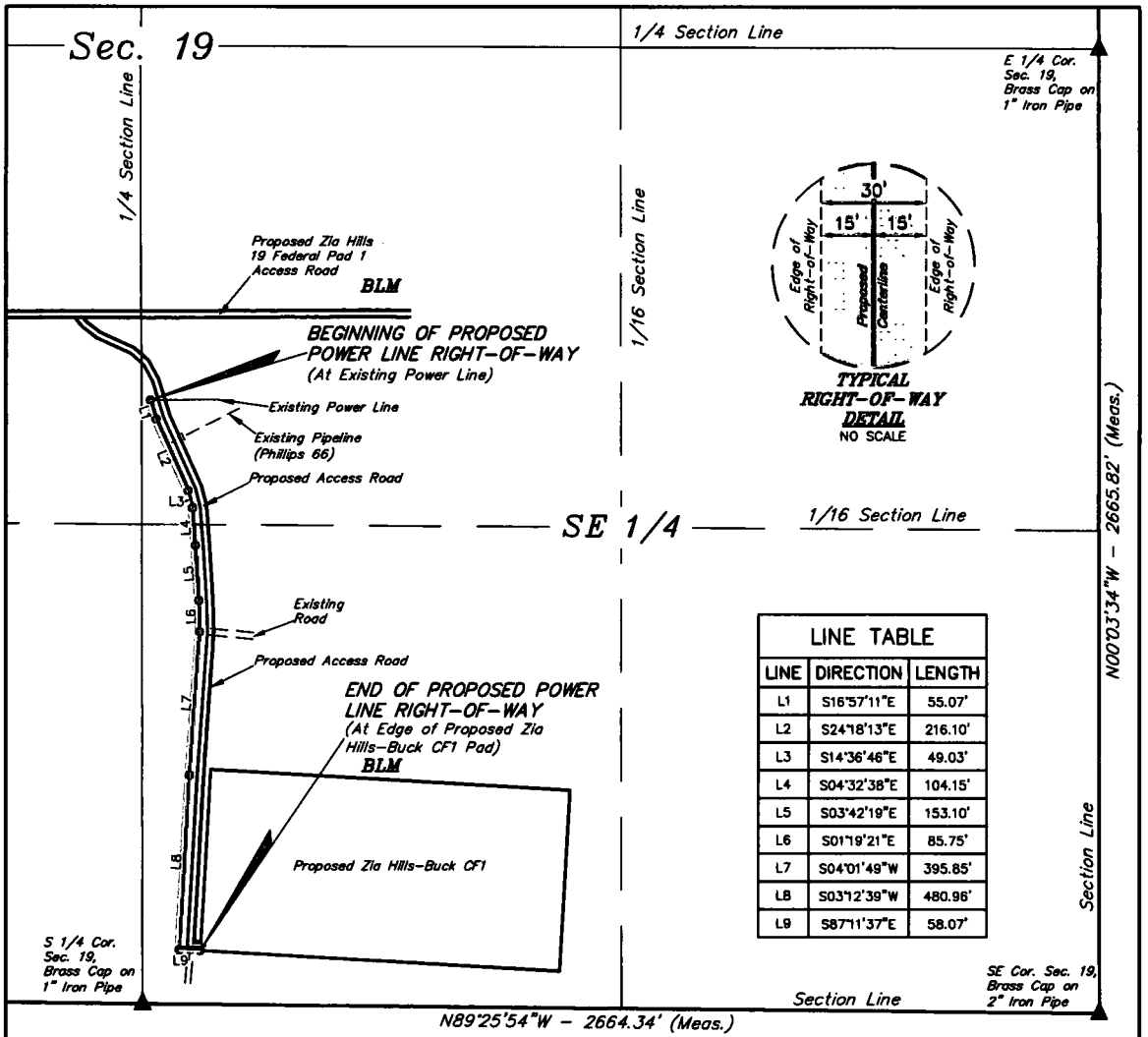
UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

ConocoPhillips Company

ZIA HILLS-BUCK CF1
SW 1/4 SE 1/4, SECTION 19, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	A.V., R.O.	05-12-17	SCALE
DRAWN BY	L.W.	06-16-17	1 : 24,000

Already submitted with Zia Hill 19 Pad #1 APDs



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S16°57'11"E	55.07'
L2	S24°18'13"E	216.10'
L3	S14°36'46"E	49.03'
L4	S04°32'38"E	104.15'
L5	S03°42'19"E	153.10'
L6	S01°19'21"E	85.75'
L7	S04°01'49"W	395.85'
L8	S03°12'39"W	480.96'
L9	S87°11'37"E	58.07'

POWER LINE RIGHT-OF-WAY DESCRIPTION

A 30' WIDE RIGHT-OF-WAY 15' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

BEGINNING AT A POINT IN THE NW 1/4 SE 1/4 OF SECTION 19, T26S, R32E, N.M.P.M., WHICH BEARS N00°41'04"E 1665.13' FROM THE SOUTH 1/4 CORNER OF SAID SECTION 19, THENCE S16°57'11"E 55.07'; THENCE S24°18'13"E 216.10'; THENCE S14°36'46"E 49.03'; THENCE S04°32'38"E 104.15'; THENCE S03°42'19"E 153.10'; THENCE S01°19'21"E 85.75'; THENCE S04°01'49"W 395.85'; THENCE S03°12'39"W 480.96'; THENCE S87°11'37"E 58.07' TO A POINT IN THE SW 1/4 SE 1/4 OF SAID SECTION 19, WHICH BEARS N47°24'09"E 218.20' FROM THE SOUTH 1/4 CORNER OF SAID SECTION 19. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. BASIS OF BEARINGS IS A TRANSVERSE MERCATOR PROJECTION WITH A CENTRAL MERIDIAN OF W103°53'00". CONTAINS 1.101 ACRES MORE OR LESS.

BEGINNING OF POWER LINE BEARS N00°41'04"E 1665.13' FROM THE SOUTH 1/4 CORNER OF SECTION 19, T26S, R32E, N.M.P.M.

END OF POWER LINE BEARS N47°24'09"E 218.20' FROM THE SOUTH 1/4 CORNER OF SECTION 19, T26S, R32E, N.M.P.M.

400' 200' 0' 400'

ACREAGE / LENGTH TABLE				
	OWNERSHIP	FEET	RODS	ACRES
SEC. 19 (SE 1/4)	BLM	1598.09	96.85	1.101

▲ = SECTION CORNERS LOCATED.

