

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**

1a. Type of work: <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER 1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other 1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		5. Lease Serial No.  6. If Indian, Allottee or Tribe Name  7. If Unit or CA Agreement, Name and No.  8. Lease Name and Well No.  <div style="text-align: center; font-weight: bold; font-size: 1.2em;">[333975]</div>
2. Name of Operator <div style="text-align: center; font-weight: bold; font-size: 1.2em;">[373910]</div>		9. API Well No.
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory <div style="text-align: center; font-weight: bold; font-size: 1.2em;">[98117]</div>
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		11. Sec., T. R. M. or Blk. and Survey or Area
14. Distance in miles and direction from nearest town or post office*		12. County or Parish 13. State
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
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.<br>2. A Drilling Plan.<br>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).<br>5. Operator certification.<br>6. Such other site specific information and/or plans as may be requested by the BLM. |
|---|---|

25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
Office		

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.

**NGMP Rec 05/01/2023**

**SL**

(Continued on page 2)



**Approval Date: 04/28/2023**

**KZ**

\*(Instructions on page 2)

## 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 well, 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 directionally 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 well 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 will 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 connects this information to an 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 Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.



## Additional Operator Remarks

### Location of Well

0. SHL: TR O / 55 FSL / 1888 FEL / TWSP: 25S / RANGE: 35E / SECTION: 35 / LAT: 32.07972 / LONG: -103.33588 ( TVD: 0 feet, MD: 0 feet )  
PPP: SENE / 0 FSL / 982 FEL / TWSP: 25S / RANGE: 35E / SECTION: 26 / LAT: 32.101325 / LONG: -103.332945 ( TVD: 12312 feet, MD: 20000 feet )  
PPP: NESE / 0 FSL / 986 FEL / TWSP: 25S / RANGE: 35E / SECTION: 26 / LAT: 32.097706 / LONG: 103.332946 ( TVD: 12312 feet, MD: 18600 feet )  
PPP: SESE / 0 FSL / 991 FEL / TWSP: 25S / RANGE: 35E / SECTION: 26 / LAT: 32.094086 / LONG: -103.332946 ( TVD: 12312 feet, MD: 17300 feet )  
PPP: SESE / 672 FSL / 979 FEL / TWSP: 25S / RANGE: 35E / SECTION: 35 / LAT: 32.081419 / LONG: -103.332947 ( TVD: 12312 feet, MD: 12713 feet )  
BHL: TR A / 150 FNL / 980 FEL / TWSP: 25S / RANGE: 35E / SECTION: 26 / LAT: 32.108191 / LONG: -103.332945 ( TVD: 12312 feet, MD: 22453 feet )

### BLM Point of Contact

Name: TENILLE ORTIZ  
Title: Legal Instruments Examiner  
Phone: (575) 234-2224  
Email: tortiz@blm.gov

CONFIDENTIAL

### **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.

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District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
District II  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office  
☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number <b>30-025-51421</b>	<sup>2</sup> Pool Code 98117	<sup>3</sup> Pool Name WC-025 G-09 S263504N; WOLFCAMP
<sup>4</sup> Property Code <b>333975</b>	<sup>5</sup> Property Name FORGE FED COM	<sup>6</sup> Well Number 707H
<sup>7</sup> OGRID No. 373910	<sup>8</sup> Operator Name FRANKLIN MOUNTAIN ENERGY LLC	<sup>9</sup> Elevation 3120.1

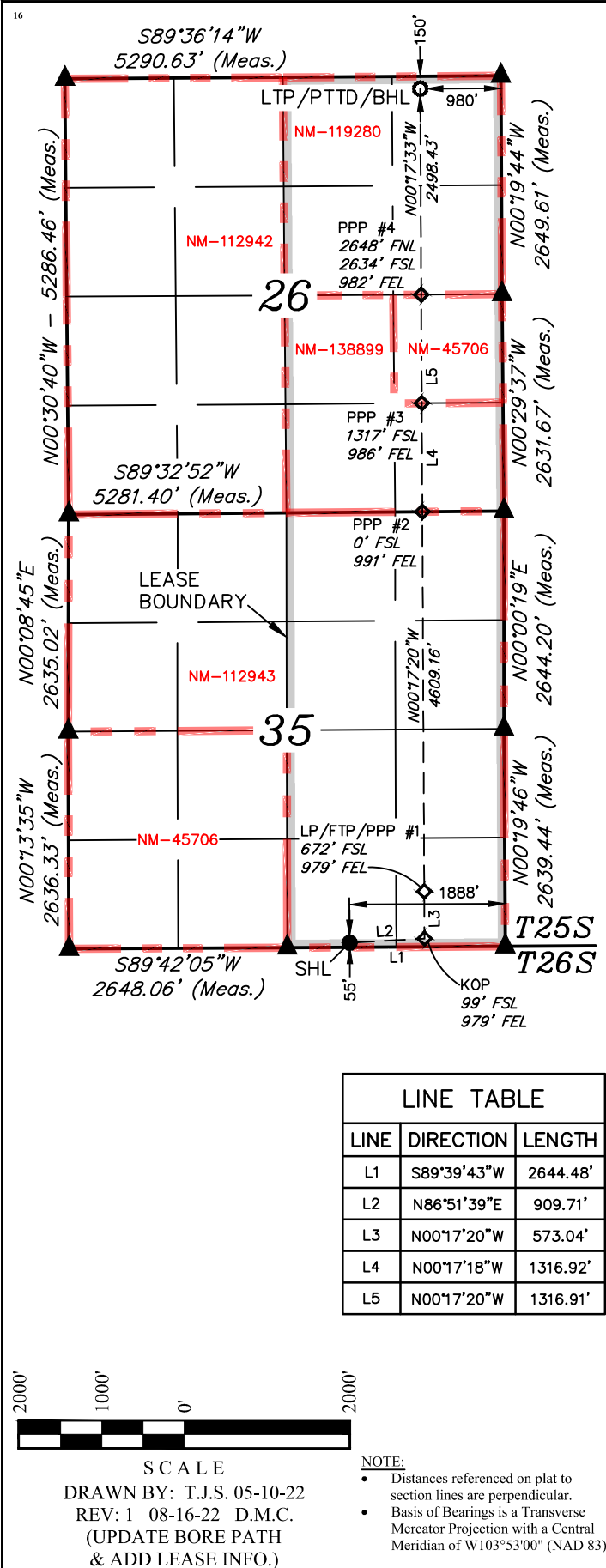
<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	35	25S	35E		55	SOUTH	1888	EAST	LEA

<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	26	25S	35E		150	NORTH	980	EAST	LEA
<sup>12</sup> Dedicated Acres 640	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.						

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S89°39'43"W	2644.48'
L2	N86°51'39"E	909.71'
L3	N00°17'20"W	573.04'
L4	N00°17'18"W	1316.92'
L5	N00°17'20"W	1316.91'

NOTE:  
• Distances referenced on plat to section lines are perpendicular.  
• Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00" (NAD 83)

<b>NAD 83 (SURFACE HOLE LOCATION)</b> LATITUDE = 32°04'46.99" (32.079720°) LONGITUDE = 103°20'09.17" (103.335880°) <b>NAD 27 (SURFACE HOLE LOCATION)</b> LATITUDE = 32°04'46.54" (32.079593°) LONGITUDE = 103°20'07.51" (103.335419°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 394167.66' E: 850275.20' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 394109.76' E: 809087.57'
<b>NAD 83 (KICK OFF POINT)</b> LATITUDE = 32°04'47.44" (32.079844°) LONGITUDE = 103°19'58.61" (103.332947°) <b>NAD 27 (KICK OFF POINT)</b> LATITUDE = 32°04'46.98" (32.079718°) LONGITUDE = 103°19'56.95" (103.332486°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 394221.26' E: 851183.20' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 394163.35' E: 809995.56'
<b>NAD 83 (LP/FTP/PPP #1)</b> LATITUDE = 32°04'53.11" (32.081419°) LONGITUDE = 103°19'58.61" (103.332947°) <b>NAD 27 (LP/FTP/PPP #1)</b> LATITUDE = 32°04'52.65" (32.081292°) LONGITUDE = 103°19'56.95" (103.332486°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 394794.19' E: 851177.92' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 394736.26' E: 809990.30'
<b>NAD 83 (PPP #2)</b> LATITUDE = 32°05'38.71" (32.094086°) LONGITUDE = 103°19'58.61" (103.332946°) <b>NAD 27 (PPP #2)</b> LATITUDE = 32°05'38.25" (32.093960°) LONGITUDE = 103°19'56.94" (103.332484°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 399402.48' E: 851135.46' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 399344.42' E: 809948.03'
<b>NAD 83 (PPP #3)</b> LATITUDE = 32°05'51.74" (32.097706°) LONGITUDE = 103°19'58.60" (103.332946°) <b>NAD 27 (PPP #3)</b> LATITUDE = 32°05'51.28" (32.097579°) LONGITUDE = 103°19'56.94" (103.332484°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 400719.15' E: 851123.34' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 400661.06' E: 809935.96'
<b>NAD 83 (PPP #4)</b> LATITUDE = 32°06'04.77" (32.101325°) LONGITUDE = 103°19'58.60" (103.332945°) <b>NAD 27 (PPP #4)</b> LATITUDE = 32°06'04.31" (32.101198°) LONGITUDE = 103°19'56.94" (103.332483°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 402035.81' E: 851111.20' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 401977.68' E: 809923.88'
<b>NAD 83 (LTP/PTTD/BHL)</b> LATITUDE = 32°06'29.49" (32.108191°) LONGITUDE = 103°19'58.60" (103.332945°) <b>NAD 27 (LTP/PTTD/BHL)</b> LATITUDE = 32°06'29.03" (32.108064°) LONGITUDE = 103°19'56.94" (103.332483°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 404533.76' E: 851088.03' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 404475.57' E: 809900.80'

<sup>17</sup> OPERATOR  
CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: *Rachael Overbey* Date: 8/24/2022  
Printed Name: Rachael Overbey  
E-mail Address: roverbey@fmellc.com

<sup>18</sup> SURVEYOR  
CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

April 19, 2021

Date of Survey  
Signature and Seal of Professional Surveyor:



Certificate Number:

- = SURFACE HOLE LOCATION
- ◆ = KOP/LANDING POINT/FIRST TAKE POINT/PPP
- ⊙ = LAST TAKE POINT/PTTD/BOTTOM HOLE LOCATION
- ▲ = SECTION CORNER LOCATED

State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit Electronically  
Via E-permitting

## NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

### Section 1 – Plan Description

Effective May 25, 2021

**I. Operator:** Franklin Mountain Energy, LLC **OGRID:** 373910 **Date:** 4/28/2023

**II. Type:** ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: \_\_\_\_\_

**III. Well(s):** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
See Attached Well List						

**IV. Central Delivery Point Name:** Forge CTB [See 19.15.27.9(D)(1) NMAC]

**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
See Attached Well List						

**VI. Separation Equipment:** ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

**VII. Operational Practices:** ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

**VIII. Best Management Practices:** ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

## **Section 2 – Enhanced Plan**

### **EFFECTIVE APRIL 1, 2022**

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

#### **IX. Anticipated Natural Gas Production:**

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

#### **X. Natural Gas Gathering System (NGGS):**

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

**XI. Map.** ☒ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

**XII. Line Capacity.** The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

**XIII. Line Pressure.** Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

**XIV. Confidentiality:** ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.



### **Section 3 - Certifications**

**Effective May 25, 2021**

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

***If Operator checks this box, Operator will select one of the following:***

**Well Shut-In.** ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

**Venting and Flaring Plan.** ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

### **Section 4 - Notices**

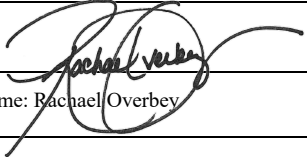
1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: 
Printed Name: Rachael Overbey
Title: Director Operations Planning & Regulatory
E-mail Address: roverbey@fmelle.com
Date: 4/28/2023
Phone: 720-414-7868
<b>OIL CONSERVATION DIVISION</b> <b>(Only applicable when submitted as a standalone form)</b>
Approved By:
Title:
Approval Date:
Conditions of Approval:

**NATURAL GAS MANAGEMENT PLAN**

**III. Well(s):** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API 14 Digit	ULSTR	Surface Location FTG	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Forge Fed Com 101H	TBD	M-35-25S-35E	65 FSL 545 FWL	800 +/-	700 +/-	600 +/-
Forge Fed Com 102H	TBD	M-35-25S-35E	65 FSL 570 FWL	800 +/-	700 +/-	600 +/-
Forge Fed Com 501H	TBD	M-35-25S-35E	65 FSL 595 FWL	800 +/-	700 +/-	600 +/-
Forge Fed Com 502H	TBD	M-35-25S-35E	65 FSL 620 FWL	800 +/-	700 +/-	600 +/-
Forge Fed Com 601H	TBD	M-35-25S-35E	55 FSL 1284 FWL	800 +/-	700 +/-	600 +/-
Forge Fed Com 602H	TBD	M-35-25S-35E	55 FSL 1309 FWL	800 +/-	700 +/-	600 +/-
Forge Fed Com 701H	TBD	N-35-25S-35E	55 FSL 1334 FWL	800 +/-	700 +/-	600 +/-
Forge Fed Com 702H	TBD	N-35-25S-35E	55 FSL 1359 FWL	800 +/-	700 +/-	600 +/-
Forge Fed Com 703H	TBD	N-35-25S-35E	55 FSL 1384 FWL	800 +/-	700 +/-	600 +/-
Forge Fed Com 704H	TBD	N-35-25S-35E	55 FSL 1409 FWL	800 +/-	700 +/-	600 +/-
Forge Fed Com 801H	TBD	N-35-25S-35E	55 FSL 1434 FWL	800 +/-	700 +/-	600 +/-
Forge Fed Com 802H	TBD	N-35-25S-35E	55 FSL 1459 FWL	800 +/-	700 +/-	600 +/-
Forge Fed Com 803H	TBD	N-35-25S-35E	55 FSL 1484 FWL	800 +/-	700 +/-	600 +/-
Forge Fed Com 603H	TBD	O-35-25S-35E	55 FSL 1988 FEL	800 +/-	700 +/-	600 +/-
Forge Fed Com 604H	TBD	O-35-25S-35E	55 FSL 1963 FEL	800 +/-	700 +/-	600 +/-
Forge Fed Com 705H	TBD	O-35-25S-35E	55 FSL 1938 FEL	800 +/-	700 +/-	600 +/-
Forge Fed Com 706H	TBD	O-35-25S-35E	55 FSL 1913 FEL	800 +/-	700 +/-	600 +/-
Forge Fed Com 707H	TBD	O-35-25S-35E	55 FSL 1888 FEL	800 +/-	700 +/-	600 +/-
Forge Fed Com 708H	TBD	O-35-25S-35E	55 FSL 1863 FEL	800 +/-	700 +/-	600 +/-
Forge Fed Com 804H	TBD	O-35-25S-35E	55 FSL 1838 FEL	800 +/-	700 +/-	600 +/-
Forge Fed Com 805H	TBD	O-35-25S-35E	55 FSL 1813 FEL	800 +/-	700 +/-	600 +/-
Forge Fed Com 806H	TBD	O-35-25S-35E	55 FSL 1788 FEL	800 +/-	700 +/-	600 +/-
Forge Fed Com 103H	TBD	P-35-25S-35E	55 FSL 923 FEL	800 +/-	700 +/-	600 +/-
Forge Fed Com 104H	TBD	P-35-25S-35E	55 FSL 898 FEL	800 +/-	700 +/-	600 +/-
Forge Fed Com 503H	TBD	P-35-25S-35E	55 FSL 873 FEL	800 +/-	700 +/-	600 +/-
Forge Fed Com 504H	TBD	P-35-25S-35E	55 FSL 848 FEL	800 +/-	700 +/-	600 +/-

**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to

Well Name	API 14 Digit	Spud Date	TD Reached Date	Completion	Flowback	First Production Date
Forge Fed Com 101H	TBD	2/1/2024	5/23/2024	6/7/2024	6/17/2024	6/19/2024
Forge Fed Com 102H	TBD	2/1/2024	5/23/2024	6/7/2024	6/17/2024	6/19/2024
Forge Fed Com 501H	TBD	2/1/2024	5/23/2024	6/7/2024	6/17/2024	6/19/2024
Forge Fed Com 502H	TBD	2/1/2024	5/23/2024	6/7/2024	6/17/2024	6/19/2024
Forge Fed Com 601H	TBD	10/15/2023	2/4/2024	2/19/2024	2/29/2024	3/2/2024
Forge Fed Com 602H	TBD	10/15/2023	2/4/2024	2/19/2024	2/29/2024	3/2/2024
Forge Fed Com 701H	TBD	10/15/2023	2/4/2024	2/19/2024	2/29/2024	3/2/2024
Forge Fed Com 702H	TBD	10/15/2023	2/4/2024	2/19/2024	2/29/2024	3/2/2024
Forge Fed Com 703H	TBD	10/15/2023	2/4/2024	2/19/2024	2/29/2024	3/2/2024
Forge Fed Com 704H	TBD	10/15/2023	2/4/2024	2/19/2024	2/29/2024	3/2/2024
Forge Fed Com 801H	TBD	10/15/2023	2/4/2024	2/19/2024	2/29/2024	3/2/2024
Forge Fed Com 802H	TBD	10/15/2023	2/4/2024	2/19/2024	2/29/2024	3/2/2024
Forge Fed Com 803H	TBD	10/15/2023	2/4/2024	2/19/2024	2/29/2024	3/2/2024
Forge Fed Com 603H	TBD	10/1/2023	1/21/2024	2/5/2024	2/15/2024	2/17/2024
Forge Fed Com 604H	TBD	10/1/2023	1/21/2024	2/5/2024	2/15/2024	2/17/2024
Forge Fed Com 705H	TBD	10/1/2023	1/21/2024	2/5/2024	2/15/2024	2/17/2024
Forge Fed Com 706H	TBD	10/1/2023	1/21/2024	2/5/2024	2/15/2024	2/17/2024
Forge Fed Com 707H	TBD	10/1/2023	1/21/2024	2/5/2024	2/15/2024	2/17/2024
Forge Fed Com 708H	TBD	10/1/2023	1/21/2024	2/5/2024	2/15/2024	2/17/2024
Forge Fed Com 804H	TBD	10/1/2023	1/21/2024	2/5/2024	2/15/2024	2/17/2024
Forge Fed Com 805H	TBD	10/1/2023	1/21/2024	2/5/2024	2/15/2024	2/17/2024
Forge Fed Com 806H	TBD	10/1/2023	1/21/2024	2/5/2024	2/15/2024	2/17/2024
Forge Fed Com 103H	TBD	2/1/2024	5/23/2024	6/7/2024	6/17/2024	6/19/2024
Forge Fed Com 104H	TBD	2/1/2024	5/23/2024	6/7/2024	6/17/2024	6/19/2024
Forge Fed Com 503H	TBD	2/1/2024	5/23/2024	6/7/2024	6/17/2024	6/19/2024
Forge Fed Com 504H	TBD	2/1/2024	5/23/2024	6/7/2024	6/17/2024	6/19/2024



## Natural Gas Management Plan

### Items VI-VIII

#### **VI. Separation Equipment: Attach a complete description of how Operator will size separation equipment to optimize gas capture.**

- Data from surrounding wells is used to generate type curves which provides the basis for expected gas rates during initial production, peak production and then the natural decline.
- Separation equipment will be sized to provide adequate separation for peak production.
- Facility design includes multiple stages of separation to minimize gas waste. Wells flow through a high pressure 2-phase separator to remove bulk gas, liquid from the 2-phase separator is sent to a 3-phase separator where additional gas is separated. Gas from the 2 Phase and 3 Phase separators are then sent through a gas scrubber before being route to treatment and/or sales. As production declines the 2-phase separator may be removed.
- Industry standard sizing calculations are used for gas-liquid separation and liquid-liquid separation.

#### **VII. Operational Practices: Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F 19.15.27.8 NMAC.**

- Drilling, completion and production setup is designed to minimize the waste of natural gas and to flare instead of vent.
- *Drilling Operations:*
  - Natural gas encountered will be flared instead of vented unless there is an equipment malfunction and/or to avoid risking safety or the environment.
  - Flares will be properly sized and placed at least 100' from the nearest surface hole on the pad.
- *Completions/Recompletions Operations:*
  - Flowback operations will not commence until connected to a properly sized gas gathering system.
  - During initial flowback wells are routed to the separation equipment as soon as technically feasible to minimize gas waste.
  - During separation flowback wells are routed to the separation equipment to minimize gas waste.
  - Gas sales is maximized. Gas will be flared instead of vented during an emergency or malfunction to avoid posing a risk to operations or personnel safety.
  - Flares are properly sized with a continuous pilot.
- *Production Operations:*
  - Gas sales will be maximized. Gas will be flared instead of vented during an emergency or malfunction to avoid posing a risk to operations or personnel safety.
  - After a well is stabilized from liquid unloading, the well will be turned back into the collection system.
- *Performance Standards:*
  - The facility will be designed to handle peak production rates and pressures.
  - All tanks will have automatic gauging equipment.
  - Flares will be designed to ensure proper combustion and will have continuous pilots. Flares will be located 100' from nearest surface hole on the pad and storage tanks.



- Weekly AVOs will be performed, and any leaking thief hatches will be cleaned and properly re-sealed.
- **Measurement and Calibration:**
  - All volume that is flared and vented that is not measured will be estimated.
  - When metering is not practical due to low pressure/rate, all vented or flared volumes will be estimated.
  - Measurement will conform to industry standards. Measurement will not be bypassed except for purposes of inspection or calibration.

**VIII. Best Management Practices: Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.**

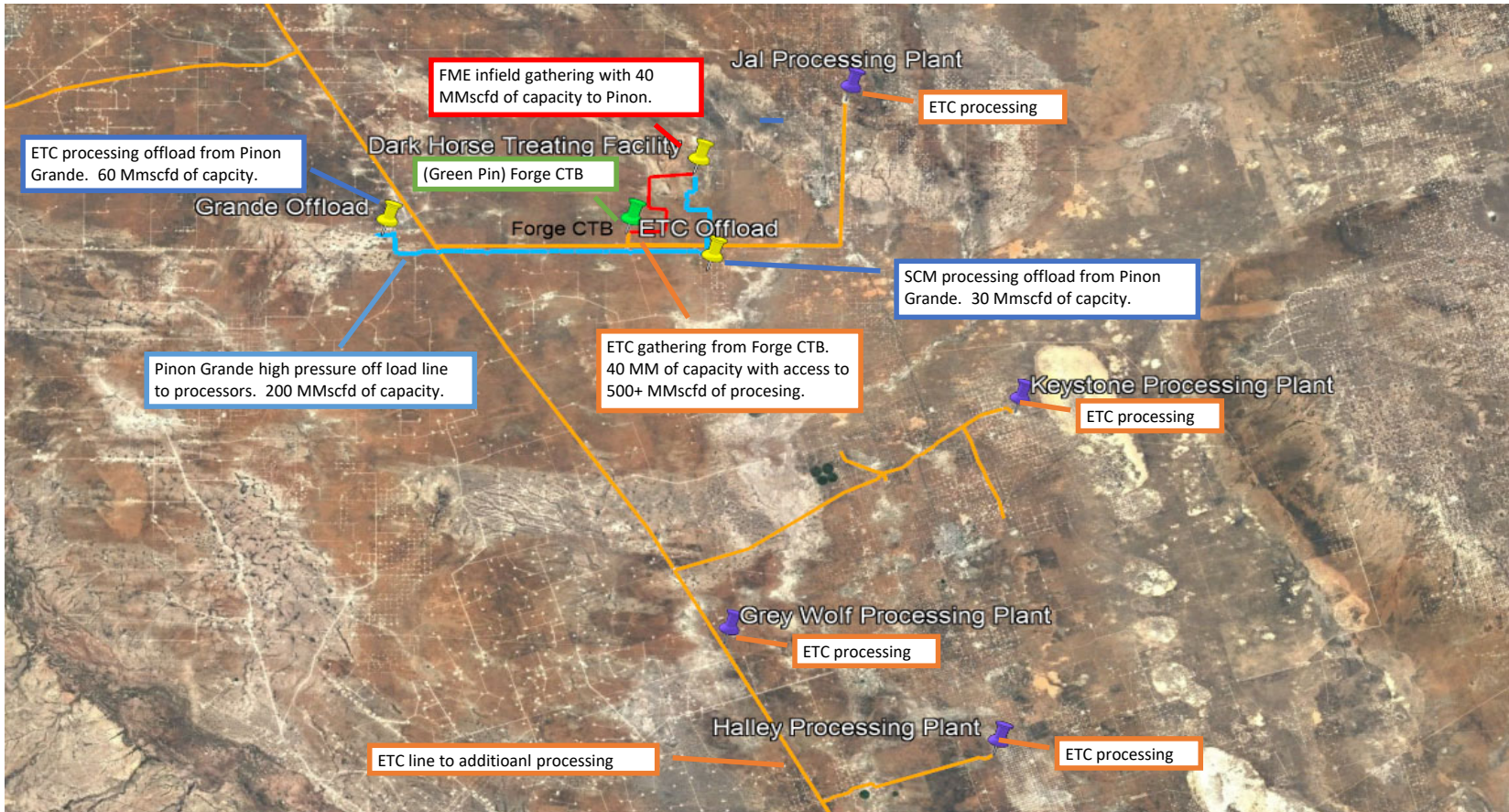
- Venting will be minimized during active and planned maintenance.
- Systems and equipment requiring maintenance will be isolated and blown down to sales and then flare before any remaining gas is vented in an effort to minimize waste and venting.
- Downhole maintenance will use best management practices to minimize vent.



# Forge NGMP Map

April 2023

- Capacities reflected are FME's understanding of 3rd party midstream system capacities





## Forge Fed Com 707H

1. **Geologic name of surface location:** Permian
2. **Estimated tops of important geological markers:**

Formations	PROG SS	PROG TVD	Potential/Issues
Cenozoic Alluvium (surface)	3,117'	30'	Sand/Gravels/unconsolidated
Rustler	2,256'	891'	Carbonates
Salado	1,465'	1,681'	Salt, Carbonate & Clastics
Base Salt	-319'	3,466'	Shaley Carbonate & Shale
Lamar	-1,757'	4,903'	Carbonate & Clastics
Bell Canyon	-2,030'	5,176'	Sandstone - oil/gas/water
Cherry Canyon	-3,018'	6,165'	Sandstone - oil/gas/water
Brushy Canyon	-4,417'	7,564'	Sand/carb/shales - oil/gas/water
Bone Spring Lime	-5,650'	8,796'	Shale/Carbonates - oil/gas
Avalon	-5,687'	8,834'	Shale/Carbonates - oil/gas
First Bone Spring Sand	-6,949'	10,095'	Sandstone - oil/gas/water
Second Bone Spring Carbonates	-7,045'	10,192'	Shale/Carbonates - oil/gas
Second Bone Spring Sand	-7,403'	10,549'	Sandstone - oil/gas/water
Third Bone Spring Carbonates	-8,002'	11,148'	Shale/Carbonates - oil/gas
Third Bone Spring Sand	-8,663'	11,810'	Sandstone - oil/gas/water
Wolfcamp	-8,942'	12,089'	Overpressure shale/sand- Oil/Gas
Wolfcamp A	-9,004'	12,150'	Overpressure Shale - Oil/Gas
<b>HZ Target</b>	<b>-9,165'</b>	<b>12,312'</b>	<b>Overpressure Shale - Oil/Gas</b>
Wolfcamp B	-9,237'	12,384'	Overpressure Shale - Oil/Gas

3. **Estimated depth of anticipated fresh water, oil or gas:**

Upper Permian Sands	0-400'	Fresh Water
Delaware Sands	5,176'	Oil
Avalon	8,834'	Oil
Bone Spring	10,095'	Oil
Wolfcamp	12,089'	Oil

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Surface freshwater sands will be protected by setting 13-3/8" casing at 1,300' and circulating cement back to surface.

4. **Casing Program:**

All casing strings will be run new. Safety factors calculated assuming the well is vertical.

Casing string	Weight	Grade	Burst	Collapse	Tension	Conn	Length	API design factor			
								Burst	Collapse	Tension	Coupling
Surface 13 3/8"	54.5	J-55	2730	1130	853	BTC 909	1,300	1.18	1.67	4.99	5.32
Intermediate 9 5/8"	40	HCL-80	7430	4230	916	BTC 1042	5,050	1.80	1.79	3.03	3.45
Intermediate 7 5/8"	29.7	HCP-110	8280	7150	827	Liberty 558	11,700	1.13	1.31	1.85	1.25
Long string 5 1/2"	23	P-110	14520	14520	729	Eagle 606	22,453 12,312	1.32	1.38	1.18	0.98 1.58

7-5/8" casing will be set at 11,700' MD / 11,625' TVD at 0° inclination. Stress calculations on 5-1/2" casing performed assuming 22,453' depth. Actual max vertical depth is 12,312'.



### Cementing Program:

Cementing Stage tool can be placed in the 1<sup>st</sup> Intermediate string as a contingency to ensure required TOC to surface.

String Type	Hole Size	Casing		Sacks	Type of cmt	Lead			TOC ft	Tail					
		Size	Setting Depth			Yield ft <sup>3</sup> /sk	Water gal/sk			Sacks	Type of cmt	Yield ft <sup>3</sup> /sk	Water gal/sk	TOC	Excess
Surf	17.5	13.375	1,300	795	Extenda Cem, 13.5 ppg Class C, 3lb/sk Kol-Seal  0.125pps Poly-E-Flake	1.747	9.06		0	335	Tail, 14.8 ppg, Class C,  1% CaCl <sub>2</sub> , 0.125pps Celo-Flake	1.349	6.51	1,000	100%
Int1	12.25	9.625	5,050	1816	Lead, 12.8 ppg, Class C, 5% Salt 0.125 pps Poly-E-Flake, 3lb/sk Kol-Seal	1.45	6.9		0	154	Tail, 14.8 ppg, Class C, 0.1% HR 800 .125 pps Poly-E-Flake	1.33	6.3	4,750	100%
Int2	8.75	7.625	11,700	188	Lite Fill, 9.5 ppg, Class C 3lb/sk Bridgemaker Gel, 5% Salt, 5pps LCM, 0.25pps IntegraSeal	5.1	27.2		4,050	121	IntegraCem 14.8 ppg, Class H,  0.15% ASA 301;P50H; 0.5% FL-66;0.25% R-21	1.33	6.31	10,700	50%
Prod	6.75	5.5	22,453	864	Tail, 14.5 ppg, Class H; 0.25 C-20; 0.04 CSA-1000; 4% STE; 0.45% CFL-1	1.36	6.37		10,700						20%

### 5. Minimum Specifications for Pressure Control:

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer and an annular preventer (5,000-psi WP). Both units will be hydraulically operated, and the ram-type will be equipped with blind rams on bottom and 4 ½" x 7" variable pipe rams on top.

All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5,000/250 psig and the annular preventer to 5,000/250 psig. The surface casing will be tested for 30 minutes to 0.22 psi/ft or 1500 psi, whichever is greater, but not to exceed 70% of Internal yield.

Before drilling out of the intermediate casing, the ram-type BOP and accessory equipment will be tested to 10,000/250 psig and the annular preventer to 5,000/250 psig. The intermediate casing will be for 30 minutes to 0.22 psi/ft or 1500 psi, whichever is greater, but not to exceed 70% of Internal yield prior to drill-out.

Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe.



## 6. Types and characteristics of the proposed mud system:

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal. The applicable depths and properties of the drilling fluid systems are as follows.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 1,300'	Fresh - Gel	8.6-8.8	28-34	N/c
1,300' –11,700'	Brine	8.8-10.2	28-34	N/c
11,700' –22,453' Lateral	Oil Base	10.0-12.0	58-68	3 – 6

The highest mud weight needed to balance formation is expected to be 10-12 ppg. In order to maintain hole stability, mud weights up to 12.5 ppg may be utilized.

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

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

## 7. Auxiliary well control and monitoring equipment:

- (A) A kelly cock will be kept in the drill string at all times.
- (B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.
- (C) H<sub>2</sub>S monitoring and detection equipment will be utilized from surface casing point to TD.
- (D) A wear bushing will be installed in the wellhead prior to drilling out of the surface casing.

## 8. Logging, testing and coring program:

GR–CCL–CNL will be run in cased hole during completions phase of operations.

Open-hole logs are not planned for this well.

## 9. Abnormal conditions, pressures, temperatures and potential hazards:

The estimated bottom-hole temperature at 12,312' TVD (deepest point of the well) is 190°F with an estimated maximum bottom-hole pressure (BHP) at the same point of 8,003 psig (based on 12.5 ppg MW).

Hydrogen sulfide may be present in the area. All necessary precautions will be taken before drilling operations commence. See Hydrogen Sulfide Plan below:

## 10. Hydrogen Sulfide Plan:

- A. All personnel shall receive proper awareness H<sub>2</sub>S training.
- B. Briefing Area: Two perpendicular areas will be designated by signs and readily accessible.
- C. Required Emergency Equipment
  - a. Well Control Equipment
    - i. Flare line 100' from wellhead to be ignited by auto ignition sparking system.
    - ii. Choke manifold with a remotely operated hydraulic choke.
    - iii. Mud/gas separator.
  - b. Protective equipment for essential personnel
    - i. Breathing Apparatus
      - 1. Rescue packs (SCBA) – 1 unit shall be placed at each briefing area, 2 shall be stored in a safety trailer on site.
      - 2. Work / Escape packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.





3. Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.
- ii. Auxiliary Rescue Equipment
  1. Stretcher
  2. Two OSHA full body harnesses
  3. 100 feet of 5/8 inches OSHA approved rope
  4. 1-20# class ABC fire extinguisher
- c. H2S Detection and Monitoring Equipment
  - i. A stationary detector with three sensors will be placed in the doghouse if equipped, set to visually alarm at 10 ppm and audible at 14 ppm. The detector will be calibrated a minimum of every 30 days or as needed. The sensors will be placed in the following places:
    1. Rig Floor
    2. Below Rig Floor / Near BOPs
    3. End of flow line or where well bore fluid is being discharged (near shakers)
  - ii. If H2S is encountered, measured values and formations will be provided to the BLM.
- d. Visual Warning Systems
  - i. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
  - ii. A colored condition flag will be on display, reflecting the current condition at the site at the time.
  - iii. Two windsocks will be placed in strategic locations, visible from all angles.
- e. Mud Program
  - i. The Mud program will be designed to minimize the volume of H2S circulated to surface.
  - ii. The operator will have the necessary mud products to minimize hazards while drilling in H2S bearing zones.
- f. Metallurgy
  - i. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service at the anticipated operating pressures to prevent sour sulfide stress cracking.
- g. Communication
  - i. Communication will be via cell phones and walkie talkies on location.

Franklin Mountain Energy has conducted a review of offset operated wells to determine if an H2S contingency plan is required for the proposed well. Based on concentrations of offset wells, proximity to main roads, and distance to populated areas, the radius of exposure created by a potential release was determined to be minimal and low enough to not necessitate an H2S contingency plan. This will be reevaluated during wellbore construction if H2S is observed and after the well is on production.

#### **11. Anticipated starting date and duration of operations:**

The drilling operations on the well should be finished in approximately one month. However, in order to minimize disturbance in the area and to improve efficiency Franklin Mountain is planning to drill all the wells on the pad prior to commence completion operations. To even further reduce the time heavy machinery is used the "batch drilling" method may be used. The drilling rig with walking/skidding capabilities will be used.



**12. Disposal/environmental concerns:**

- (A) Drilled cuttings will be hauled to and disposed of in a state-certified disposal site.
- (B) Non-hazardous waste mud/cement from the drilling process will be also be hauled to and disposed of in a state-certified disposal site.
- (C) Garbage will be hauled to the Pecos City Landfill.
- (D) Sewage (grey water) will be hauled to the Carlsbad City Landfill.

**13. Wellhead:**

A multi-bowl wellhead system will be utilized.

After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum working pressure of 10,000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5,000 psi pressure test. This pressure test will be repeated at least every 30 days, as per Onshore Order No. 2

The minimum working pressure of the BOP and related BOPE required for drilling below the surface casing shoe shall be 5,000 psi.

After running the 2nd intermediate casing, and before drilling out, the wellhead, BOP, and related equipment will be tested to 10,000/250 psig.

The multi-bowl wellhead will be installed by vendor's representative(s). A copy of the installation instructions for the Cactus Multi-Bowl WH system has been sent to the BLM office in Carlsbad.

The wellhead will be installed by a third-party welder while being monitored by WH vendor's representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing strings. After installation of the first intermediate string the pack-off and lower flanges will be pressure tested to 5,000 psi. After installation of the second intermediate string, the pack-off and upper flange will be pressure tested to 10,000 psi.

Both the surface and intermediate casing strings will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1,500 psi, whichever is greater.

**14. Additional variance requests****A. Casing.**

In order to minimize potential environmental and technical hazards, this well is planned with two intermediate strings of casing.

1. Variance is requested to waive the centralizer requirements for the 7-5/8" casing due to the tight clearance with 9-5/8" string.
2. Variance is requested to waive/reduce the centralizer requirements for the 5-1/2" casing due to the tight clearance with 6-3/4" hole and 5-1/2" casing due to tight clearances.