CERTIFICATE
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STATE OF NEW MEXICO 23782 PROFESSIONAL SURVEYOR

FILE: 61810

NOTES:
- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

ConocoPhillips Company

ZIA HILLS-BUCK CF1
SECTION 19, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

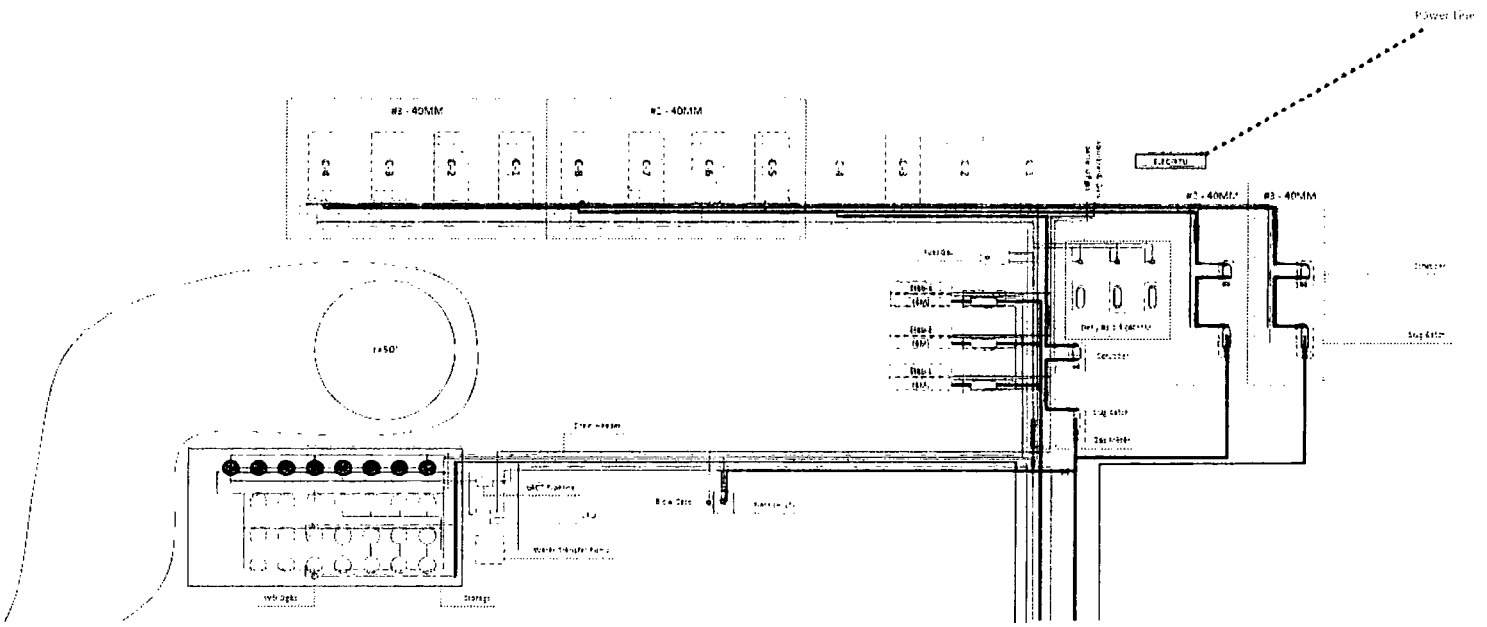
SURVEYED BY	A.V., R.O.	05-12-17	SCALE
DRAWN BY	B.D.H.	00-00-00	1" = 400'

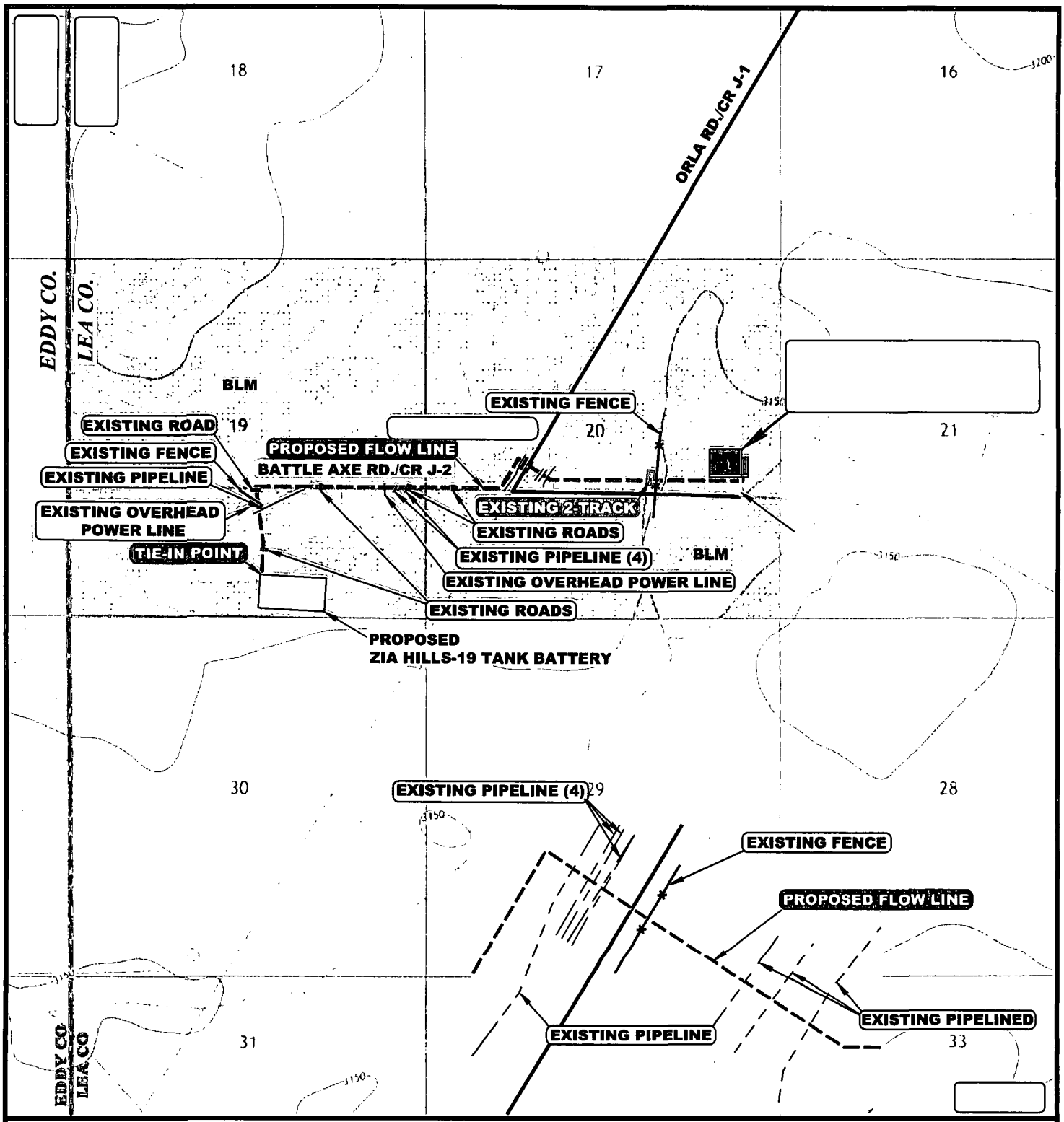
UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

Already submitted with Zia Hill 19 Pad #1 APDs

Zia Hills Buck CF1- Preliminary Plot Plan
ConocoPhillips

Area = 500x1000'





APPROXIMATE TOTAL FLOW LINE DISTANCE = 9,032' +/-

NOTE: PARCEL DATA SHOWN HAS BEEN OBTAINED FROM VARIOUS SOURCES AND SHOULD BE USED FOR MAPPING, GRAPHIC AND PLANNING PURPOSES ONLY. NO WARRANTY IS MADE BY UINTAH ENGINEERING AND LAND SURVEYING (UELS) FOR ACCURACY OF THE PARCEL DATA.

LEGEND:

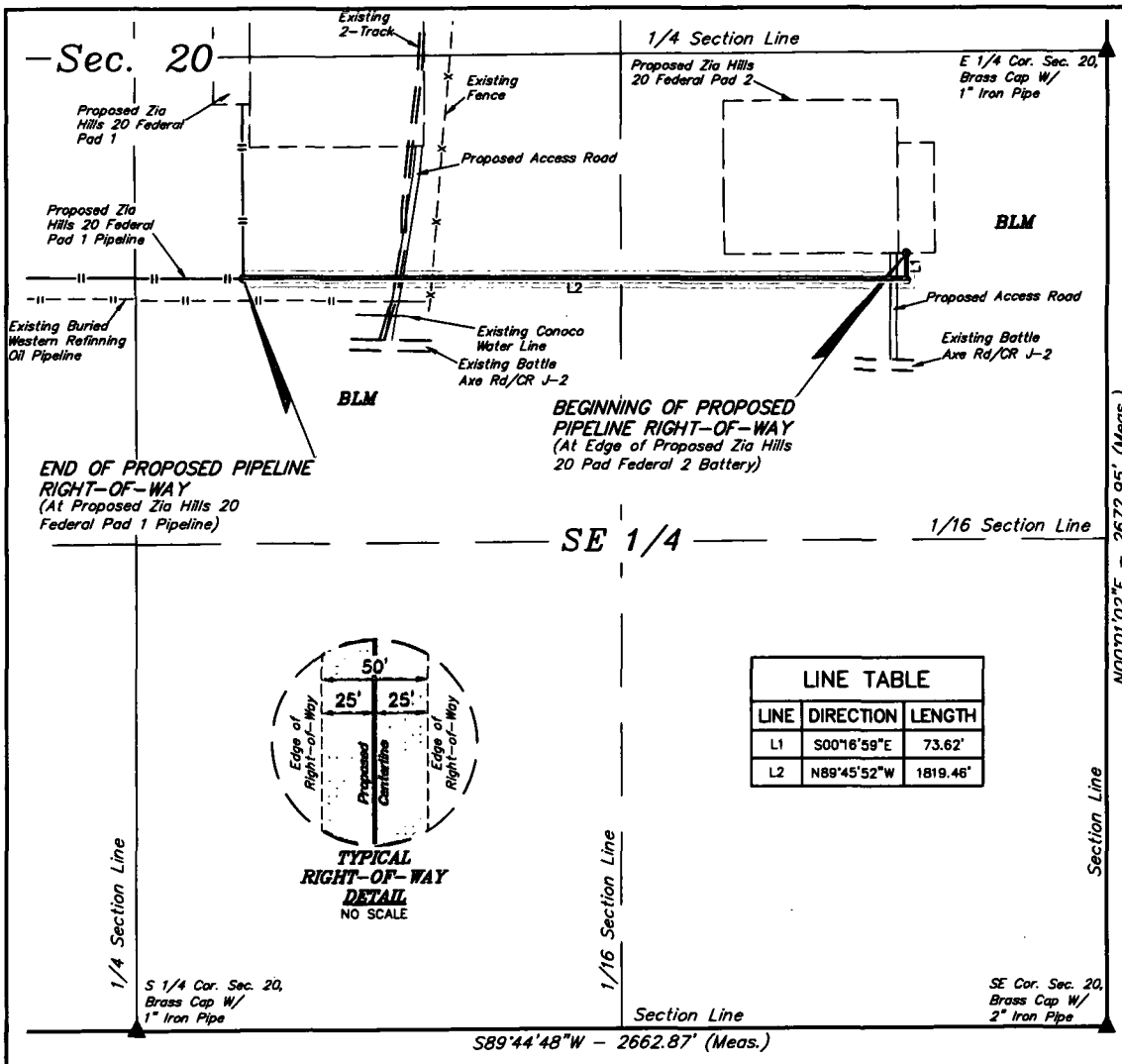
- EXISTING ROAD
- PROPOSED FLOW LINE
- EXISTING POWER LINE
- EXISTING FENCE
- EXISTING PIPELINE
- EXISTING 2-TRACK

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 2
NE 1/4 SE 1/4, SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	J.A.V., R.D.	05-16-17	SCALE
DRAWN BY	J.B.	05-31-17	1 : 24,000



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S00°16'59"E	73.62'
L2	N89°45'52"W	1819.46'

PIPELINE RIGHT-OF-WAY DESCRIPTION

A 50' WIDE RIGHT-OF-WAY 25' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

BEGINNING AT A POINT IN THE NE 1/4 SE 1/4 OF SECTION 20, T26S, R33E, N.M.P.M., WHICH BEARS S44°44'51"W 781.91' FROM THE EAST 1/4 CORNER OF SAID SECTION 20, THENCE S00°16'59"E 73.62'; THENCE N89°45'52"W 1819.46' TO A POINT IN THE NW 1/4 SE 1/4 OF SAID SECTION 20, WHICH BEARS N08°06'45"E 2084.13' FROM THE SOUTH 1/4 CORNER OF SAID SECTION 20. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. BASIS OF BEARINGS IS A TRANSVERSE MERCATOR PROJECTION WITH A CENTRAL MERIDIAN OF W103°53'00". CONTAINS 2.173 ACRES MORE OR LESS.

BEGINNING OF PIPELINE BEARS S44°44'51"W 781.91' FROM THE EAST 1/4 CORNER OF SECTION 20, T26S, R33E, N.M.P.M.

END OF PIPELINE BEARS N08°06'45"E 2084.13' FROM THE SOUTH 1/4 CORNER OF SECTION 20, T26S, R33E, N.M.P.M.

400' 200' 0' 400'

ACREAGE / LENGTH TABLE				
	OWNERSHIP	FEET	RODS	ACRES
SEC. 20 (SE 1/4)	BLM	1893.08	114.73	2.173

▲ = SECTION CORNERS LOCATED.

CERTIFICATE
THIS IS TO CERTIFY THAT THIS EASEMENT PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE *MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO*; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED PROFESSIONAL SURVEYOR 23782

FILE: 61979

NOTES:
- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 2
SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

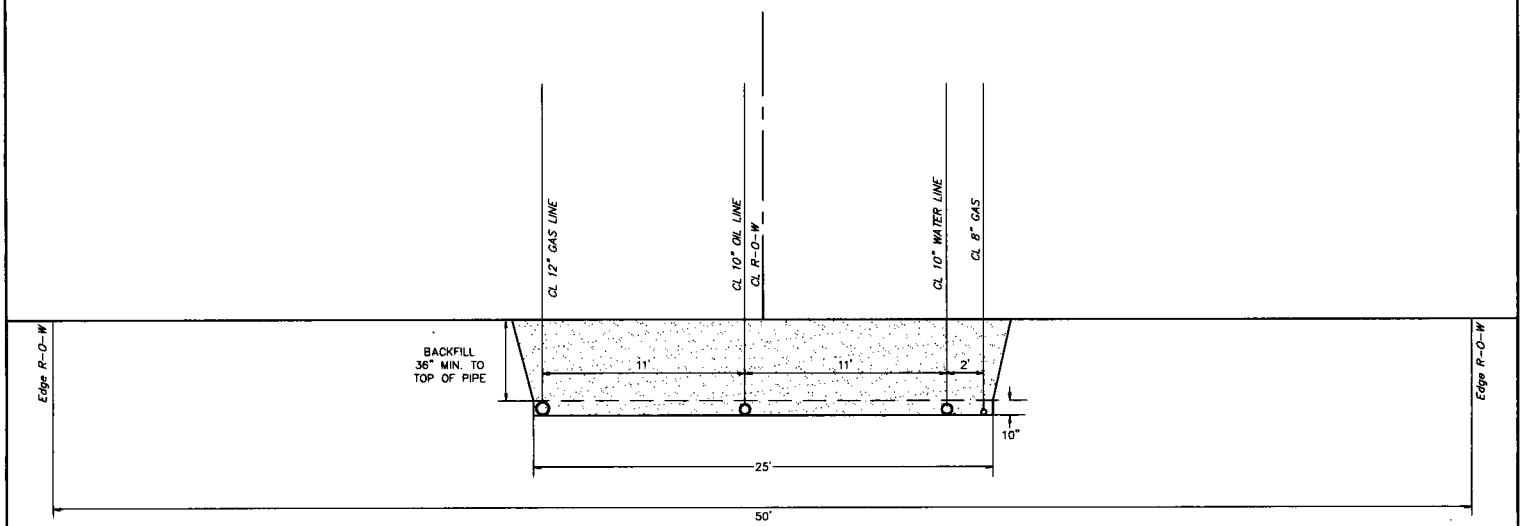
SURVEYED BY	J.A.V., R.D.	05-16-17	SCALE
DRAWN BY	B.D.H.	07-27-17	1" = 400'