# **Franklin Mountain Energy**

**Lea County, NM (NAD83)**

**TATANKA NORTH PAD #4**

**FORGE FEDERAL 707H**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**05 August, 2022**



## Planning Report

<b>Database:</b>	EDM 5000.15 Single User Db	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
<b>Company:</b>	Franklin Mountain Energy	<b>TVD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
<b>Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

<b>Project</b>	Lea County, NM (NAD83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Eastern Zone		

<b>Site</b>	TATANKA NORTH PAD #4			
<b>Site Position:</b>		<b>Northing:</b>	394,167.45 ft	<b>Latitude:</b> 32.079720
<b>From:</b>	Lat/Long	<b>Easting:</b>	850,176.81 ft	<b>Longitude:</b> -103.336203
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b> 0.53 °

<b>Well</b>	FORGE FEDERAL 707H			
<b>Well Position</b>	<b>+N/-S</b>	0.92 usft	<b>Northing:</b>	394,168.37 ft
	<b>+E/-W</b>	100.05 usft	<b>Easting:</b>	850,276.86 ft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	
			<b>Ground Level:</b>	3,117.00 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2020	8/5/2022	6.29	59.76	47,314.88078195

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>		<b>Phase:</b>	PLAN	<b>Tie On Depth:</b> 0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	4.48

<b>Plan Survey Tool Program</b>	<b>Date</b>	8/5/2022		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	22,452.68	Design #1 (Wellbore #1)	MWD
				OWSG MWD - Standard

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	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	
1,900.00	6.00	66.00	1,899.27	8.51	19.12	1.50	1.50	0.00	66.00	
2,210.31	9.69	87.48	2,206.68	16.26	60.05	1.50	1.19	6.92	49.43	
6,927.88	9.69	87.48	6,856.91	51.20	853.53	0.00	0.00	0.00	0.00	
7,574.04	0.00	0.00	7,500.00	53.60	908.00	1.50	-1.50	0.00	180.00	
11,813.09	0.00	0.00	11,739.04	53.60	908.00	0.00	0.00	0.00	0.00	
12,713.09	90.00	359.47	12,312.00	626.53	902.72	10.00	10.00	0.00	359.47	
22,453.07	90.00	359.47	12,312.00	10,366.11	812.99	0.00	0.00	0.00	0.00	BHL (FORGE FEDER

## Planning Report



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<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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
<b>SHL (FORGE FEDERAL 707H)</b>									
30.00	0.00	0.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Cenozoic Alluvium (surface)</b>									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
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
891.00	0.00	0.00	891.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Rustler</b>									
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
<b>Start Build 1.50</b>									
1,600.00	1.50	66.00	1,599.99	0.53	1.20	0.62	1.50	1.50	0.00
1,681.07	2.72	66.00	1,681.00	1.75	3.92	2.05	1.50	1.50	0.00
<b>Salado</b>									
1,700.00	3.00	66.00	1,699.91	2.13	4.78	2.50	1.50	1.50	0.00
1,800.00	4.50	66.00	1,799.69	4.79	10.76	5.62	1.50	1.50	0.00
1,900.00	6.00	66.00	1,899.27	8.51	19.12	9.98	1.50	1.50	0.00
<b>Start DLS 1.50 TFO 49.43</b>									
2,000.00	7.07	75.30	1,998.62	12.20	29.84	14.49	1.50	1.07	9.30
2,100.00	8.27	82.05	2,097.73	14.75	42.92	18.06	1.50	1.20	6.74
2,200.00	9.56	87.04	2,196.52	16.18	58.33	20.69	1.50	1.29	4.99
2,210.31	9.69	87.48	2,206.68	16.26	60.05	20.91	1.50	1.32	4.26
<b>Hold 9.69 Inc, 87.48 Az</b>									
2,300.00	9.69	87.48	2,295.09	16.93	75.14	22.75	0.00	0.00	0.00
2,400.00	9.69	87.48	2,393.67	17.67	91.96	24.80	0.00	0.00	0.00
2,500.00	9.69	87.48	2,492.24	18.41	108.78	26.85	0.00	0.00	0.00
2,600.00	9.69	87.48	2,590.81	19.15	125.60	28.91	0.00	0.00	0.00
2,700.00	9.69	87.48	2,689.38	19.89	142.41	30.96	0.00	0.00	0.00
2,800.00	9.69	87.48	2,787.96	20.63	159.23	33.01	0.00	0.00	0.00
2,900.00	9.69	87.48	2,886.53	21.37	176.05	35.07	0.00	0.00	0.00
3,000.00	9.69	87.48	2,985.10	22.11	192.87	37.12	0.00	0.00	0.00
3,100.00	9.69	87.48	3,083.67	22.85	209.69	39.17	0.00	0.00	0.00
3,200.00	9.69	87.48	3,182.25	23.59	226.51	41.23	0.00	0.00	0.00
3,300.00	9.69	87.48	3,280.82	24.33	243.33	43.28	0.00	0.00	0.00
3,400.00	9.69	87.48	3,379.39	25.07	260.15	45.33	0.00	0.00	0.00
3,487.86	9.69	87.48	3,466.00	25.72	274.93	47.14	0.00	0.00	0.00
<b>Base Salt</b>									
3,500.00	9.69	87.48	3,477.96	25.81	276.97	47.39	0.00	0.00	0.00
3,600.00	9.69	87.48	3,576.54	26.55	293.79	49.44	0.00	0.00	0.00
3,700.00	9.69	87.48	3,675.11	27.29	310.61	51.50	0.00	0.00	0.00
3,800.00	9.69	87.48	3,773.68	28.03	327.43	53.55	0.00	0.00	0.00
3,900.00	9.69	87.48	3,872.25	28.78	344.25	55.60	0.00	0.00	0.00

## Planning Report



<b>Database:</b>	EDM 5000.15 Single User Db	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
<b>Company:</b>	Franklin Mountain Energy	<b>TVD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
<b>Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
4,000.00	9.69	87.48	3,970.83	29.52	361.07	57.66	0.00	0.00	0.00
4,100.00	9.69	87.48	4,069.40	30.26	377.89	59.71	0.00	0.00	0.00
4,200.00	9.69	87.48	4,167.97	31.00	394.71	61.76	0.00	0.00	0.00
4,300.00	9.69	87.48	4,266.54	31.74	411.53	63.82	0.00	0.00	0.00
4,400.00	9.69	87.48	4,365.12	32.48	428.35	65.87	0.00	0.00	0.00
4,500.00	9.69	87.48	4,463.69	33.22	445.17	67.92	0.00	0.00	0.00
4,600.00	9.69	87.48	4,562.26	33.96	461.99	69.98	0.00	0.00	0.00
4,700.00	9.69	87.48	4,660.84	34.70	478.81	72.03	0.00	0.00	0.00
4,800.00	9.69	87.48	4,759.41	35.44	495.63	74.08	0.00	0.00	0.00
4,900.00	9.69	87.48	4,857.98	36.18	512.45	76.14	0.00	0.00	0.00
4,945.67	9.69	87.48	4,903.00	36.52	520.13	77.07	0.00	0.00	0.00
<b>Lamar</b>									
5,000.00	9.69	87.48	4,956.55	36.92	529.27	78.19	0.00	0.00	0.00
5,100.00	9.69	87.48	5,055.13	37.66	546.09	80.24	0.00	0.00	0.00
5,200.00	9.69	87.48	5,153.70	38.40	562.91	82.30	0.00	0.00	0.00
5,222.63	9.69	87.48	5,176.00	38.57	566.71	82.76	0.00	0.00	0.00
<b>Bell Canyon</b>									
5,300.00	9.69	87.48	5,252.27	39.14	579.73	84.35	0.00	0.00	0.00
5,400.00	9.69	87.48	5,350.84	39.89	596.54	86.40	0.00	0.00	0.00
5,500.00	9.69	87.48	5,449.42	40.63	613.36	88.46	0.00	0.00	0.00
5,600.00	9.69	87.48	5,547.99	41.37	630.18	90.51	0.00	0.00	0.00
5,700.00	9.69	87.48	5,646.56	42.11	647.00	92.56	0.00	0.00	0.00
5,800.00	9.69	87.48	5,745.13	42.85	663.82	94.62	0.00	0.00	0.00
5,900.00	9.69	87.48	5,843.71	43.59	680.64	96.67	0.00	0.00	0.00
6,000.00	9.69	87.48	5,942.28	44.33	697.46	98.72	0.00	0.00	0.00
6,100.00	9.69	87.48	6,040.85	45.07	714.28	100.78	0.00	0.00	0.00
6,200.00	9.69	87.48	6,139.42	45.81	731.10	102.83	0.00	0.00	0.00
6,225.95	9.69	87.48	6,165.00	46.00	735.47	103.36	0.00	0.00	0.00
<b>Cherry Canyon</b>									
6,300.00	9.69	87.48	6,238.00	46.55	747.92	104.88	0.00	0.00	0.00
6,400.00	9.69	87.48	6,336.57	47.29	764.74	106.94	0.00	0.00	0.00
6,500.00	9.69	87.48	6,435.14	48.03	781.56	108.99	0.00	0.00	0.00
6,600.00	9.69	87.48	6,533.71	48.77	798.38	111.04	0.00	0.00	0.00
6,700.00	9.69	87.48	6,632.29	49.51	815.20	113.10	0.00	0.00	0.00
6,800.00	9.69	87.48	6,730.86	50.25	832.02	115.15	0.00	0.00	0.00
6,900.00	9.69	87.48	6,829.43	50.99	848.84	117.20	0.00	0.00	0.00
6,927.88	9.69	87.48	6,856.91	51.20	853.53	117.78	0.00	0.00	0.00
<b>Start Drop -1.50</b>									
7,000.00	8.61	87.48	6,928.11	51.71	864.99	119.17	1.50	-1.50	0.00
7,100.00	7.11	87.48	7,027.17	52.31	878.65	120.84	1.50	-1.50	0.00
7,200.00	5.61	87.48	7,126.55	52.79	889.72	122.19	1.50	-1.50	0.00
7,300.00	4.11	87.48	7,226.19	53.17	898.18	123.23	1.50	-1.50	0.00
7,400.00	2.61	87.48	7,326.02	53.43	904.04	123.94	1.50	-1.50	0.00
7,500.00	1.11	87.48	7,425.96	53.57	907.28	124.34	1.50	-1.50	0.00
7,574.04	0.00	0.00	7,500.00	53.60	908.00	124.43	1.50	-1.50	0.00
<b>Vertical</b>									
7,600.00	0.00	0.00	7,525.96	53.60	908.00	124.43	0.00	0.00	0.00
7,638.04	0.00	0.00	7,564.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>Brushy Canyon</b>									
7,700.00	0.00	0.00	7,625.96	53.60	908.00	124.43	0.00	0.00	0.00
7,800.00	0.00	0.00	7,725.96	53.60	908.00	124.43	0.00	0.00	0.00
7,900.00	0.00	0.00	7,825.96	53.60	908.00	124.43	0.00	0.00	0.00
8,000.00	0.00	0.00	7,925.96	53.60	908.00	124.43	0.00	0.00	0.00



## Planning Report



<b>Database:</b>	EDM 5000.15 Single User Db	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
<b>Company:</b>	Franklin Mountain Energy	<b>TVD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
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<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
8,100.00	0.00	0.00	8,025.96	53.60	908.00	124.43	0.00	0.00	0.00
8,200.00	0.00	0.00	8,125.96	53.60	908.00	124.43	0.00	0.00	0.00
8,300.00	0.00	0.00	8,225.96	53.60	908.00	124.43	0.00	0.00	0.00
8,400.00	0.00	0.00	8,325.96	53.60	908.00	124.43	0.00	0.00	0.00
8,500.00	0.00	0.00	8,425.96	53.60	908.00	124.43	0.00	0.00	0.00
8,600.00	0.00	0.00	8,525.96	53.60	908.00	124.43	0.00	0.00	0.00
8,700.00	0.00	0.00	8,625.96	53.60	908.00	124.43	0.00	0.00	0.00
8,800.00	0.00	0.00	8,725.96	53.60	908.00	124.43	0.00	0.00	0.00
8,870.04	0.00	0.00	8,796.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>Bone Spring Lime</b>									
8,900.00	0.00	0.00	8,825.96	53.60	908.00	124.43	0.00	0.00	0.00
8,908.04	0.00	0.00	8,834.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>Avalon</b>									
9,000.00	0.00	0.00	8,925.96	53.60	908.00	124.43	0.00	0.00	0.00
9,093.04	0.00	0.00	9,019.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>*Chert Zone*</b>									
9,100.00	0.00	0.00	9,025.96	53.60	908.00	124.43	0.00	0.00	0.00
9,200.00	0.00	0.00	9,125.96	53.60	908.00	124.43	0.00	0.00	0.00
9,300.00	0.00	0.00	9,225.96	53.60	908.00	124.43	0.00	0.00	0.00
9,400.00	0.00	0.00	9,325.96	53.60	908.00	124.43	0.00	0.00	0.00
9,500.00	0.00	0.00	9,425.96	53.60	908.00	124.43	0.00	0.00	0.00
9,600.00	0.00	0.00	9,525.96	53.60	908.00	124.43	0.00	0.00	0.00
9,700.00	0.00	0.00	9,625.96	53.60	908.00	124.43	0.00	0.00	0.00
9,800.00	0.00	0.00	9,725.96	53.60	908.00	124.43	0.00	0.00	0.00
9,900.00	0.00	0.00	9,825.96	53.60	908.00	124.43	0.00	0.00	0.00
10,000.00	0.00	0.00	9,925.96	53.60	908.00	124.43	0.00	0.00	0.00
10,100.00	0.00	0.00	10,025.96	53.60	908.00	124.43	0.00	0.00	0.00
10,169.04	0.00	0.00	10,095.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>First Bone Spring Sand</b>									
10,200.00	0.00	0.00	10,125.96	53.60	908.00	124.43	0.00	0.00	0.00
10,266.04	0.00	0.00	10,192.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>Second Bone Spring Carbonates</b>									
10,300.00	0.00	0.00	10,225.96	53.60	908.00	124.43	0.00	0.00	0.00
10,400.00	0.00	0.00	10,325.96	53.60	908.00	124.43	0.00	0.00	0.00
10,500.00	0.00	0.00	10,425.96	53.60	908.00	124.43	0.00	0.00	0.00
10,600.00	0.00	0.00	10,525.96	53.60	908.00	124.43	0.00	0.00	0.00
10,623.04	0.00	0.00	10,549.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>Second Bone Spring Sand</b>									
10,700.00	0.00	0.00	10,625.96	53.60	908.00	124.43	0.00	0.00	0.00
10,800.00	0.00	0.00	10,725.96	53.60	908.00	124.43	0.00	0.00	0.00
10,900.00	0.00	0.00	10,825.96	53.60	908.00	124.43	0.00	0.00	0.00
11,000.00	0.00	0.00	10,925.96	53.60	908.00	124.43	0.00	0.00	0.00
11,100.00	0.00	0.00	11,025.96	53.60	908.00	124.43	0.00	0.00	0.00
11,200.00	0.00	0.00	11,125.96	53.60	908.00	124.43	0.00	0.00	0.00
11,222.04	0.00	0.00	11,148.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>Third Bone Spring Carbonates</b>									
11,300.00	0.00	0.00	11,225.96	53.60	908.00	124.43	0.00	0.00	0.00
11,400.00	0.00	0.00	11,325.96	53.60	908.00	124.43	0.00	0.00	0.00
11,500.00	0.00	0.00	11,425.96	53.60	908.00	124.43	0.00	0.00	0.00
11,600.00	0.00	0.00	11,525.96	53.60	908.00	124.43	0.00	0.00	0.00
11,700.00	0.00	0.00	11,625.96	53.60	908.00	124.43	0.00	0.00	0.00
11,800.00	0.00	0.00	11,725.96	53.60	908.00	124.43	0.00	0.00	0.00
11,813.09	0.00	0.00	11,739.04	53.60	908.00	124.43	0.00	0.00	0.00

## Planning Report



<b>Database:</b>	EDM 5000.15 Single User Db	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
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<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
<b>Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
<b>KOP 10°/100</b>									
11,884.23	7.11	359.47	11,810.00	58.01	907.96	128.82	10.00	10.00	0.00
<b>Third Bone Spring Sand</b>									
11,900.00	8.69	359.47	11,825.62	60.18	907.94	130.98	10.00	10.00	0.00
12,000.00	18.69	359.47	11,922.66	83.82	907.72	154.53	10.00	10.00	0.00
12,100.00	28.69	359.47	12,014.11	123.95	907.35	194.51	10.00	10.00	0.00
12,189.55	37.65	359.47	12,089.00	172.89	906.90	243.26	10.00	10.00	0.00
<b>Wolfcamp</b>									
12,200.00	38.69	359.47	12,097.21	179.35	906.84	249.70	10.00	10.00	0.00
12,271.37	45.83	359.47	12,150.00	227.31	906.40	297.48	10.00	10.00	0.00
<b>Wolfcamp A</b>									
12,300.00	48.69	359.47	12,169.43	248.33	906.21	318.42	10.00	10.00	0.00
12,400.00	58.69	359.47	12,228.57	328.81	905.46	398.60	10.00	10.00	0.00
12,500.00	68.69	359.47	12,272.83	418.33	904.64	487.78	10.00	10.00	0.00
12,600.00	78.69	359.47	12,300.88	514.19	903.76	583.27	10.00	10.00	0.00
12,700.00	88.69	359.47	12,311.85	613.45	902.84	682.16	10.00	10.00	0.00
12,713.08	90.00	359.47	12,312.00	626.53	902.72	695.19	10.00	10.00	0.00
<b>LP 90.00 Inc, 359.47 Az - HZ Target - LP (FORGE FEDERAL 707H)</b>									
12,800.00	90.00	359.47	12,312.00	713.44	901.92	781.77	0.00	0.00	0.00
12,900.00	90.00	359.47	12,312.00	813.44	901.00	881.39	0.00	0.00	0.00
13,000.00	90.00	359.47	12,312.00	913.44	900.08	981.01	0.00	0.00	0.00
13,100.00	90.00	359.47	12,312.00	1,013.43	899.16	1,080.63	0.00	0.00	0.00
13,200.00	90.00	359.47	12,312.00	1,113.43	898.24	1,180.25	0.00	0.00	0.00
13,300.00	90.00	359.47	12,312.00	1,213.42	897.31	1,279.86	0.00	0.00	0.00
13,400.00	90.00	359.47	12,312.00	1,313.42	896.39	1,379.48	0.00	0.00	0.00
13,500.00	90.00	359.47	12,312.00	1,413.41	895.47	1,479.10	0.00	0.00	0.00
13,600.00	90.00	359.47	12,312.00	1,513.41	894.55	1,578.72	0.00	0.00	0.00
13,700.00	90.00	359.47	12,312.00	1,613.41	893.63	1,678.33	0.00	0.00	0.00
13,800.00	90.00	359.47	12,312.00	1,713.40	892.71	1,777.95	0.00	0.00	0.00
13,900.00	90.00	359.47	12,312.00	1,813.40	891.79	1,877.57	0.00	0.00	0.00
14,000.00	90.00	359.47	12,312.00	1,913.39	890.87	1,977.19	0.00	0.00	0.00
14,100.00	90.00	359.47	12,312.00	2,013.39	889.94	2,076.80	0.00	0.00	0.00
14,200.00	90.00	359.47	12,312.00	2,113.38	889.02	2,176.42	0.00	0.00	0.00
14,300.00	90.00	359.47	12,312.00	2,213.38	888.10	2,276.04	0.00	0.00	0.00
14,400.00	90.00	359.47	12,312.00	2,313.38	887.18	2,375.66	0.00	0.00	0.00
14,500.00	90.00	359.47	12,312.00	2,413.37	886.26	2,475.27	0.00	0.00	0.00
14,600.00	90.00	359.47	12,312.00	2,513.37	885.34	2,574.89	0.00	0.00	0.00
14,700.00	90.00	359.47	12,312.00	2,613.36	884.42	2,674.51	0.00	0.00	0.00
14,800.00	90.00	359.47	12,312.00	2,713.36	883.50	2,774.13	0.00	0.00	0.00
14,900.00	90.00	359.47	12,312.00	2,813.35	882.57	2,873.75	0.00	0.00	0.00
15,000.00	90.00	359.47	12,312.00	2,913.35	881.65	2,973.36	0.00	0.00	0.00
15,100.00	90.00	359.47	12,312.00	3,013.35	880.73	3,072.98	0.00	0.00	0.00
15,200.00	90.00	359.47	12,312.00	3,113.34	879.81	3,172.60	0.00	0.00	0.00
15,300.00	90.00	359.47	12,312.00	3,213.34	878.89	3,272.22	0.00	0.00	0.00
15,400.00	90.00	359.47	12,312.00	3,313.33	877.97	3,371.83	0.00	0.00	0.00
15,500.00	90.00	359.47	12,312.00	3,413.33	877.05	3,471.45	0.00	0.00	0.00
15,600.00	90.00	359.47	12,312.00	3,513.33	876.13	3,571.07	0.00	0.00	0.00
15,700.00	90.00	359.47	12,312.00	3,613.32	875.20	3,670.69	0.00	0.00	0.00
15,800.00	90.00	359.47	12,312.00	3,713.32	874.28	3,770.30	0.00	0.00	0.00
15,900.00	90.00	359.47	12,312.00	3,813.31	873.36	3,869.92	0.00	0.00	0.00
16,000.00	90.00	359.47	12,312.00	3,913.31	872.44	3,969.54	0.00	0.00	0.00
16,100.00	90.00	359.47	12,312.00	4,013.30	871.52	4,069.16	0.00	0.00	0.00
16,200.00	90.00	359.47	12,312.00	4,113.30	870.60	4,168.77	0.00	0.00	0.00

## Planning Report



<b>Database:</b>	EDM 5000.15 Single User Db	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
<b>Company:</b>	Franklin Mountain Energy	<b>TVD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
<b>Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
16,300.00	90.00	359.47	12,312.00	4,213.30	869.68	4,268.39	0.00	0.00	0.00
16,400.00	90.00	359.47	12,312.00	4,313.29	868.76	4,368.01	0.00	0.00	0.00
16,500.00	90.00	359.47	12,312.00	4,413.29	867.83	4,467.63	0.00	0.00	0.00
16,600.00	90.00	359.47	12,312.00	4,513.28	866.91	4,567.25	0.00	0.00	0.00
16,700.00	90.00	359.47	12,312.00	4,613.28	865.99	4,666.86	0.00	0.00	0.00
16,800.00	90.00	359.47	12,312.00	4,713.27	865.07	4,766.48	0.00	0.00	0.00
16,900.00	90.00	359.47	12,312.00	4,813.27	864.15	4,866.10	0.00	0.00	0.00
17,000.00	90.00	359.47	12,312.00	4,913.27	863.23	4,965.72	0.00	0.00	0.00
17,100.00	90.00	359.47	12,312.00	5,013.26	862.31	5,065.33	0.00	0.00	0.00
17,200.00	90.00	359.47	12,312.00	5,113.26	861.39	5,164.95	0.00	0.00	0.00
17,300.00	90.00	359.47	12,312.00	5,213.25	860.46	5,264.57	0.00	0.00	0.00
17,400.00	90.00	359.47	12,312.00	5,313.25	859.54	5,364.19	0.00	0.00	0.00
17,500.00	90.00	359.47	12,312.00	5,413.24	858.62	5,463.80	0.00	0.00	0.00
17,600.00	90.00	359.47	12,312.00	5,513.24	857.70	5,563.42	0.00	0.00	0.00
17,700.00	90.00	359.47	12,312.00	5,613.24	856.78	5,663.04	0.00	0.00	0.00
17,800.00	90.00	359.47	12,312.00	5,713.23	855.86	5,762.66	0.00	0.00	0.00
17,900.00	90.00	359.47	12,312.00	5,813.23	854.94	5,862.27	0.00	0.00	0.00
18,000.00	90.00	359.47	12,312.00	5,913.22	854.02	5,961.89	0.00	0.00	0.00
18,100.00	90.00	359.47	12,312.00	6,013.22	853.10	6,061.51	0.00	0.00	0.00
18,200.00	90.00	359.47	12,312.00	6,113.21	852.17	6,161.13	0.00	0.00	0.00
18,300.00	90.00	359.47	12,312.00	6,213.21	851.25	6,260.75	0.00	0.00	0.00
18,400.00	90.00	359.47	12,312.00	6,313.21	850.33	6,360.36	0.00	0.00	0.00
18,500.00	90.00	359.47	12,312.00	6,413.20	849.41	6,459.98	0.00	0.00	0.00
18,600.00	90.00	359.47	12,312.00	6,513.20	848.49	6,559.60	0.00	0.00	0.00
18,700.00	90.00	359.47	12,312.00	6,613.19	847.57	6,659.22	0.00	0.00	0.00
18,800.00	90.00	359.47	12,312.00	6,713.19	846.65	6,758.83	0.00	0.00	0.00
18,900.00	90.00	359.47	12,312.00	6,813.19	845.73	6,858.45	0.00	0.00	0.00
19,000.00	90.00	359.47	12,312.00	6,913.18	844.80	6,958.07	0.00	0.00	0.00
19,100.00	90.00	359.47	12,312.00	7,013.18	843.88	7,057.69	0.00	0.00	0.00
19,200.00	90.00	359.47	12,312.00	7,113.17	842.96	7,157.30	0.00	0.00	0.00
19,300.00	90.00	359.47	12,312.00	7,213.17	842.04	7,256.92	0.00	0.00	0.00
19,400.00	90.00	359.47	12,312.00	7,313.16	841.12	7,356.54	0.00	0.00	0.00
19,500.00	90.00	359.47	12,312.00	7,413.16	840.20	7,456.16	0.00	0.00	0.00
19,600.00	90.00	359.47	12,312.00	7,513.16	839.28	7,555.77	0.00	0.00	0.00
19,700.00	90.00	359.47	12,312.00	7,613.15	838.36	7,655.39	0.00	0.00	0.00
19,800.00	90.00	359.47	12,312.00	7,713.15	837.43	7,755.01	0.00	0.00	0.00
19,900.00	90.00	359.47	12,312.00	7,813.14	836.51	7,854.63	0.00	0.00	0.00
20,000.00	90.00	359.47	12,312.00	7,913.14	835.59	7,954.25	0.00	0.00	0.00
20,100.00	90.00	359.47	12,312.00	8,013.13	834.67	8,053.86	0.00	0.00	0.00
20,200.00	90.00	359.47	12,312.00	8,113.13	833.75	8,153.48	0.00	0.00	0.00
20,300.00	90.00	359.47	12,312.00	8,213.13	832.83	8,253.10	0.00	0.00	0.00
20,400.00	90.00	359.47	12,312.00	8,313.12	831.91	8,352.72	0.00	0.00	0.00
20,500.00	90.00	359.47	12,312.00	8,413.12	830.99	8,452.33	0.00	0.00	0.00
20,600.00	90.00	359.47	12,312.00	8,513.11	830.06	8,551.95	0.00	0.00	0.00
20,700.00	90.00	359.47	12,312.00	8,613.11	829.14	8,651.57	0.00	0.00	0.00
20,800.00	90.00	359.47	12,312.00	8,713.10	828.22	8,751.19	0.00	0.00	0.00
20,900.00	90.00	359.47	12,312.00	8,813.10	827.30	8,850.80	0.00	0.00	0.00
21,000.00	90.00	359.47	12,312.00	8,913.10	826.38	8,950.42	0.00	0.00	0.00
21,100.00	90.00	359.47	12,312.00	9,013.09	825.46	9,050.04	0.00	0.00	0.00
21,200.00	90.00	359.47	12,312.00	9,113.09	824.54	9,149.66	0.00	0.00	0.00
21,300.00	90.00	359.47	12,312.00	9,213.08	823.62	9,249.27	0.00	0.00	0.00
21,400.00	90.00	359.47	12,312.00	9,313.08	822.69	9,348.89	0.00	0.00	0.00
21,500.00	90.00	359.47	12,312.00	9,413.07	821.77	9,448.51	0.00	0.00	0.00
21,600.00	90.00	359.47	12,312.00	9,513.07	820.85	9,548.13	0.00	0.00	0.00



## Planning Report

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<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
<b>Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
21,700.00	90.00	359.47	12,312.00	9,613.07	819.93	9,647.75	0.00	0.00	0.00
21,800.00	90.00	359.47	12,312.00	9,713.06	819.01	9,747.36	0.00	0.00	0.00
21,900.00	90.00	359.47	12,312.00	9,813.06	818.09	9,846.98	0.00	0.00	0.00
22,000.00	90.00	359.47	12,312.00	9,913.05	817.17	9,946.60	0.00	0.00	0.00
22,100.00	90.00	359.47	12,312.00	10,013.05	816.25	10,046.22	0.00	0.00	0.00
22,200.00	90.00	359.47	12,312.00	10,113.05	815.32	10,145.83	0.00	0.00	0.00
22,300.00	90.00	359.47	12,312.00	10,213.04	814.40	10,245.45	0.00	0.00	0.00
22,400.00	90.00	359.47	12,312.00	10,313.04	813.48	10,345.07	0.00	0.00	0.00
22,453.07	90.00	359.47	12,312.00	10,366.11	812.99	10,397.94	0.00	0.00	0.00
TD at 22453.07 - BHL (FORGE FEDERAL 707H)									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (ft)	Easting (ft)	Latitude	Longitude
SHL (FORGE FEDERAL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	394,168.37	850,276.86	32.079720	-103.335880
BHL (FORGE FEDERAL - plan hits target center - Point	0.00	0.00	12,312.00	10,366.11	812.99	404,534.50	851,089.85	32.108191	-103.332945
LP (FORGE FEDERAL - plan hits target center - Point	0.00	0.01	12,312.00	626.53	902.72	394,794.90	851,179.58	32.081419	-103.332947





## Planning Report

<b>Database:</b>	EDM 5000.15 Single User Db	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
<b>Company:</b>	Franklin Mountain Energy	<b>TVD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
<b>Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
30.00	30.00	Cenozoic Alluvium (surface)			
891.00	891.00	Rustler			
1,681.07	1,681.00	Salado			
3,487.86	3,466.00	Base Salt			
4,945.67	4,903.00	Lamar			
5,222.63	5,176.00	Bell Canyon			
6,225.95	6,165.00	Cherry Canyon			
7,638.04	7,564.00	Brushy Canyon			
8,870.04	8,796.00	Bone Spring Lime			
8,908.04	8,834.00	Avalon			
9,093.04	9,019.00	*Chert Zone*			
10,169.04	10,095.00	First Bone Spring Sand			
10,266.04	10,192.00	Second Bone Spring Carbonates			
10,623.04	10,549.00	Second Bone Spring Sand			
11,222.04	11,148.00	Third Bone Spring Carbonates			
11,884.23	11,810.00	Third Bone Spring Sand			
12,189.55	12,089.00	Wolfcamp			
12,271.37	12,150.00	Wolfcamp A			
12,713.09	12,312.00	HZ Target			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,500.00	1,500.00	0.00	0.00	Start Build 1.50	
1,900.00	1,899.27	8.51	19.12	Start DLS 1.50 TFO 49.43	
2,210.31	2,206.68	16.26	60.05	Hold 9.69 Inc, 87.48 Az	
6,927.88	6,856.91	51.20	853.53	Start Drop -1.50	
7,574.04	7,500.00	53.60	908.00	Vertical	
11,813.09	11,739.04	53.60	908.00	KOP 10°/100	
12,713.09	12,312.00	626.53	902.72	LP 90.00 Inc, 359.47 Az	
22,453.07	12,312.00	10,366.11	812.99	TD at 22453.07	



U.S. Department of the Interior  
Bureau of Land Management

# Application for Permit to Drill

## APD Package Report

Date Printed:

APD ID:	Well Status:
APD Received Date:	Well Name:
Operator:	Well Number:

### APD Package Report Contents

- Form 3160-3
- Operator Certification Report
- Application Report
- Application Attachments
  - Well Plat: 1 file(s)
- Drilling Plan Report
- Drilling Plan Attachments
  - Blowout Prevention Choke Diagram Attachment: 1 file(s)
  - Blowout Prevention BOP Diagram Attachment: 2 file(s)
  - Casing Design Assumptions and Worksheet(s): 4 file(s)
  - Hydrogen sulfide drilling operations plan: 1 file(s)
  - Proposed horizontal/directional/multi-lateral plan submission: 2 file(s)
  - Other Facets: 6 file(s)
  - Other Variances: 1 file(s)
- SUPO Report
- SUPO Attachments
  - Existing Road Map: 1 file(s)
  - New Road Map: 1 file(s)
  - Attach Well map: 1 file(s)
  - Production Facilities map: 2 file(s)
  - Water source and transportation map: 1 file(s)
  - Construction Materials source location attachment: 1 file(s)
  - Well Site Layout Diagram: 1 file(s)
  - Recontouring attachment: 1 file(s)
  - Other SUPO Attachment: 1 file(s)
- PWD Report
- PWD Attachments
  - None

- Bond Report
- Bond Attachments
  - None

Form 3160-3  
(June 2015)FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No.
1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator		8. Lease Name and Well No.
3a. Address	3b. Phone No. (include area code)	9. API Well No.
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		10. Field and Pool, or Exploratory
14. Distance in miles and direction from nearest town or post office*		11. Sec., T. R. M. or Blk. and Survey or Area
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)		12. County or Parish
16. No of acres in lease		13. State
17. Spacing Unit dedicated to this well		
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.		
19. Proposed Depth		
20. BLM/BIA Bond No. in file		
21. Elevations (Show whether DF, KDB, RT, GL, etc.)		
22. Approximate date work will start*		
23. Estimated duration		
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.   | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan.  | 5. Operator certification.  |
| 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). | 6. Such other site specific information and/or plans as may be requested by the BLM.            |

25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
Office		

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.

(Continued on page 2)

\*(Instructions on page 2)



Approval Date: 04/28/2023

## 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 well, 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 directionally 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 well 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 will 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 connects this information to an 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 Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

## Additional Operator Remarks

### Location of Well

0. SHL: TR O / 55 FSL / 1888 FEL / TWSP: 25S / RANGE: 35E / SECTION: 35 / LAT: 32.07972 / LONG: -103.33588 ( TVD: 0 feet, MD: 0 feet )  
PPP: SENE / 0 FSL / 982 FEL / TWSP: 25S / RANGE: 35E / SECTION: 26 / LAT: 32.101325 / LONG: -103.332945 ( TVD: 12312 feet, MD: 20000 feet )  
PPP: NESE / 0 FSL / 986 FEL / TWSP: 25S / RANGE: 35E / SECTION: 26 / LAT: 32.097706 / LONG: 103.332946 ( TVD: 12312 feet, MD: 18600 feet )  
PPP: SESE / 0 FSL / 991 FEL / TWSP: 25S / RANGE: 35E / SECTION: 26 / LAT: 32.094086 / LONG: -103.332946 ( TVD: 12312 feet, MD: 17300 feet )  
PPP: SESE / 672 FSL / 979 FEL / TWSP: 25S / RANGE: 35E / SECTION: 35 / LAT: 32.081419 / LONG: -103.332947 ( TVD: 12312 feet, MD: 12713 feet )  
BHL: TR A / 150 FNL / 980 FEL / TWSP: 25S / RANGE: 35E / SECTION: 26 / LAT: 32.108191 / LONG: -103.332945 ( TVD: 12312 feet, MD: 22453 feet )

### BLM Point of Contact

Name: TENILLE ORTIZ  
Title: Legal Instruments Examiner  
Phone: (575) 234-2224  
Email: tortiz@blm.gov

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### **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.

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**PECOS DISTRICT  
SURFACE USE  
CONDITIONS OF APPROVAL**

OPERATOR NAME:	Franklin Mountain Energy LLC
COUNTY:	LEA COUNTY, NM

**APPLICABLE LEASES:**

**NMNM-45706**  
**NMNM-112942**  
**NMNM-112943**  
**NMNM-114999**  
**NMNM-119280**  
**NMNM-132955**

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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.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
  - Watershed
  - Range
  - Lesser Prairie Chicken
  - ROW Grant
- ☐ **Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☐ **Road Section Diagram**
- ☒ **Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
  - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

## **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 resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The 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 the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

## **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)**

### **WATERSHED:**

The entire well pad(s) 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 topsoil 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:**

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.

**BURIED/SURFACE LINE(S):**

When crossing ephemeral drainages the pipeline(s) will be buried to a minimum depth of 48 inches from the top of pipe to ground level. Erosion control methods such as gabions and/or rock aprons should be placed on both up and downstream sides of the pipeline crossing. In addition, curled (weed free) wood/straw fiber wattles/logs and/or silt fences should be placed on the downstream side for sediment control during construction and maintained until soils and vegetation have stabilized. Water bars should be placed within the ROW to divert and dissipate surface runoff. A pipeline access road is not permitted to cross these ephemeral drainages. Traffic should be diverted to a preexisting route. Additional seeding may be required in floodplains and drainages to restore energy dissipating vegetation.

Prior to pipeline installation/construction a leak detection plan will be developed. The method(s) 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.

**ELECTRIC LINE(S):**

Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion. A power pole should not be placed in drainages, playas, wetlands, riparian areas, or floodplains and must span across the features at a distance away that would not promote further erosion.

**TEMPORARY USE FRESH WATER FRAC LINE(S):**

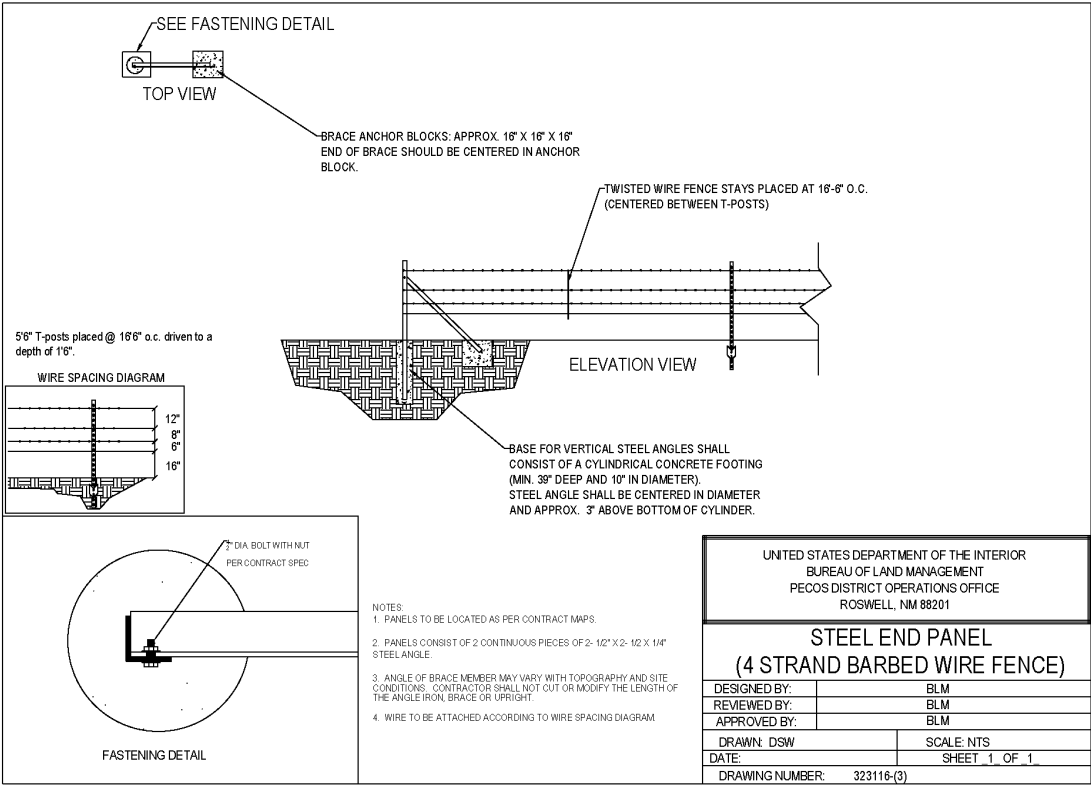
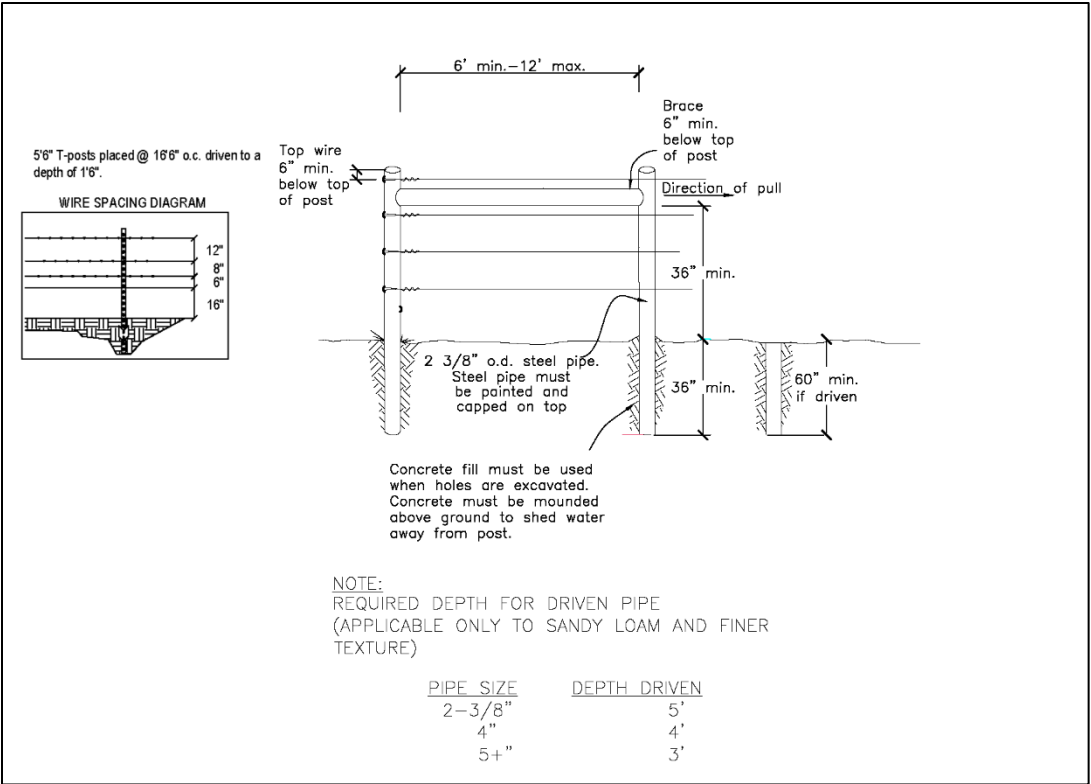
Once the temporary use exceeds the timeline of 180 days and/or with a 90 day extension status; further analysis will be required if the applicant pursues to turn the temporary ROW into a permanent ROW.

**RANGE:****Cattleguards**

Where a permanent cattleguard is approved, an appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattleguard(s) on the access road 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 cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

**Fence Requirement**

Where entry granted across a fence line, the fence must be H-braced or angle iron braced and tied off on both sides of the passageway prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall consult the private surface landowner or the grazing allotment holder prior to cutting any fence(s).



**Livestock Watering Requirement**

Structures that provide water to livestock, such as windmills, pipelines, drinking troughs, and earthen reservoirs, will be avoided by moving the proposed action.

-OR-

Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

**CONDITIONS FOR DRILLING IN LESSER PRARIE CHICKEN HABITAT:**

Ground-level Abandoned Well Marker to avoid raptor perching:

Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

**VI. CONSTRUCTION**

**A. NOTIFICATION**

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

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

**B. TOPSOIL**

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

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

**C. CLOSED LOOP SYSTEM**

Tanks are required for drilling operations: No Pits.

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

**D. FEDERAL MINERAL MATERIALS PIT**

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

**E. WELL PAD SURFACING**

Surfacing of the well pad is not required.



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

#### **F. EXCLOSURE FENCING (CELLARS & PITS)**

##### **Exclosure Fencing**

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

#### **G. ON LEASE ACCESS ROADS**

##### **Road Width**

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

##### **Surfacing**

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

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

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

##### **Crowning**

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

##### **Ditching**

Ditching shall be required on both sides of the road.