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

BACKFILL DIAGRAM

NO SCALE

STA. 0+00 TO 18+93.08



BACKFILL DIRT TO BE AS FREE OF ROCKS AND LARGE PARTICLES AS POSSIBLE

12" GAS LINE WILL BE COATED STEEL WITH AN OPERATING PRESSURE UP TO 270# PSI

10" OIL LINE WILL BE COATED STEEL WITH AN OPERATING PRESSURE UP TO 270# PSI

10" WATER LINE WILL BE POLY PIPE WITH AN OPERATING PRESSURE UP TO 250# PSI

8" GAS LIFT LINE WILL BE COATED STEEL WITH AN OPERATING PRESSURE UP TO 1250# PSI

SOFT FILL DIRT OR SAND WITH NO ROCKS OR SOLID PARTICLES GREATER THAN 1" IN CIRCUMFERENCE

6" CLEARANCE AT BOTH ENDS

12" CLEARANCE BETWEEN EACH PIPE

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

REVISION		
NO	DESCRIPTION	DATE

SUMMARY OF MATERIALS		
ITEM NO.	LINEAR FEET	DESCRIPTION

PROJECT DATA	
SURVEYED BY: J.A.V., R.D.	SCALE: N/A
DRAWN BY: B.D.H.	DRAWING# N/A
DATE: 07-27-17	SHEET: 2 OF 2

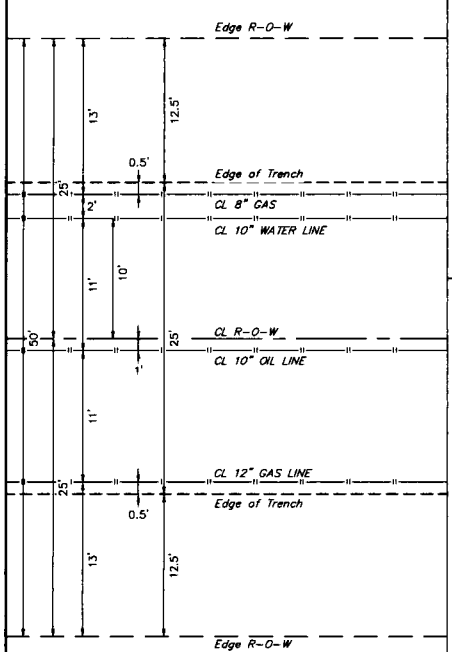
LOCATED IN SECTION 20, T26S, R35E, N.M.P.M. LEA COUNTY, NEW MEXICO

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 2

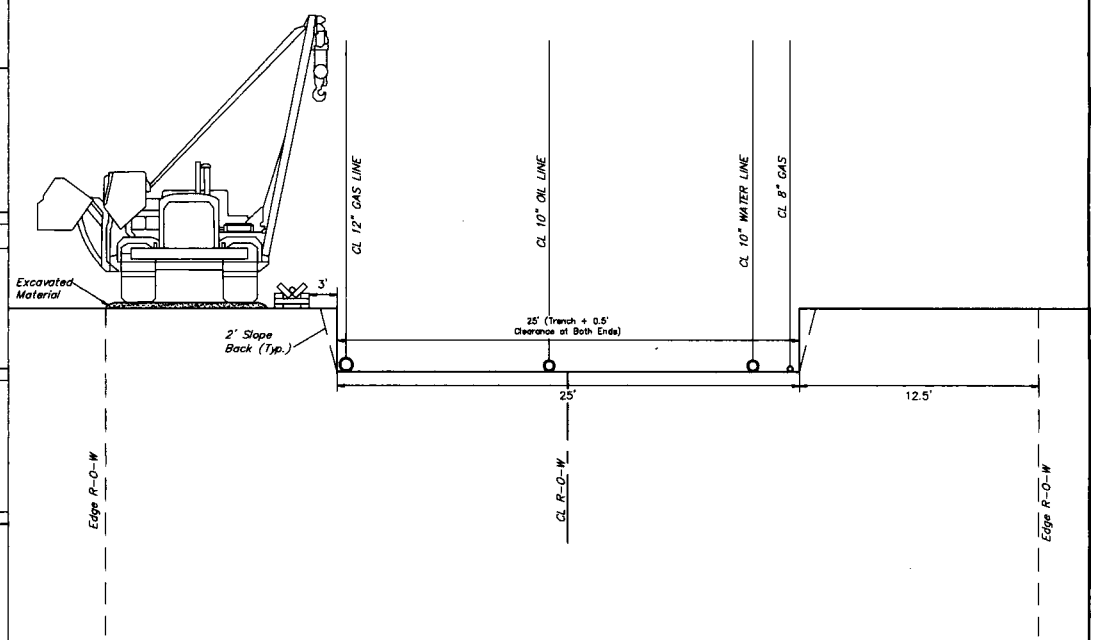
RIGHT-OF-WAY DETAIL

RIGHT-OF-WAY DETAIL
NO SCALE



TRENCH DETAIL
NO SCALE

STA. 0+00 TO 18+93.08



UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

REVISION		
NO	DESCRIPTION	DATE

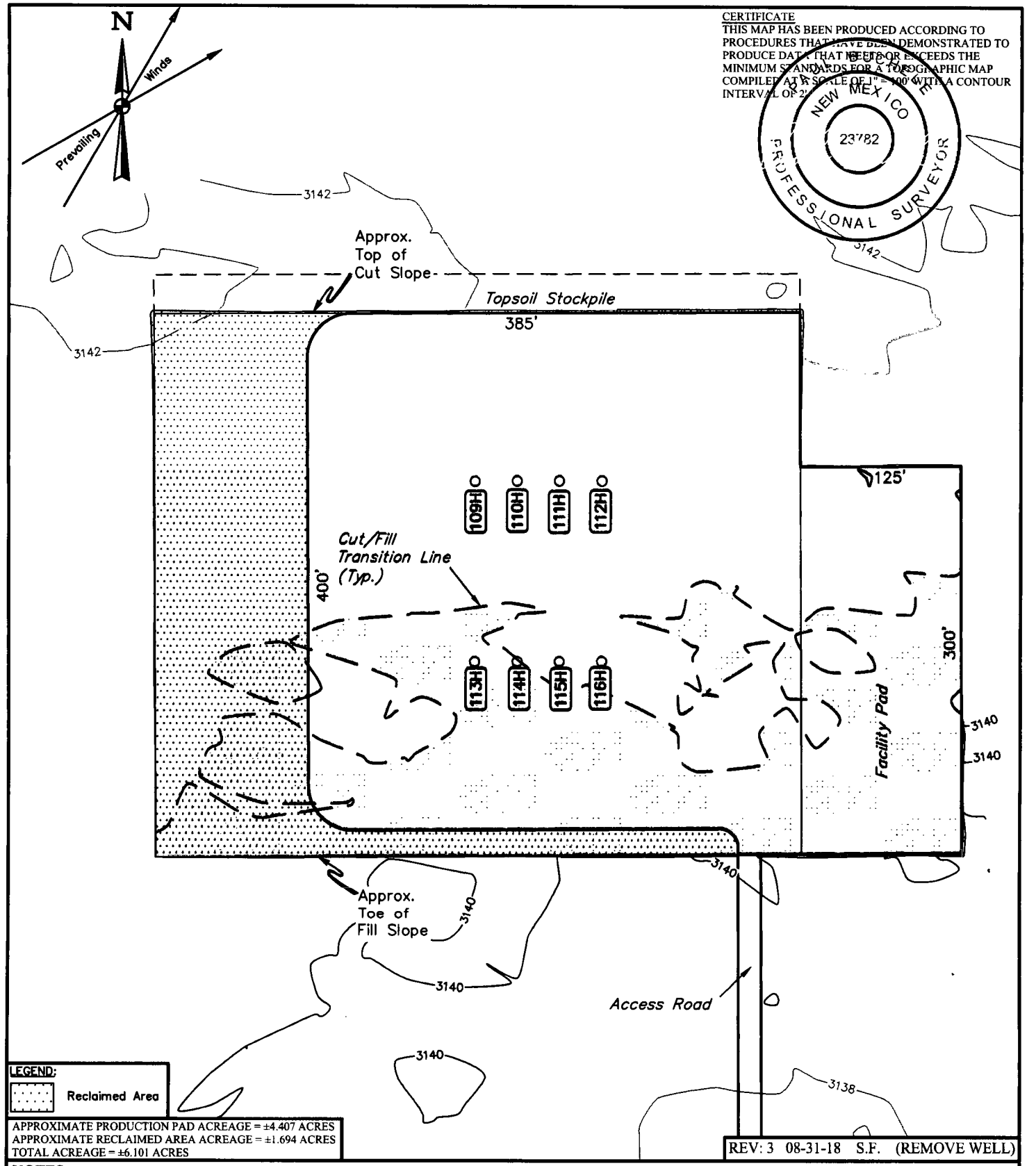
SUMMARY OF MATERIALS		
ITEM NO	LINEAR FEET	DESCRIPTION

PROJECT DATA
SURVEYED BY: J.A.V., R.D.
DRAWN BY: B.D.H.
DATE: 07-27-17

SCALE: N/A
DRAWING# N/A
SHEET: 1 OF 2

LOCATED IN SECTION 20, T26S, R32E, N.M.P.M., LEA COUNTY, NEW MEXICO

ConocoPhillips Company
ZIA HILLS 20 FEDERAL PAD 2
RIGHT-OF-WAY DETAIL



NOTES:

- Contours shown at 2' intervals.

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 2
NE 1/4 SE 1/4, SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	J.A.V., R.D.	05-16-17	SCALE
DRAWN BY	S.S.	06-26-17	1" = 100'

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

Surface Use Plan of Operations

Introduction

The following surface use plan of operations will be followed and carried out once the APD is approved. No other disturbance will be created other than what was submitted in this surface use plan. If any other surface disturbance is needed after the APD is approved, a BLM approved sundry notice or right of way application will be acquired prior to any new surface disturbance.

Before any surface disturbance is created, stakes or flagging will be installed to mark boundaries of permitted areas of disturbance, including soils storage areas. As necessary, slope, grade, and other construction control stakes will be placed to ensure construction in accordance with the surface use plan. All boundary markers will be maintained in place until final construction cleanup is completed. If disturbance boundary markers are disturbed or knocked down, they will be replaced before construction proceeds.

If terms and conditions are attached to the approved APD and amend any of the proposed actions in this surface use plan, we will adhere to the terms and conditions.

1. Existing Roads

a. The existing access road route to the proposed project is depicted on Access Road Map, TOPO A & Access Road Map TOPO B. Improvements to the driving surface will be done where necessary. No new surface disturbance will be done, unless otherwise noted in the New or Reconstructed Access Roads section of this surface use plan.

b. The existing access road route to the proposed project does not cross lease or unit boundaries, so a BLM right-of-way grant will not be acquired for this proposed road route.

c. The operator will improve or maintain existing roads in a condition the same as or better than before operations begin. The operator will repair pot holes, clear ditches, repair the crown, etc. All existing structures on the entire access route such as cattleguards, other range improvement projects, culverts, etc. will be properly repaired or replaced if they are damaged or have deteriorated beyond practical use.

d. We will prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations, or wind events. BLM written approval will be acquired before application of surfactants, binding agents, or other dust suppression chemicals on roadways.

2. New or Reconstructed Access Roads

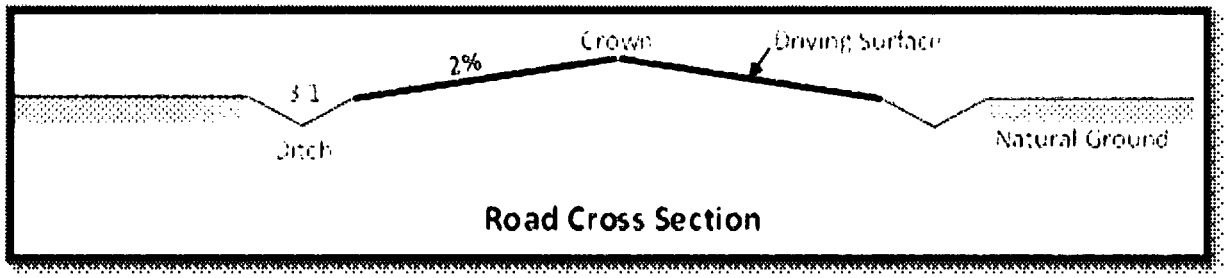
a. An access road will be needed for this proposed project. See the survey plat for the location of the access road.

b. The length of access road needed to be constructed for this proposed project is about 292 feet.

c. The maximum driving width of the access road will be 30 feet. The maximum width of surface disturbance when constructing the access road will not exceed 25 feet. All areas outside of the driving surface will be revegetated.

d. The access road will be constructed with 6 inches of compacted Caliche.

e. When the road travels on fairly level ground, the road will be crowned and ditched with a 2% slope from the tip of the road crown to the edge of the driving surface. The ditches will be 3 feet wide with 3:1 slopes. See Road Cross Section diagram below.

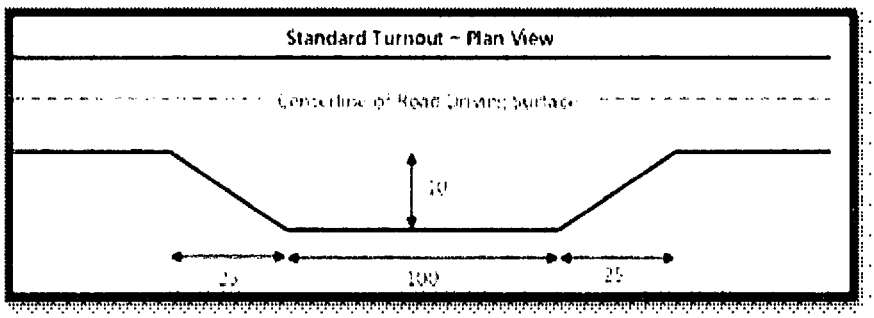


Road Cross Section

f. The access road will be constructed with a ditch on each side of the road.

g. The maximum grade for the access road will be 1 percent.

h. Turnouts will be constructed for the proposed access road and will be constructed to the dimensions shown in the diagram below. See survey plat or map for location of the turnouts.



i. No cattleguards will be installed for this proposed access road.

j. Since the proposed access road crosses lease boundaries, a right-of-way will be required for the access road. A right-of-way grant will be applied for through the BLM. The access road will not be constructed until an approved BLM right-of-way grant is acquired.

k. No culverts will be constructed for this proposed access road.

l. No low water crossings will be constructed for the access road.

m. Since the access road is on level ground, no lead-off ditches will be constructed for the proposed access road.

n. Newly constructed or reconstructed roads, on surface under the jurisdiction of the Bureau of Land Management, will be constructed as outlined in the BLM "Gold Book" and to meet the standards of the anticipated traffic flow and all anticipated weather requirements as needed. Construction will include ditching, draining, crowning and capping or sloping and dipping the roadbed as necessary to provide a well-constructed and safe road.

o. The access road and existing road will be 30' wide for a 20' wide drivable surface (to accommodate the rig) and 5' on each side. 292' of road is new road and the remainder is existing road that will be upgraded.