##### **Turnouts**

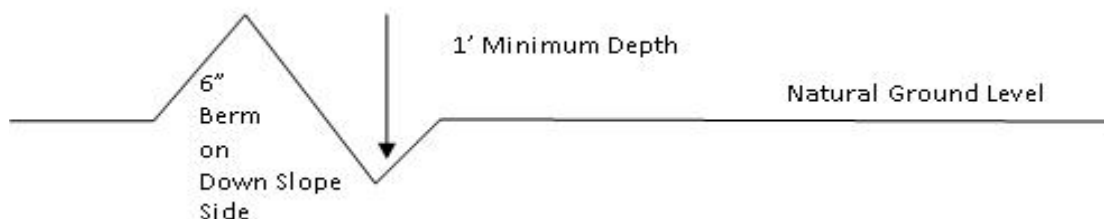
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

##### **Drainage**

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

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

### Cross Section of a Typical Lead-off Ditch



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

### Formula for Spacing Interval of Lead-off Ditches

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

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

### 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

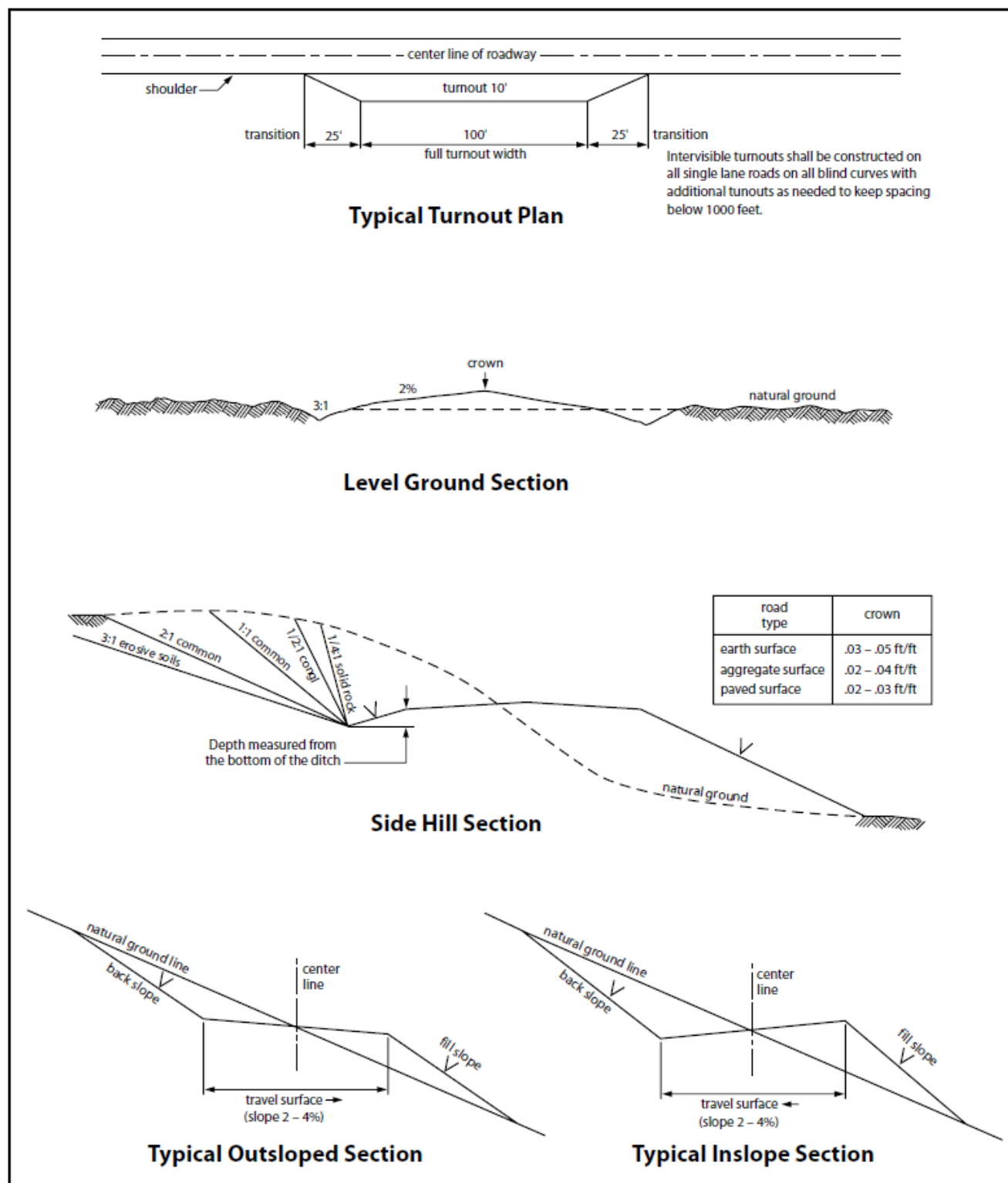


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

## 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

- 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, siting 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.
- 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.

### **BURIED PIPELINE STIPULATIONS**

A copy of the application 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 or approved pipeline corridor (unless the release or threatened release is wholly unrelated to the applicant's activity on the permitted space), or resulting from the activity of the applicant holder on the permitted corridor. 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 2

☐ Seed Mixture 2/LPC

☐ Seed Mixture 3

☐ Seed Mixture 4

☐ Seed Mixture 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 resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The 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 the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural

patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 17 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

17. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

18. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The 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 the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

19. 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.

20. 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.

#### **C. ELECTRIC LINES**

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems. Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction.
- No further construction will be done until clearance has been issued by the Authorized Officer.
- Special restoration stipulations or realignment may be required.

#### STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

**A copy of the grant and attachments, including stipulations, 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. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.
5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. 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 the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The 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 the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

11. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

12. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The 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 the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

13. Special Stipulations:

For reclamation remove poles, lines, transformer, etc. and dispose of properly.

Fill in any holes from the poles removed.

## **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).

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

**Seed Mixture 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**

	<u>lb/acre</u>
Sand dropseed ( <i>Sporobolus cryptandrus</i> )	1.0
Sand love grass ( <i>Eragrostis trichodes</i> )	1.0
Plains bristlegrass ( <i>Setaria macrostachya</i> )	2.0

\*Pounds of pure live seed:

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

**PECOS DISTRICT  
DRILLING CONDITIONS OF APPROVAL**

<b>OPERATOR'S NAME:</b>	<b>Franklin Mountain Energy LLC</b>
<b>LEASE NO.:</b>	<b>NMNM112943</b>
<b>LOCATION:</b>	Section 35, T.25 S., R.35 E., NMPM
<b>COUNTY:</b>	Lea County, New Mexico

<b>WELL NAME &amp; NO.:</b>	<b>Forge Fed Com 706H</b>
<b>SURFACE HOLE FOOTAGE:</b>	55'S & 1913'E
<b>BOTTOM HOLE FOOTAGE</b>	150'N & 1720'E
<b>ATS/API ID:</b>	<b>ATS-22-2052</b>
<b>APD ID:</b>	<b>10400087934</b>
<b>Sundry ID:</b>	N/A

<b>WELL NAME &amp; NO.:</b>	<b>Forge Fed Com 707H</b>
<b>SURFACE HOLE FOOTAGE:</b>	55'S & 1888'E
<b>BOTTOM HOLE FOOTAGE</b>	150'N & 980'E
<b>ATS/API ID:</b>	<b>ATS-22-2051</b>
<b>APD ID:</b>	<b>10400087939</b>
<b>Sundry ID:</b>	N/A

<b>WELL NAME &amp; NO.:</b>	<b>Forge Fed Com 708H</b>
<b>SURFACE HOLE FOOTAGE:</b>	55'S & 1863'E
<b>BOTTOM HOLE FOOTAGE</b>	150'N & 380'E
<b>ATS/API ID:</b>	<b>ATS-22-2050</b>
<b>APD ID:</b>	<b>10400087941</b>
<b>Sundry ID:</b>	N/A

<b>WELL NAME &amp; NO.:</b>	<b>Forge Fed Com 801H</b>
<b>SURFACE HOLE FOOTAGE:</b>	55'S & 1434'W
<b>BOTTOM HOLE FOOTAGE</b>	150'N & 380'W
<b>ATS/API ID:</b>	<b>ATS-22-2042</b>
<b>APD ID:</b>	<b>10400087889</b>
<b>Sundry ID:</b>	N/A

<b>WELL NAME &amp; NO.:</b>	<b>Forge Fed Com 802H</b>
<b>SURFACE HOLE FOOTAGE:</b>	55'S & 1459'W
<b>BOTTOM HOLE FOOTAGE</b>	150'N & 1430'W
<b>ATS/API ID:</b>	<b>ATS-22-2043</b>
<b>APD ID:</b>	<b>10400087894</b>
<b>Sundry ID:</b>	N/A



<b>WELL NAME &amp; NO.:</b>	<b>Forge Fed Com 804H</b>
<b>SURFACE HOLE FOOTAGE:</b>	55'S & 1838'E
<b>BOTTOM HOLE FOOTAGE:</b>	150'N & 2050'E
<b>ATS/API ID:</b>	<b>ATS-22-2049</b>
<b>APD ID:</b>	<b>10400087945</b>
<b>Sundry ID:</b>	N/A

<b>WELL NAME &amp; NO.:</b>	<b>Forge Fed Com 805H</b>
<b>SURFACE HOLE FOOTAGE:</b>	55'S & 1813'E
<b>BOTTOM HOLE FOOTAGE:</b>	150'N & 1150'E
<b>ATS/API ID:</b>	<b>ATS-22-2048</b>
<b>APD ID:</b>	<b>10400087946</b>
<b>Sundry ID:</b>	N/A

<b>WELL NAME &amp; NO.:</b>	<b>Forge Fed Com 806H</b>
<b>SURFACE HOLE FOOTAGE:</b>	55'S & 1788'E
<b>BOTTOM HOLE FOOTAGE:</b>	150'N & 380'E
<b>ATS/API ID:</b>	<b>ATS-22-2047</b>
<b>APD ID:</b>	<b>10400087947</b>
<b>Sundry ID:</b>	N/A

COA

H2S	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Potash	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Secretary	<input type="checkbox"/> R-111-P
Cave/Karst Potential	<input checked="" type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High
Cave/Karst Potential	<input type="checkbox"/> Critical		
Variance	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Flex Hose	<input type="checkbox"/> Other
Wellhead	<input type="checkbox"/> Conventional	<input type="checkbox"/> Multibowl	<input checked="" type="checkbox"/> Both
Wellhead Variance	<input type="checkbox"/> Diverter		
Other	<input checked="" type="checkbox"/> 4 String	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input checked="" type="checkbox"/> Fluid Filled	<input type="checkbox"/> Pilot Hole	<input type="checkbox"/> Open Annulus
Cementing	<input type="checkbox"/> Contingency Cement Squeeze	<input type="checkbox"/> EchoMeter	<input type="checkbox"/> Primary Cement Squeeze
Special Requirements	<input type="checkbox"/> Water Disposal	<input checked="" type="checkbox"/> COM	<input type="checkbox"/> Unit
Special Requirements Variance	<input type="checkbox"/> Break Testing	<input type="checkbox"/> Offline Cementing	<input type="checkbox"/> Batch Sundry

**A. HYDROGEN SULFIDE**

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

**B. CASING**

1. The **13-3/8** inch surface casing shall be set at approximately **1100 feet** (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite, above the salt, and below usable fresh water) 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.
2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing shall be set at approximately **5050 feet** is:

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

**Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.**

3. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:
  - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.
4. The minimum required fill of cement behind the **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.

### Option 1:

- a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M) psi**.
- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** inch intermediate casing shoe shall be **5000 (5M) psi**.
- c. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **7-5/8** inch intermediate casing shoe shall be **10,000 (10M) psi**. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**

### Option 2:

- a. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the **13-3/8** inch surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M) psi**. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) 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 Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, 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.
- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in Onshore Order 1 and 2.
- 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)

☒ 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)  
689-5981

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 2<sup>nd</sup> 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. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
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. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
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: The flex line must meet the requirements of API 16C. 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, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
- 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.

LVO 1/9/2023



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

# Operator Certification Data Report

04/28/2023

## Operator

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:** LARA THOMPSON

**Signed on:** 09/07/2022

**Title:** Project Manager

**Street Address:** 5647 JEFFERSON ST., NE

**City:** ALBUQUERQUE

**State:** NM

**Zip:** 87109

**Phone:** (505)431-2678

**Email address:** LARA.THOMPSON@SWCA.COM

## Field

**Representative Name:**

**Street Address:**

**City:**

**State:**

**Zip:**

**Phone:**

**Email address:**



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

## Application Data

04/28/2023

APD ID: 10400087939

Submission Date: 09/08/2022

Operator Name: FRANKLIN MOUNTAIN ENERGY LLC

Well Name: FORGE FED COM

Well Number: 707H

Well Type: OIL WELL

Well Work Type: Drill

Highlighted data  
reflects the most  
recent changes  
[Show Final Text](#)

### Section 1 - General

APD ID: 10400087939

Tie to previous NOS? N

Submission Date: 09/08/2022

BLM Office: Carlsbad

User: LARA THOMPSON

Title: Project Manager

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM112943

Lease Acres:

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? Y

Permitting Agent? YES

APD Operator: FRANKLIN MOUNTAIN ENERGY LLC

Operator letter of

### Operator Info

Operator Organization Name: FRANKLIN MOUNTAIN ENERGY LLC

Operator Address: 44 COOK STREET SUITE 1000

Zip: 80206

Operator PO Box:

Operator City: DENVER

State: CO

Operator Phone: (720)414-7868

Operator Internet Address: roverbey@fmellc.com

### Section 2 - Well Information

Well in Master Development Plan? NO

Master Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: FORGE FED COM

Well Number: 707H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: WOLFCAMP

Pool Name: WC-025 G-09  
S263504N; WOLFCAMP

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**Is the proposed well in an area containing other mineral resources?** USEABLE WATER,NATURAL GAS,OIL**Is the proposed well in a Helium production area?** N**Use Existing Well Pad?** N**New surface disturbance?****Type of Well Pad:** MULTIPLE WELL**Multiple Well Pad Name:****Number:** 9

Tatanka/Forge Pad #4

**Well Class:** HORIZONTAL**Number of Legs:** 1**Well Work Type:** Drill**Well Type:** OIL WELL**Describe Well Type:****Well sub-Type:** APPRAISAL**Describe sub-type:****Distance to town:** 9 Miles**Distance to nearest well:** 25 FT**Distance to lease line:** 55 FT**Reservoir well spacing assigned acres Measurement:** 640 Acres**Well plat:** C\_102\_Forge\_Fed\_Com\_707H\_20220907143954.pdf**Well work start Date:** 01/01/2023**Duration:** 60 DAYS**Section 3 - Well Location Table****Survey Type:** RECTANGULAR**Describe Survey Type:****Datum:** NAD83**Vertical Datum:** NAVD88**Survey number:****Reference Datum:** GROUND LEVEL

Wellbore	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	Will this well produce from this
SHL Leg #1	55	FSL	1888	FEL	25S	35E	35	Tract O	32.07972	-103.33588	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 112943	3120	0	0	Y
KOP Leg #1	99	FSL	979	FEL	25S	35E	35	Aliquot SESE	32.079844	-103.332947	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 112943	-8619	11813	11739	Y
PPP Leg #1-1	672	FSL	979	FEL	25S	35E	35	Aliquot SESE	32.081419	-103.332947	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 112943	-9192	12713	12312	Y

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H

Wellbore	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	Will this well produce from this
PPP Leg #1-2	0	FSL	991	FEL	25S	35E	26	Aliquot SESE	32.094086	- 103.332946	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 138899	- 9192	17300	12312	Y
PPP Leg #1-3	0	FSL	986	FEL	25S	35E	26	Aliquot NESE	32.097706	103.332946	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 138899	- 9192	18600	12312	Y
PPP Leg #1-4	0	FSL	982	FEL	25S	35E	26	Aliquot SENE	32.101325	- 103.332945	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 45706	- 9192	20000	12312	Y
EXIT Leg #1	150	FNL	980	FEL	25S	35E	26	Tract A	32.108191	- 103.332945	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 119280	- 9192	22453	12312	Y
BHL Leg #1	150	FNL	980	FEL	25S	35E	26	Tract A	32.108191	- 103.332945	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 119280	- 9192	22453	12312	Y

District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
District II  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office  
☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number		<sup>2</sup> Pool Code	<sup>3</sup> Pool Name
		98117	WC-025 G-09 S263504N; WOLFCAMP
<sup>4</sup> Property Code	<sup>5</sup> Property Name		<sup>6</sup> Well Number
	FORGE FED COM		707H
<sup>7</sup> OGRID No.	<sup>8</sup> Operator Name		<sup>9</sup> Elevation
373910	FRANKLIN MOUNTAIN ENERGY LLC		3120.1

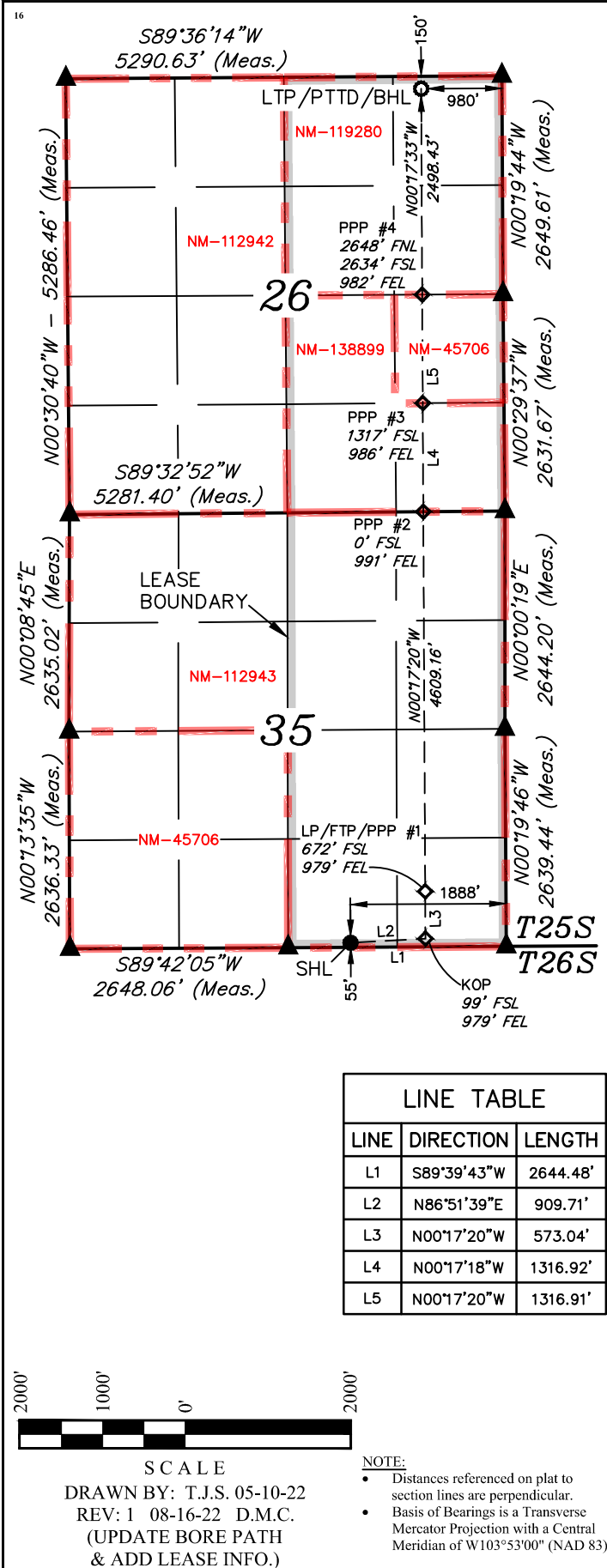
<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	35	25S	35E		55	SOUTH	1888	EAST	LEA

<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	26	25S	35E		150	NORTH	980	EAST	LEA
<sup>12</sup> Dedicated Acres		<sup>13</sup> Joint or Infill		<sup>14</sup> Consolidation Code		<sup>15</sup> Order No.			
640									

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S89°39'43"W	2644.48'
L2	N86°51'39"E	909.71'
L3	N00°17'20"W	573.04'
L4	N00°17'18"W	1316.92'
L5	N00°17'20"W	1316.91'

<b>NAD 83 (SURFACE HOLE LOCATION)</b> LATITUDE = 32°04'46.99" (32.079720°) LONGITUDE = 103°20'09.17" (103.335880°) <b>NAD 27 (SURFACE HOLE LOCATION)</b> LATITUDE = 32°04'46.54" (32.079593°) LONGITUDE = 103°20'07.51" (103.335419°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 394167.66' E: 850275.20' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 394109.76' E: 809087.57'
<b>NAD 83 (KICK OFF POINT)</b> LATITUDE = 32°04'47.44" (32.079844°) LONGITUDE = 103°19'58.61" (103.332947°) <b>NAD 27 (KICK OFF POINT)</b> LATITUDE = 32°04'46.98" (32.079718°) LONGITUDE = 103°19'56.95" (103.332486°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 394221.26' E: 851183.20' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 394163.35' E: 809995.56'
<b>NAD 83 (LP/FTP/PPP #1)</b> LATITUDE = 32°04'53.11" (32.081419°) LONGITUDE = 103°19'58.61" (103.332947°) <b>NAD 27 (LP/FTP/PPP #1)</b> LATITUDE = 32°04'52.65" (32.081292°) LONGITUDE = 103°19'56.95" (103.332486°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 394794.19' E: 851177.92' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 394736.26' E: 809990.30'
<b>NAD 83 (PPP #2)</b> LATITUDE = 32°05'38.71" (32.094086°) LONGITUDE = 103°19'58.61" (103.332946°) <b>NAD 27 (PPP #2)</b> LATITUDE = 32°05'38.25" (32.093960°) LONGITUDE = 103°19'56.94" (103.332484°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 399402.48' E: 851135.46' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 399344.42' E: 809948.03'
<b>NAD 83 (PPP #3)</b> LATITUDE = 32°05'51.74" (32.097706°) LONGITUDE = 103°19'58.60" (103.332946°) <b>NAD 27 (PPP #3)</b> LATITUDE = 32°05'51.28" (32.097579°) LONGITUDE = 103°19'56.94" (103.332484°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 400719.15' E: 851123.34' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 400661.06' E: 809935.96'
<b>NAD 83 (PPP #4)</b> LATITUDE = 32°06'04.77" (32.101325°) LONGITUDE = 103°19'58.60" (103.332945°) <b>NAD 27 (PPP #4)</b> LATITUDE = 32°06'04.31" (32.101198°) LONGITUDE = 103°19'56.94" (103.332483°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 402035.81' E: 851111.20' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 401977.68' E: 809923.88'
<b>NAD 83 (LTP/PTTD/BHL)</b> LATITUDE = 32°06'29.49" (32.108191°) LONGITUDE = 103°19'58.60" (103.332945°) <b>NAD 27 (LTP/PTTD/BHL)</b> LATITUDE = 32°06'29.03" (32.108064°) LONGITUDE = 103°19'56.94" (103.332483°) <b>STATE PLANE NAD 83 (N.M. EAST)</b> N: 404533.76' E: 851088.03' <b>STATE PLANE NAD 27 (N.M. EAST)</b> N: 404475.57' E: 809900.80'

**<sup>17</sup> OPERATOR CERTIFICATION**  
*I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.*  
Signature: *Rachael Overbey* Date: 8/24/2022  
Printed Name: Rachael Overbey  
E-mail Address: roverbey@fmellc.com

**<sup>18</sup> SURVEYOR CERTIFICATION**  
*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.*  
April 19, 2021  
Date of Survey  
Signature and Seal of Professional Surveyor:  
  
Certificate Number:





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

# Drilling Plan Data Report

04/28/2023

APD ID: 10400087939

Submission Date: 09/08/2022

Highlighted data  
reflects the most  
recent changes

Operator Name: FRANKLIN MOUNTAIN ENERGY LLC

Well Name: FORGE FED COM

Well Number: 707H

Well Type: OIL WELL

Well Work Type: Drill

[Show Final Text](#)

## Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
9153599	---	3147	30	30	OTHER : Sand/Gravels/unconsolidated	NONE	N
9153600	RUSTLER	2256	891	891	OTHER : Carbonates	NONE	N
9153601	SALADO	1466	1681	1681	OTHER : Salt, Carbonate & Clastics	NONE	N
9153602	BASE OF SALT	-319	3466	3466	OTHER : Shaley Carbonate & Shale	NONE	N
9153603	LAMAR	-1756	4903	4903	OTHER : Carbonate and Clastics	NONE	N
9153604	BELL CANYON	-2029	5176	5176	SANDSTONE	NATURAL GAS, OIL, USEABLE WATER	N
9153605	CHERRY CANYON	-3018	6165	6165	SANDSTONE	NATURAL GAS, OIL, USEABLE WATER	N
9153606	BRUSHY CANYON	-4417	7564	7564	OTHER : Sand/carbs/shales	NATURAL GAS, OIL, USEABLE WATER	N
9153607	BONE SPRING LIME	-5649	8796	8796	OTHER : Shale/Carbonates	NATURAL GAS, OIL	N
9153617	AVALON SAND	-5687	8834	8834	OTHER, SHALE : Shale/Carbonates	NATURAL GAS, OIL	N
9153618	FIRST BONE SPRING SAND	-6948	10095	10095	SANDSTONE	NATURAL GAS, OIL, USEABLE WATER	N
9153619	BONE SPRING 2ND	-7045	10192	10192	OTHER, SHALE : Shale/Carbonates	NATURAL GAS, OIL	N
9153620	BONE SPRING 2ND	-7402	10549	10549	SANDSTONE	NATURAL GAS, OIL, USEABLE WATER	N
9153621	BONE SPRING 3RD	-8001	11148	11148	OTHER, SHALE : Shale/Carbonates	NATURAL GAS, OIL	N
9153622	BONE SPRING 3RD	-8663	11810	11810	SANDSTONE	NATURAL GAS, OIL, USEABLE WATER	N
9153623	WOLFCAMP	-8942	12089	12089	OTHER, SANDSTONE, SHALE : HZ TARGET Overpressure shale/sand	NATURAL GAS, OIL	Y

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**Section 2 - Blowout Prevention****Pressure Rating (PSI):** 10M**Rating Depth:** 18000

**Equipment:** The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer and an annular preventer (5,000-psi WP). Both units will be hydraulically operated, and the ram-type will be equipped with blind rams on bottom and 4 x 7 variable pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2. Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5,000/250 psig and the annular preventer to 5,000/250 psig. The surface casing will be tested for 30 minutes to 0.22 psi/ft or 1500 psi, whichever is greater, but not to exceed 70% of Internal yield.

**Requesting Variance?** NO**Variance request:**

**Testing Procedure:** Before drilling out of the intermediate casing, the ram-type BOP and accessory equipment will be tested to 10,000/250 psig and the annular preventer to 5,000/250 psig. The intermediate casing will be for 30 minutes to 0.22 psi/ft or 1500 psi, whichever is greater, but not to exceed 70% of Internal yield prior to drill-out. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe.

**Choke Diagram Attachment:**

FME\_BOP\_Diagram\_for\_Permits\_10M\_inc.\_with\_well\_control\_20220126074053.pdf

**BOP Diagram Attachment:**

FME\_Well\_Control\_Procedure\_20220126074103.pdf

FME\_BOP\_Diagram\_for\_Permits\_10M\_inc.\_with\_well\_control\_20220126074103.pdf

**Section 3 - Casing**

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	1300	0	1300	3120	1820	1300	J-55	54.5	BUTT	1.67	1.18	BUOY	5.32	BUOY	4.99
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5050	0	5050	3108	-1930	5050	HCL-80	40	BUTT	1.79	1.8	BUOY	3.45	BUOY	3.03
3	INTERMEDIATE	8.75	7.625	NEW	API	N	0	11700	0	11625	0	-8505	11700	HCP-110	29.7	OTHER - Liberty 558	1.31	1.13	BUOY	1.25	BUOY	1.85
4	PRODUCTION	6.75	5.5	NEW	API	N	0	22453	0	12312	0	-9192	22453	P-110	23	OTHER - Eagle 606	1.38	1.32	BUOY	0.98	BUOY	1.18

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**Casing Attachments****Casing ID:** 1      **String**      SURFACE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Casing\_Design\_Assumptions\_VR\_FME\_SURFACE\_20220126074123.pdf

**Casing ID:** 2      **String**      INTERMEDIATE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Casing\_Design\_Assumptions\_VR\_FME\_1ST\_INTERMEDIATE\_20220126074316.pdf

**Casing ID:** 3      **String**      INTERMEDIATE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Casing\_Design\_Assumptions\_VR\_FME\_2ND\_INTERMEDIATE\_20220126074239.pdf

Operator Name: FRANKLIN MOUNTAIN ENERGY LLC

Well Name: FORGE FED COM

Well Number: 707H

## Casing Attachments

Casing ID: 4 String PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

## Casing Design Assumptions and Worksheet(s):

Casing\_Design\_Assumptions\_VR\_FME\_PRODUCTION\_20220126074157.pdf

## Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1000	795	1.74	13.5	1388	100	Extenda Cem, 13.5 ppg Class C	3lb/sk KolSeal 0.125pps PolyEFlake
SURFACE	Tail		1000	1300	335	1.35	14.8	451	100	Tail, 14.8 ppg, Class C	1% CaCl2, 0.125pps CeloFlake
INTERMEDIATE	Lead		0	4750	1816	1.45	12.8	2633	100	Lead, 12.8 ppg, Class C	5% Salt, 0.125 pps Poly EFlake, 3lb/sk KolSeal
INTERMEDIATE	Tail		4750	5050	154	1.33	14.8	204	100	Tail, 14.8 ppg, Class C	0.1% HR 800 .125 pps PolyE-Flake
INTERMEDIATE	Lead		4050	10700	188	5.1	9.5	959	50	Lite Fill, 9.5 ppg, Class C	Bridgemaker Gel, 5% Salt, 5pps LCM, 0.25pps IntegraSeal
INTERMEDIATE	Tail		10700	11700	121	1.33	14.8	160	50	IntegraCem 14.8 ppg, Class H,	0.15% ASA 301;P50H; 0.5% FL 66;0.25% R21
PRODUCTION	Lead		10700	22031	839	1.4	14.5	1175	20	Tail, 14.5 ppg, Class H;	0.25 C 20; 0.04 CSA 1000; 4% STE; 0.45% CFL1

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**Section 5 - Circulating Medium****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:** The highest mud weight needed to balance formation is expected to be 10-12 ppg. In order to maintain hole stability, mud weights up to 12.5 ppg may be utilized. Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the wellsite at all times.

**Describe the mud monitoring system utilized:** An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

**Circulating Medium Table**

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	1300	OTHER : Fresh-Gel	8.6	8.8							
1300	1170 0	SALT SATURATED	8.8	10.2							
1170 0	2245 3	OIL-BASED MUD	10	12							

**Section 6 - Test, Logging, Coring****List of production tests including testing procedures, equipment and safety measures:**

- (A) A kelly cock will be kept in the drill string at all times.
- (B) A full opening drill pipe stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.
- (C) H2S monitoring and detection equipment will be utilized from surface casing point to TD.
- (D) A wear bushing will be installed in the wellhead prior to drilling out of the surface casing.

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

COMPENSATED NEUTRON LOG, GAMMA RAY LOG,

**Coring operation description for the well:**

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H

Open-hole logs are not planned for this well.

## Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 8003**Anticipated Surface Pressure:** 5294**Anticipated Bottom Hole Temperature(F):** 190**Anticipated abnormal pressures, temperatures, or potential geologic hazards?** NO**Describe:****Contingency Plans geohazards description:****Contingency Plans geohazards****Hydrogen Sulfide drilling operations plan required?** YES**Hydrogen sulfide drilling operations**

Hydrogen\_Sulfide\_Drilling\_Plan\_FME\_Final\_20220126074742.pdf

## Section 8 - Other Information

**Proposed horizontal/directional/multi-lateral plan submission:**

Forge\_Fed\_707H\_AC\_rpt1\_05Aug22\_kjs\_20220907151942.pdf

Forge\_Fed\_707H\_dir\_plan1\_05Aug22\_kjs\_20220907151942.pdf

**Other proposed operations facets description:****Other proposed operations facets attachment:**

Data\_Sheet\_5.500\_inch\_23.00\_\_P110\_USS\_EAGLE\_606\_20220817140833.pdf

Liberty\_Connections\_7.6250\_29.7000\_0.3750\_P110\_HC\_DATA\_SHEET\_20220817140833.pdf

Running\_Procedure\_Cactus\_WH\_20220817140833.pdf

Forge\_Fed\_Com\_707H\_GEOPROG\_prelim\_20220907152006.pdf

WBD\_Forge\_Fed\_Com\_707H\_20220907152006.pdf

Forge\_Fed\_Com\_707H\_14\_Point\_Plan\_12.19\_20221220103043.pdf

**Other Variance attachment:**

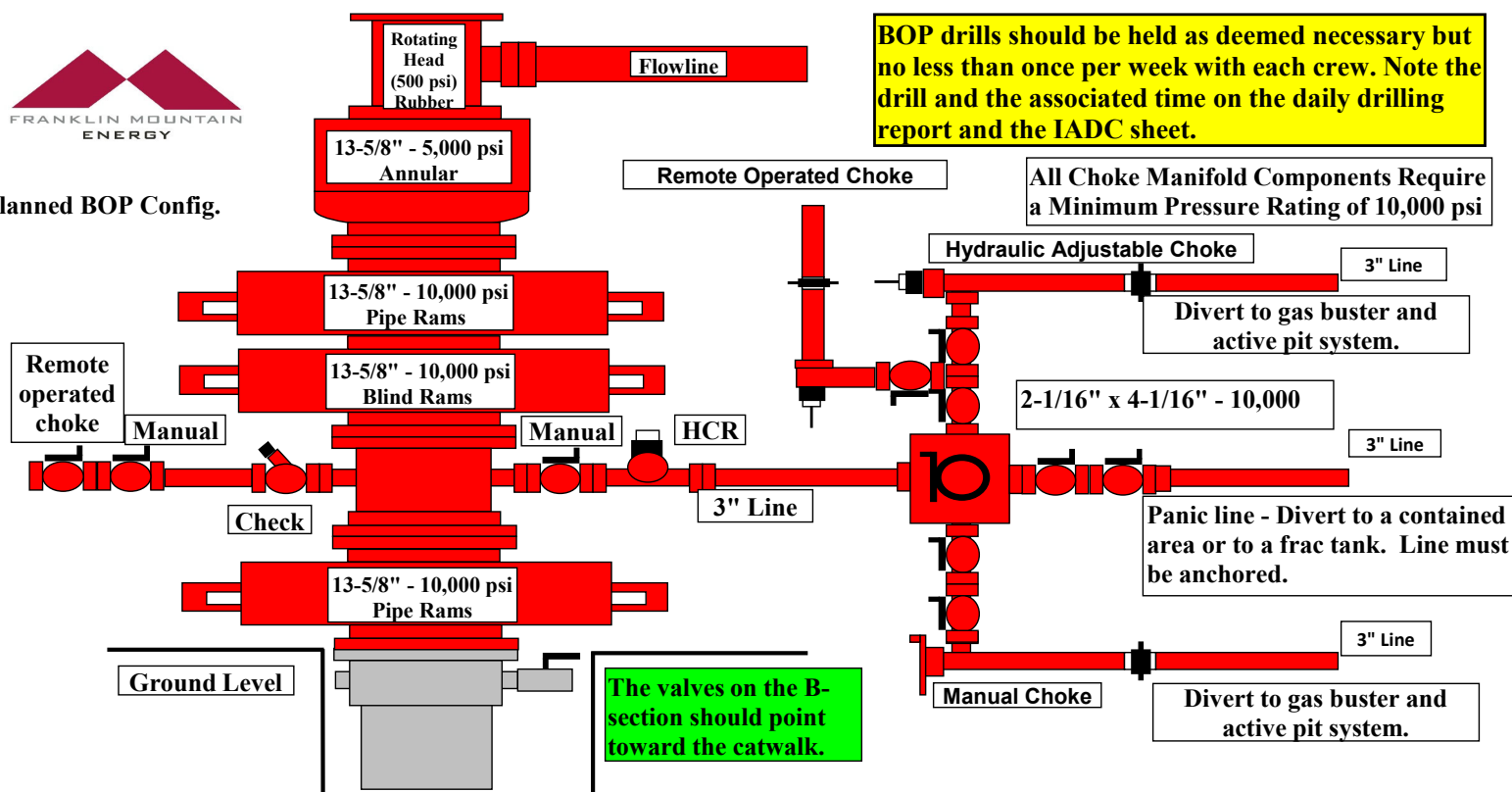
FME\_Flex\_Hose\_Permitting\_Attachment\_FINAL\_20220817095616.pdf

CONFIDENTIAL





Planned BOP Config.



Note - Actual BOP configuration subject to change given wellsite requirements.

Lower BOP outlet can be used in place of mud cross if necessary.

Choke manifold configuration may vary but must have 1 manual and 1 adjustable choke with at least a 10,000 psi rating.

### BOP Description:

Use contractor's 13-5/8", 10K double BOP (drill pipe rams on top and blind rams on bottom), single 13-5/8", 10K pipe rams beneath the double and 13-5/8", 5K annular. RU 10K psi choke manifold equipped with one manual adjustable choke and one hydraulically adjustable choke. Kill line and choke line should be located below blind ram chamber.

Install two (2) full opening gate valves and a check valve on the kill line with the gate valve nearest to the wellhead. The choke line shall be equipped with a manual full opening gate valve and an HCR valve. The manual valve should be open and the HCR valve should be closed during drilling operations. Chokes should be closed at all times as well. All lines should be flushed on a regular basis to avoid blockage (barite plugging). The pressure rating of the choke and kill lines and all valves should be equal to or greater than the BOP rams. RU contractor's accumulator system.

Test the accumulator system noting the initial pressure, final pressure and the amount of time required to close the various BOP components. Prior to drilling out, pressure test the casing and BOP equipment, using test plug, as follows and record test information on the daily report. Ensure casing head valves are open while testing BOPs. Test BOPs, choke manifold and lines, HCR, standpipe, mud line and all safety valves to 5,000 psig (high) and 250 psig (low) for 5 min. Test the annular to 5,000 psig (high) and 250 (low) for 5 minutes.

Drillpipe safety valves (TIW) should be full opening and have a rated working pressure of at least 5,000 psi. Safety valves for each size of drillpipe in use with the proper connection should be available on the rig floor in front of the drawworks at all times in the open position. Safety valves with the proper crossover should also be available if drill collars have a different connection than the drillpipe. The appropriate wrench for all manually operated valves should be marked and readily available on the rig floor at all times.

Ensure pressure gauge on choke manifold is operational. All BOP connections subjected to well pressure will be flanged, welded or clamped. All choke lines will be straight, turns will have tee blocks or targeted and shall be anchored.



## Well Control Procedure

BOP & related components will be tested to required BLM specifications. Should a well-control situation arise, a contingency plan will be implemented. The plan is as follows.

### Preparation:

- Sufficient kill mud volume will be prepared in the pre-mix tank prior to testing BOP components.
- Kill mud weight will be adequate to combat Maximum Anticipated Surface Pressure
- Choke manifold system is operable set up according to the BLM requirements and connected to the kill mud storage

### Execution:

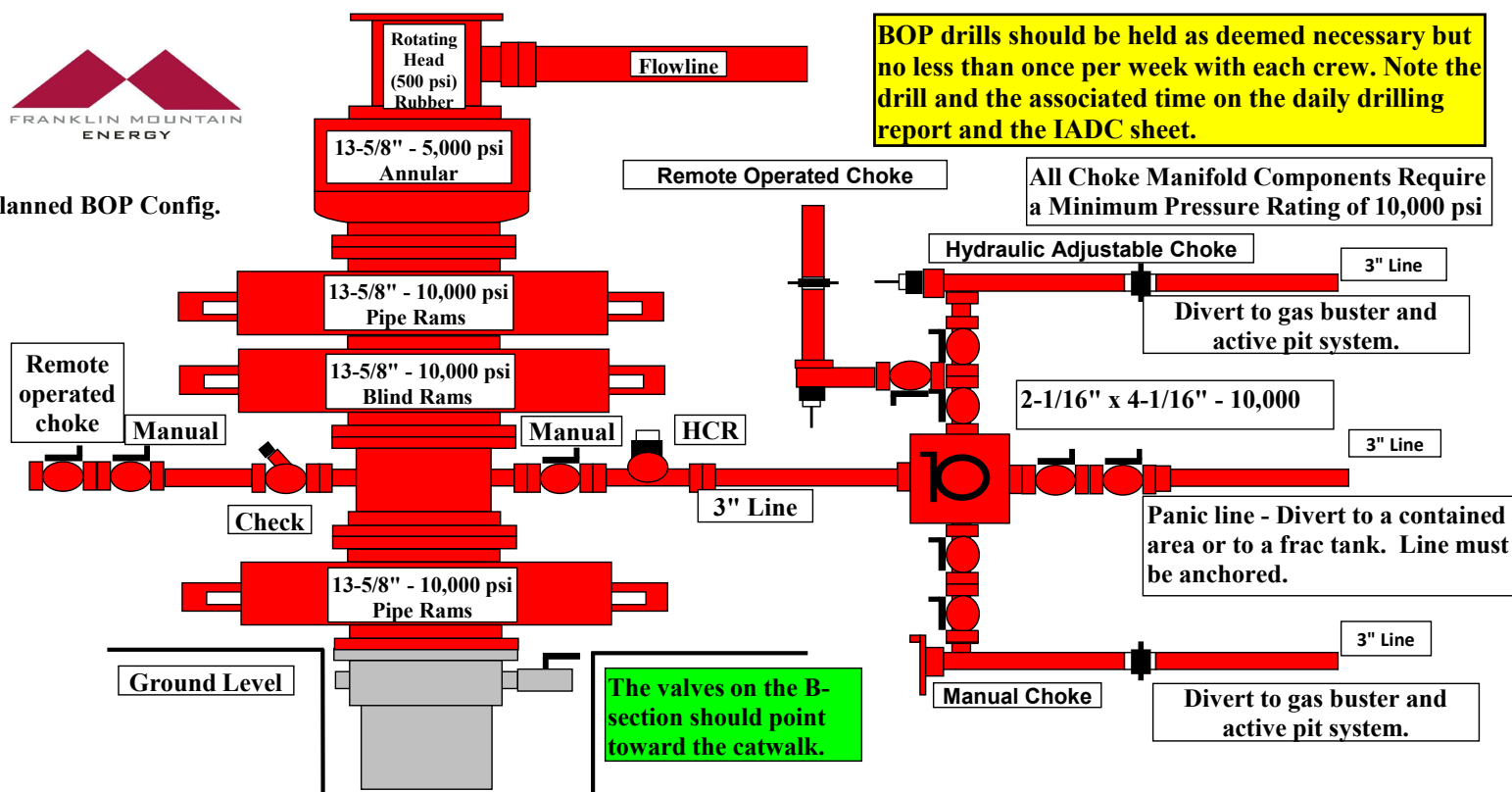
During any well control issues if the annular preventer should become inoperable or a wash out occurs

- well control will continue using the upper pipe rams in place of the annular preventer.
  - Close pipe rams
  - Pump kill mud to neutralize the well control situation
- Constantly monitor situation using choke manifold
- Use Kill lines of manifold if necessary

This additional well control procedure, as required by the BLM, is applicable to testing Annular Preventor to 100% of the rating.



Planned BOP Config.



Note - Actual BOP configuration subject to change given wellsite requirements.

Lower BOP outlet can be used in place of mud cross if necessary.

Choke manifold configuration may vary but must have 1 manual and 1 adjustable choke with at least a 10,000 psi rating.

### BOP Description:

Use contractor's 13-5/8", 10K double BOP (drill pipe rams on top and blind rams on bottom), single 13-5/8", 10K pipe rams beneath the double and 13-5/8", 5K annular. RU 10K psi choke manifold equipped with one manual adjustable choke and one hydraulically adjustable choke. Kill line and choke line should be located below blind ram chamber.

Install two (2) full opening gate valves and a check valve on the kill line with the gate valve nearest to the wellhead. The choke line shall be equipped with a manual full opening gate valve and an HCR valve. The manual valve should be open and the HCR valve should be closed during drilling operations. Chokes should be closed at all times as well. All lines should be flushed on a regular basis to avoid blockage (barite plugging). The pressure rating of the choke and kill lines and all valves should be equal to or greater than the BOP rams. RU contractor's accumulator system.

Test the accumulator system noting the initial pressure, final pressure and the amount of time required to close the various BOP components. Prior to drilling out, pressure test the casing and BOP equipment, using test plug, as follows and record test information on the daily report. Ensure casing head valves are open while testing BOPs. Test BOPs, choke manifold and lines, HCR, standpipe, mud line and all safety valves to 5,000 psig (high) and 250 psig (low) for 5 min. Test the annular to 5,000 psig (high) and 250 (low) for 5 minutes.

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Ensure pressure gauge on choke manifold is operational. All BOP connections subjected to well pressure will be flanged, welded or clamped. All choke lines will be straight, turns will have tee blocks or targeted and shall be anchored.

**Casing Design Factors are derived based on the following assumptions:**

Surface casing:

Collapse – full evacuation

Burst – 1500 psi casing test with 10 ppg mud

Tension – weight of casing + 100,000 lbs allowable overpull

Coupling – weight of casing + 100,000 lbs allowable overpull

**Casing Design Factors are derived based on the following assumptions:**

Production casing:

Collapse – full evacuation

Burst – 11,000 psi frac pressure

Tension - weight of casing + 100,000 lbs allowable overpull

Coupling - weight of casing + 100,000 lbs allowable overpull

**Casing Design Factors are derived based on the following assumptions:**

**2<sup>nd</sup> Intermediate casing:**

Collapse – full evacuation

Burst – max anticipated pore pressure

Tension - weight of casing + 100,000 lbs allowable overpull

Coupling - weight of casing + 100,000 lbs allowable overpull

**Casing Design Factors are derived based on the following assumptions:**

**1<sup>st</sup> Intermediate casing:**

Collapse – full evacuation

Burst – 1500 psi casing test with 10 ppg mud weight

Tension – weight of casing + 100,000 lbs allowable overpull

Coupling – weight of casing + 100,000 lbs allowable overpull





### Hydrogen Sulfide Plan

- A. All personnel shall receive proper awareness H<sub>2</sub>S training.
- B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.
- C. Required Emergency Equipment
  - a. Well Control Equipment
    - i. Flare line 150' from wellhead to be ignited by auto ignition sparking system.
    - ii. Choke manifold with a remotely operated hydraulic choke.
    - iii. Mud/gas separator
  - b. Protective equipment for essential personnel
    - i. Breathing Apparatus
      - 1. Rescue packs (SCBA) – 1 unit shall be placed at each briefing area, 2 shall be stored in a safety trailer on site.
      - 2. Work/Escapes packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity
      - 3. Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation
    - ii. Auxiliary Rescue Equipment
      - 1. Stretcher
      - 2. Two OSHA full body harnesses
      - 3. 100 feet of 5/8 inches OSHA approved rope
      - 4. 1-20# class ABC fire extinguisher
  - c. H<sub>2</sub>S Detection and Monitoring Equipment
    - i. A stationary detector with three sensors will be placed in the doghouse if equipped, set to visually alarm at 10 ppm and audible at 14 ppm. The detector will be calibrated a minimum of every 30 days or as needed. The sensors will be placed in the following places:
      - 1. Rig Floor
      - 2. Below Rig Floor / Near BOPs
      - 3. End of flow line or where well bore fluid is being discharged (near shakers)
    - ii. If H<sub>2</sub>S is encountered, measured values and formations will be provided to the BLM.
  - d. Visual Warning Systems
    - i. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
    - ii. A colored condition flag will be on display, reflecting the current condition at the site at the time.
    - iii. Two windsocks will be placed in strategic locations, visible from all angles.
  - e. Mud Program
    - i. The Mud program will be designed to minimize the volume of H<sub>2</sub>S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H<sub>2</sub>S bearing zones.



- f. Metallurgy
  - i. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H<sub>2</sub>S service at the anticipated operating pressures to prevent sour sulfide stress cracking.
- g. Communication
  - i. Communication will be via cell phones and walkie talkies on location.

Franklin Mountain Energy has conducted a review of offset operated wells to determine if an H<sub>2</sub>S contingency plan is required for the proposed well. Based on concentrations of offset wells, proximity to main roads, and distance to populated areas, the radius of exposure created by a potential release was determined to be minimal and low enough to not necessitate an H<sub>2</sub>S contingency plan. This will be reevaluated during wellbore construction if H<sub>2</sub>S is observed and after the well is on production.



## Emergency Contact List:

Vladimir Roudakov, Drilling Engineer	Cell 720 933 9784
Rachael Overbey, Project and Regulatory Director	Cell 303 570 4057
Franklin Mountain Energy Afterhours Emergency Call Tree:	720-640-7517

### EMERGENCY NUMBERS:

<u>Agency</u>	<u>Telephone Number</u>
BLM – Carlsbad Mainline	575-234-5972
BLM – Spill Emergency	575-234-6235
BLM – Engineering Emergency	575-361-2822
NMOCD District 1 – Hobbs Mainline	575-393-6161
NMOCD Emergency Line	575-370-3186
Wild Well Control	281-784-4700
H2S Emergency response:	
Air Ambulance New Mexico – Lea Co Reginal	575-391-2934
Lea County Sheriff's Department	575-396-3611
Fire Department:	
Carlsbad	575-885-3125
Artesia	575-746-5050
Lea County Regional Medical Center	575-492-5000
Jal Community Hospital	505-395-2511
Lea County Emergency Management	575-396-8602
Poison Control Center	800-222-1222



# **Franklin Mountain Energy**

**Lea County, NM (NAD83)  
TATANKA NORTH PAD #4  
FORGE FEDERAL 707H**

**Wellbore #1  
Design #1**

## **Anticollision Summary Report**

**05 August, 2022**



## Anticollision Summary Report

<b>Company:</b>	Franklin Mountain Energy	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
<b>Project:</b>	Lea County, NM (NAD83)	<b>TVD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Reference Site:</b>	TATANKA NORTH PAD #4	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Design #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	8/5/2022		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	22,452.68	Design #1 (Wellbore #1)	MWD	OWSG MWD - Standard	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
TATANKA NORTH PAD #4						
FORGE FEDERAL 603H - Wellbore #1 - Design #1	1,500.00	1,500.00	100.05	89.76	9.725	CC, ES
FORGE FEDERAL 603H - Wellbore #1 - Design #1	22,453.67	21,949.69	1,040.81	701.43	3.067	SF
FORGE FEDERAL 604H - Wellbore #1 - Design #1	3,138.15	3,154.90	73.89	50.87	3.209	CC
FORGE FEDERAL 604H - Wellbore #1 - Design #1	3,300.00	3,316.28	74.91	50.34	3.048	ES
FORGE FEDERAL 604H - Wellbore #1 - Design #1	22,453.67	21,969.31	387.64	146.83	1.610	SF
FORGE FEDERAL 705H - Wellbore #1 - Design #1	1,500.00	1,500.00	49.87	39.58	4.847	CC, ES
FORGE FEDERAL 705H - Wellbore #1 - Design #1	22,453.67	22,435.50	1,320.87	969.25	3.757	SF
FORGE FEDERAL 706H - Wellbore #1 - Design #1	1,500.00	1,500.00	25.09	14.80	2.439	CC, ES
FORGE FEDERAL 706H - Wellbore #1 - Design #1	22,453.67	22,350.58	740.96	390.09	2.112	SF
FORGE FEDERAL 708H - Wellbore #1 - Design #1	1,500.00	1,500.00	25.09	14.80	2.439	CC
FORGE FEDERAL 708H - Wellbore #1 - Design #1	3,200.00	3,200.81	36.48	13.35	1.577	ES, SF
FORGE FEDERAL 804H - Wellbore #1 - Design #1	1,995.89	1,994.15	20.95	7.17	1.521	CC
FORGE FEDERAL 804H - Wellbore #1 - Design #1	2,000.00	1,998.19	20.97	7.16	1.519	ES, SF
FORGE FEDERAL 805H - Wellbore #1 - Design #1	3,145.38	3,139.13	38.10	15.51	1.687	CC
FORGE FEDERAL 805H - Wellbore #1 - Design #1	22,451.57	22,617.57	260.97	-6.63	0.975	Level 1, ES, SF
FORGE FEDERAL 806H - Wellbore #1 - Design #1	1,500.00	1,500.00	100.05	89.76	9.725	CC
FORGE FEDERAL 806H - Wellbore #1 - Design #1	1,800.00	1,792.29	100.81	88.49	8.181	ES
FORGE FEDERAL 806H - Wellbore #1 - Design #1	22,453.67	22,747.47	627.69	290.34	1.861	SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



## Anticollision Summary Report

<b>Company:</b>	Franklin Mountain Energy	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
<b>Project:</b>	Lea County, NM (NAD83)	<b>TVD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Reference Site:</b>	TATANKA NORTH PAD #4	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 3147.00usft (Original Well El

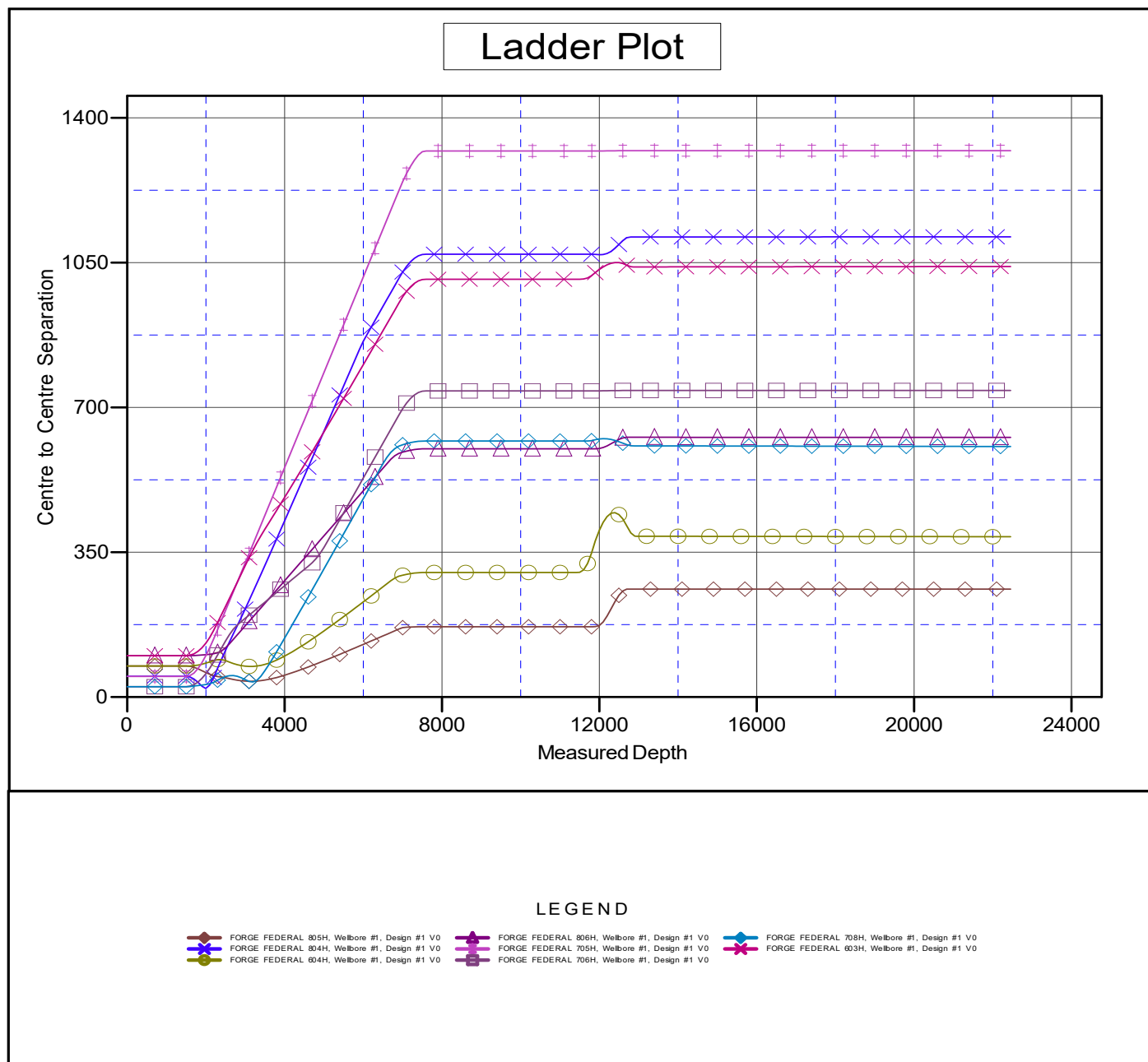
Offset Depths are relative to Offset Datum

Central Meridian is -104.333334

Coordinates are relative to: FORGE FEDERAL 707H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

Grid Convergence at Surface is: 0.53°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



## Anticollision Summary Report

<b>Company:</b>	Franklin Mountain Energy	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
<b>Project:</b>	Lea County, NM (NAD83)	<b>TVD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
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<b>Reference Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.15 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 3147.00usft (Original Well EI

Offset Depths are relative to Offset Datum

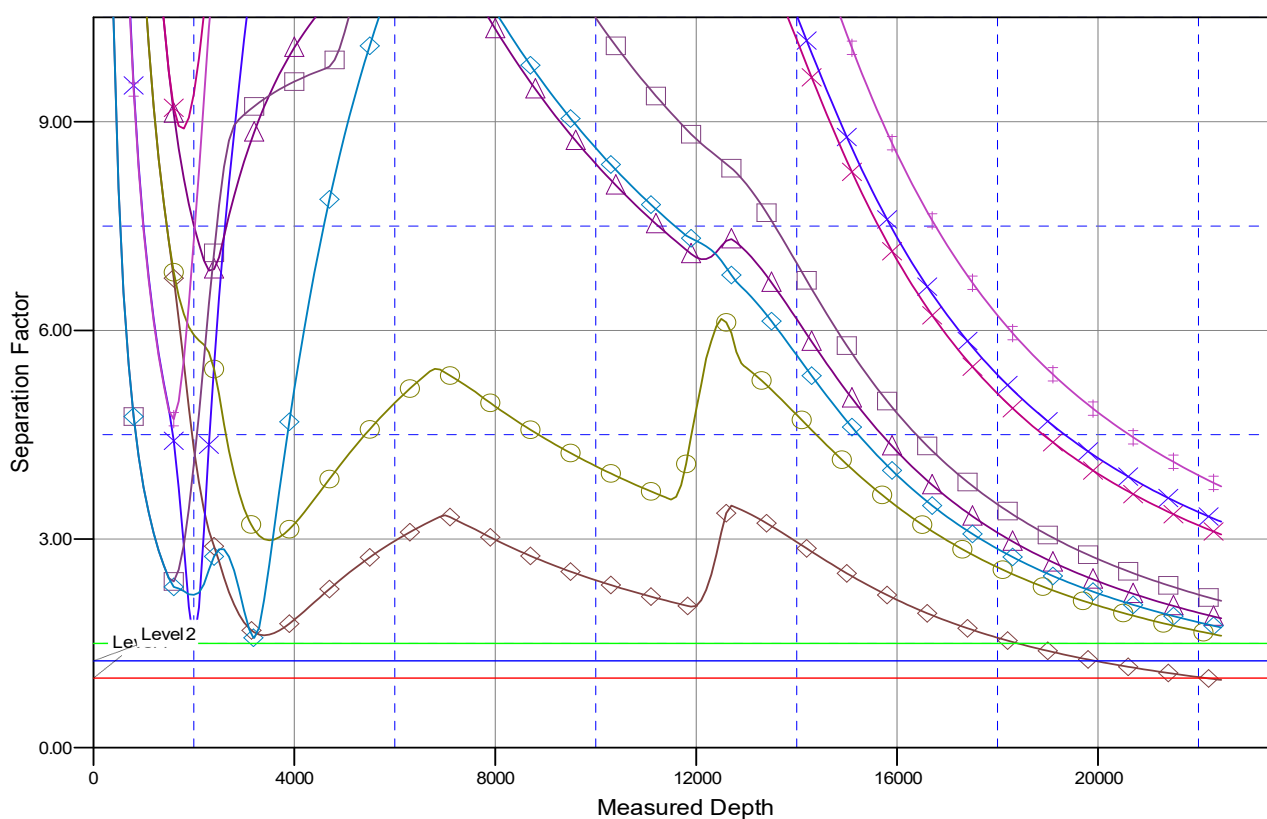
Central Meridian is -104.333334

Coordinates are relative to: FORGE FEDERAL 707H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

Grid Convergence at Surface is: 0.53°

## Separation Factor Plot



## LEGEND

FORGE FEDERAL 805H, Wellbore #1, Design #1 V0	FORGE FEDERAL 806H, Wellbore #1, Design #1 V0	FORGE FEDERAL 708H, Wellbore #1, Design #1 V0
FORGE FEDERAL 804H, Wellbore #1, Design #1 V0	FORGE FEDERAL 705H, Wellbore #1, Design #1 V0	FORGE FEDERAL 603H, Wellbore #1, Design #1 V0
FORGE FEDERAL 804H, Wellbore #1, Design #1 V0	FORGE FEDERAL 706H, Wellbore #1, Design #1 V0	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation





# **Franklin Mountain Energy**

**Lea County, NM (NAD83)**

**TATANKA NORTH PAD #4**

**FORGE FEDERAL 707H**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**05 August, 2022**



## Planning Report

<b>Database:</b>	EDM 5000.15 Single User Db	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
<b>Company:</b>	Franklin Mountain Energy	<b>TVD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
<b>Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

<b>Project</b>	Lea County, NM (NAD83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Eastern Zone		

<b>Site</b>	TATANKA NORTH PAD #4			
<b>Site Position:</b>		<b>Northing:</b>	394,167.45 ft	<b>Latitude:</b> 32.079720
<b>From:</b>	Lat/Long	<b>Easting:</b>	850,176.81 ft	<b>Longitude:</b> -103.336203
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b> 0.53 °

<b>Well</b>	FORGE FEDERAL 707H			
<b>Well Position</b>	<b>+N/-S</b>	0.92 usft	<b>Northing:</b>	394,168.37 ft
	<b>+E/-W</b>	100.05 usft	<b>Easting:</b>	850,276.86 ft
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b> 3,117.00 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2020	8/5/2022	6.29	59.76	47,314.88078195

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	4.48

<b>Plan Survey Tool Program</b>	<b>Date</b>	8/5/2022		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	22,452.68	Design #1 (Wellbore #1)	MWD
				OWSG MWD - Standard

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	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	
1,900.00	6.00	66.00	1,899.27	8.51	19.12	1.50	1.50	0.00	66.00	
2,210.31	9.69	87.48	2,206.68	16.26	60.05	1.50	1.19	6.92	49.43	
6,927.88	9.69	87.48	6,856.91	51.20	853.53	0.00	0.00	0.00	0.00	
7,574.04	0.00	0.00	7,500.00	53.60	908.00	1.50	-1.50	0.00	180.00	
11,813.09	0.00	0.00	11,739.04	53.60	908.00	0.00	0.00	0.00	0.00	
12,713.09	90.00	359.47	12,312.00	626.53	902.72	10.00	10.00	0.00	359.47	
22,453.07	90.00	359.47	12,312.00	10,366.11	812.99	0.00	0.00	0.00	0.00	BHL (FORGE FEDER

## Planning Report



**Database:** EDM 5000.15 Single User Db  
**Company:** Franklin Mountain Energy  
**Project:** Lea County, NM (NAD83)  
**Site:** TATANKA NORTH PAD #4  
**Well:** FORGE FEDERAL 707H  
**Wellbore:** Wellbore #1  
**Design:** Design #1

**Local Co-ordinate Reference:**  
**TVD Reference:**  
**MD Reference:**  
**North Reference:**  
**Survey Calculation Method:**

Well FORGE FEDERAL 707H  
 WELL @ 3147.00usft (Original Well Elev)  
 WELL @ 3147.00usft (Original Well Elev)  
 Grid  
 Minimum Curvature

## 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
<b>SHL (FORGE FEDERAL 707H)</b>									
30.00	0.00	0.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Cenozoic Alluvium (surface)</b>									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
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
891.00	0.00	0.00	891.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Rustler</b>									
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
<b>Start Build 1.50</b>									
1,600.00	1.50	66.00	1,599.99	0.53	1.20	0.62	1.50	1.50	0.00
1,681.07	2.72	66.00	1,681.00	1.75	3.92	2.05	1.50	1.50	0.00
<b>Salado</b>									
1,700.00	3.00	66.00	1,699.91	2.13	4.78	2.50	1.50	1.50	0.00
1,800.00	4.50	66.00	1,799.69	4.79	10.76	5.62	1.50	1.50	0.00
1,900.00	6.00	66.00	1,899.27	8.51	19.12	9.98	1.50	1.50	0.00
<b>Start DLS 1.50 TFO 49.43</b>									
2,000.00	7.07	75.30	1,998.62	12.20	29.84	14.49	1.50	1.07	9.30
2,100.00	8.27	82.05	2,097.73	14.75	42.92	18.06	1.50	1.20	6.74
2,200.00	9.56	87.04	2,196.52	16.18	58.33	20.69	1.50	1.29	4.99
2,210.31	9.69	87.48	2,206.68	16.26	60.05	20.91	1.50	1.32	4.26
<b>Hold 9.69 Inc, 87.48 Az</b>									
2,300.00	9.69	87.48	2,295.09	16.93	75.14	22.75	0.00	0.00	0.00
2,400.00	9.69	87.48	2,393.67	17.67	91.96	24.80	0.00	0.00	0.00
2,500.00	9.69	87.48	2,492.24	18.41	108.78	26.85	0.00	0.00	0.00
2,600.00	9.69	87.48	2,590.81	19.15	125.60	28.91	0.00	0.00	0.00
2,700.00	9.69	87.48	2,689.38	19.89	142.41	30.96	0.00	0.00	0.00
2,800.00	9.69	87.48	2,787.96	20.63	159.23	33.01	0.00	0.00	0.00
2,900.00	9.69	87.48	2,886.53	21.37	176.05	35.07	0.00	0.00	0.00
3,000.00	9.69	87.48	2,985.10	22.11	192.87	37.12	0.00	0.00	0.00
3,100.00	9.69	87.48	3,083.67	22.85	209.69	39.17	0.00	0.00	0.00
3,200.00	9.69	87.48	3,182.25	23.59	226.51	41.23	0.00	0.00	0.00
3,300.00	9.69	87.48	3,280.82	24.33	243.33	43.28	0.00	0.00	0.00
3,400.00	9.69	87.48	3,379.39	25.07	260.15	45.33	0.00	0.00	0.00
3,487.86	9.69	87.48	3,466.00	25.72	274.93	47.14	0.00	0.00	0.00
<b>Base Salt</b>									
3,500.00	9.69	87.48	3,477.96	25.81	276.97	47.39	0.00	0.00	0.00
3,600.00	9.69	87.48	3,576.54	26.55	293.79	49.44	0.00	0.00	0.00
3,700.00	9.69	87.48	3,675.11	27.29	310.61	51.50	0.00	0.00	0.00
3,800.00	9.69	87.48	3,773.68	28.03	327.43	53.55	0.00	0.00	0.00
3,900.00	9.69	87.48	3,872.25	28.78	344.25	55.60	0.00	0.00	0.00

## Planning Report



<b>Database:</b>	EDM 5000.15 Single User Db	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
<b>Company:</b>	Franklin Mountain Energy	<b>TVD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
<b>Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
4,000.00	9.69	87.48	3,970.83	29.52	361.07	57.66	0.00	0.00	0.00
4,100.00	9.69	87.48	4,069.40	30.26	377.89	59.71	0.00	0.00	0.00
4,200.00	9.69	87.48	4,167.97	31.00	394.71	61.76	0.00	0.00	0.00
4,300.00	9.69	87.48	4,266.54	31.74	411.53	63.82	0.00	0.00	0.00
4,400.00	9.69	87.48	4,365.12	32.48	428.35	65.87	0.00	0.00	0.00
4,500.00	9.69	87.48	4,463.69	33.22	445.17	67.92	0.00	0.00	0.00
4,600.00	9.69	87.48	4,562.26	33.96	461.99	69.98	0.00	0.00	0.00
4,700.00	9.69	87.48	4,660.84	34.70	478.81	72.03	0.00	0.00	0.00
4,800.00	9.69	87.48	4,759.41	35.44	495.63	74.08	0.00	0.00	0.00
4,900.00	9.69	87.48	4,857.98	36.18	512.45	76.14	0.00	0.00	0.00
4,945.67	9.69	87.48	4,903.00	36.52	520.13	77.07	0.00	0.00	0.00
<b>Lamar</b>									
5,000.00	9.69	87.48	4,956.55	36.92	529.27	78.19	0.00	0.00	0.00
5,100.00	9.69	87.48	5,055.13	37.66	546.09	80.24	0.00	0.00	0.00
5,200.00	9.69	87.48	5,153.70	38.40	562.91	82.30	0.00	0.00	0.00
5,222.63	9.69	87.48	5,176.00	38.57	566.71	82.76	0.00	0.00	0.00
<b>Bell Canyon</b>									
5,300.00	9.69	87.48	5,252.27	39.14	579.73	84.35	0.00	0.00	0.00
5,400.00	9.69	87.48	5,350.84	39.89	596.54	86.40	0.00	0.00	0.00
5,500.00	9.69	87.48	5,449.42	40.63	613.36	88.46	0.00	0.00	0.00
5,600.00	9.69	87.48	5,547.99	41.37	630.18	90.51	0.00	0.00	0.00
5,700.00	9.69	87.48	5,646.56	42.11	647.00	92.56	0.00	0.00	0.00
5,800.00	9.69	87.48	5,745.13	42.85	663.82	94.62	0.00	0.00	0.00
5,900.00	9.69	87.48	5,843.71	43.59	680.64	96.67	0.00	0.00	0.00
6,000.00	9.69	87.48	5,942.28	44.33	697.46	98.72	0.00	0.00	0.00
6,100.00	9.69	87.48	6,040.85	45.07	714.28	100.78	0.00	0.00	0.00
6,200.00	9.69	87.48	6,139.42	45.81	731.10	102.83	0.00	0.00	0.00
6,225.95	9.69	87.48	6,165.00	46.00	735.47	103.36	0.00	0.00	0.00
<b>Cherry Canyon</b>									
6,300.00	9.69	87.48	6,238.00	46.55	747.92	104.88	0.00	0.00	0.00
6,400.00	9.69	87.48	6,336.57	47.29	764.74	106.94	0.00	0.00	0.00
6,500.00	9.69	87.48	6,435.14	48.03	781.56	108.99	0.00	0.00	0.00
6,600.00	9.69	87.48	6,533.71	48.77	798.38	111.04	0.00	0.00	0.00
6,700.00	9.69	87.48	6,632.29	49.51	815.20	113.10	0.00	0.00	0.00
6,800.00	9.69	87.48	6,730.86	50.25	832.02	115.15	0.00	0.00	0.00
6,900.00	9.69	87.48	6,829.43	50.99	848.84	117.20	0.00	0.00	0.00
6,927.88	9.69	87.48	6,856.91	51.20	853.53	117.78	0.00	0.00	0.00
<b>Start Drop -1.50</b>									
7,000.00	8.61	87.48	6,928.11	51.71	864.99	119.17	1.50	-1.50	0.00
7,100.00	7.11	87.48	7,027.17	52.31	878.65	120.84	1.50	-1.50	0.00
7,200.00	5.61	87.48	7,126.55	52.79	889.72	122.19	1.50	-1.50	0.00
7,300.00	4.11	87.48	7,226.19	53.17	898.18	123.23	1.50	-1.50	0.00
7,400.00	2.61	87.48	7,326.02	53.43	904.04	123.94	1.50	-1.50	0.00
7,500.00	1.11	87.48	7,425.96	53.57	907.28	124.34	1.50	-1.50	0.00
7,574.04	0.00	0.00	7,500.00	53.60	908.00	124.43	1.50	-1.50	0.00
<b>Vertical</b>									
7,600.00	0.00	0.00	7,525.96	53.60	908.00	124.43	0.00	0.00	0.00
7,638.04	0.00	0.00	7,564.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>Brushy Canyon</b>									
7,700.00	0.00	0.00	7,625.96	53.60	908.00	124.43	0.00	0.00	0.00
7,800.00	0.00	0.00	7,725.96	53.60	908.00	124.43	0.00	0.00	0.00
7,900.00	0.00	0.00	7,825.96	53.60	908.00	124.43	0.00	0.00	0.00
8,000.00	0.00	0.00	7,925.96	53.60	908.00	124.43	0.00	0.00	0.00

## Planning Report



<b>Database:</b>	EDM 5000.15 Single User Db	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
<b>Company:</b>	Franklin Mountain Energy	<b>TVD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
<b>Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
8,100.00	0.00	0.00	8,025.96	53.60	908.00	124.43	0.00	0.00	0.00
8,200.00	0.00	0.00	8,125.96	53.60	908.00	124.43	0.00	0.00	0.00
8,300.00	0.00	0.00	8,225.96	53.60	908.00	124.43	0.00	0.00	0.00
8,400.00	0.00	0.00	8,325.96	53.60	908.00	124.43	0.00	0.00	0.00
8,500.00	0.00	0.00	8,425.96	53.60	908.00	124.43	0.00	0.00	0.00
8,600.00	0.00	0.00	8,525.96	53.60	908.00	124.43	0.00	0.00	0.00
8,700.00	0.00	0.00	8,625.96	53.60	908.00	124.43	0.00	0.00	0.00
8,800.00	0.00	0.00	8,725.96	53.60	908.00	124.43	0.00	0.00	0.00
8,870.04	0.00	0.00	8,796.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>Bone Spring Lime</b>									
8,900.00	0.00	0.00	8,825.96	53.60	908.00	124.43	0.00	0.00	0.00
8,908.04	0.00	0.00	8,834.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>Avalon</b>									
9,000.00	0.00	0.00	8,925.96	53.60	908.00	124.43	0.00	0.00	0.00
9,093.04	0.00	0.00	9,019.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>*Chert Zone*</b>									
9,100.00	0.00	0.00	9,025.96	53.60	908.00	124.43	0.00	0.00	0.00
9,200.00	0.00	0.00	9,125.96	53.60	908.00	124.43	0.00	0.00	0.00
9,300.00	0.00	0.00	9,225.96	53.60	908.00	124.43	0.00	0.00	0.00
9,400.00	0.00	0.00	9,325.96	53.60	908.00	124.43	0.00	0.00	0.00
9,500.00	0.00	0.00	9,425.96	53.60	908.00	124.43	0.00	0.00	0.00
9,600.00	0.00	0.00	9,525.96	53.60	908.00	124.43	0.00	0.00	0.00
9,700.00	0.00	0.00	9,625.96	53.60	908.00	124.43	0.00	0.00	0.00
9,800.00	0.00	0.00	9,725.96	53.60	908.00	124.43	0.00	0.00	0.00
9,900.00	0.00	0.00	9,825.96	53.60	908.00	124.43	0.00	0.00	0.00
10,000.00	0.00	0.00	9,925.96	53.60	908.00	124.43	0.00	0.00	0.00
10,100.00	0.00	0.00	10,025.96	53.60	908.00	124.43	0.00	0.00	0.00
10,169.04	0.00	0.00	10,095.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>First Bone Spring Sand</b>									
10,200.00	0.00	0.00	10,125.96	53.60	908.00	124.43	0.00	0.00	0.00
10,266.04	0.00	0.00	10,192.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>Second Bone Spring Carbonates</b>									
10,300.00	0.00	0.00	10,225.96	53.60	908.00	124.43	0.00	0.00	0.00
10,400.00	0.00	0.00	10,325.96	53.60	908.00	124.43	0.00	0.00	0.00
10,500.00	0.00	0.00	10,425.96	53.60	908.00	124.43	0.00	0.00	0.00
10,600.00	0.00	0.00	10,525.96	53.60	908.00	124.43	0.00	0.00	0.00
10,623.04	0.00	0.00	10,549.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>Second Bone Spring Sand</b>									
10,700.00	0.00	0.00	10,625.96	53.60	908.00	124.43	0.00	0.00	0.00
10,800.00	0.00	0.00	10,725.96	53.60	908.00	124.43	0.00	0.00	0.00
10,900.00	0.00	0.00	10,825.96	53.60	908.00	124.43	0.00	0.00	0.00
11,000.00	0.00	0.00	10,925.96	53.60	908.00	124.43	0.00	0.00	0.00
11,100.00	0.00	0.00	11,025.96	53.60	908.00	124.43	0.00	0.00	0.00
11,200.00	0.00	0.00	11,125.96	53.60	908.00	124.43	0.00	0.00	0.00
11,222.04	0.00	0.00	11,148.00	53.60	908.00	124.43	0.00	0.00	0.00
<b>Third Bone Spring Carbonates</b>									
11,300.00	0.00	0.00	11,225.96	53.60	908.00	124.43	0.00	0.00	0.00
11,400.00	0.00	0.00	11,325.96	53.60	908.00	124.43	0.00	0.00	0.00
11,500.00	0.00	0.00	11,425.96	53.60	908.00	124.43	0.00	0.00	0.00
11,600.00	0.00	0.00	11,525.96	53.60	908.00	124.43	0.00	0.00	0.00
11,700.00	0.00	0.00	11,625.96	53.60	908.00	124.43	0.00	0.00	0.00
11,800.00	0.00	0.00	11,725.96	53.60	908.00	124.43	0.00	0.00	0.00
11,813.09	0.00	0.00	11,739.04	53.60	908.00	124.43	0.00	0.00	0.00

## Planning Report



<b>Database:</b>	EDM 5000.15 Single User Db	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
<b>Company:</b>	Franklin Mountain Energy	<b>TVD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
<b>Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
<b>KOP 10°/100</b>									
11,884.23	7.11	359.47	11,810.00	58.01	907.96	128.82	10.00	10.00	0.00
<b>Third Bone Spring Sand</b>									
11,900.00	8.69	359.47	11,825.62	60.18	907.94	130.98	10.00	10.00	0.00
12,000.00	18.69	359.47	11,922.66	83.82	907.72	154.53	10.00	10.00	0.00
12,100.00	28.69	359.47	12,014.11	123.95	907.35	194.51	10.00	10.00	0.00
12,189.55	37.65	359.47	12,089.00	172.89	906.90	243.26	10.00	10.00	0.00
<b>Wolfcamp</b>									
12,200.00	38.69	359.47	12,097.21	179.35	906.84	249.70	10.00	10.00	0.00
12,271.37	45.83	359.47	12,150.00	227.31	906.40	297.48	10.00	10.00	0.00
<b>Wolfcamp A</b>									
12,300.00	48.69	359.47	12,169.43	248.33	906.21	318.42	10.00	10.00	0.00
12,400.00	58.69	359.47	12,228.57	328.81	905.46	398.60	10.00	10.00	0.00
12,500.00	68.69	359.47	12,272.83	418.33	904.64	487.78	10.00	10.00	0.00
12,600.00	78.69	359.47	12,300.88	514.19	903.76	583.27	10.00	10.00	0.00
12,700.00	88.69	359.47	12,311.85	613.45	902.84	682.16	10.00	10.00	0.00
12,713.08	90.00	359.47	12,312.00	626.53	902.72	695.19	10.00	10.00	0.00
<b>LP 90.00 Inc, 359.47 Az - HZ Target - LP (FORGE FEDERAL 707H)</b>									
12,800.00	90.00	359.47	12,312.00	713.44	901.92	781.77	0.00	0.00	0.00
12,900.00	90.00	359.47	12,312.00	813.44	901.00	881.39	0.00	0.00	0.00
13,000.00	90.00	359.47	12,312.00	913.44	900.08	981.01	0.00	0.00	0.00
13,100.00	90.00	359.47	12,312.00	1,013.43	899.16	1,080.63	0.00	0.00	0.00
13,200.00	90.00	359.47	12,312.00	1,113.43	898.24	1,180.25	0.00	0.00	0.00
13,300.00	90.00	359.47	12,312.00	1,213.42	897.31	1,279.86	0.00	0.00	0.00
13,400.00	90.00	359.47	12,312.00	1,313.42	896.39	1,379.48	0.00	0.00	0.00
13,500.00	90.00	359.47	12,312.00	1,413.41	895.47	1,479.10	0.00	0.00	0.00
13,600.00	90.00	359.47	12,312.00	1,513.41	894.55	1,578.72	0.00	0.00	0.00
13,700.00	90.00	359.47	12,312.00	1,613.41	893.63	1,678.33	0.00	0.00	0.00
13,800.00	90.00	359.47	12,312.00	1,713.40	892.71	1,777.95	0.00	0.00	0.00
13,900.00	90.00	359.47	12,312.00	1,813.40	891.79	1,877.57	0.00	0.00	0.00
14,000.00	90.00	359.47	12,312.00	1,913.39	890.87	1,977.19	0.00	0.00	0.00
14,100.00	90.00	359.47	12,312.00	2,013.39	889.94	2,076.80	0.00	0.00	0.00
14,200.00	90.00	359.47	12,312.00	2,113.38	889.02	2,176.42	0.00	0.00	0.00
14,300.00	90.00	359.47	12,312.00	2,213.38	888.10	2,276.04	0.00	0.00	0.00
14,400.00	90.00	359.47	12,312.00	2,313.38	887.18	2,375.66	0.00	0.00	0.00
14,500.00	90.00	359.47	12,312.00	2,413.37	886.26	2,475.27	0.00	0.00	0.00
14,600.00	90.00	359.47	12,312.00	2,513.37	885.34	2,574.89	0.00	0.00	0.00
14,700.00	90.00	359.47	12,312.00	2,613.36	884.42	2,674.51	0.00	0.00	0.00
14,800.00	90.00	359.47	12,312.00	2,713.36	883.50	2,774.13	0.00	0.00	0.00
14,900.00	90.00	359.47	12,312.00	2,813.35	882.57	2,873.75	0.00	0.00	0.00
15,000.00	90.00	359.47	12,312.00	2,913.35	881.65	2,973.36	0.00	0.00	0.00
15,100.00	90.00	359.47	12,312.00	3,013.35	880.73	3,072.98	0.00	0.00	0.00
15,200.00	90.00	359.47	12,312.00	3,113.34	879.81	3,172.60	0.00	0.00	0.00
15,300.00	90.00	359.47	12,312.00	3,213.34	878.89	3,272.22	0.00	0.00	0.00
15,400.00	90.00	359.47	12,312.00	3,313.33	877.97	3,371.83	0.00	0.00	0.00
15,500.00	90.00	359.47	12,312.00	3,413.33	877.05	3,471.45	0.00	0.00	0.00
15,600.00	90.00	359.47	12,312.00	3,513.33	876.13	3,571.07	0.00	0.00	0.00
15,700.00	90.00	359.47	12,312.00	3,613.32	875.20	3,670.69	0.00	0.00	0.00
15,800.00	90.00	359.47	12,312.00	3,713.32	874.28	3,770.30	0.00	0.00	0.00
15,900.00	90.00	359.47	12,312.00	3,813.31	873.36	3,869.92	0.00	0.00	0.00
16,000.00	90.00	359.47	12,312.00	3,913.31	872.44	3,969.54	0.00	0.00	0.00
16,100.00	90.00	359.47	12,312.00	4,013.30	871.52	4,069.16	0.00	0.00	0.00
16,200.00	90.00	359.47	12,312.00	4,113.30	870.60	4,168.77	0.00	0.00	0.00