3. Location of Existing Wells

a. Zia Hills 20 Federal COM 115H, One Mile Radius Map of the APD depicts all known wells within a one mile radius of the proposed well.

b. There is no other information regarding wells within a one mile radius.

4. Location of Existing and/or Proposed Production Facilities

a. All permanent, lasting more than 6 months, above ground structures including but not limited to pumpjacks, storage tanks, barrels, pipeline risers, meter housing, etc. that are not subject to safety requirements will be painted a non-reflective paint color, Shale Green, from the BLM Standard Environmental Colors chart, unless another color is required in the APD Conditions of Approval.

b. If any type of production facilities is located on the well pad, they will be strategically placed to allow for maximum interim reclamation, recontouring, and revegetation of the well location.

c. A production facility is proposed to be installed on the proposed well location. Production from the well will be processed on site in the production facility. Location Layout, Figure #1 & Reclamation Diagram, Figure #4 depicts the location of the production facilities as they relate to the well and well pad.

d. The proposed production facility will have a secondary containment structure that is constructed to hold the capacity of 1-1/2 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

e. Preliminary Plot Plan depicts the production facility as well.

If any plans change regarding the production facility or other infrastructure (pipeline, electric line, etc.), we will submit a sundry notice or right of way (if applicable) prior to installation or construction.

Additional Pipeline(s)

We propose to install 4 additional pipeline(s):

1. Buried Gas pipeline:

   a. We plan to install a 12-inch buried Coated Steel pipeline from Proposed Well Pad to the Proposed Facility. The proposed length of the pipeline will be 1893.08 feet. The working pressure of the pipeline will be about 270 psi. A 50 feet wide work area will be needed to install the buried pipeline. We will need an extra 10 foot wide area near corners to safely install the pipeline. In areas where blading is allowed, topsoil will be stockpiled and separated from the excavated trench mineral material. Final reclamation procedures will match the procedures in Plans for Surface Reclamation. When the excavated soil is backfilled, it will be compacted to prevent subsidence. No berm over the pipeline will be evident.

   b. Pipeline R-O-W depicts the proposed Gas pipeline route.

   c. Since the proposed pipeline crosses lease boundaries, a right of way grant will be acquired prior to installation of the proposed pipeline.

2. Buried Water pipeline:

   a. We plan to install a 10-inch buried poly pipeline from Proposed Well Pad to the Proposed Facility. The proposed length of the pipeline will be 1893.08 feet. The working pressure of the pipeline will be about 250 psi. A 50 feet wide work area will be needed to install the buried pipeline. We will need an extra 10-foot-wide area near corners to safely install the pipeline. In areas where blading is allowed, topsoil will be stockpiled and separated from the excavated trench mineral material. Final reclamation procedures will match the procedures in Plans for Surface Reclamation. When the excavated soil is backfilled, it will be compacted to prevent subsidence. No berm over the pipeline will be evident.

   b. Pipeline R-O-W depicts the proposed Water pipeline route.

c. Since the proposed pipeline crosses lease boundaries, a right of way grant will be acquired prior to installation of the proposed pipeline.

3. Buried Oil pipeline:

a. We plan to install a 10-inch buried Coated Steel pipeline from Proposed Well Pad to the Proposed Facility, the proposed length of the pipeline will be 1893.08 feet. The working pressure of the pipeline will be about 270 psi. A 50 feet wide work area will be needed to install the buried pipeline. We will need an extra 10 foot wide area near corners to safely install the pipeline. In areas where blading is allowed, topsoil will be stockpiled and separated from the excavated trench mineral material. Final reclamation procedures will match the procedures in Plans for Surface Reclamation. When the excavated soil is backfilled, it will be compacted to prevent subsidence. No berm over the pipeline will be evident.

b. Pipeline R-O-W depicts the proposed Gas pipeline route.

c. Since the proposed pipeline crosses lease boundaries, a right of way grant will be acquired prior to installation of the proposed pipeline.

4. Buried Gas pipeline:

a. We plan to install an 8-inch buried Coated Steel pipeline from Proposed Well Pad to the Proposed Facility. The proposed length of the pipeline will be 1893.08 feet. The working pressure of the pipeline will be about 1250 psi. A 50 feet wide work area will be needed to install the buried pipeline. We will need an extra 10 foot wide area near corners to safely install the pipeline. In areas where blading is allowed, topsoil will be stockpiled and separated from the excavated trench mineral material. Final reclamation procedures will match the procedures in Plans for Surface Reclamation. When the excavated soil is backfilled, it will be compacted to prevent subsidence. No berm over the pipeline will be evident.

b. Pipeline R-O-W depicts the proposed Gas pipeline route.

c. Since the proposed pipeline crosses lease boundaries, a right of way grant will be acquired prior to installation of the proposed pipeline.

Electric Line(s)

a. The electric was filed with the Zia Hills 19 Pad #1. The proposed length of the electric line will be 1598 feet coming off the Zia Hills Buck CF1 to a tie in point. Power Line R-O-W (already submitted) depicts the location of the proposed electric line route. The electric line will be construction to provide protection from raptor electrocution.

b. The existing power line route to the proposed project does not cross lease or unit boundaries, so a BLM right- of-way grant will not be acquired for this proposed power route.

5. Location and Types of Water

a. The source and location of the water supply are as follows: The water source is from an approved source and a temporary permit to lay the lines will be filed under a separate cover.

b. The water will be from two wells in Texas, the HP 51914 (31.967544°, -103.760114°) and HP 41714 (31.970142°, -103.758269°) that are located in Section 16, Block 51 T1, T&P RR Co., Loving County, TX.

6. Construction Material

a. Clean caliche will be from a BLM source or a third-party provider.

7. Methods for Handling Waste

a. Drilling fluids and produced oil and water from the well during drilling and completion operations will be stored safely and disposed of properly in an NMOCD approved disposal facility.

b. Garbage and trash produced during drilling and completion operations will be collected in a trash container and disposed of properly at a state approved disposal facility. All trash on and around the well site will be collected for disposal.

c. Human waste and grey water will be properly contained and disposed of properly at a state approved disposal facility.

d. After drilling and completion operations, trash, chemicals, salts, frac sand and other waste material will be removed and disposed of properly at a state approved disposal facility.

e. The well will be drilled utilizing a closed loop system. Drill cutting will be properly disposed of into steel tanks and taken to an NMOCD approved disposal facility.

8. Ancillary Facilities

a. No ancillary facilities will be needed for this proposed project.