## Planning Report

<b>Database:</b>	EDM 5000.15 Single User Db	<b>Local Co-ordinate Reference:</b>	Well FORGE FEDERAL 707H
<b>Company:</b>	Franklin Mountain Energy	<b>TVD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
<b>Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
16,300.00	90.00	359.47	12,312.00	4,213.30	869.68	4,268.39	0.00	0.00	0.00
16,400.00	90.00	359.47	12,312.00	4,313.29	868.76	4,368.01	0.00	0.00	0.00
16,500.00	90.00	359.47	12,312.00	4,413.29	867.83	4,467.63	0.00	0.00	0.00
16,600.00	90.00	359.47	12,312.00	4,513.28	866.91	4,567.25	0.00	0.00	0.00
16,700.00	90.00	359.47	12,312.00	4,613.28	865.99	4,666.86	0.00	0.00	0.00
16,800.00	90.00	359.47	12,312.00	4,713.27	865.07	4,766.48	0.00	0.00	0.00
16,900.00	90.00	359.47	12,312.00	4,813.27	864.15	4,866.10	0.00	0.00	0.00
17,000.00	90.00	359.47	12,312.00	4,913.27	863.23	4,965.72	0.00	0.00	0.00
17,100.00	90.00	359.47	12,312.00	5,013.26	862.31	5,065.33	0.00	0.00	0.00
17,200.00	90.00	359.47	12,312.00	5,113.26	861.39	5,164.95	0.00	0.00	0.00
17,300.00	90.00	359.47	12,312.00	5,213.25	860.46	5,264.57	0.00	0.00	0.00
17,400.00	90.00	359.47	12,312.00	5,313.25	859.54	5,364.19	0.00	0.00	0.00
17,500.00	90.00	359.47	12,312.00	5,413.24	858.62	5,463.80	0.00	0.00	0.00
17,600.00	90.00	359.47	12,312.00	5,513.24	857.70	5,563.42	0.00	0.00	0.00
17,700.00	90.00	359.47	12,312.00	5,613.24	856.78	5,663.04	0.00	0.00	0.00
17,800.00	90.00	359.47	12,312.00	5,713.23	855.86	5,762.66	0.00	0.00	0.00
17,900.00	90.00	359.47	12,312.00	5,813.23	854.94	5,862.27	0.00	0.00	0.00
18,000.00	90.00	359.47	12,312.00	5,913.22	854.02	5,961.89	0.00	0.00	0.00
18,100.00	90.00	359.47	12,312.00	6,013.22	853.10	6,061.51	0.00	0.00	0.00
18,200.00	90.00	359.47	12,312.00	6,113.21	852.17	6,161.13	0.00	0.00	0.00
18,300.00	90.00	359.47	12,312.00	6,213.21	851.25	6,260.75	0.00	0.00	0.00
18,400.00	90.00	359.47	12,312.00	6,313.21	850.33	6,360.36	0.00	0.00	0.00
18,500.00	90.00	359.47	12,312.00	6,413.20	849.41	6,459.98	0.00	0.00	0.00
18,600.00	90.00	359.47	12,312.00	6,513.20	848.49	6,559.60	0.00	0.00	0.00
18,700.00	90.00	359.47	12,312.00	6,613.19	847.57	6,659.22	0.00	0.00	0.00
18,800.00	90.00	359.47	12,312.00	6,713.19	846.65	6,758.83	0.00	0.00	0.00
18,900.00	90.00	359.47	12,312.00	6,813.19	845.73	6,858.45	0.00	0.00	0.00
19,000.00	90.00	359.47	12,312.00	6,913.18	844.80	6,958.07	0.00	0.00	0.00
19,100.00	90.00	359.47	12,312.00	7,013.18	843.88	7,057.69	0.00	0.00	0.00
19,200.00	90.00	359.47	12,312.00	7,113.17	842.96	7,157.30	0.00	0.00	0.00
19,300.00	90.00	359.47	12,312.00	7,213.17	842.04	7,256.92	0.00	0.00	0.00
19,400.00	90.00	359.47	12,312.00	7,313.16	841.12	7,356.54	0.00	0.00	0.00
19,500.00	90.00	359.47	12,312.00	7,413.16	840.20	7,456.16	0.00	0.00	0.00
19,600.00	90.00	359.47	12,312.00	7,513.16	839.28	7,555.77	0.00	0.00	0.00
19,700.00	90.00	359.47	12,312.00	7,613.15	838.36	7,655.39	0.00	0.00	0.00
19,800.00	90.00	359.47	12,312.00	7,713.15	837.43	7,755.01	0.00	0.00	0.00
19,900.00	90.00	359.47	12,312.00	7,813.14	836.51	7,854.63	0.00	0.00	0.00
20,000.00	90.00	359.47	12,312.00	7,913.14	835.59	7,954.25	0.00	0.00	0.00
20,100.00	90.00	359.47	12,312.00	8,013.13	834.67	8,053.86	0.00	0.00	0.00
20,200.00	90.00	359.47	12,312.00	8,113.13	833.75	8,153.48	0.00	0.00	0.00
20,300.00	90.00	359.47	12,312.00	8,213.13	832.83	8,253.10	0.00	0.00	0.00
20,400.00	90.00	359.47	12,312.00	8,313.12	831.91	8,352.72	0.00	0.00	0.00
20,500.00	90.00	359.47	12,312.00	8,413.12	830.99	8,452.33	0.00	0.00	0.00
20,600.00	90.00	359.47	12,312.00	8,513.11	830.06	8,551.95	0.00	0.00	0.00
20,700.00	90.00	359.47	12,312.00	8,613.11	829.14	8,651.57	0.00	0.00	0.00
20,800.00	90.00	359.47	12,312.00	8,713.10	828.22	8,751.19	0.00	0.00	0.00
20,900.00	90.00	359.47	12,312.00	8,813.10	827.30	8,850.80	0.00	0.00	0.00
21,000.00	90.00	359.47	12,312.00	8,913.10	826.38	8,950.42	0.00	0.00	0.00
21,100.00	90.00	359.47	12,312.00	9,013.09	825.46	9,050.04	0.00	0.00	0.00
21,200.00	90.00	359.47	12,312.00	9,113.09	824.54	9,149.66	0.00	0.00	0.00
21,300.00	90.00	359.47	12,312.00	9,213.08	823.62	9,249.27	0.00	0.00	0.00
21,400.00	90.00	359.47	12,312.00	9,313.08	822.69	9,348.89	0.00	0.00	0.00
21,500.00	90.00	359.47	12,312.00	9,413.07	821.77	9,448.51	0.00	0.00	0.00
21,600.00	90.00	359.47	12,312.00	9,513.07	820.85	9,548.13	0.00	0.00	0.00





## Planning Report

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<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
<b>Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
21,700.00	90.00	359.47	12,312.00	9,613.07	819.93	9,647.75	0.00	0.00	0.00
21,800.00	90.00	359.47	12,312.00	9,713.06	819.01	9,747.36	0.00	0.00	0.00
21,900.00	90.00	359.47	12,312.00	9,813.06	818.09	9,846.98	0.00	0.00	0.00
22,000.00	90.00	359.47	12,312.00	9,913.05	817.17	9,946.60	0.00	0.00	0.00
22,100.00	90.00	359.47	12,312.00	10,013.05	816.25	10,046.22	0.00	0.00	0.00
22,200.00	90.00	359.47	12,312.00	10,113.05	815.32	10,145.83	0.00	0.00	0.00
22,300.00	90.00	359.47	12,312.00	10,213.04	814.40	10,245.45	0.00	0.00	0.00
22,400.00	90.00	359.47	12,312.00	10,313.04	813.48	10,345.07	0.00	0.00	0.00
22,453.07	90.00	359.47	12,312.00	10,366.11	812.99	10,397.94	0.00	0.00	0.00
TD at 22453.07 - BHL (FORGE FEDERAL 707H)									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (ft)	Easting (ft)	Latitude	Longitude
SHL (FORGE FEDERAL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	394,168.37	850,276.86	32.079720	-103.335880
BHL (FORGE FEDERAL - plan hits target center - Point	0.00	0.00	12,312.00	10,366.11	812.99	404,534.50	851,089.85	32.108191	-103.332945
LP (FORGE FEDERAL - plan hits target center - Point	0.00	0.01	12,312.00	626.53	902.72	394,794.90	851,179.58	32.081419	-103.332947



## Planning Report

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<b>Project:</b>	Lea County, NM (NAD83)	<b>MD Reference:</b>	WELL @ 3147.00usft (Original Well Elev)
<b>Site:</b>	TATANKA NORTH PAD #4	<b>North Reference:</b>	Grid
<b>Well:</b>	FORGE FEDERAL 707H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
30.00	30.00	Cenozoic Alluvium (surface)			
891.00	891.00	Rustler			
1,681.07	1,681.00	Salado			
3,487.86	3,466.00	Base Salt			
4,945.67	4,903.00	Lamar			
5,222.63	5,176.00	Bell Canyon			
6,225.95	6,165.00	Cherry Canyon			
7,638.04	7,564.00	Brushy Canyon			
8,870.04	8,796.00	Bone Spring Lime			
8,908.04	8,834.00	Avalon			
9,093.04	9,019.00	*Chert Zone*			
10,169.04	10,095.00	First Bone Spring Sand			
10,266.04	10,192.00	Second Bone Spring Carbonates			
10,623.04	10,549.00	Second Bone Spring Sand			
11,222.04	11,148.00	Third Bone Spring Carbonates			
11,884.23	11,810.00	Third Bone Spring Sand			
12,189.55	12,089.00	Wolfcamp			
12,271.37	12,150.00	Wolfcamp A			
12,713.09	12,312.00	HZ Target			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,500.00	1,500.00	0.00	0.00	Start Build 1.50	
1,900.00	1,899.27	8.51	19.12	Start DLS 1.50 TFO 49.43	
2,210.31	2,206.68	16.26	60.05	Hold 9.69 Inc, 87.48 Az	
6,927.88	6,856.91	51.20	853.53	Start Drop -1.50	
7,574.04	7,500.00	53.60	908.00	Vertical	
11,813.09	11,739.04	53.60	908.00	KOP 10°/100	
12,713.09	12,312.00	626.53	902.72	LP 90.00 Inc, 359.47 Az	
22,453.07	12,312.00	10,366.11	812.99	TD at 22453.07	



## U. S. Steel Tubular Products

7/14/2020 11:41:19 AM

5.500" 23.00lbs/ft (0.415" Wall) P110 USS-EAGLE SFH®



MECHANICAL PROPERTIES	Pipe	USS-EAGLE SFH™	
Minimum Yield Strength	110,000	--	psi
Maximum Yield Strength	140,000	--	psi
Minimum Tensile Strength	125,000	--	psi
DIMENSIONS	Pipe	USS-EAGLE SFH™	
Outside Diameter	5.500	5.830	in.
Wall Thickness	0.415	--	in.
Inside Diameter	4.670	4.585	in.
Standard Drift	4.545	4.545	in.
Alternate Drift	--	4.545	in.
Nominal Linear Weight, T&C	23.00	--	lbs/ft
Plain End Weight	22.56	--	lbs/ft
SECTION AREA	Pipe	USS-EAGLE SFH™	
Critical Area	6.630	5.507	sq. in.
Joint Efficiency	--	83.1	%
PERFORMANCE	Pipe	USS-EAGLE SFH™	
Minimum Collapse Pressure	14,540	14,540	psi
External Pressure Leak Resistance	--	9,130	psi
Minimum Internal Yield Pressure	14,520	14,520	psi
Minimum Pipe Body Yield Strength	729,000	--	lbs
Joint Strength	--	606,000	lbs
Compression Rating	--	606,000	lbs
Reference Length	--	17,900	ft
Maximum Uniaxial Bend Rating	--	76.2	deg/100 ft
MAKE-UP DATA	Pipe	USS-EAGLE SFH™	
Make-Up Loss	--	6.65	in.
Minimum Make-Up Torque	--	16,600	ft-lbs
Maximum Make-Up Torque	--	19,800	ft-lbs
Maximum Operating Torque	--	28,000	ft-lbs

## Legal Notice

All material contained in this publication is for general information only. This material should not therefore be used or relied upon for any specific application without independent competent professional examination and verification of accuracy, suitability and applicability. Anyone making use of this material does so at their own risk and assumes any and all liability resulting from such use. U. S. Steel disclaims any and all expressed or implied warranties of fitness for any general or particular application.

U. S. Steel Tubular Products  
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Spring, Texas 77380

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connections@uss.com  
www.usstubular.com



## U. S. Steel Tubular Products

2/21/2022 2:17:25 PM

7.625" 29.70lb/ft (0.375" Wall) P110 HC USS-LIBERTY FJM®



MECHANICAL PROPERTIES	Pipe	USS-LIBERTY FJM®		--
Minimum Yield Strength	110,000	--	psi	--
Maximum Yield Strength	140,000	--	psi	--
Minimum Tensile Strength	125,000	--	psi	--
DIMENSIONS	Pipe	USS-LIBERTY FJM®		--
Outside Diameter	7.625	7.625	in.	--
Wall Thickness	0.375	--	in.	--
Inside Diameter	6.875	6.789	in.	--
Standard Drift	6.750	6.750	in.	--
Alternate Drift	--	--	in.	--
Nominal Linear Weight, T&C	29.70	--	lb/ft	--
Plain End Weight	29.06	--	lb/ft	--
SECTION AREA	Pipe	USS-LIBERTY FJM®		--
Critical Area	8.541	5.074	sq. in.	--
Joint Efficiency	--	59.4	%	--
PERFORMANCE	Pipe	USS-LIBERTY FJM®		--
Minimum Collapse Pressure	6,700	6,700	psi	--
Minimum Internal Yield Pressure	9,460	9,460	psi	--
Minimum Pipe Body Yield Strength	940,000	--	lb	--
Joint Strength	--	558,000	lb	--
Compression Rating	--	558,000	lb	--
Reference Length	--	12,810	ft	--
Maximum Uniaxial Bend Rating	--	39.3	deg/100 ft	--
MAKE-UP DATA	Pipe	USS-LIBERTY FJM®		--
Make-Up Loss	--	3.92	in.	--
Minimum Make-Up Torque	--	10,800	ft-lb	--
Maximum Make-Up Torque	--	15,250	ft-lb	--

UNCONTROLLED

## Notes

1. Other than proprietary collapse and connection values, performance properties have been calculated using standard equations defined by API 5C3 and do not incorporate any additional design or safety factors. Calculations assume nominal pipe OD, nominal wall thickness and Specified Minimum Yield Strength (SMYS).
2. Compressive & Tensile Connection Efficiencies are calculated by dividing the connection critical area by the pipe body area.
3. Uniaxial bending rating shown is structural only, and equal to compression efficiency.
4. USS-LIBERTY FJM™ connections are optimized for each combination of OD and wall thickness and cannot be interchanged.
5. Torques have been calculated assuming a thread compound friction factor of 1.0 and are recommended only. Field make-up torques may require adjustment based on actual field conditions (e.g. make-up speed, temperature, thread compound, etc.).
6. Reference length is calculated by joint strength divided by nominal plain end weight with 1.5 safety factor.
7. Connection external pressure leak resistance has been verified to 100% API pipe body collapse pressure following the guidelines of API 5C5 Cal III.

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Installation Procedure Prepared For:

**Franklin Mountain Operating LLC.**  
**(20") x 13-3/8" x 9-5/8" x 7-5/8" x 5-1/2"**  
**MBU-4T-CFL-R-DBLO Wellhead System**  
**With CTH-DBLHPS Tubing Head**

Publication # IP1104 Rev. 0

February, 2020

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## Warning, Caution & Note Defined

### WARNING:



#### Definition:

An operating or servicing procedure, practice, condition or statement, which if not strictly observed could result in environmental harm, serious injury or death to personnel or long term health hazards.

### CAUTION:



#### Definition:

An operating or service procedure, practice, condition or statement, which if not strictly observed could result in damage to or destruction of equipment or rig down time.

### NOTE:



#### Definition:

An operating procedure, condition or statement which is essential to highlight.

## Reference Documents

### Health, Safety and Environmental Handbook

#### CAS-003 Rev. B

Assembly of Threaded Connections to Valves and Wellhead Equipment

#### Field Service Manual Sections 3 Page 3-4 - Lockscrews

#### Field Service Manual Sections 7 - Service Tools

#### Field Service Manual Sections 9 - Quick Connects

#### Field Service Manual Sections 10 - Specifications

Flange Bolting/Torque Requirements, Tubing Specifications, and Casing Specifications

#### OM-016

Installation, Operation and Maintenance Manual for 6-3/4" Type LR Back Pressure Valve



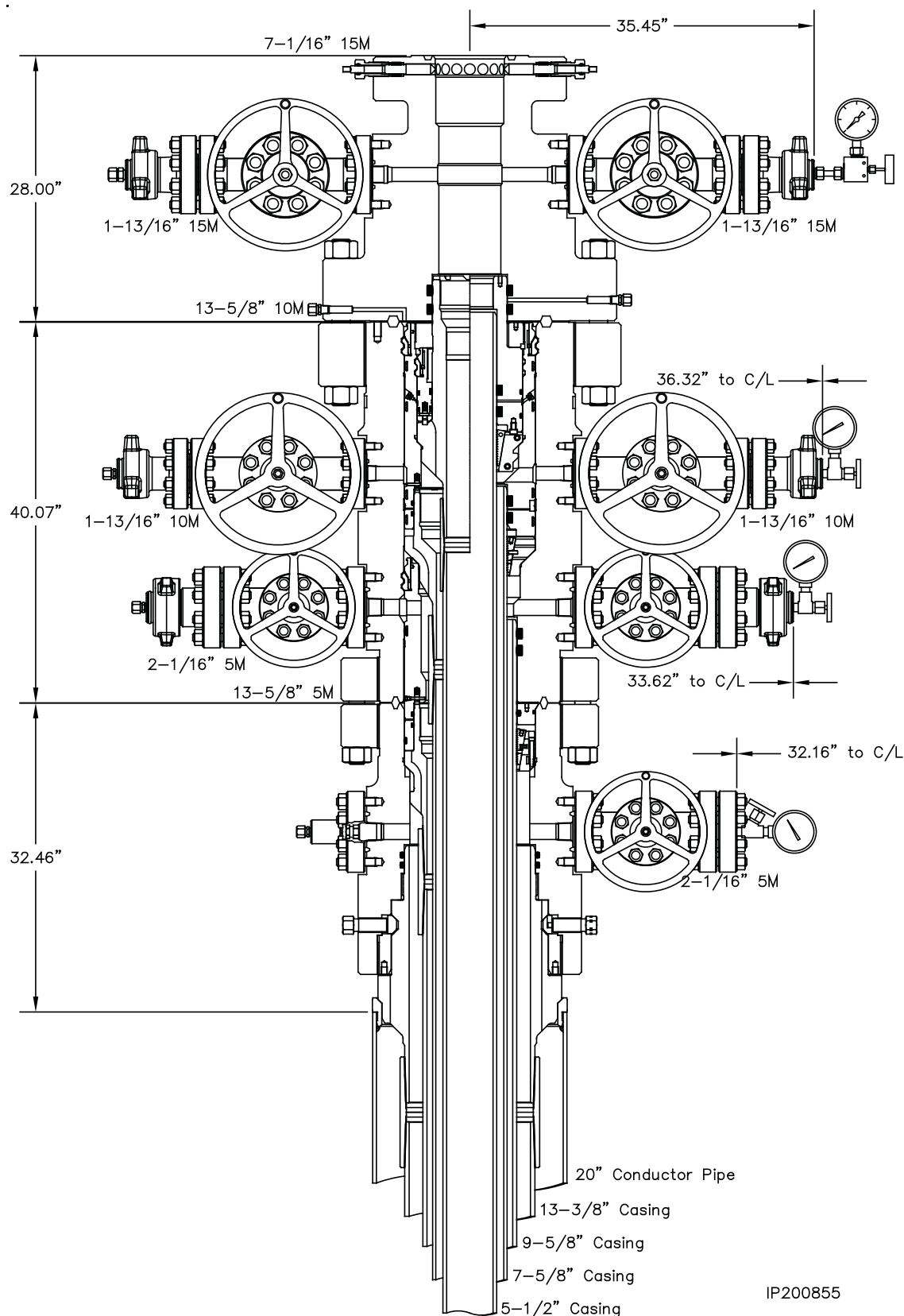
Franklin Mountain Operating LLC  
(20") x 13-3/8" x 9-5/8" x 7-5/8" x 5-1/2"  
MBU-4T-CFL-R-DBLO Wellhead System

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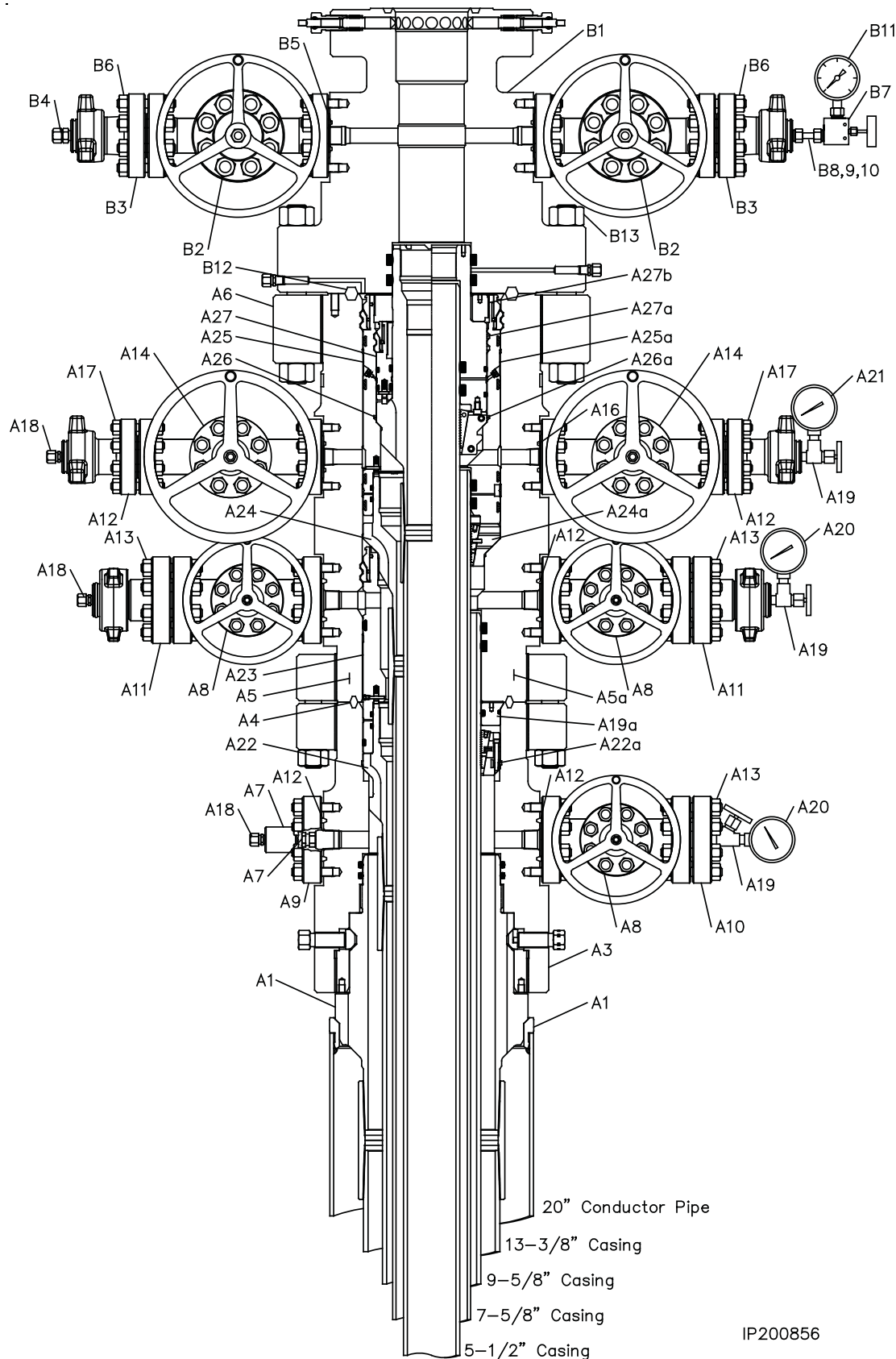
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## System Drawing



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## Bill of Materials



Franklin Mountain Operating LLC  
 (20") x 13-3/8" x 9-5/8" x 7-5/8" x 5-1/2"  
 MBU-4T-CFL-R-DBLO Wellhead System

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MBU-4T HOUSING ASSEMBLY			MBU-4T HOUSING ASSEMBLY			MBU-4T HOUSING ASSEMBLY		
Item	Qty	Description	Item	Qty	Description	Item	Qty	Description
A1	1	Landing Ring, CW, 20" SOW x 3/8" Casing Weight x 20.06" O.D. x 18.13" I.D., 4140 110K Part # 116444	A10	1	Blind Flange, CW, 2-1/16" 5M x 1/2" NPT, 6A-LU-E-1 Part # 191005	A23	1	Packoff, CW, MBU-4T-LWR, Mandrel, 13-5/8" Stack, With 10.500" 4 Stub Acme 2G Left Hand Box Top, 6A-U-AA-1-2 Part # 124176
A2	1	Casing Hanger, CW, MBU-3T-CFL-R, 13-3/8", 13-3/8" (54.5-61#) Buttress Pin Bottom x 14.000" 2 Stub Acme 2G LH Pin Top, 12.489" Min. Bore, 6A-U-AA-1-2 Part # 118174	A11	2	Adapter, CFH, 2-1/16" 5M x 2" figure 1502 x 1/2" NPT Part # 117656	A24	1	Casing Hanger, CW, MBU-4T-MID-TP8, Fluted, 13-5/8" x 7-5/8" (29.7#) STINGER FLUSH Pin Bottom x 10.250" 4 Stub Acme 2G Right Hand Box Top, With 11-1/2" O.D. Neck, 4140 110K, temp U, material AA, PSL2, PR2 Part # NPN
A3	1	Housing, CW, MBU-4T-LWR-CFL-R-DBLO, 13-3/8", 13-5/8" 5M Threaded Flange, With Two 2-1/16" 5M Studded Outlets, 6A-PU-EE-NL-1-2 Part # 122608	A12	7	Ring Gasket, R-24, 2-1/16" 3/5M Part # R24	A25	1	Packoff, CW, MBU-3T, Mandrel, 13-5/8" Nested x 11", With 11.250" 4 Stub Acme 2G Left Hand Box Top, With Rupture Disk, 6A-PU-AA-1-2 Part # 120158
A4	1	Ring Gasket, BX-160, 13-5/8" 5M Part # BX160	A13	24	Stud, All-Thread With Two Nuts, Black, 7/8" x 6-1/2" Long, B7/2H Part # 780067	A26	1	Casing Hanger, CW, MBU-3T-TP8-UPR, SN, 7-5/8" fluted, 11" nested x 5-1/2" (20#) ANACONDA FLUSH pin bottom x 6.125" 4 Stub Acme 2G RH box top & 4-13/16" BPV thread, special for rotating casing string, 4130 85K, temp U, material DD, PSL3, PR2 Part # NPN ALTERNATE HANGER IF 7-5/8" EMERGENCY HANGER IS USED:
A5	1	Housing, CW, MBU-4T-UPR-SF, 13-5/8" 5M Threaded Flange Studded Bottom x 13-5/8" 10M Threaded Flange Top, With Two 1-13/16" 10M Studded Upper Outlets & Two 2-1/16" 5M Studded Lower Outlets, Without 13-5/8" 10M Threaded Flange, 6A-PU-EE-2-2 Part # 122622P2	A14	2	Gate Valve, AOZE, FC, 1-13/16" 10M, Flanged End, Handwheel Operated, 6A-LU-EE-0,5-3-1 Part # 103188			Casing Hanger, CW, MBU-4T-TP8-UPR, SN, 7-5/8" fluted, 11" nested x 5-1/2" (20#) ANACONDA FLUSH pin bottom x 6.125" 4 Stub Acme 2G RH box top & 4-13/16" BPV thread, special for rotating casing string, 4130 85K, temp U, material DD, PSL3, PR2 Part # NPN
A6	1	Flange, Threaded, 13-5/8" 10M With 21.750" 2 Stub Acme 2G Left Hand Box Thread. 31.00" O.D., 4130 75K Part # 110578	A15	2	Adapter, FH, 1-13/16" 10M x 2" figure 1502 x 1/2" NPT, nace service Part # 100981	A27	1	Packoff, CW, CTF-SN, arranged for 7.75" seal prep with 8.750" 4 Stub Acme 2G LH box top, to land on 45°, 10,000 psi max WP, 6A-PU-DD-NL-2-2 Part # 115867
A7	1	Valve Removal Plug, CW, 1-1/2" (1.900") Sharp Vee x 1-1/4" Hex, 6A-DD-NL Part # VR2	A16	4	Ring Gasket, BX-151, 1-13/16" 10M Part # BX151			
A8	3	Valve, Hand Wheel Operated, CEPAL, M-EXP, 2-1/16" 3/5M Flanged End 6A LU AA/DD-NL PSL2 PR1 Hand Wheel Operated, 4130 QPQ Seat/Gate, 4140 QPQ Stem Part # 125097	A17	16	Stud, All-Thread With Two Nuts, Black, 3/4" x 5-1/2" Long, B7/2H Part # 780080			
A9	1	Companion Flange, CW, 2-1/16" 5M x 2" Line Pipe, 6A-KU-EE-NL-1 Part # 200002	A18	3	Fitting, Grease, Vented Cap, 1/2" NPT, 4140 -50F, With Electroless Nickel Coating Nace, K-Monel Ball, Inconel X-750 Spring Part # 100048			
			A19	3	Needle Valve, MFA, 1/2" NPT, 10M Service Part # NVA			
			A20	2	Pressure Gauge, 5M, 4-1/2" Face, Liquid Filled, 1/2" NPT Part # PG5M			
			A21	1	Pressure Gauge, 10M, 4-1/2" Face, Liquid Filled, 1/2" NPT Part # PG10M			
			A22	1	Casing Hanger, CW, MBU-3T LWR-TP4, Fluted, 13-5/8" x 9-5/8" (40#) Buttress Pin Bottom x 10.250" 4 Stub Acme 2G RH Box Top, With 11-1/2" OD Neck, 6A-U-AA-1-2 Part # 117760			



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TUBING HEAD ASSEMBLY			EMERGENCY EQUIPMENT			RENTAL EQUIPMENT		
Item	Qty	Description	Item	Qty	Description	Item	Qty	Description
B1	1	Tubing Head, CW, CTH-DBLHPS, 7-5/8", 13-5/8" 10M x 7-1/16" 15M, With Two 1-13/16" 15M Studded Outlets, With 6.375" Minimum Bore, 17-4PH Lock Down Screws, 6A-PU-EE-0,5-3-2 Part # 115302	A5a	1	Housing, CW, MBU-4T-DBLHPS-UPR-SF, 9-5/8", 13-5/8" 5M Threaded Flange Studded Bottom x 13-5/8" 10M Threaded Flange Top, With Two 1-13/16" 10M Studded Upper Outlets & Two 2-1/16" 5M Studded Lower Outlets, 6A-PU-EE-NL-2-2 Part # NPN	R1	1	Riser Adapter, CW, SRA, 20" x 20" SOW top x 19.5" ID, 8.5" Long With (8) 1" 8UNC-2B Taped Holes Part # 100549
B2	2	Gate Valve, CW, SB100, 1-13/16" 15M, Flanged End, Handwheel Operated, BB/EE-0,5, (6A-LU-BB/EE-0,5-3-1) Part # 113880	A22a	1	Casing Hanger, CW, C21, 13-5/8" x 9-5/8" Part # 100586	R2	1	Hub, CW, Threaded, MBU-3T, 13-5/8" 10M With 21.750" 2 Stub Acme 2G Left Hand Box Thread Part # 116992
B3	2	Flange Adapter, CFH, 1-13/16" 15M x 2" figure 1502, 9/16 Autoclave, STD SRV, Non-Nace Part # 112316	A23a	1	Primary Seal, CW, H, 13-5/8" x 9-5/8", 6A-PU-AA-1-1 Part # 123962	R3	1	Drilling Adapter, CW, MBU-3T, 13-5/8" 10M Quick Connect Bottom x 13-5/8" 10M Studded Top x 15.0" Long, Temp. Rating PU Part # 116966
B4	1	Fitting, grease, vented cap, 9/16 Autoclave or equivalent, 316SS Part #100326	A24a	1	Casing Hanger, CW, MBU-4T-MID, Emergency, 13-5/8" x 7-5/8", 6A-PU-DD-NL-3-1 Part # 122659	R4	1	TA Cap, CW, MBU-3T-HPS, 9", 13-5/8" 10M Quick Connect, With One 1-13/16" 10M Studded Outlet, VR Thread & 1/2" NPT Port, 6A-U-AA-1-1 Part # 117347
B5	4	Ring Gasket, BX151, 1-13/16" 15M Part # BX-151	A25a	1	Packoff, CW, MBU-3T, Emergency, 13-5/8" Nested x 11" x 7-5/8" With 11.250" 4 Stub Acme 2G Left Hand Box Top, With Rupture Disk, 6A-U-AA-1-1 Part # 120920	R5	1	Secondary Seal Bushing, CW, TA-HPS, 9" x 7-5/8" x 4.31" Long, With 7.731 Min. Bore, 6A-U-AA-1-1 Part # 108466
B6	16	Studs, all thread with two nuts, black, 7/8" x 6-1/2" long, B7/2H, no plating Part # 105477	A2a	1	Casing Hanger, CW, MBU-3T/2LR, Upper, 11" x 5-1/2", 6A-PU-DD-3-2 Part # 108211	R6	1	Packoff Running/Cementing Tool, CW, MBU-3T-UPR, 13-5/8" with 11.250" 4 Stub Acme-2G LH pin bottom x 7-5/8" Buttress box top, with ball bearings Part # 125221
B7	1	Needle Valve, Autoclave, 2 Way angle, 9/16 SOG, without collar and gland Part # 810023	A27a	1	Packoff, CW, MBU-3T, Inner, Emergency, Nested, 11" x 5-1/2" With 7-5/8" Seal Neck, 4-13/16" HBPV Threads & 4.74" Min. Bore, Arranged For Hold Down Ring, 6A-PU-EE-NL-1-2 Part # 119402			
B8	2	Fitting, collar, 9/16 Autoclave Part # 810021	A27b	1	Hold Down Ring, For 22 Slip Casing Hanger, With 11.250" 4 Stub Acme 2G Left Hand Thread Pin x 8.00" I.D. x 2.62" Long, 4140 110K Part # 116161			
B9	2	Fitting, Gland, 9/16 Autoclave Part # 810020						
B10	1	Nipple, 9/16 Autoclave x 4" long threaded and cone both ends, 316 SS Part # 810026						
B11	1	Pressure Gauge, 15M, 5-1/2" face, liquid filled, 9/16 Autoclave Part # PG15M						
B12	1	Ring Gasket, BX-159, 13-5/8" 10M Part # BX159						
B13	20	Stud All-Thread, With Two Nuts, Black, 1-7/8" x 17-3/4" B7/2H, No Plating Part # 102825						



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RECOMMENDED SERVICE TOOLS		
Item	Qty	Description
ST1	1	Casing Hanger Lift Ring, CFL-R, With 14.000" 2 Stub Acme 2G Left Hand Threads, 4140 110K Part # 119126
ST2	1	Casing Hanger Running Tool, CW, MBU-3T-CFL-R, 13-3/8" Buttress Box Top x 14.000" 2 Stub Acme 2G Left Hand Box Bottom Landing Thread, 12.60" Min. Bore Part # 118176
ST3	1	Casing Hanger Torque Collar, CW, MBU-3T-CFL-R, For 16" Neck, 4140 110K Part # 118178
ST4	1	Test Plug/Retrieving Tool, CW, MBU-3T, 13-5/8" x 4-1/2" IF (NC50) Box Bottom & Top, With 1-1/4" Line Pipe Bypass & Spring Loaded Dogs Part # 116972
ST5	1	Test Plug Assembly With Spacer Subs, 13-5/8" 4-1/2" IF (NC50) Consisting Of:
	2	Test Plug/Retrieving Tool, CW, 13-5/8" x 4-1/2" IF (NC50) Box Bottom & Top, With 1-1/4" Line Pipe Bypass & Spring Loaded Dogs Part # 104467
	2	Sub, DARCO, 4-1/2" IF (NC50) Pin x 4-1/2" IF (NC50) Pin, 18" Long, (Threads On), 4140 110K Part # 123926
ST6	1	Wear Bushing, CW, MBU-4T-LWR, 13-5/8" x 12.31" Min. Bore x 50.0" Long, With 12.489" I.D. From Top To 3.0" From Bottom, With 3/8" Upper O-Ring Part # 126048
ST7	1	Casing Hanger Running Tool, CW, TP4, 13-5/8" x 9-5/8" Buttress Box Top x 10.250" 4 Stub Acme 2G Right Hand Pin Bottom, 1000K Max. Load Capacity, 18,000 Ft-Lbs Max. Torque, Spec. For Rotating Casing String Part # 117769

RECOMMENDED SERVICE TOOLS		
Item	Qty	Description
ST8	1	Torque Collar, CW, For Use With Running Tool, TP, 10.250" 4 Stub Acme 2G Right Hand Pin Bottom, Arranged For 11.50" O.D. x 5.00" Long Box Hanger Neck, 36,000 Ft-Lbs Max. Torque Part # 118906
ST9	1	Wash Tool, CW, MBU-3T-LR, MBS2 & Fluted, 13-5/8" x 4-1/2" IF (NC50) Box Top Thread, With Brushes Part # 106277
ST10	1	Packoff Running Tool, CW, MBU-4T-LWR, 13-5/8" Stack With 10.500" 4 Stub Acme 2G Left Hand Pin Bottom x 4-1/2" IF (NC50) Box Top, With Ball Bearings Part # 122647
ST11	1	Wear Bushing, CW, MBU-4T-MID, Stack, 13-5/8" x 9.00" I.D. x 28.0" Long Part # 123523
ST12	1	Casing Hanger Running Tool, CW, TP8, 13-5/8" x 7-5/8" (29.7#) STINGER FLUSH Box Top x 10.250" 4 Stub Acme 2G Right Hand Pin Bottom, max load capacity 1000K, Max. Torque 18,000 Ft-Lbs, Spec. For Rotating Casing String Part # NPN
ST13	1	Packoff Running Tool, CW, MBU-3T-UPR, 13-5/8" Nested, With 11.250" 4 Stub Acme 2G Left Hand Pin Bottom x 4-1/2" IF NC50 Box Top, With Seal Sleeve & Ball Bearings (Seal Sleeve Removed) Part # 117310 OR Packoff Running Tool, CW, MBU-3T-UPR, 13-5/8" Stack With 11.250" 4 Stub Acme-2G LH Pin Bottom x 4-1/2" IF (NC50) Box Bottom And Top, With Ball Bearings Part # 116996
ST14	1	Test Plug, CW, MBU-3T Inner, 11" x 4-1/2" IF (NC50) Box Bottom & Top, 1-1/4" Line Pipe bypass Part # 125190

RECOMMENDED SERVICE TOOLS		
Item	Qty	Description
ST15	1	Wear Bushing, CW, MBU-3T (-ONE), Upper, Nested, 13-5/8" x 11" x 7.00" I.D. x 20.0" Long, Arranged For 13-5/8" Retrieving Tool Part # 123959
ST16	1	Casing Hanger Running Tool, CW, TP8, 6.125" 4 Stub Acme RH pin bottom x 5-1/2" (20#) ANACONDA FLUSH box top, with 4.762" minimum bore & load capacity TBD, max torque TBD, special for rotating casing string, 4140 125K Part # NPN
ST17	1	Torque Collar, CW, casing hanger, for use with 7.62" OD x 15.44" long hanger neck and 10.83" OD running tool, maximum torque 35000 ft lbs. Part # 117319
ST18	1	Wash Tool, CW, casing hanger, MBU-2LR/MBS2-R fluted, 11" x 4-1/2" IF (NC-50) box top threads, fabricated Part # 103164
ST19	1	Packoff Running Tool, CW, MBU-3T-SN, 7-5/8", 8.750" 4 Stub Acme 2G LH pin bottom x 4-1/2" IF (NC-50) box top, with ball bearings Part # 117306
ST20	1	Emergency Packoff Running Tool, Crossover Sub, CW, 4-13/16" HBPV Pin Thread Bottom x 4-1/2" IF (NC50) Box Top, 18.0" Long, 4140 110K Part # 118942
ST21	1	Back Pressure Valve, CW, H-CW, 4-13/16" One Way 6A-DD Part # 114980

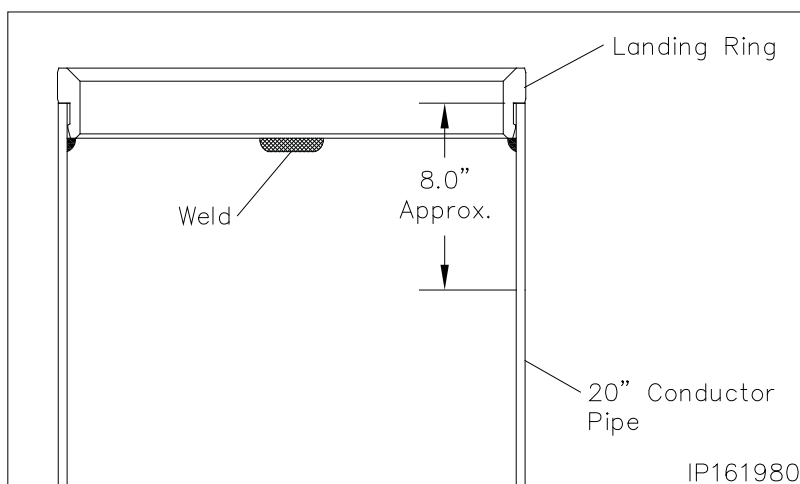




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## Stage 1 — Install the Landing Ring

1. Run the 20" conductor pipe to the required depth and cement.
2. Cut the 20" conductor pipe at predetermined elevation below grade to facilitate the installation of the balance of the wellhead equipment.
3. Grind stub level with the horizon and place an 1/8" x 1/8" bevel on the I.D. and O.D. of the stub.
4. Examine the **20" Nominal x 20" x 3/8" WT, Landing Ring (Item A1)**. Verify the following:
  - grinding nib is free of excessive scratches or gouges
  - entire ring is clean and free of debris
5. Using a wire brush, thoroughly clean the top 6" of the conductor pipe stub, inside and outside, removing all loose rust and scale.
6. Using a pair of I.D. callipers, measure the I.D. of the 20" pipe stub in two opposing positions.
7. Using the O.D. caliper, measure the O.D. of the landing ring grind nib.
8. Using a disc grinder, grind the O.D. of the nib until its dimension is slightly smaller than the I.D. of the pipe.
9. Pick up the landing ring and carefully push it into the pipe stub until the stub contacts the stop shoulder on the O.D. of the ring as shown.



**NOTE:** Tack weld the bottom of the ring to the I.D. of the pipe in four equally spaced places. Tacks should be approximately 2" long.



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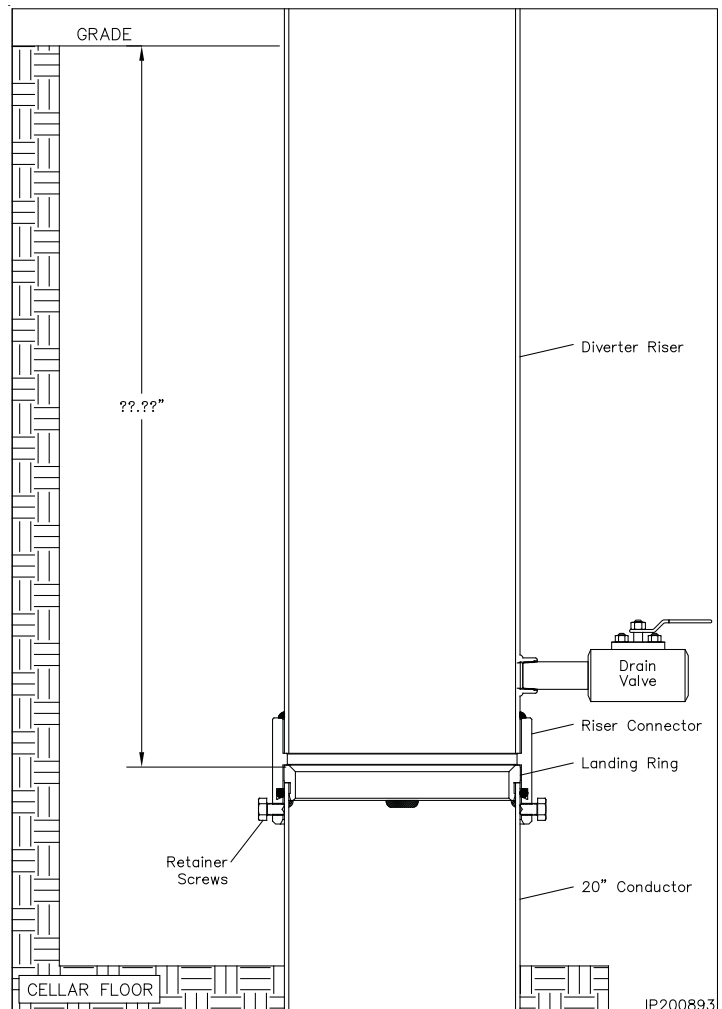
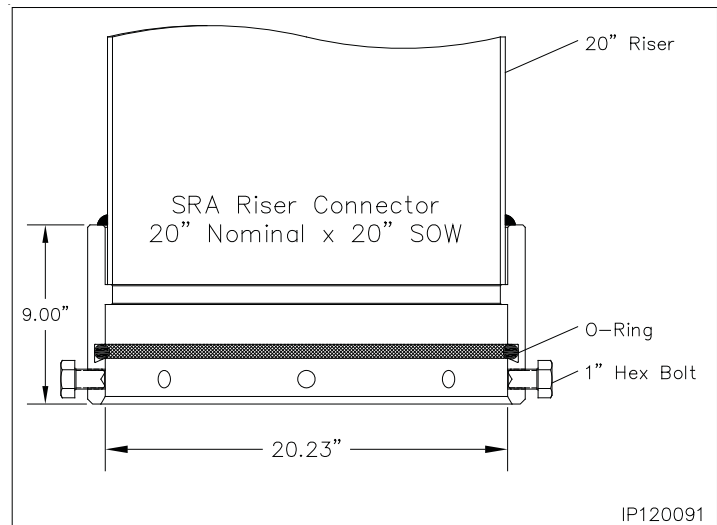
## Stage 2 — Install the Diverter

The diverter riser is designed to carry the drilling fluids to the reserve pit during the drilling of the surface casing hole section. Due to the fact that the surface casing will be run and landed through the riser, it will be necessary to lift the riser a minimum of 21.0" in order to clear the surface casing hanger. Ensure that the riser is fabricated to consider these lift and height requirements.

1. Examine the **20" Nominal x 20" Riser Connector (Item R1)**. Verify the following:
  - bore is clean and free of debris
  - hex head set screws are in place and fully retracted from the bore
  - o-ring is properly installed and undamaged
  - connector is properly welded to 20" fabricated riser
2. Lightly lubricate the I.D. of the riser connector and O.D. of the landing ring with light grease.
3. Slide the connector over the landing ring until the connector bottoms out on the landing ring.

**NOTE:** In cold weather environments it is recommended to remove the o-ring from the connector and heat it on the floor board of the service vehicle or heat the O.D. of the connector with a rose bud to soften o-ring for easier installation.

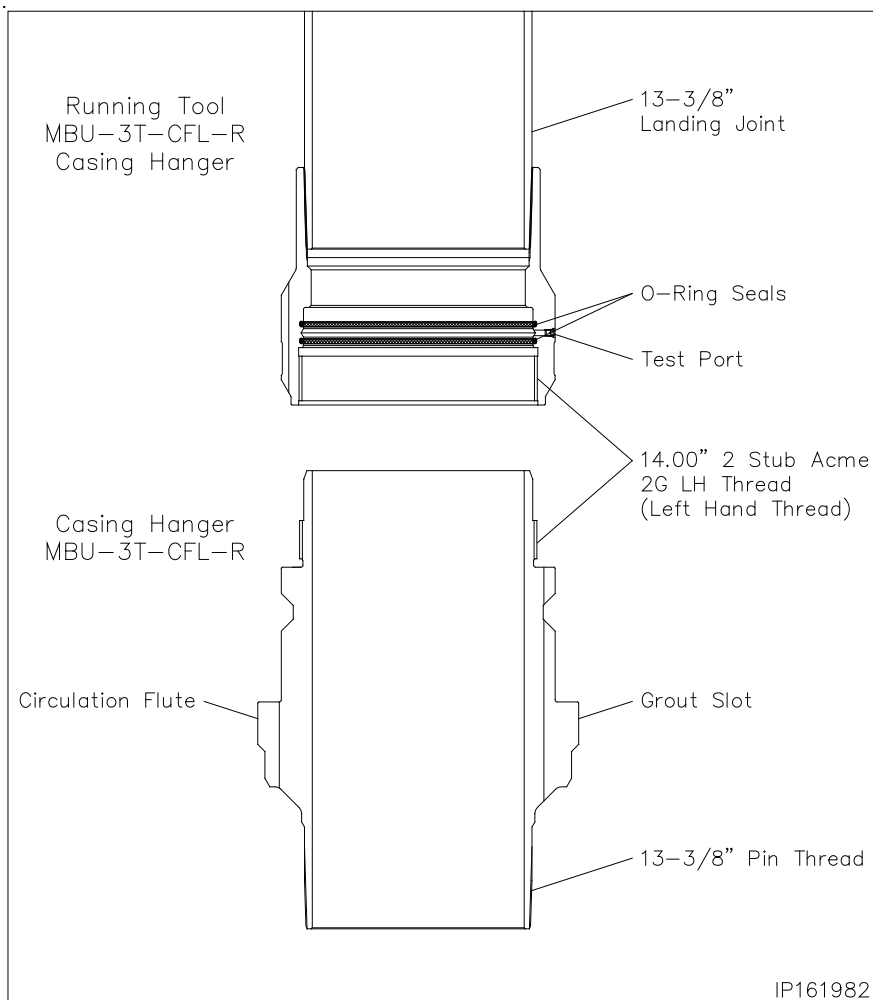
4. Using a 1-5/8" socket, run in all 8 of the connector hex head set screws in an alternating cross fashion and torque to 100 ft-lbs.
5. Attach flow line and guide wires as required.
6. Drill out and condition the hole for the 13-3/8" surface casing.



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## Stage 3 — Hang Off the 13-3/8" Casing

1. Examine the **13-3/8" (68#) Buttress Pin Bottom x 14.000" 2 Stub Acme 2G LH Pin Top MBU-3T-CFL-R Casing Hanger (Item A2)**. Verify the following:
  - external threads are clean and in good condition
  - bore is free of debris
  - seal area is clean and undamaged
  - casing thread protector is in place
2. Examine the **13-3/8" Box MBU-3T-CFL-R Casing Hanger Running Tool (Item ST2)**. Verify the following:
  - internal threads are clean and in good condition
  - bore is free of debris
  - o-rings are in place and undamaged
3. Make up a 13-3/8" landing joint in the top of the running tool and torque connection to thread manufacturer's maximum make up torque.





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## Stage 3 — Hang Off the 13-3/8" Casing

4. Examine the **14.000" 2 Stub Acme LH Box Casing Hanger Lift Ring Assembly (Item ST1)**. Verify the following:

- threads are clean and in good condition
- 1/2" lifting eyes are in place and tightened securely

5. Liberally lubricate the mating threads of the lift ring and casing hanger.

6. Thread the lift ring onto the top of the casing hanger with counter clockwise rotation to a positive stop. Move the hanger to the rig floor.

7. Drill and condition the hole for the 13-3/8" casing.

8. Run the 13-3/8" casing as required and space out appropriately for the mandrel casing hanger.

9. Set the last joint of casing run in the floor slips.

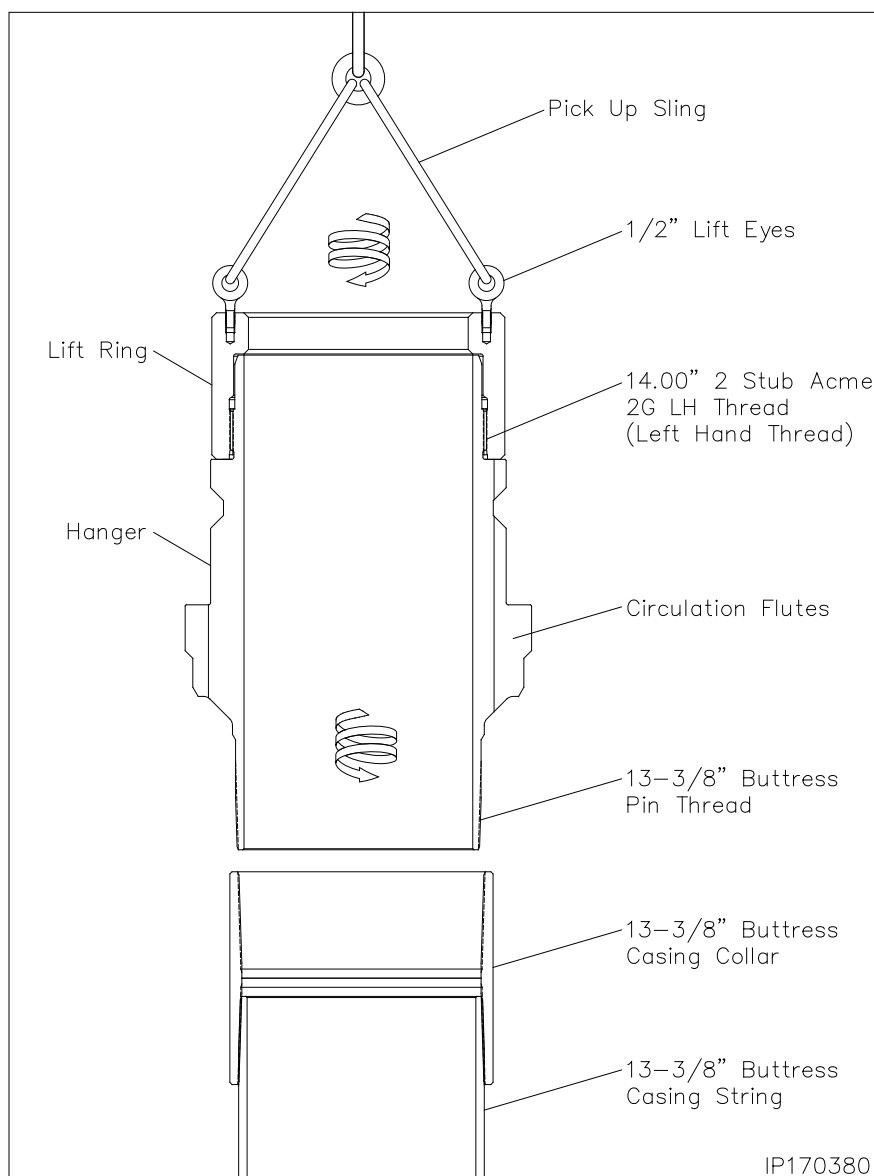
10. Thoroughly clean and inspect the casing collar threads for and damage and repair or replace collar if necessary.

11. Remove the casing hanger pin thread protector.

12. Apply the appropriate thread lubricant the pin and box connection.

13. Attach a suitable lifting device to the hanger lift ring using the 3/4" lifting eyes and carefully lower the hanger into the casing collar.

14. Rotate the hanger by hand counter-clockwise to locate the thread start and then clockwise to a positive stop. Tighten securely with strap wrench.



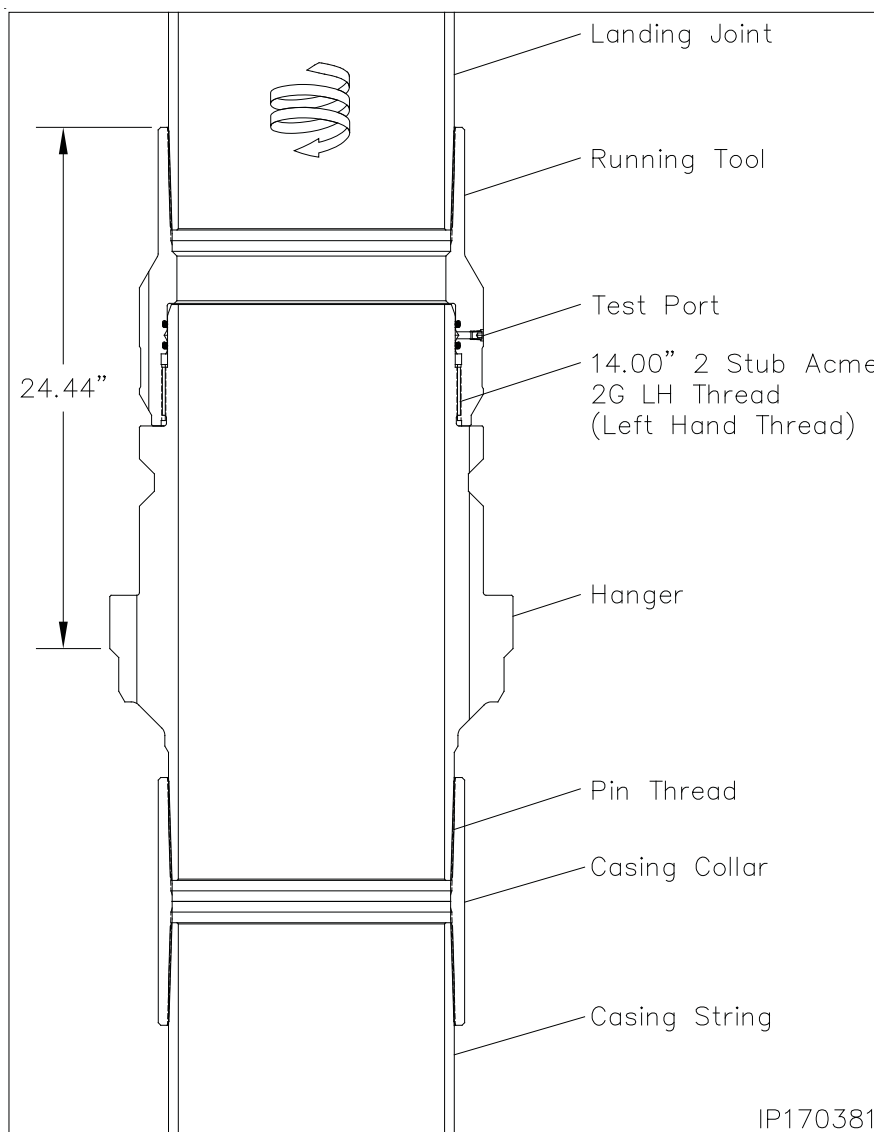
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## Stage 3 — Hang Off the 13-3/8" Casing

15. Remove the lift ring with clockwise rotation and set aside.
16. Pick up the running tool/landing joint.
17. Thoroughly clean and lightly lubricate mating threads, seal areas and o-rings of the casing hanger and running tool with oil or a light grease.
18. Carefully lower the running tool over the hanger neck until the acme threads make contact.
19. **Using chain tongs only**, rotate the running tool to the right to locate the tread start and then to the left to a positive stop. Approximately 4-1/2 turns.

**CAUTION:** Do Not apply torque to the hanger/tool connection.

20. Remove the 1/8" LP flush fitting Allen head pipe plug from the O.D. of the running tool and attach a test pump.
21. Apply hydraulic test pressure to **5,000 psi** and hold for 15 minutes or as required by drilling supervisor.
22. Upon completion of a successful test, bleed off pressure through the test pump and remove the pump. Reinstall the pipe plug in the open port and tighten securely.



IP170381



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## Stage 3 — Hang Off the 13-3/8" Casing

23. Rotate the running tool by hand counter clockwise to align the circulation flutes of the tool with the drilled holes in the body of the casing hanger.

24. Install the split assembly ring on the casing hanger as indicated and secure with assembly bolts.

25. Examine the **16" Nominal Torque Collar (Item ST3)**. Verify the following:

- cap screws are in place and in good condition
- upper and lower torque pins are in place and fully retracted

26. Install the 1" lifting eyes in two upper 1" tapped holes located 180° apart and 90° from the split in the collar.

27. Remove the 3/4" assembly cap screws and separate the tool in half.

28. Remove the low set of torque pins.

29. Using a suitable lifting device with weight rated slings, assemble the two halves of the torque collar around the casing hanger/running tool assembly and secure the collar halves with the 3/4" cap screws. Torque screws to approximately 100 ft-lbs.

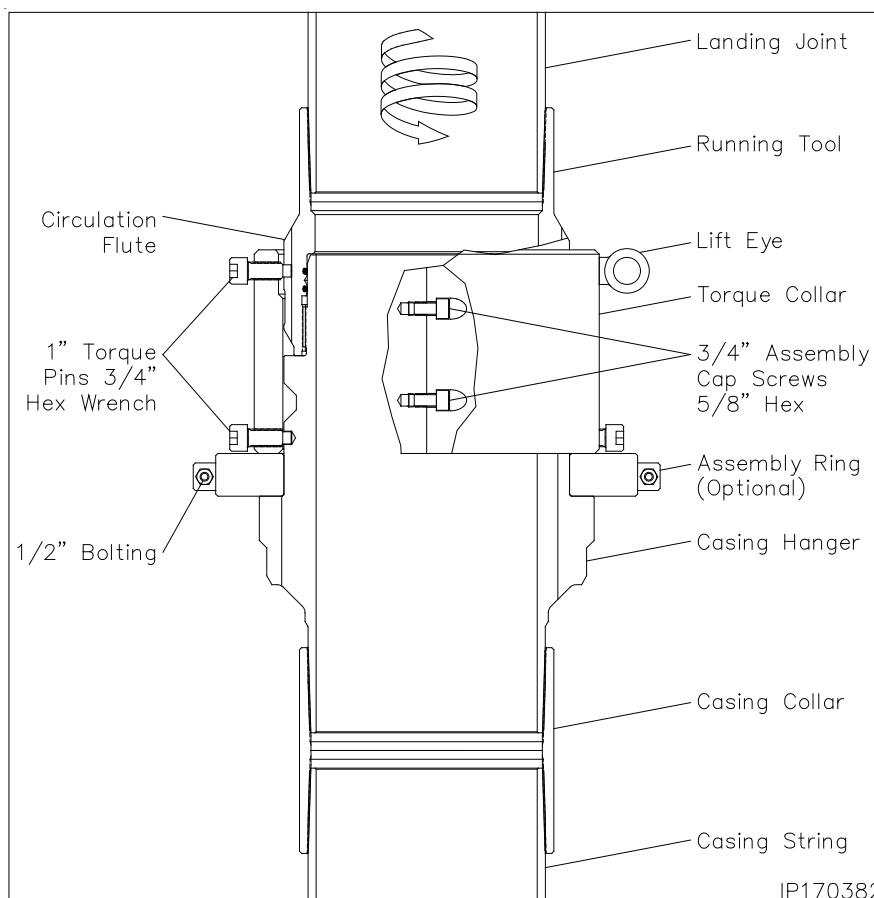
30. Remove the lifting eyes.

31. Align the lower tapped holes in the collar with the drilled holes in the hanger body.

32. Install the (4) lower torque pins and tighten securely.

33. Run in the (4) upper torque pins and tighten securely.

34. Engage the CRT tool to the landing joint and rotate the landing joint with casing hanger and running tool clockwise (right) until the optimum make up torque is achieved and the torque diamond is properly positioned.



35. Back off all (8) torque screws.

36. Remove two upper torque pins and install the lifting eyes.

37. Attach a suitable lifting device with weight rated slings to the torque collar halves and remove the 3/4" cap screws and separate the torque collar.

38. Set the assembly aside and remove the split assembly ring.



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## Stage 3 — Hang Off the 13-3/8" Casing

39. Calculate the total landing dimension by adding the RKB dimension and predetermined dimension, the location of the landing ring below grade.
40. Starting at the top of the 45° angle load shoulder of the casing hanger measure up the landing joint the calculated distance and place a paint mark on the joint. Mark **HANGER LANDED**.
41. Pick up the casing string and remove the floor slips and rotary bushings.
42. Carefully lower the hanger through the diverter and land it on the landing ring.
43. Slack off all weight and verify that the paint mark on the landing joint has aligned with the rig floor.
44. Place a vertical paint mark on the landing joint to verify if the casing string rotates during the cementing process.
45. Cement the casing as required.

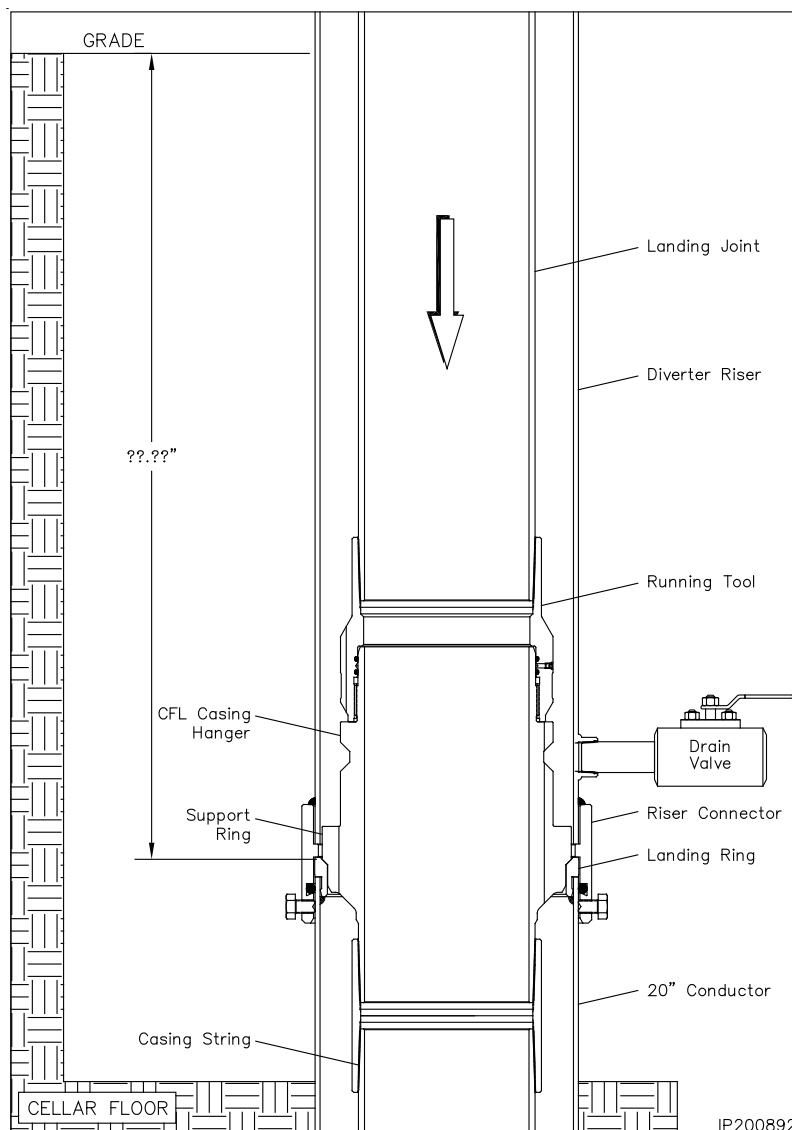
**NOTE:** Returns may be taken through the circulation slots and out the diverter or out the top out nipple below the diverter.

46. With cement in place, bleed off all pressure and remove the cementing head.

47. Using chain tongs only, located 180° apart, retrieve the running tool and landing joint by rotating the landing joint clockwise (right) approximately 4-1/2 turns or until the tool comes free of the hanger.

**CAUTION:** The rig floor tong may be used to break the connection but under no circumstances is the top drive to be used to rotate or remove the casing hanger running tool.

48. Attach a suitable lifting device to the diverter and remove the flow line and guide lines.
49. Using a 1-5/8" socket, fully retract the riser connector hex head set screws with left hand rotation.
50. Lift the riser a minimum of 21.0" to clear the casing hanger and then remove the riser from under the rig.



**NOTE:** If the running tool can not easily be removed, complete steps 48 through 50 with the exception of lifting the riser high enough to expose the running tool and landing joint.

51. Attach a back up tong to the casing hanger to resist right hand rotation.
52. Attach another tong to the running tool and apply right hand torque to the connection while rapping on the running tool with a sledge hammer to jar the connection.
53. Once friction bind is released, further rotate the landing joint 4-1/2 turns to remove the tool from the casing hanger.
54. Remove the diverter riser as previously outlined.



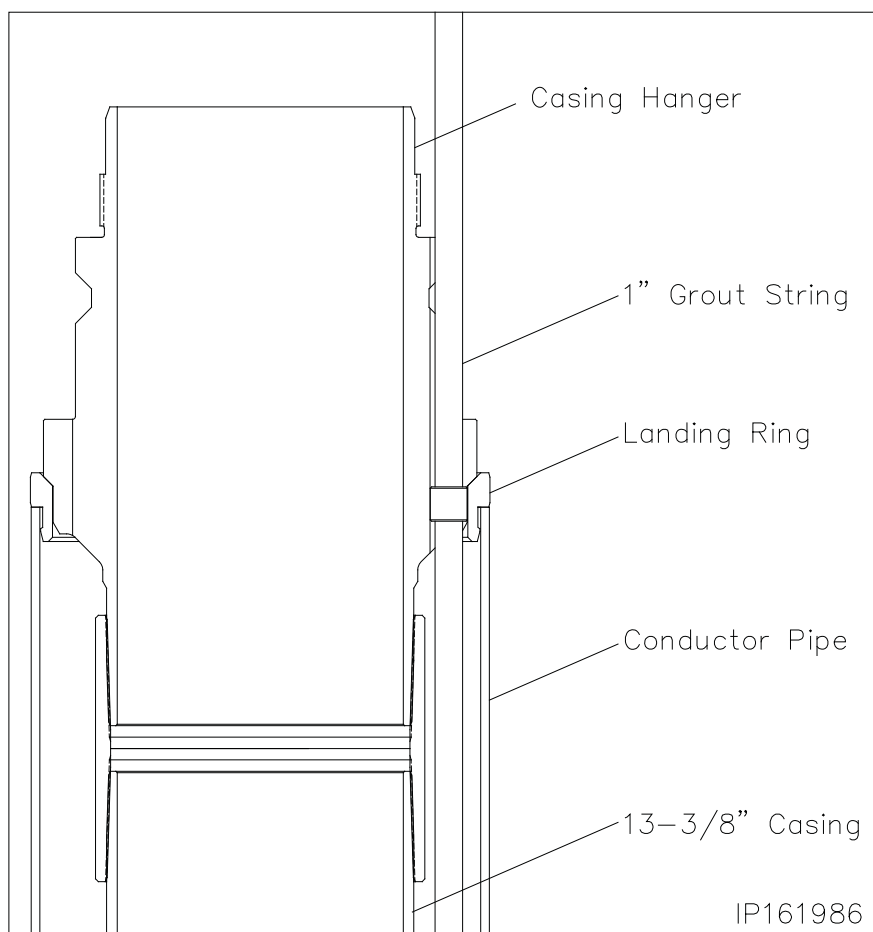
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## Stage 3 — Hang Off the 13-3/8" Casing

1. Using a 1-5/8" socket, fully retract the (8) riser connector hex head set screws with left hand rotation.
2. Lift the riser a minimum of 20.0" to clear the casing hanger and then remove the riser from under the rig.

In the event that the 13-3/8" surface casing cement requires topping off this can be accomplished through the 1-5/8" wide grout slots in the side of the casing hanger.

3. Carefully run the grout string through the grout slot and along side the 13-3/8" casing and top off the cement as required.
4. With top off complete remove the grout string.



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## Stage 4 — Install the MBU-4T-CFL-R-DBLO Housings

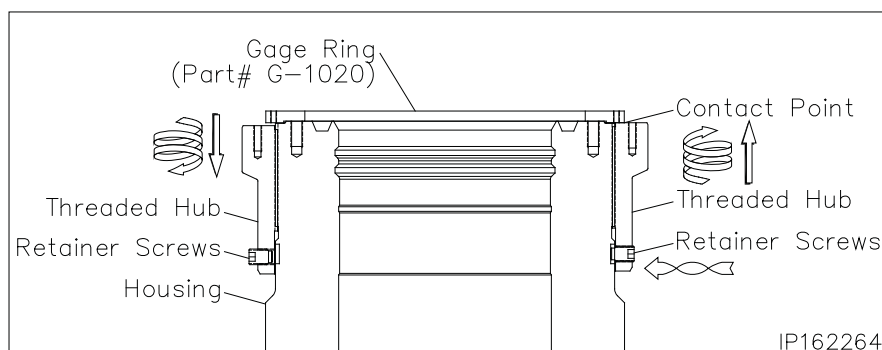
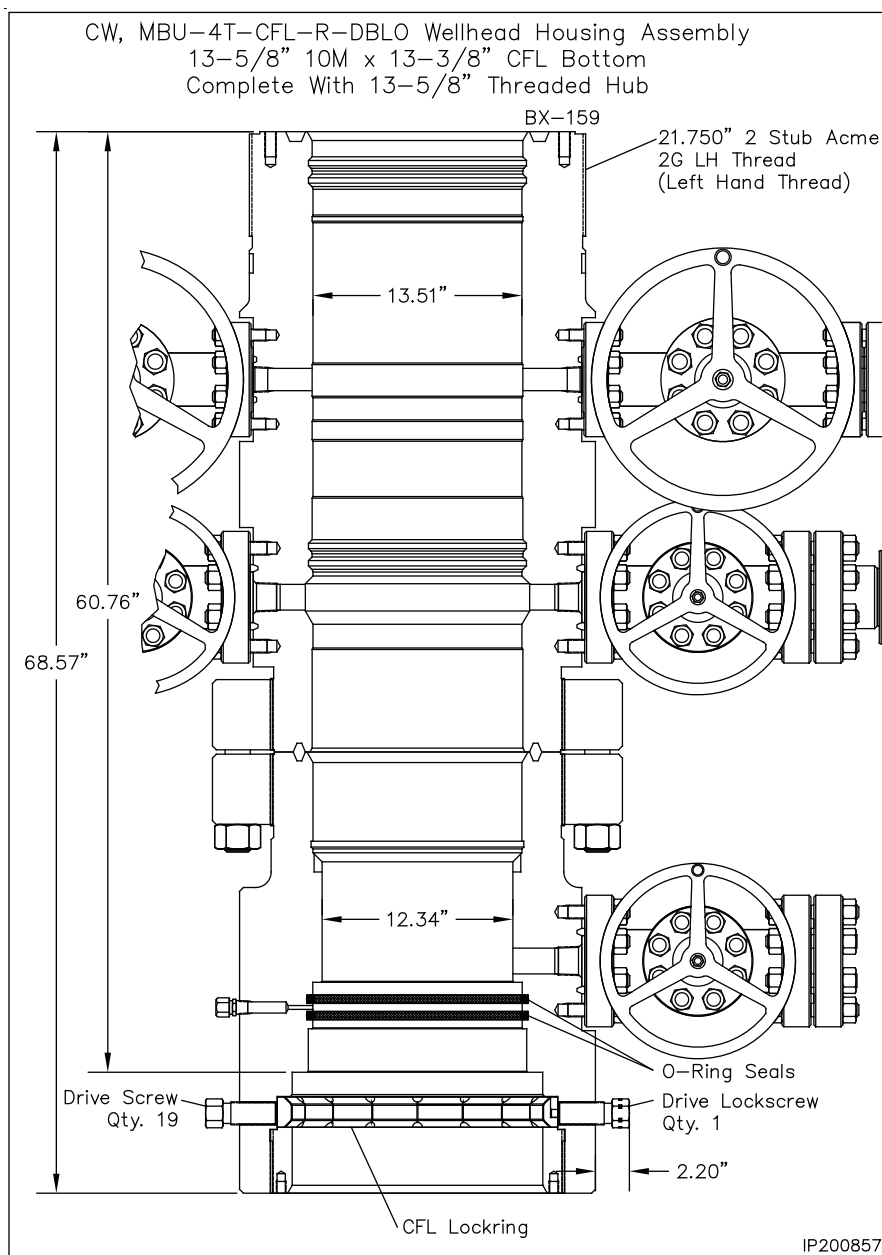
- Using a high pressure water hose, thoroughly clean the top and neck of the CFL hanger, removing all old grease and debris.
- Examine the **13-5/8" 10M x 13-3/8" Double 'O' Bottom MBU-4T-CFL-R-DBLO Wellhead Assembly (Item A3 & A5)**. Verify the following:
  - Acme thread are clean and in good condition
  - bore and all internal seal areas are clean and undamaged
  - CFL lockring is in place and fully retracted
  - valves are intact and in good condition
  - o-ring seals are in place and in good condition

**NOTE:** If the threaded hub has been pre-installed in the shop, skip steps 3 through 10.

- Examine the **13-5/8" 10M x 21.750" 2 Stub Acme Threaded Hub (Item R2)**. Verify the following:
  - Acme thread are clean and in good condition
  - remove the (4) retainer set screws and place them in a safe place
- Thoroughly clean and lightly lubricate the mating threads of the housing and the threaded hub with copper coat or never seize.
- Pick up the hub and carefully thread it onto the top of the housing with counter clockwise rotation, until the top of the ring is approximately a 1/4" below the top of the housing.
- Position the hub gage ring on top of the housing with the counter bore down as indicated. Ensure the gage ring is level and straight.
- Rotate the hub clockwise (UP) until it contacts the gage ring.

**CAUTION:** Do not off seat the gage ring.

- Locate the retainer screw holes in the threaded hub.



Franklin Mountain Operating LLC  
(20") x 13-3/8" x 9-5/8" x 7-5/8" x 5-1/2"  
MBU-4T-CFL-R-DBLO Wellhead System

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## Stage 4 — Install the MBU-4T-CFL-R-DBLO Housings

9. Rotate the hub up or down to align the holes in the hub with the notches in the housing.
10. Install the set screws and tighten securely. Remove gage ring.
11. Thoroughly clean and lightly lubricate the mating seal surfaces of the hanger neck and the wellhead housing with oil or light grease.
12. Ensure the locking is heavily coated with grease or copper coat and fully retracted from the bore.
13. Verify that the drive lockscrow is engaged in the retainer groove of the locking and that the locking does not rotate.
14. Verify drive screws extend out 2.20" as indicated.



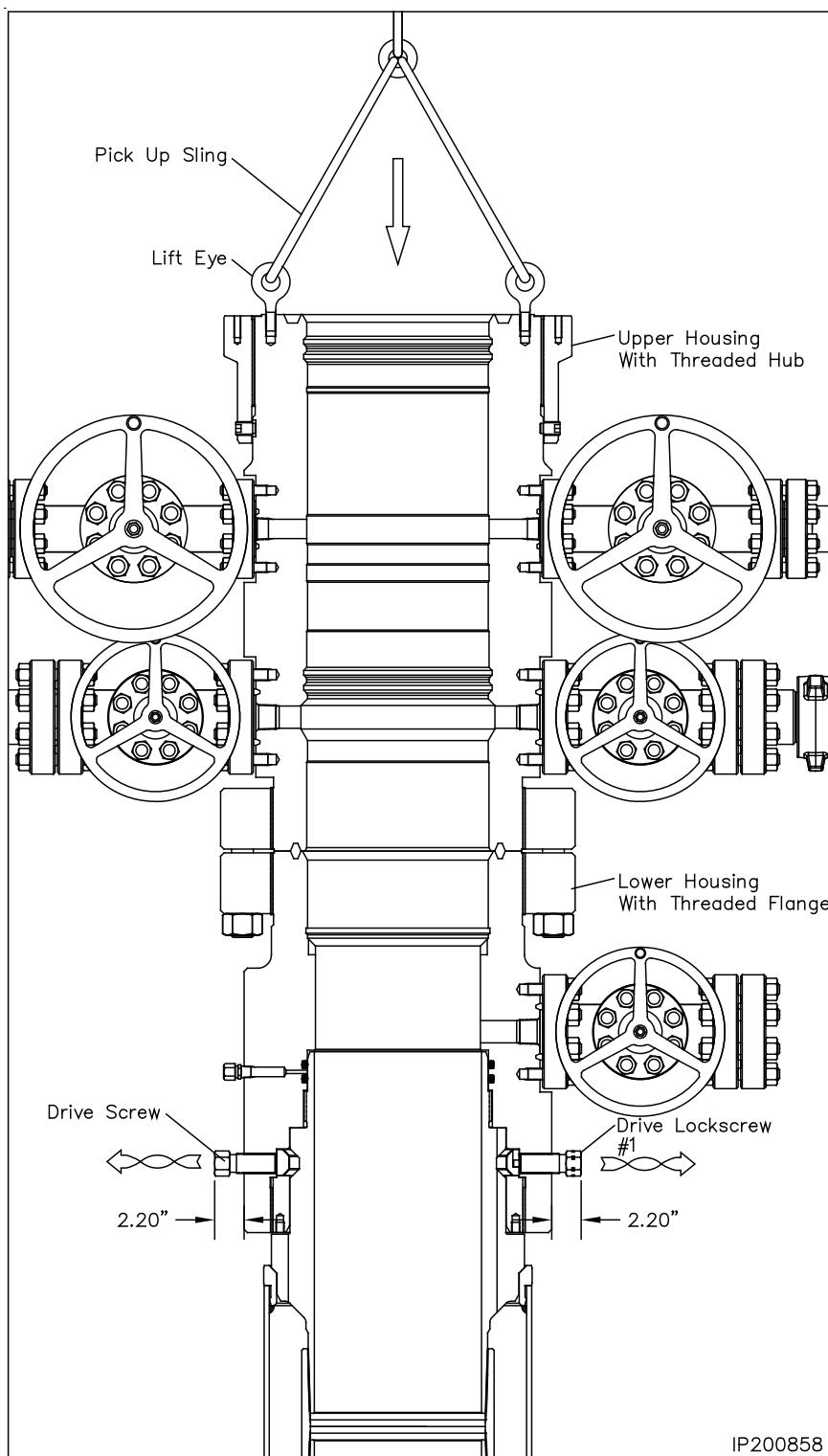
**WARNING:** Keep body clear of all pinch points and suspended loads.