9. Well Site Layout

a. The following information is presented in the well site survey plat or diagram:

i. reasonable scale (near 1":50')
ii. well pad dimensions
iii. well pad orientation
iv. . drilling rig components
v. proposed access road
vi. elevations of all points
vii. topsoil stockpile
viii. serve pit location/dimensions if applicable
ix. other disturbances needed (flare pit, stinger, frac farm pad, etc.)
x. existing structures within the 600' x 600' archaeological surveyed area (pipelines, electric lines, well pads, etc.

b. The proposed drilling pad was staked and surveyed by a professional surveyor. The attached survey plat of the well site depicts the drilling pad layout as staked.

c. The submitted survey plat does depict all the necessary information required by Onshore Order No. 1.

d. Topsoil Salvaging

i. Grass, forbs, and small woody vegetation, such as mesquite will be excavated as the topsoil is removed. Large woody vegetation will be stripped and stored separately and respreads evenly on the site following topsoil rereading. Topsoil depth is defined as the top layer of soil that contains 80% of the roots. In areas to be heavily disturbed, the top 6 inches of soil material, will be stripped and stockpiled on the perimeter of the well location and along the perimeter of the access road to control run-on and run-off, to keep topsoil viable, and to make redistribution of topsoil more efficient during interim reclamation. Stockpiled topsoil should include vegetative material. Topsoil will be clearly segregated and stored separately from subsoils. Contaminated soil will not be stockpiled, but properly treated and handled prior to topsoil salvaging.

10. Plans for Surface Reclamation

Reclamation Objectives

i. The objective of interim reclamation is to restore vegetative cover and a portion of the landform sufficient to maintain healthy, biologically active topsoil; control erosion; and minimize habitat and forage loss, visual impact, and weed infestation, during the life of the well or facilities.

ii. The long-term objective of final reclamation is to return the land to a condition like what existed prior to disturbance. This includes restoration of the landform and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats. To ensure that the long-term objective will be reached through human and natural processes, actions will be taken to ensure standards are met for site stability, visual quality, hydrological functioning, and vegetative productivity.

iii. The BLM will be notified at least 3 days prior to commencement of any reclamation procedures.

iv. If circumstances allow, interim reclamation and/or final reclamation actions will be completed no later than 6 months from when the final well on the location has been completed or plugged. We will gain written permission from the BLM if more time is needed.

v. Interim reclamation will be performed on the well site after the well is drilled and completed. Reclamation Diagram, Figure # 4 depicts the location and dimensions of the planned interim reclamation for the well site. The pad will be reclaimed to 385'x400' (approximately 1.694 acres will be reclaimed leaving the pad at approximately 4.407 acres). The facility portion will not be reclaimed.

Interim Reclamation Procedures (If performed)

1. Within 30 days of well completion, the well location and surrounding areas will be cleared of, and maintained free of, all materials, trash, and equipment not required for production.

2. In areas planned for interim reclamation, all the surfacing material will be removed and returned to the original mineral pit or recycled to repair or build roads and well pads.

3. The areas planned for interim reclamation will then be recontoured to the original contour if feasible, or if not feasible, to an interim contour that blends with the surrounding topography as much as possible. Where applicable, the fill material of the well pad will be backfilled into the cut to bring the area back to the original contour. The interim cut and fill slopes prior to re-seeding will not be steeper than a 3:1 ratio, unless the adjacent native topography is steeper. Note: Constructed slopes may be much steeper during drilling, but will be recontoured to the above ratios during interim reclamation.

4. Topsoil will be evenly respreads and aggressively revegetated over the entire disturbed area not needed for all-weather operations including cuts & fills. To seed the area, the proper BLM seed mixture, free of noxious weeds, will be used. Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting to break the soil crust and create seed germination micro-sites.

5. Proper erosion control methods will be used on the area to control erosion, runoff and siltation of the surrounding area.

6. The interim reclamation will be monitored periodically to ensure that vegetation has reestablished and that erosion is controlled.

Final Reclamation (well pad, buried pipelines, etc.)

1. Prior to final reclamation procedures, the well pad, road, and surrounding area will be cleared of material, trash, and equipment.

2. All surfacing material will be removed and returned to the original mineral pit or recycled to repair or build roads and well pads.

3. All disturbed areas, including roads, pipelines, pads, production facilities, and interim reclaimed areas will be recontoured to the contour existing prior to initial construction or a contour that blends indistinguishably with the surrounding landscape. Topsoil that was spread over the interim reclamation areas will be stockpiled prior to recontouring. The topsoil will be redistributed evenly over the entire disturbed site to ensure successful revegetation.

4. After all the disturbed areas have been properly prepared, the areas will be seeded with the proper BLM seed mixture, free of noxious weeds. Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting to break the soil crust and create seed germination micro-sites.

5. Proper erosion control methods will be used on the entire area to control erosion, runoff and siltation of the surrounding area.

6. All unused equipment and structures including pipelines, electric line poles, tanks, etc. that serviced the well will be removed.

7. All reclaimed areas will be monitored periodically to ensure that revegetation occurs, that the area is not redisturbed, and that erosion is controlled.

11. Surface Ownership

a. The surface ownership of the proposed project is Federal.

12. Other Information

a. The following well pad and facility location was staked with Colleen Cepero Rios on April 18th, 2017. Please review this application with the Zia Hills 20 Federal COM 109H, Zia Hills 20 Federal COM 110H, Zia Hills 20 Federal COM 111H, Zia Hills 20 Federal COM 112H, Zia Hills 20 Federal COM 113H, Zia Hills 20 Federal COM 114H, Zia Hills 20 Federal COM 116H. All ROW's will be filed separately.

13. Maps and Diagrams

Access Road Map, TOPO A & Access Road Map TOPO B - Existing Road
One Mile Radius Map - Wells Within One Mile
Location Layout, Figure #1 & Reclamation Diagram, Figure #4 - Production Facilities Diagram
Preliminary Plot Plan - Additional Production Facilities Diagram
Pipeline R-O-W - Gas Pipeline
Pipeline R-O-W - Water Pipeline
Pipeline R-O-W - Oil Pipeline
Pipeline R-O-W - Gas Pipeline
Power Line R-O-W - Electric Line (already submitted)
Reclamation Diagram, Figure # 4 - Interim Reclamation

Would you like to address long-term produced water disposal? NO

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Bond Info Data Report

02/20/2019

Federal/Indian APD: FED

BLM Bond number: ES0085

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 115H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
PPP Leg #1	0	FNL	656	FEL	26S	32E	29	Aliquot NENE	32.020856	-103.690726	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 027508	-8739	14200	11880
PPP Leg #1	0	FNL	658	FEL	26S	32E	32	Aliquot NENE	32.006164	-103.69073	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-8739	19500	11880
EXIT Leg #1	330	FNL	660	FEL	26S	32E	32	Lot 1	32.001128	-103.690731	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-8739	21360	11880
BHL Leg #1	50	FNL	660	FEL	26S	32E	32	Lot 1	32.000358	-103.690731	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-8739	21643	11880

ConocoPhillips

WELL PLAN SUMMARY

Date:
Version:
Prepared by:

WELL: Zia Hills 20 115H

SURFACE LOC:
BH LOC:

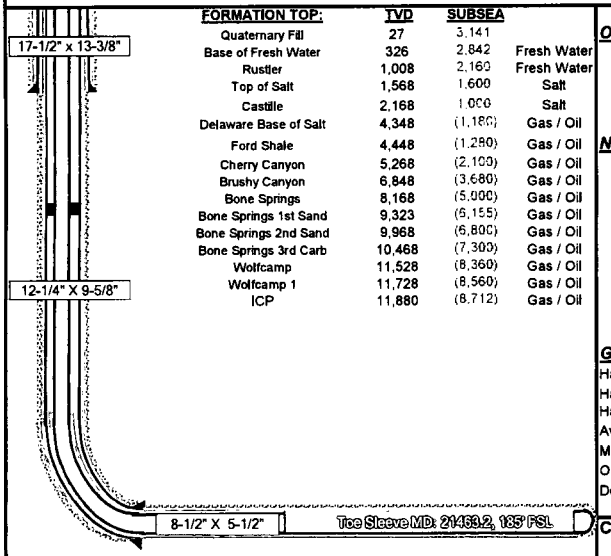
ELEVATIONS: GL
KB

COUNTY,STATE:
API No.:
TRRC Permit:
BLM Permit:

WH Coord.: LAT
(NAD-83) LON

AFE:
Drilling Network No.:
Invoice Handler ID:

COST ESTIMATE
DRILLING
COMPLETION
FACILITIES
TOTAL



FORMATION TOP:	TVD	SUBSEA	
Quaternary Fill	27	3,141	
Base of Fresh Water	326	2,842	Fresh Water
Rustler	1,008	2,160	Fresh Water
Top of Salt	1,568	1,600	Salt
Castille	2,168	1,000	Salt
Delaware Base of Salt	4,348	(1,180)	Gas / Oil
Ford Shale	4,448	(1,280)	Gas / Oil
Cherry Canyon	5,268	(2,100)	Gas / Oil
Brushy Canyon	6,848	(3,680)	Gas / Oil
Bone Springs	8,168	(5,000)	Gas / Oil
Bone Springs 1st Sand	9,323	(6,155)	Gas / Oil
Bone Springs 2nd Sand	9,968	(6,800)	Gas / Oil
Bone Springs 3rd Carb	10,468	(7,300)	Gas / Oil
Wolfcamp	11,528	(8,360)	Gas / Oil
Wolfcamp 1	11,728	(8,560)	Gas / Oil
ICP	11,880	(8,712)	Gas / Oil
TARGET	11,880	(8,560)	Gas / Oil
Formation Dip Rate:	est 90.1° (up dip)		
PBTD	11,880	(8,560)	Gas / Oil

Estimated BH Static Temperature (°F): [redacted]
Max. Anticipated BH Pressure: 8,316 psi 13.5 ppg
Max Anticipated Surface Pressure: 4,565 psi

Objective

Notes

Goals

Have no lost time or recordable accidents.
Have no spills or adverse environmental impact.
Have no stuck pipe incidents.
Avoid lost circulation incidents.
Maintain well control and follow ConocoPhillips well control policy.
Obtain good mud log data.
Deliver usable wellbore to production department.

CONTACTS

		Office	Cell
Drilling Engineer:	Mike Callahan	832-486-2480	907-231-2176
Geologist:	Josh Day	281-206-5620	423-512-0347
Onsite Drilling Rep.:	Greg Rivera	432-848-5238	
	Dennis Hously		
Field Drilling Supt.:	James Taylor	830-583-4828	956-229-1393
	Patrick Wellman		432-215-7079
Drilling Supt.:	Scott Nicholson	281-206-5392	432-230-8010

DRILLING FLUID:

	Type	Interval (MD)	Density ppg	Vis sec/qt	PV cP	YP #/100ft2	pH	FL mL	LGS % by vol	NaCl ppb sol	Remarks
Surface:	Fresh Water	Surface - 1,108'	[redacted]	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	10,000	Rig Tanks
Intermediate 1:	Emulsified Brine	12,308		28-50	1-5	2-6	7.5-8.5	NC	< 5.0	180,000	Rig Tanks
Production:	OBM	21643' - 12308'		50-70	18-25	8-14	9.5-10	< 8	< 8.0	400 - 00	Rig Tanks

Reference Drilling Fluids Program

CASING:

	Hole	TOP (MD)	BTM (MD)	Length	Size	Wt	Grade	Connection
Surface:	17-1/2"	27'	1,668'	1,641'	13 3/8	54.50	J-55	BTC
	ACP/DV Tool run 100' below water board depth if necessary							
Intermediate	12-1/4"	27'	12,308'	12,281'	9 5/8	47.00	P-110	BTC
Production:	8-1/2"	27'	21,643'	21,616'	5 1/2	23.00	P-110	TXP

BOP:
Minimum - COP Class 3 Well Control Requirements
Rig - [redacted]
Stackup - Rotating Head, Annular Preventer, Pipe Ram, Blind Ram, Mud Cross (Choke & Kill Valves), Pipe Ram
Waste Handling: Closed loop cuttings disposal system with haul off to approved facility.
Mud Pit: Float Based Electronic PVT with Flow Sensor and Gravity Trip Tank, Alarms +/- 10 BBLS
Wellhead: [redacted]

CENTRALIZATION:
Surface Casing: 1 per 2 joints from 1,700' to FC. 1 per 4 joints from 1,700' to surface
Intermediate Casing: Shoe joint. 1 per joint from FC to 7,800'. 1 per 2 joints 7,800' to 2,300'. 1 per 4 joints 2,300' to surface.
Production Liner: Rigid body 1 per 2 joints TD to Int Shoe. Bow Spring 1 per 2 joints Int shoe to 100' above KOP. 1 per 4 joints to surface

CEMENT:

	Hole	MD	TVD	Spacer	Lead	Tail	COMMENTS
Surface:	17-1/2"X13-3/8"	1,668'	1,668'	20 bbl FW	1530 sx Control Set 'C' + adds 11.5ppg 2.66 ft3/sk	660 sx Type 'III' + adds 13ppg 1.34 ft3/sk	Cemented to surface w/ 200%XS Add FiberBlock
Intermediate:	12-1/4"X9-5/8"	12,308'	11,880	40 bbl Invert Spacer + 100 bbl SW	1070 sx WBL + adds 11.5ppg 1.77 ft3/sk	440 sx Thermal 35 + adds 15ppg 1.63 ft3/sk	TOC 500' into previous casing shoe w/ 70%L / 30%T XS calc'd on 12.25" Add FiberBlock
Production:	8-1/2"X5-1/2"	21,643'	11,880'	40 bbl Visweep	2418 sx 1:1:0 'Poz:Lafarge G' + 20% Silica Flour + 8% Silica Fume + adds 15.6 ppg 1.19ft3/sk		Cemented to TOL w/ 10% XS calc'd on 8.5" hole, Displ. = volume to float collar +/- half shoe track

Reference Cementing Recommendation

DIRECTIONAL PLAN:

Comments	MD (ft)	INC (deg)	AZI (deg)	TVD (ft)	NS (ft)	EW (ft)	DLS (°/100')	VS (ft)	SEC-T-R	Section Line Distance
Build @ 1.5°/100'										
End Build @ 7°										
Drop @ 1.5°/100'										
Complete Drop, Hold to KOP										
KOP Build @ 8°/100'										
[redacted]										
Toe Sleeve 2										
Toe Sleeve 1										
PBHL/TD										

Reference Directional Plan MWD Surveys will be taken at 90' interval below surface casing, 30' while building curve, and every 90' while drilling lateral.

FORMATION EVALUATION:

Mud Logging -	One-Man:	[redacted]
Mud Logging -	Two-Man:	Intermediate Casing Point to TD
Open Hole -	PEX	None
Cased Hole -	GR/CBL/USIT	[redacted]
MWD -	GR	200' above KOP to TD

Correlation Well: [redacted]

OUR WORK IS NEVER SO URGENT OR IMPORTANT THAT WE CANNOT TAKE THE TIME TO DO IT SAFELY!