15. Attach a four point lifting sling to the lifting eyes of the housing and suspend the wellhead assembly over the well bore.



**CAUTION:** Ensure all of the locking drive screws extend out approximately 2.20" (Approximately 5 threads showing). Also ensure drive screw #1 does not extend more than 2.38".

16. Align and level the wellhead assembly over the hanger neck, orienting the outlets so they will be compatible with the production equipment.
17. Carefully lower the assembly over the hanger and land it on the hanger neck.
18. Ensure the wellhead is correctly positioned. It can be rotated at this time to the right or left to attain proper alignment.





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## Stage 4 — Install the MBU-4T-CFL-R-DBLO Housings

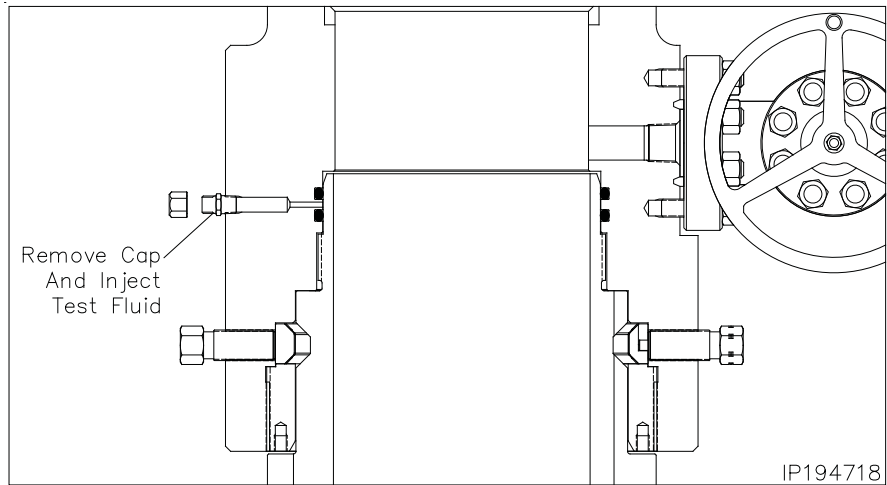
### Test Between the 'O-ring' Seals

1. Locate the "SEAL TEST" fitting on the lower O.D. of the housing and remove the fitting dust cap.
2. Attach a hydraulic test pump to the open fitting and inject test fluid between the 'o-ring' seals until a stable test pressure of **5,000 psi** is achieved. Hold the test pressure for 15 minutes or as required by drilling supervisor.



**CAUTION:** Do Not over pressurize!

3. If pressure drops one or both of the 'o-ring' seals may be leaking. Pick up the housing and replace the leaking o-ring seals.
4. Repeat steps 2 and 3 until a satisfactory test is achieved.
5. Bleed off test pressure, leaving the test manifold in place.





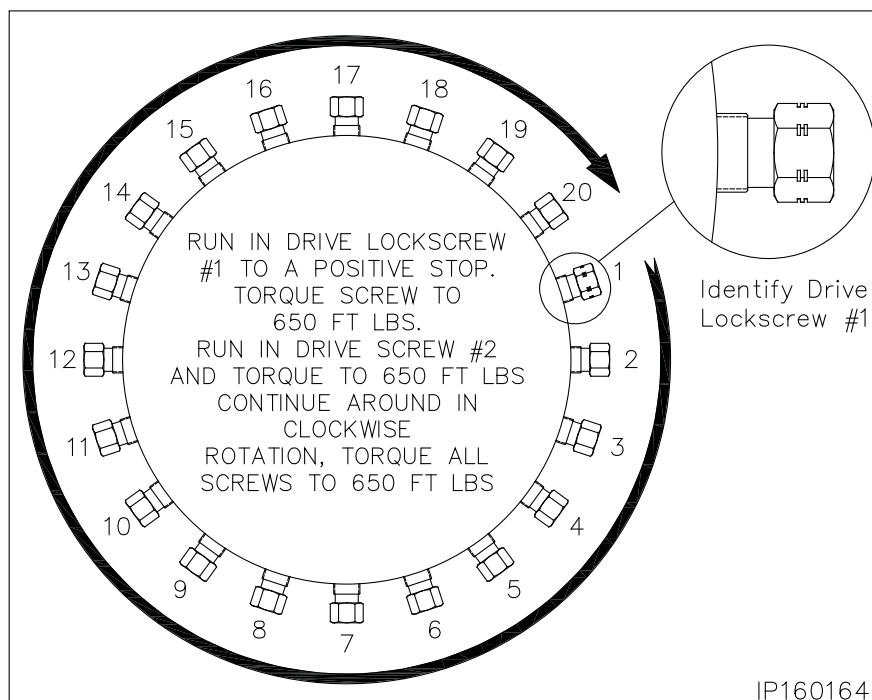
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## Stage 4 — Install the MBU-4T-CFL-R-DBLO Housings

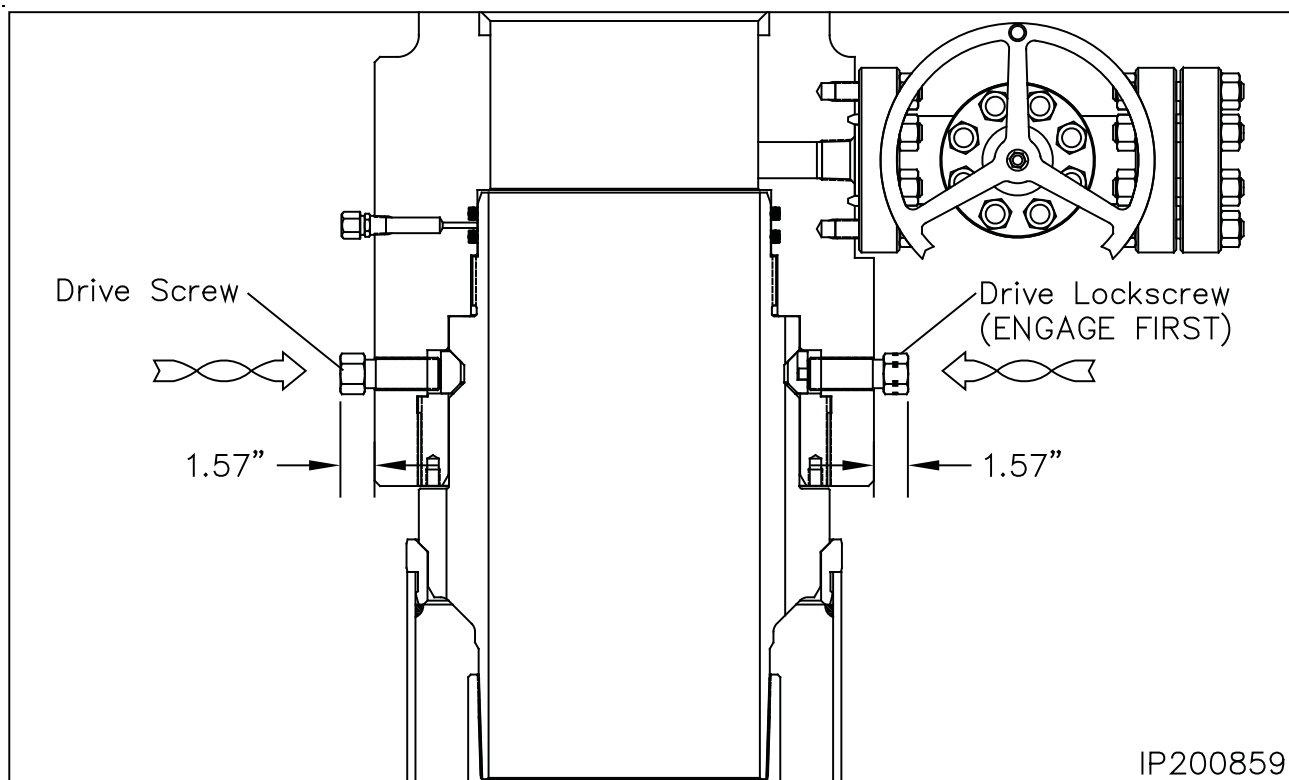
### Engaging the Lockring

1. Locate the drive lockscrow as indicated in IP Dwg, IP160164 with the scribe marks on the hex and number 1 stamped on the body above the screw.
2. Using an 1-5/8" socket, run in the drive lockscrow to a positive stop and torque to 650 ft-lbs.
3. Locate the drive screw to the left marked 2 and fully run in that screw to a positive stop and torque to 650 ft-lbs.
4. Continue around the housing in a clockwise direction, running in and torquing each screw to 650 ft-lbs.

**NOTE:** When properly engaged the drive screws will protrude approximately 1.57" from the O.D. of the housing.



5. With locking engagement confirmed, reattach the test pump and retest the housing seals as previously outline to confirm seal integrity.
6. Bleed off test pressure and remove the test pump and manifold. Install the dust cap on the open fitting.



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## Stage 5 — Install the 13-5/8" 10M Drilling Adapter

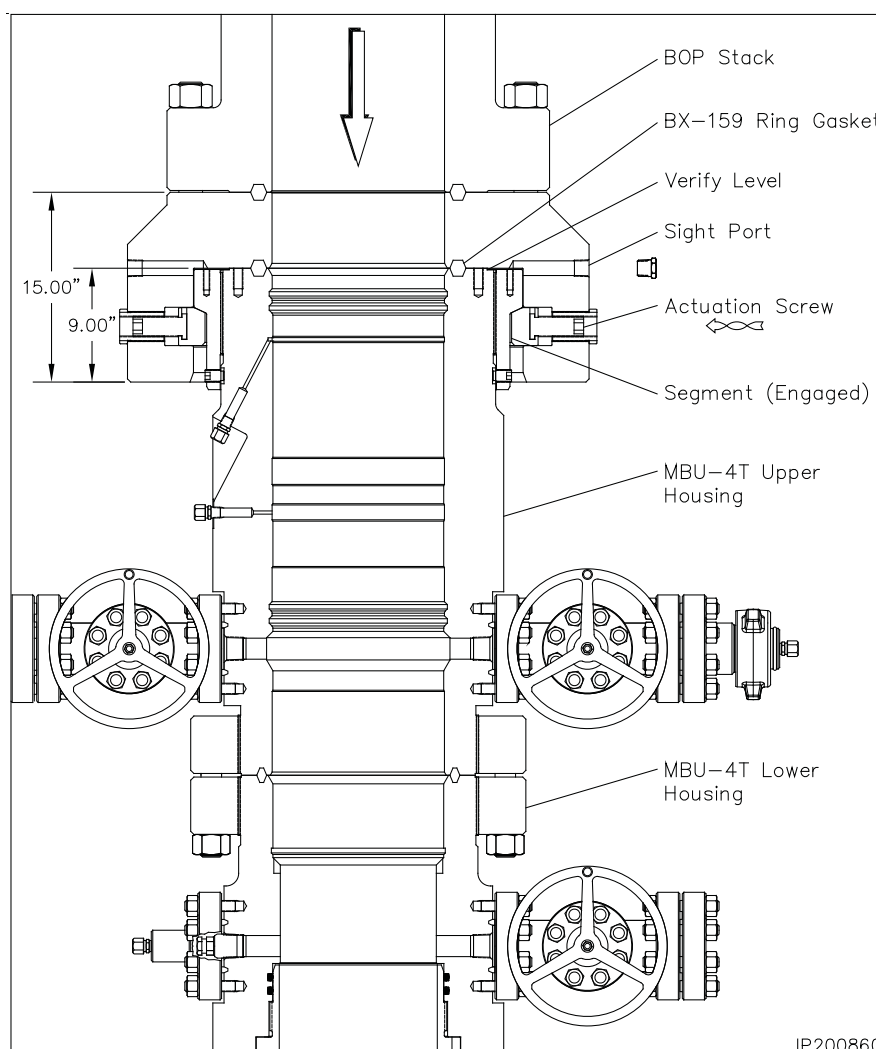
- Examine the **13-5/8" 10M Studded x 13-5/8" 10M Quick Connect Drilling Adapter (Item R3)**. Verify the following:
  - bores are clean and free of debris
  - ring grooves are clean and undamaged
  - (20) drive screws and clamp segments are properly installed and fully retracted
  - lifting eyes are installed and tightened securely

**NOTE:** Prior to installing the BOP/drilling adapter it is recommended to attain an accurate RKB dimension for future use to accurately land test plugs and casing hangers. This dimension is attained by dropping a tape measure from the rig floor to the top of the wellhead flange. Pull tape taut and record the dimension from the wellhead to the top of the rig floor or kelly bushings. Subtract 6" from this dimension (thickness of drilling adapter above the MBU-4T housing) and ensure this dimension is placed on the BOP board in the dog house and on the drillers daily report sheet.

- Make up the drilling adapter to the bottom of the BOP stack using a new **BX-159 Ring Gasket**.
- Thoroughly clean the threaded hub and ring groove of the MBU-4T housing and the mating clamp segments and ring groove of the drilling adapter.
- Install a new **BX-159 Ring Gasket** into the ring groove of the MBU-4T housing.

**WARNING:** Keep body clear of all pinch points and suspended loads.

- Pick up the BOP stack and carefully lower it over the top of the wellhead housing and land it on the ring gasket.
- Remove the (4) 1" sight port pipe plugs and sight through each port to verify the drilling adapter and BOP is level and hub stand off is consistent.



- Carefully run in all of the drive screws of the drilling adapter to contact point.
- Ensure the assembly remains level, run in one actuation screw and torque to 100 ft-lbs.
- Locate the screw 180° from the first and torque it to 100 ft-lbs.
- Locate the screws 90° to the right and left and torque them to 100 ft-lbs.
- Position the second 4 point sequence 90° from the first and torque each screw to 200 ft-lbs.
- Run in all remaining screws to contact. Torque each screw to 400 ft-lbs.
- Make one additional round until a stable torque of 650 ft-lbs on all (20) screws is achieved.
- Sight through the 4 sight ports to confirm that the adapter and head are face to face on all sides and the BOP is level.
- Reinstall the sight port plugs and tighten securely.



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## Stage 6 — Test the BOP Stack

Immediately after making up the BOP stack and periodically during the drilling of the well for the next casing string the BOP stack (connections and rams) must be tested.

### 5,000 PSI Test

- Examine the **13-5/8" Nominal x 4-1/2" IF CW MBU-3T Test Plug/Retrieving Tool (Item ST4)**. Verify the following:
  - 1-1/4" VR plug and weep hole plug are in place and tightened securely
  - elastomer seal is in place and in good condition
  - retractable lift lugs are in place, clean, and free to move
  - drill pipe threads are clean and in good condition
- Position the test plug with the elastomer seal down and the lift lugs up and make up the tool to a joint of drill pipe.



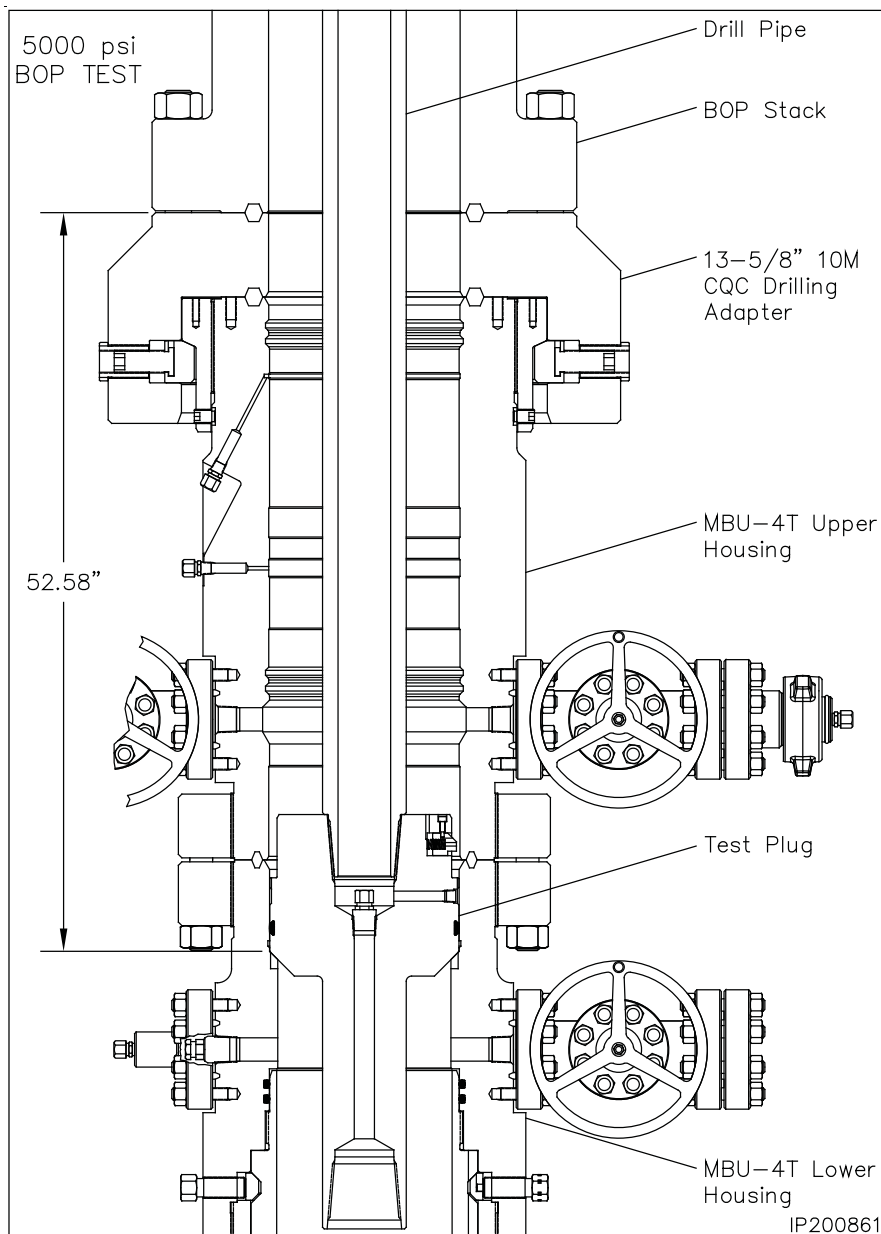
**CAUTION:** Ensure the lift lugs are up and the elastomer seal is down.

- Remove the 1/2" NPT pipe plug from the weep hole if pressure is to be supplied through the drill pipe.



**WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

- Open the lower housing lower side outlet valve.
- Lightly lubricate the test plug seal with oil or light grease.
- Carefully lower the test plug through the BOP and land it on the load shoulder in the lower housing, 52.58" below the top of the drilling adapter.
- Close the BOP rams on the pipe and test the BOP to 5,000 psi.



**NOTE:** Any leakage past the test plug will be clearly visible at the open side outlet valve.

- After a satisfactory test is achieved, release the pressure and open the rams.
- Remove as much fluid as possible from the BOP stack. Retrieve the test plug with a straight vertical lift.



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## Stage 6 — Test the BOP Stack

### 10,000 PSI Test

**NOTE:** The BOP dual test plug assembly will be shipped to location pre-assembled to ensure proper orientation.

- Examine the **13-5/8" Nominal x 4-1/2" IF Dual Test Plug Assembly Consisting Of Two 13-5/8" x 4-1/2" IF Combination Tools And Two 4-1/2" IF x 18" Long Pin x Pin Drill Pipe Subs. (Item ST5).** Verify the following:
  - 1-1/4" VR plug and weep hole plug are in place in upper tool body only and tightened securely
  - elastomer seal is in place on upper tool body only and in good condition
  - drill pipe threads are clean and in good condition

- Position the assembly in the floor bushing with the pin end down.

**CAUTION:** Ensure the lift lugs are facing up.

- Remove the 1/2" NPT pipe plug from the weep hole if pressure is to be supplied through the drill pipe.

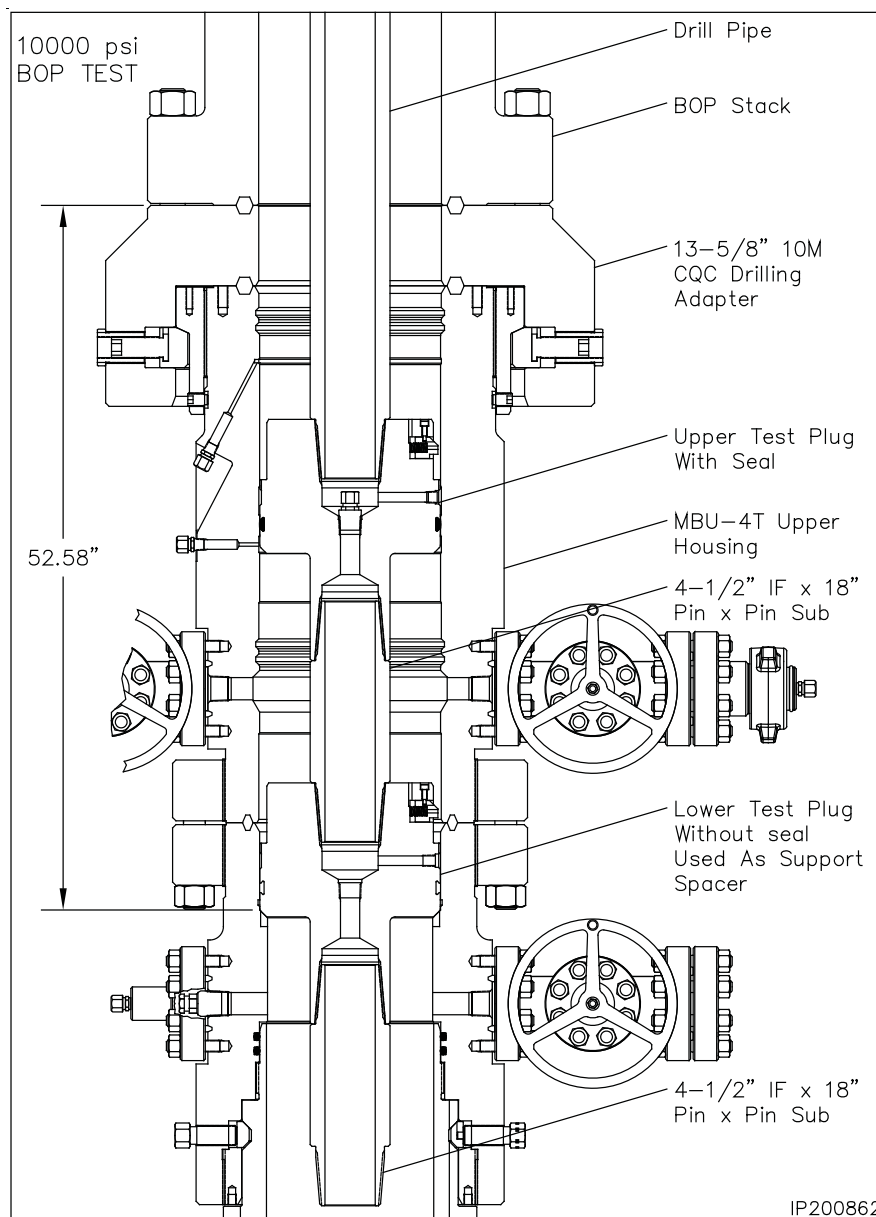
**WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

- Open the upper housing lower side outlet valve.

- Lightly lubricate the test plug seal with oil or light grease.

- Carefully lower the test plug through the BOP and land lower plug on the load shoulder in the lower housing, 52.58" below the top of the drilling adapter.

- Close the BOP rams on the pipe and test the BOP to 10,000 psi.



**NOTE:** Any leakage past the test plug will be clearly visible at the open side outlet valve.

**CAUTION:** When performing the BOP blind ram test it is highly recommended to suspend a stand of drill pipe below the test plug to ensure the plug stays in place while disconnecting it from the drill pipe.

- After a satisfactory test is achieved, release the pressure and open the rams.
- Remove as much fluid as possible from the BOP stack. Retrieve the test plug assembly with a straight vertical lift.
- Close all open valves.
- Repeat this procedure as required during the drilling of the hole section.



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## Stage 7 — Run the Lower Wear Bushing

**CAUTION:** Always use a wear bushing while drilling to protect the load shoulders from damage by the drill bit or rotating drill pipe. The wear bushing **must be retrieved** prior to running the casing.

1. Examine the **13-5/8" Nominal MBU-4T-LWR Wear Bushing (Item ST6)**. Verify the following:
  - internal bore is clean and in good condition
  - trash and shear o-ring is in place and in good condition
  - paint anti-rotation lugs white and allow paint to dry

### Run the Wear Bushing Before Drilling

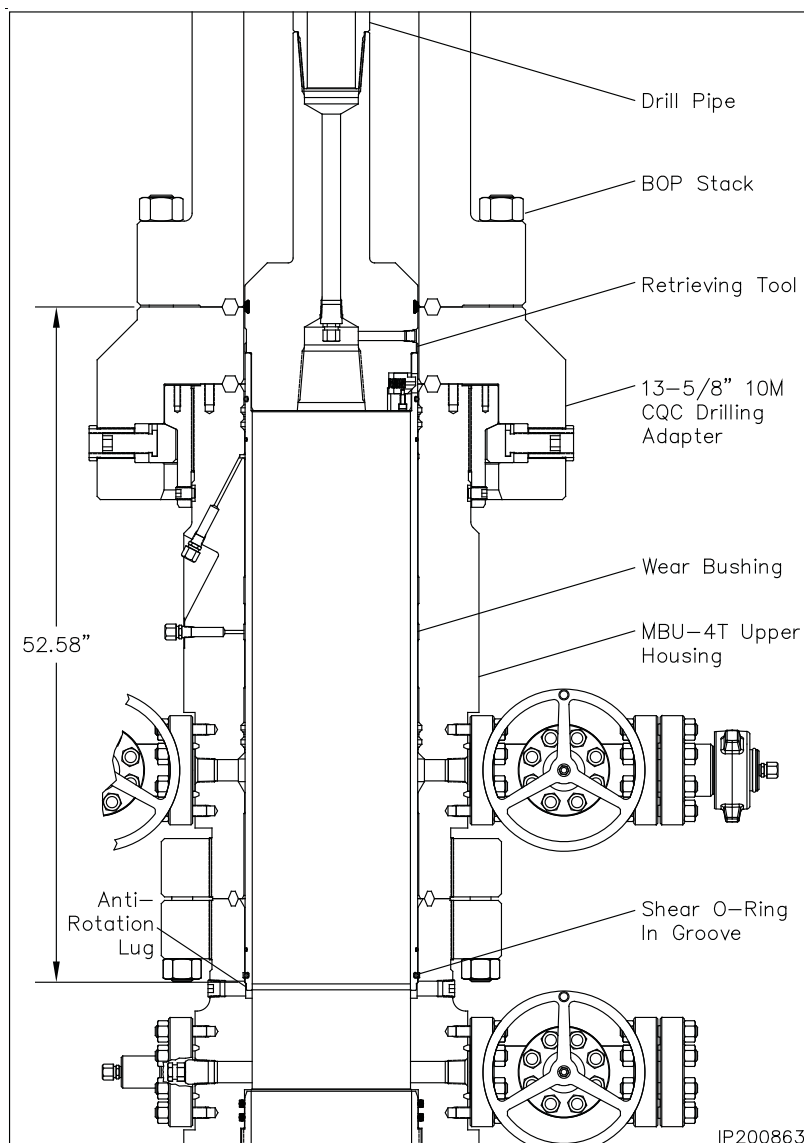
2. Orient the **13-5/8" Nominal x 4-1/2" IF (NC-50) CW Retrieving Tool (Item ST4)** with lift lugs down.
3. Make up the retrieving tool to a joint of drill pipe.
4. Align the retractable lift lugs with the retrieval holes of the bushing and carefully lower the tool into the wear bushing until the lugs snap into place.

**NOTE:** If the lugs did not align with the holes, rotate the tool in either direction until they snap into place.

5. Apply a heavy coat of grease, not dope, to the O.D. of the bushing.
6. Slowly lower the tool/bushing assembly through the BOP stack and land it on the load shoulder in the housing, 52.58" below the top of the drilling adapter.
7. Rotate the drill pipe clockwise (right) to locate the stop lugs in their mating notches in the head. When properly aligned the bushing will drop an additional 1/2".

**NOTE:** The shear o-ring on bottom of the bushing will locate in a groove above the load shoulder in the head to act as a retaining device for the bushing.

8. Remove the tool from the wear bushing by rotating the drill pipe counter clockwise (left) 1/4 turn and lifting straight up.
9. Drill as required.



**CAUTION:** It is highly recommended to retrieve, clean, inspect, grease, and reset the wear bushing each time the hole is tripped during the drilling of the hole section.

### Retrieve the Wear Bushing After Drilling

10. Make up the retrieving tool to the drill pipe.
11. Slowly lower the tool into the wear bushing.
12. Pick up and balance the riser weight and rotate the retrieving tool clockwise until a positive stop is felt. This indicates the lugs have snapped into the holes in the bushing.
13. Retrieve the wear bushing. Remove it and the retrieving tool from the drill string.





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## Stage 8 — Hang Off the 9-5/8" Casing

1. Examine the **13-5/8" x 9-5/8" CW, TP4 Casing Hanger Running Tool (Item ST7)**. Verify the following:

- internal bore and threads are clean and in good condition
- o-ring seal is clean and in good condition
- torque dogs are in place, in upper most position and retainer set screws are tightened securely

2. Make up a landing joint to the top of the running tool and torque connection to thread manufacturer's maximum make up torque.

3. Lay down the landing joint on the pipe rack.

4. On the pipe rack, examine the **13-5/8" x 9-5/8" CW, MBU-3T-LWR-TP4 Mandrel Casing Hanger (Item A22)**. Verify the following:

- internal bore and threads are clean and in good condition
- neck seal area is clean and undamaged
- torque slots are clean and in good condition
- pin threads are clean and in good condition. **Install thread protector**
- place a white paint band around the running tool, 8.16" below the top of the running tool, as indicated and allow paint to dry

5. Liberally lubricate the mating threads, seal areas and o-ring of the hanger and running tool with oil or light grease.

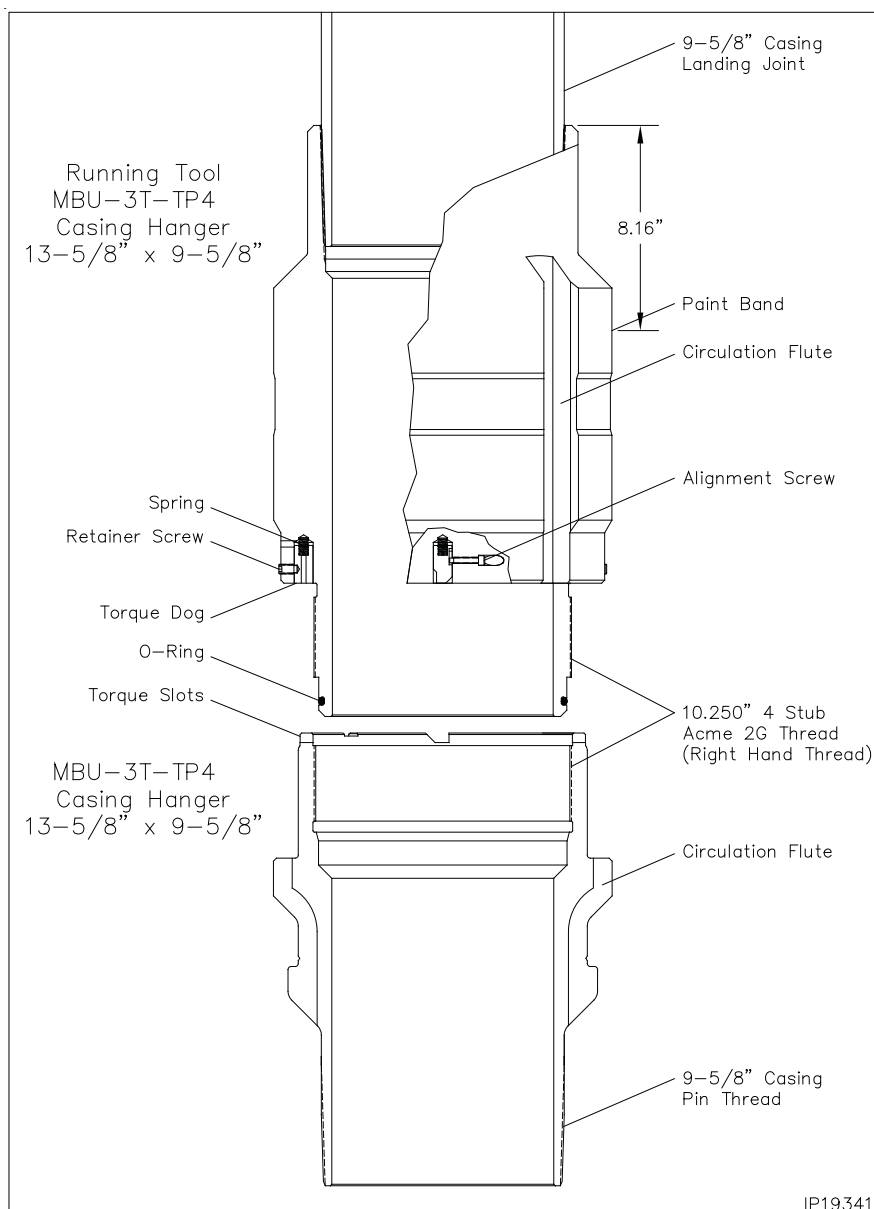
6. **Using chain tongs only**, thread the running tool into the hanger, with right hand rotation, until it shoulders out on the hanger body.



**CAUTION:** Do Not apply torque to the hanger/tool connection.



**CAUTION:** If steps 1 through 6 were done prior to being shipped to location, the running tool should be backed off 1 turn and made back up to ensure it will back off freely.

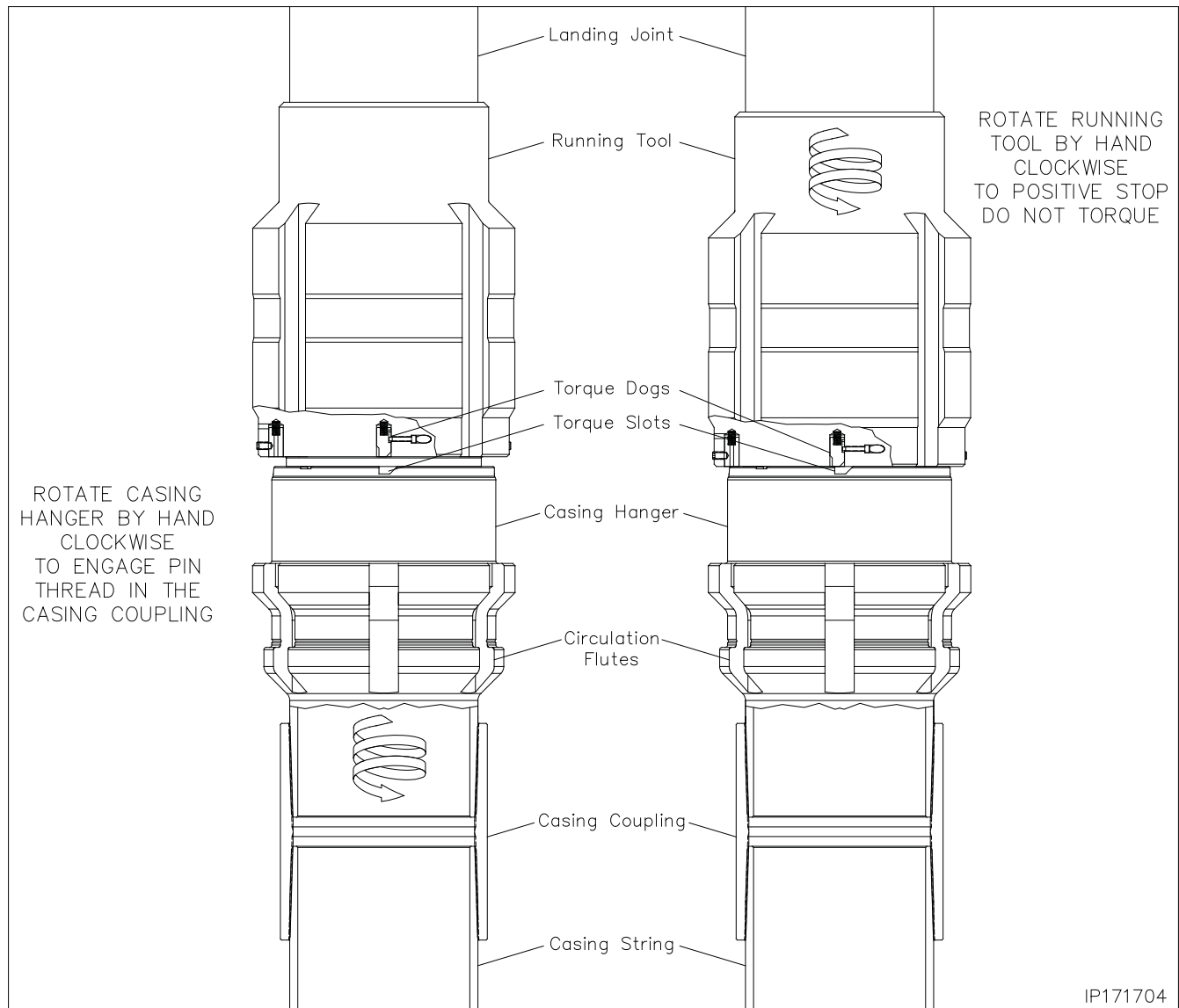


7. Calculate the total landing dimension by adding the previously determined RKB dimension and 52.58", the depth of the wellhead.
8. Starting at the top of the 45° angle load shoulder of the casing hanger, measure up the landing joint and place a paint mark on the joint. Mark **HANGER LANDED**.
9. Place a second mark 52" below the first and mark **STOP ROTATING**.
10. Run the 9-5/8" casing as required and space out appropriately for the mandrel casing hanger.



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## Stage 8 — Hang Off the 9-5/8" Casing



**NOTE:** If the 9-5/8" casing becomes stuck and the mandrel casing hanger cannot be landed, refer to **Stage 8A** for the emergency procedure.

11. Pick up the casing hanger/running tool joint assembly.
12. Remove the casing hanger thread protector and carefully thread the hanger into the last joint of casing ran. Rotate the hanger clockwise, by hand, to a positive stop.
13. Rotate the running tool clockwise by hand to a positive stop.



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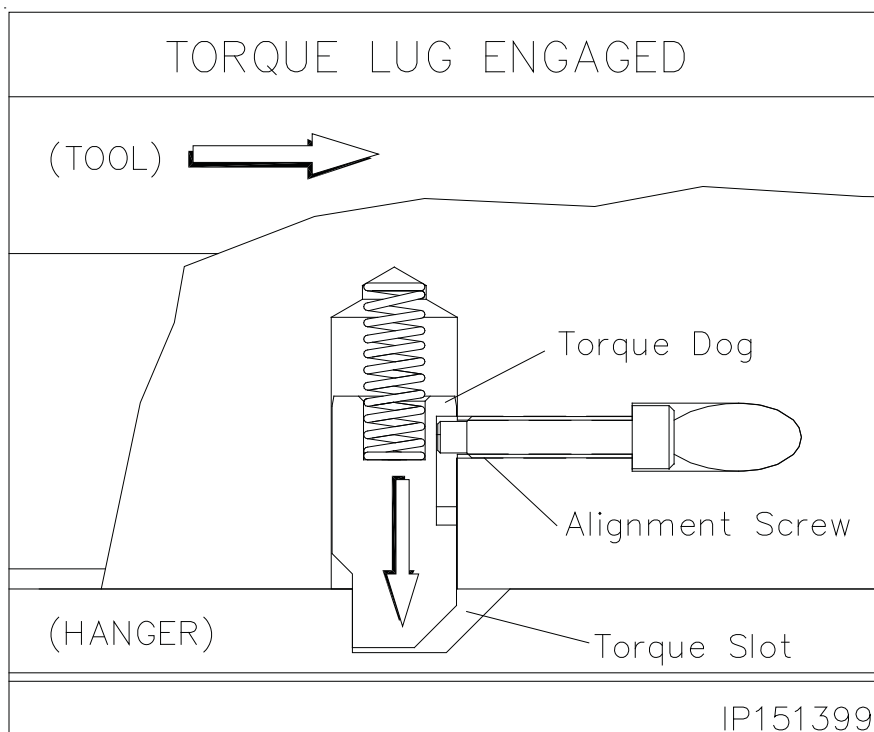
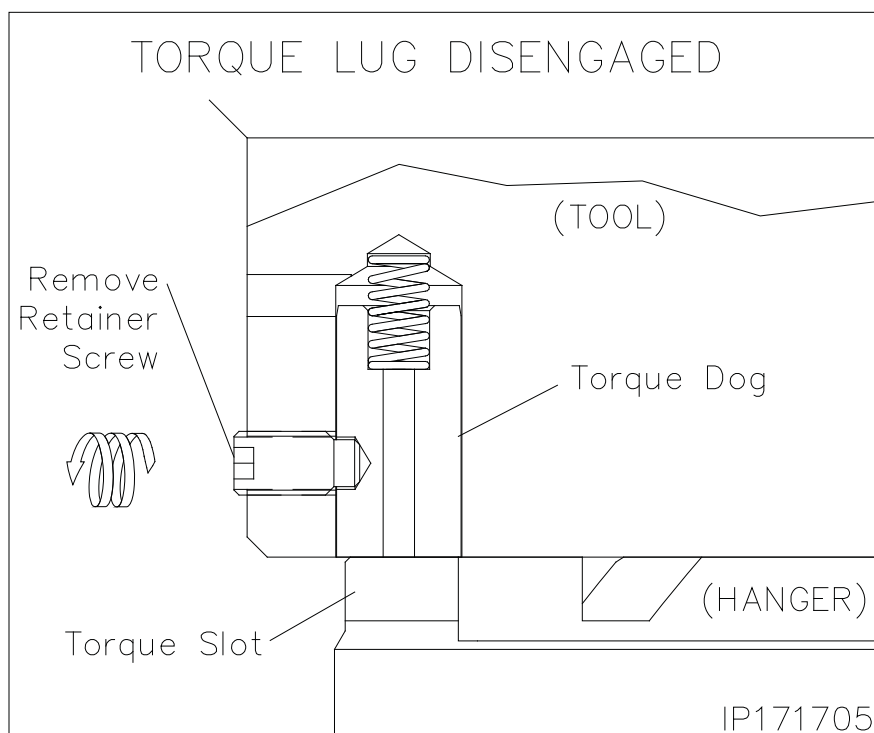
## Stage 8 — Hang Off the 9-5/8" Casing

14. Locate the (4) 3/8" socket head set screws in the side of the hanger running tool and remove the screws. This will release the running tool torque dogs allowing them to move downward.

**NOTE:** Place the screws in a safe place to reinstall in the tool when the job is completed.

15. **Using chain tongs only**, rotate the running tool to the left to allow the torque dogs to engage the torque slots in the top of the hanger.

**CAUTION:** Do not rotate the running tool more than 1/4 turn to the left. Doing so will decrease the torque dog engagement.

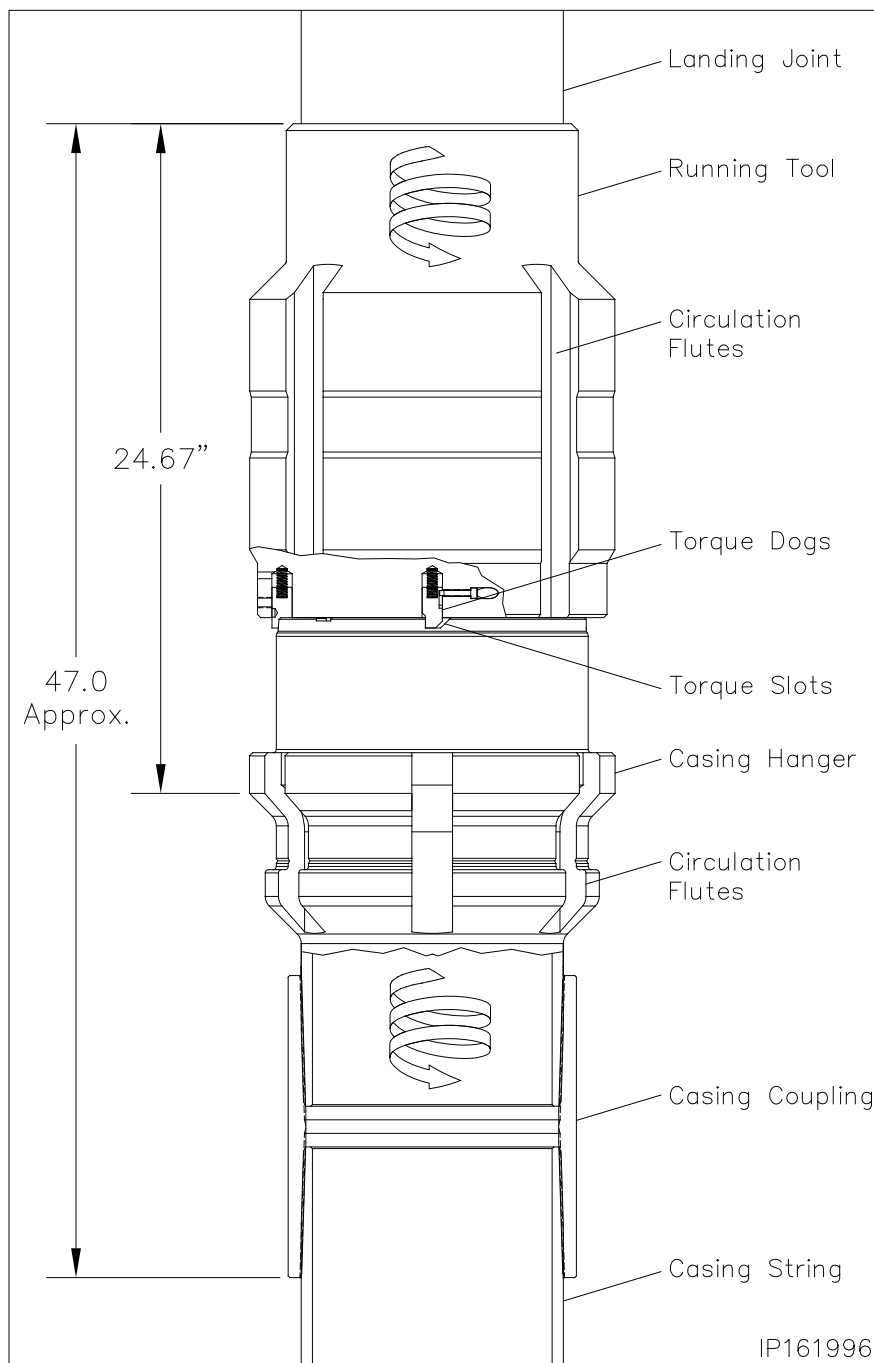




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## Stage 8 — Hang Off the 9-5/8" Casing

16. Engage the CRT tool in the landing joint and torque the casing hanger in the casing string to thread manufacturer's maximum make up torque.

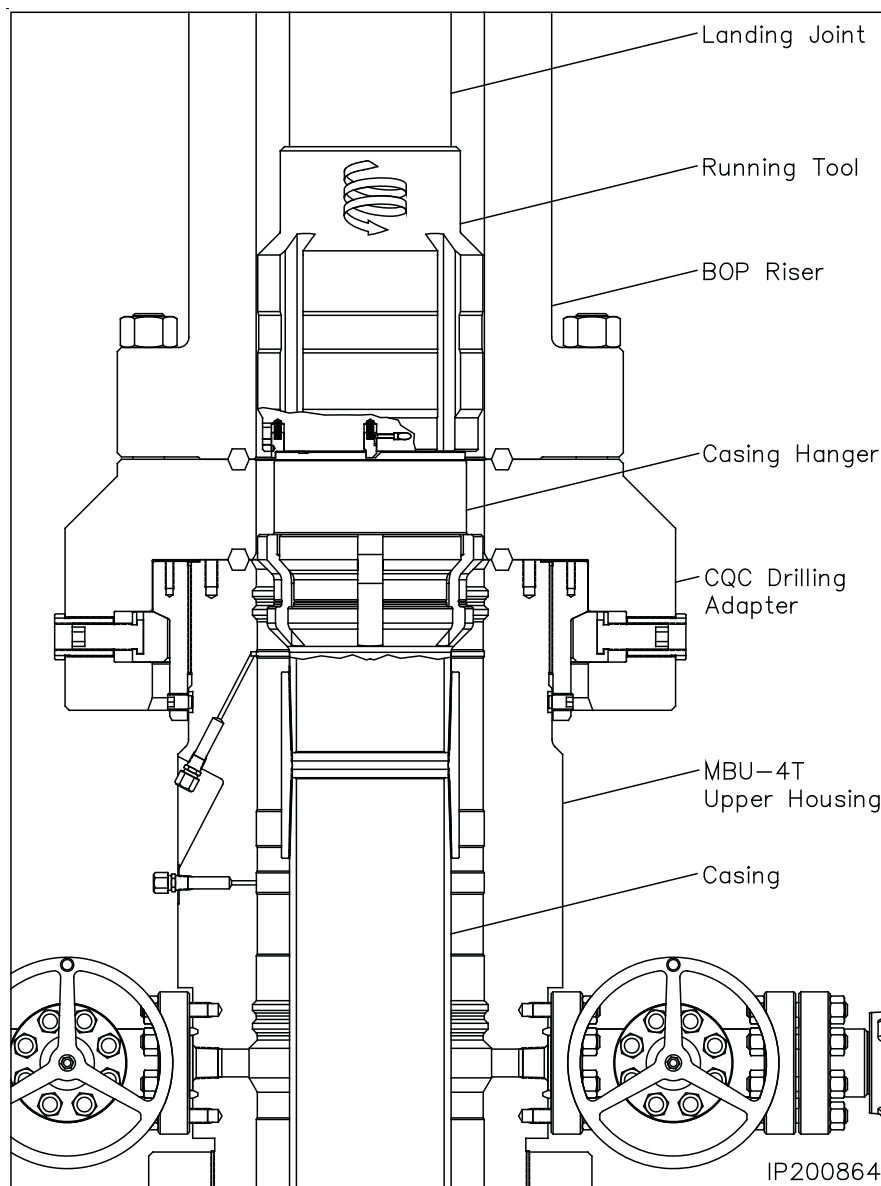


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## Stage 8 — Hang Off the 9-5/8" Casing

17. Pick up the casing string and remove the floor slips and rotary bushings.
18. Carefully lower the hanger completely through the BOP annular and then engage the top drive to allow the casing to be rotated clockwise.
19. While rotating the casing clockwise, carefully lower the casing string until the **STOP ROTATING** mark on the landing joint is level with the rig floor.

**NOTE:** The torque dogs have a maximum rated capacity. Please reference the **Recommended Service Tools** section in the BOM for maximum torque allowed.



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## Stage 8 — Hang Off the 9-5/8" Casing

**CAUTION:** Torque wrap can build in the casing string as it is rotated. Ensure the string comes to a neutral position, by allowing it to back off slowly counter clockwise, before the casing hanger is fully landed.

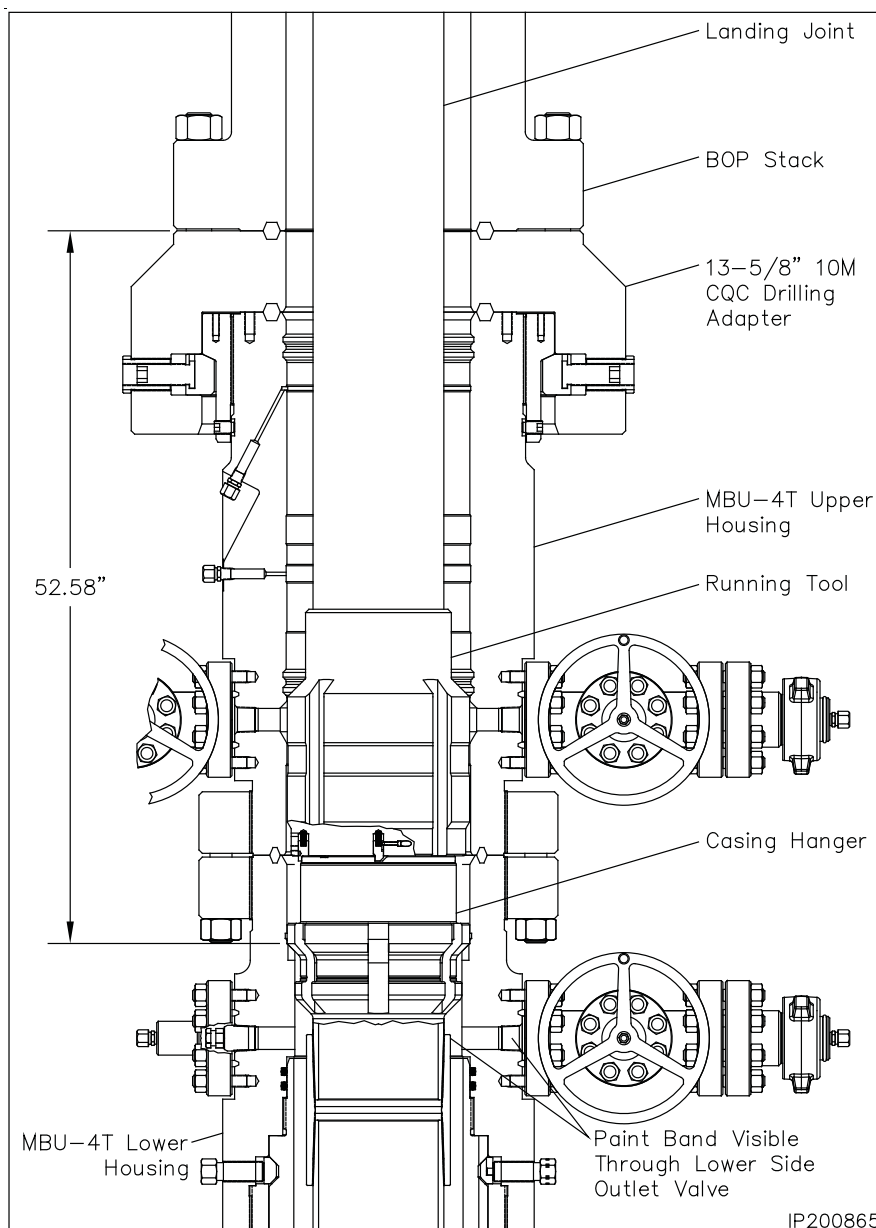
20. Cease rotation and continue carefully lowering the hanger through the wellhead and land it on the load shoulder in the lower MBU-4T housing, 52.58" below the top of the drilling adapter.
21. Slack off all weight on the casing and verify that the **HANGER LANDED** paint mark has aligned with the rig floor.

**WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

22. Open the lower housing outlet valve and drain the BOP stack.
23. Open the upper housing lower outlet valve and sight through the valve bore to confirm the hanger is properly landed. The white paint band on the running tool will be clearly visible in the center of the open outlet valve.
24. Close the open valves and place a vertical paint mark on the landing joint to verify if the casing string rotates during the cementing process.
25. Cement the casing as required.

**NOTE:** Returns may be taken through the circulation slots and out the BOP or out the side outlets on the housing.

26. With cement in place, bleed off all pressure and remove the cementing head.



27. **Using chain tongs only, located 180° apart**, retrieve the running tool and landing joint by rotating the landing joint counter clockwise (left) approximately 13 turns or until the tool comes free of the hanger.

**CAUTION:** The rig floor tong may be used to break the connection but under no circumstances is the top drive to be used to rotate or remove the casing hanger running tool.



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## Stage 8 — Hang Off the 9-5/8" Casing

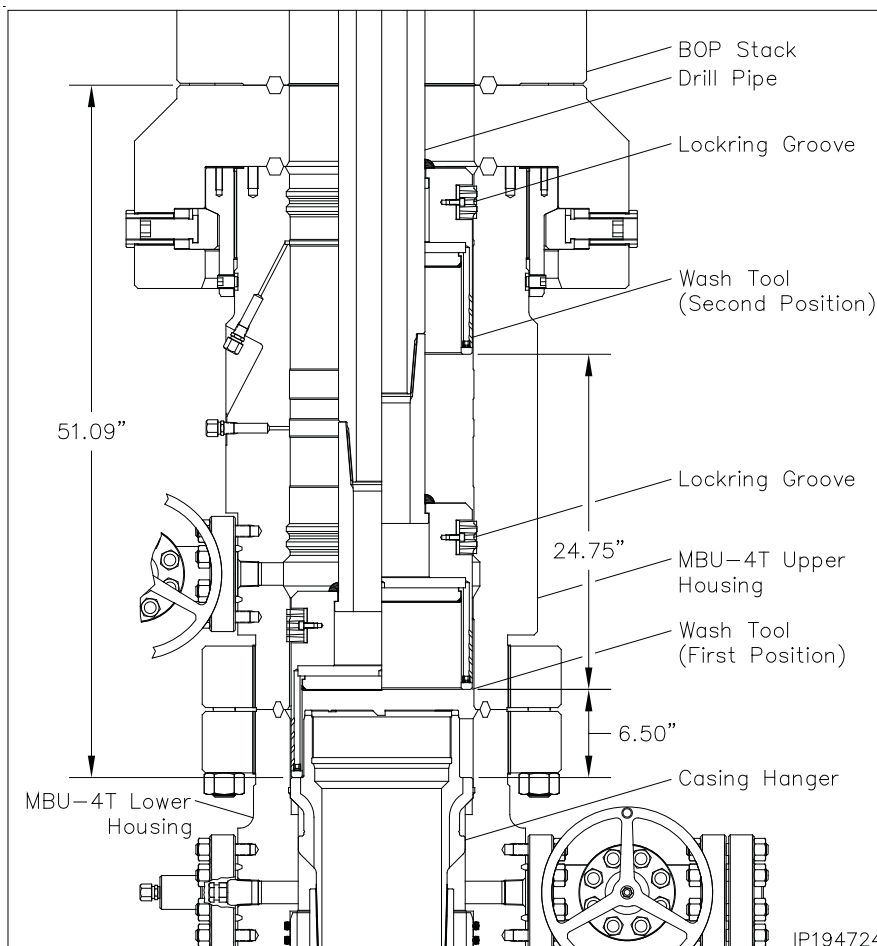
### Running the 13-5/8" Wash Tool

1. Examine the **13-5/8" x 4-1/2" IF Wash Tool (Item ST9)**. Verify the following:
  - drill pipe threads and bore are clean and in good condition
  - all ports are open and free of debris
  - brushes are securely attached and in good condition
2. Orient the wash tool with drill pipe box up. Make up a joint of drill pipe to the tool.
3. Carefully lower the wash tool through the BOP and land it on top of the 9-5/8" casing hanger, 51.09" below the top of the drilling adapter.
4. Place a paint mark on the drill pipe level with the rig floor.
5. Using chain tongs, rotate the tool clockwise (right) approximately 6 turns to loosen any debris that may be on top of the hanger flutes.



**WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

6. Open the lower side outlet valve and drain the BOP stack.
7. Pick up on the tool approximately 1" and attach a high pressure water line or the top drive to the end of the drill pipe and pump water at approximately 25 SPM through the tool and up the BOP stack.
8. Pick up the tool 6.50" above its landing position and rotate the tool to brush the lower locking groove free of debris.
9. Pick up the tool an additional 24.75" and rotate the tool to brush the upper locking groove free of debris.



10. While flushing, raise and lower the tool the full length of the wellhead and BOP stack. The drill pipe should be slowly rotated (approximately 20 RPM) while raising and lowering to wash the inside of the housing and BOP stack to remove all caked on debris.
11. Once washing is complete, land the wash tool on the hanger flutes.
12. Shut down pumps and observe the returns at the open lower outlet for debris.
13. Reengage the pump and fully wash the inside of the wellhead and the entire BOP one additional cycle ensuring the stopping point is with the wash tool resting on top of the hanger flutes.
14. Once the returns are clean and free of debris, retrieve the tool to the rig floor.
15. Using a bright light, sight through the bore of the BOP stack and observe the top of the hanger neck and flutes. Ensure there are no dark areas on top of the hanger flutes.



**CAUTION:** Observe the returns at the open outlet valve. If returns are not clean, continue flushing until they are.



**CAUTION:** Continue washing until all debris is removed.



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## Stage 8A — Hang Off the 9-5/8" Casing (Emergency)

**CAUTION:** The following procedure should be followed **ONLY** if the 9-5/8" casing should become stuck in the hole. If the casing did not get stuck and is hung off with the mandrel casing hanger, skip this stage.

1. Cement the hole as required.

**WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

2. Drain the BOP stack through the lower MBU-4T housing side outlet valve.
3. Separate the connection between the upper and lower MBU-4T housings.

**WARNING:** Keep body clear of all pinch points and suspended loads.

4. Pick up on the BOP and upper housing a minimum of 14" and secure with safety sling.

5. Washout bowl as required.

6. Examine the **13-5/8" x 9-5/8" C21 Slip Casing Hanger (Item A22a)**. Verify the following:
  - slips and internal bore are clean and in good condition
  - all screws are in place

7. Remove the latch cap screw and open the hanger.

8. Place two boards on the MBU-4T lower housing flange against the casing to support the hanger.

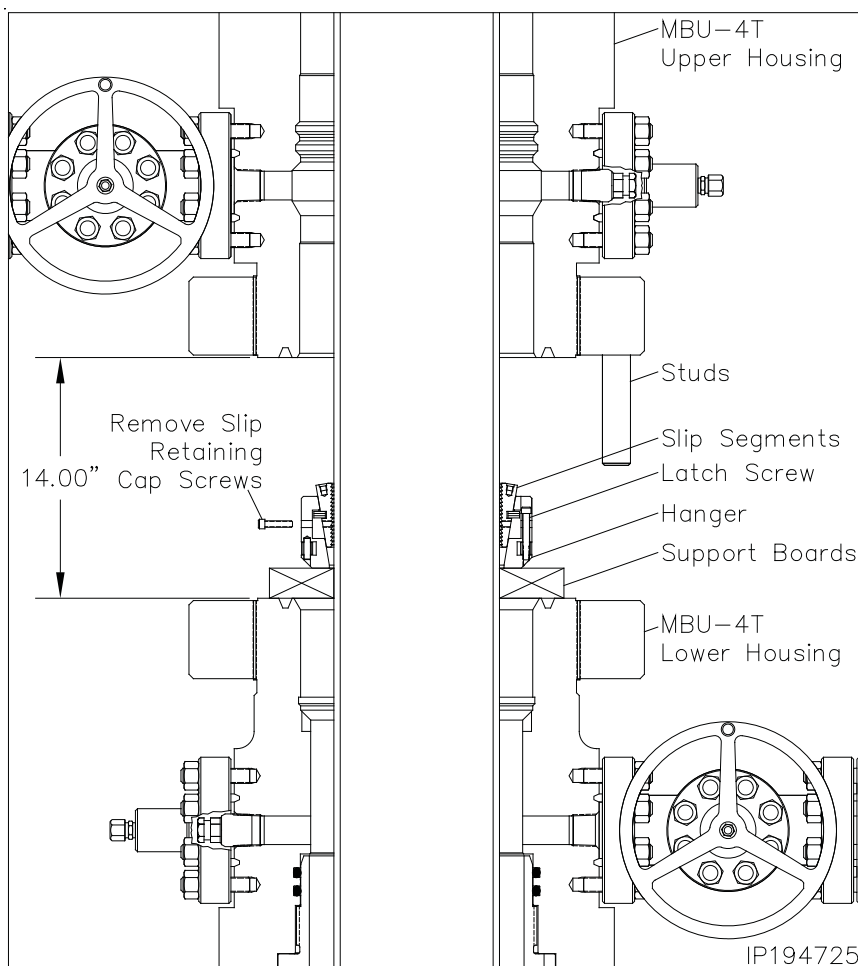
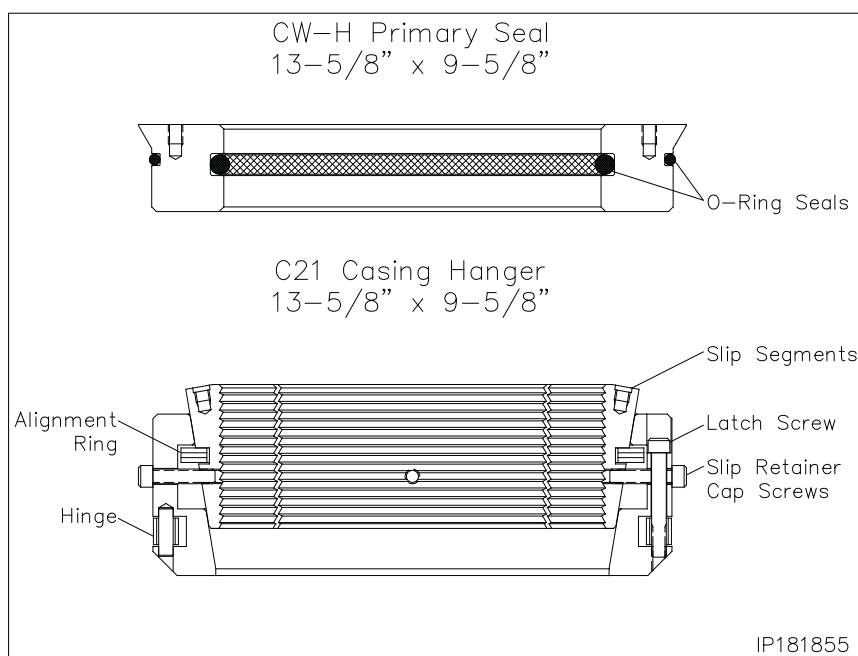
9. Pick up the hanger and place it around the casing and on top of the support boards and replace the latch screw.

10. Prepare to lower the hanger into the housing bowl.

**CAUTION:** Do Not drop the casing hanger!

11. Grease the casing hanger body and remove the slip retaining screws.

12. Pull tension on the casing to the desired hanging weight.



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## Stage 8A — Hang Off the 9-5/8" Casing (Emergency)

13. Remove the boards and allow the hanger to slide into the bowl. When properly positioned the top of the hanger will be approximately 3.00" below the top of the flange.

14. Slack off the desired hanging weight.

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

**WARNING:** Due to the potential fire hazard and the risk of loss of life and property, it is highly recommended to check the casing annulus and pipe bore for gases, with an approved sensing device, prior to cutting the casing. If gas is present, do not use an open flame torch to cut the casing. It will be necessary to use an air driven mechanical cutter which is spark free.

15. Rough cut the casing approximately 12" above the top flange and move the excess casing out of the way.

16. Set the upper housing back down and break the connection between the upper housing and the quick connect adapter.

17. Lift the BOP stack and remove the upper housing from the well bore.

18. Final cut the casing at  $8.75" \pm 1/8"$  above the top of the lower housing.

19. Grind the casing stub level, then place a  $3/16" \times 3/8"$  bevel on the O.D. and an I.D. chamfer to match the minimum bore of the housing to be installed.

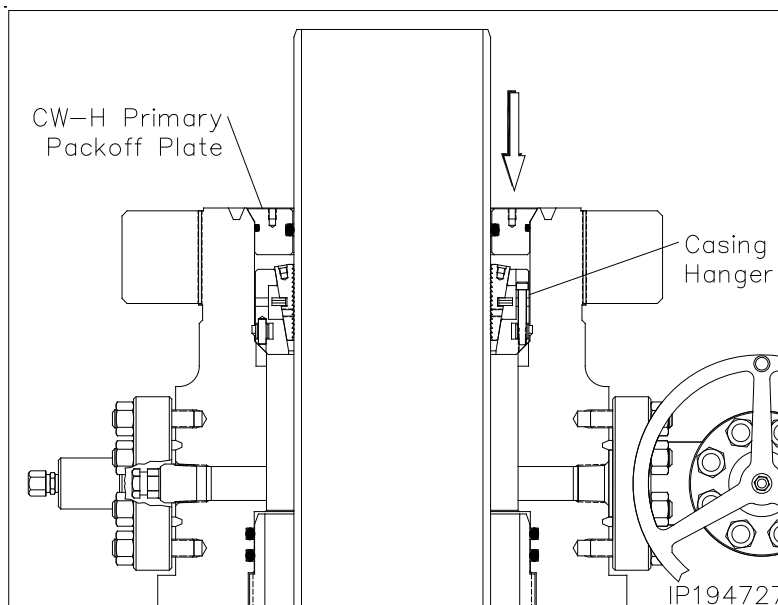
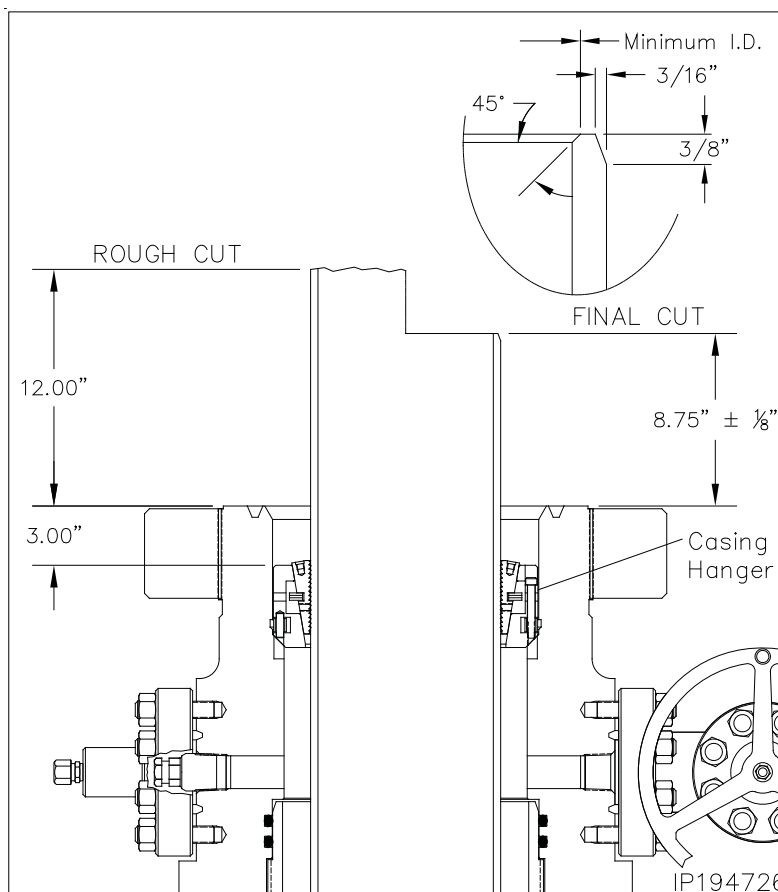
**CAUTION:** There must not be any rough edges on the casing or the seals of the packoff will be damaged.

20. Thoroughly clean the MBU-4T housing bowl, removing all cement and cutting debris.

21. Examine the **13-5/8" x 9-5/8" CW-H Primary Packoff Plate (Item A23a)**. Verify the following:

- o-ring seals are in place and in good condition

22. Lightly lubricate the primary seal plate o-ring seals with oil or a light grease.



23. Carefully slide the packoff plate over the casing stub and push it into the MBU-4T housing until the 30° tappers of the plate and housing come face to face.





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## Stage 8A — Hang Off the 9-5/8" Casing (Emergency)

1. Examine the **13-5/8" 5M x 13-5/8" 10M MBU-4T-UPR Emergency Housing (Item A5a)**. Verify the following:

- Acme threads are clean and in good condition
- bore and all internal seal areas are clean and undamaged
- 'HPS' seals are in place and in good condition
- valves are intact and in good condition
- studded threaded flange is installed on the bottom of the housing and is free to rotate
- top threaded hub is installed and positioned with the I.D. threads level with the housing O.D. threads

**NOTE:** If the threaded hub has been pre-installed in the shop, skip steps 2 through 9.

2. Examine the **13-5/8" 10M x 21.750" 4 Stub Acme Threaded Hub (Item R2)**. Verify the following:

- Acme thread are clean and in good condition
- remove the (4) retainer set screws and place them in a safe place

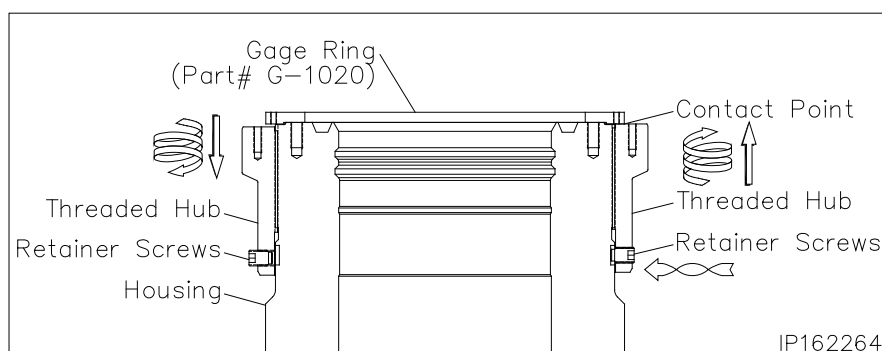
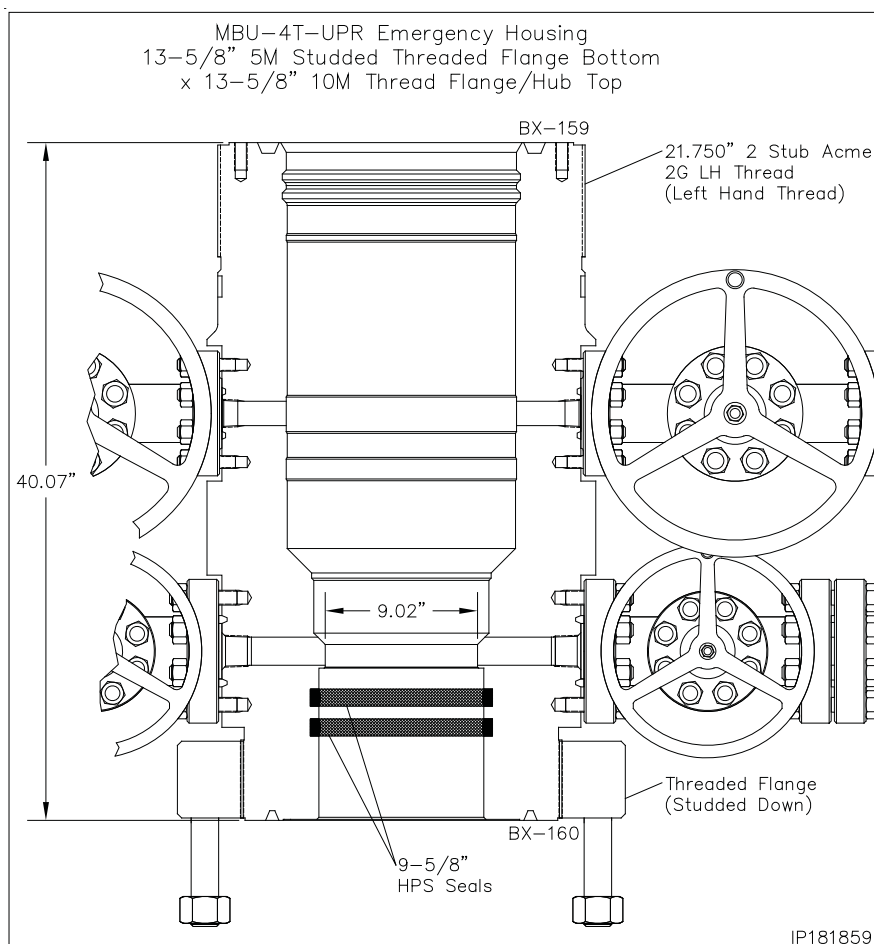
3. Thoroughly clean and lightly lubricate the mating threads of the housing and the threaded hub with copper coat or never seize.

4. Pick up the hub and carefully thread it onto the top of the housing with counter clockwise rotation until the top of the ring is approximately a 1/4" below the top of the housing.

5. Position the hub gage ring on top of the housing with the counter bore down as indicated. Ensure the gage ring is level and straight.

6. Rotate the hub clockwise (UP) until it contacts the gage ring.

**CAUTION:** Do not off seat the gage ring.



7. Locate the retainer screw holes in the threaded hub.
8. Rotate the hub up or down to align the holes in the hub with the notches in the housing.
9. Install the set screws and tighten securely. (Do not Over Tighten) Remove gage ring.

**NOTE:** Using a yellow paint stick, paint the top of the housing where indicated for verifying level and adapter make up.



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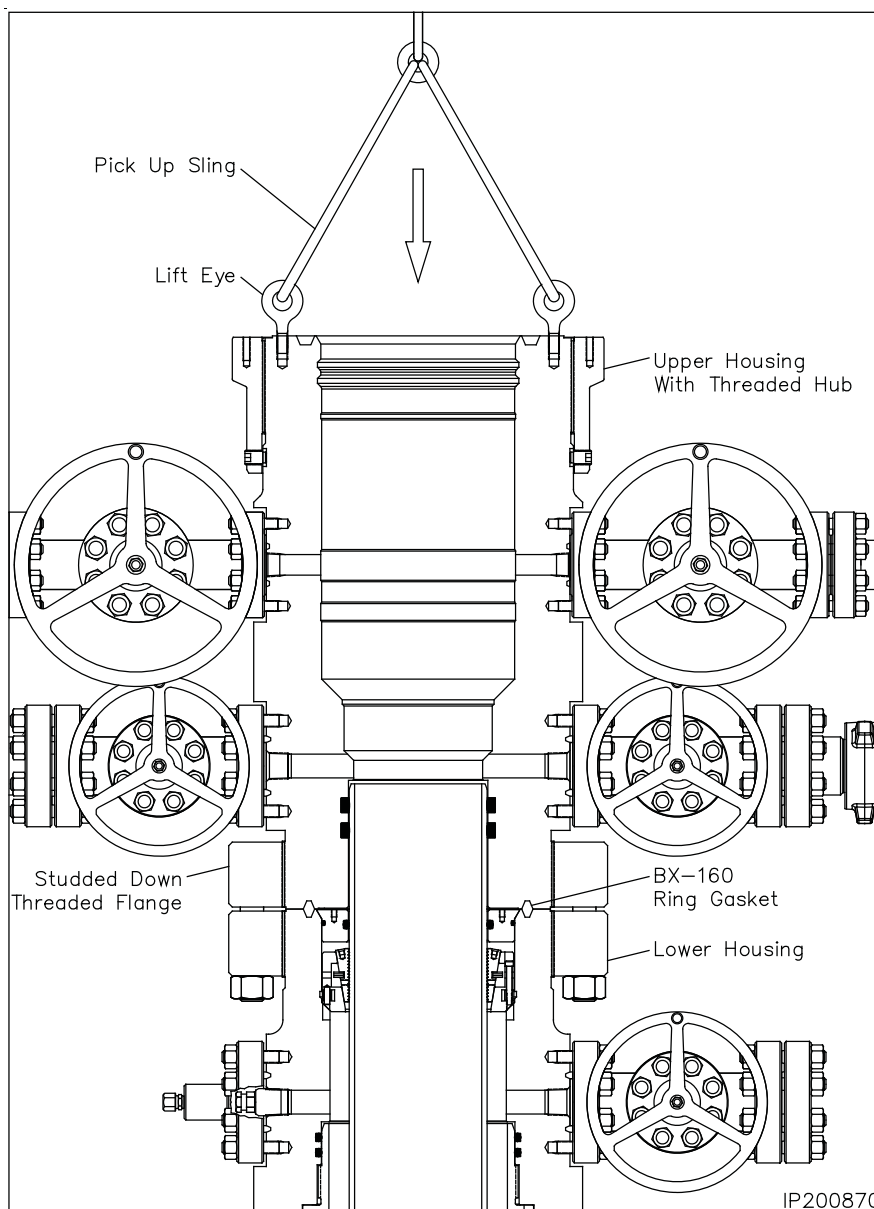
## Stage 8A — Hang Off the 9-5/8" Casing (Emergency)

10. Attach a four point, properly rated, lifting sling to the lifting eyes of the housing and suspend the wellhead assembly over the well bore.
11. Thoroughly clean and lightly lubricate the 'HPS' seals of the upper housing with oil or light grease.
12. Thoroughly clean the mating ring grooves of the upper and lower housing removing all old grease and debris.
13. Install a new **BX-160 Ring Gasket (Item A4)** in the ring groove of the lower housing.
14. Position the threaded bottom flange with the I.D. thread of the flange level with the Acme thread of the upper housing.



**WARNING:** Keep body clear of all pinch points and suspended loads.

15. Orient the upper housing so the outlets are in the proper position, then two hole flange and remove all 1-5/8" nuts.
16. Carefully lower the assembly over the casing stub.
17. Align the studs with the bolt holes in the lower housing, then land the upper housing on the ring gasket.
18. Make up the flange connection with the threaded flange studs and nuts, tightening them in an alternating cross pattern until the housing connections come face to face and are level.
19. Remove the lifting eyes.



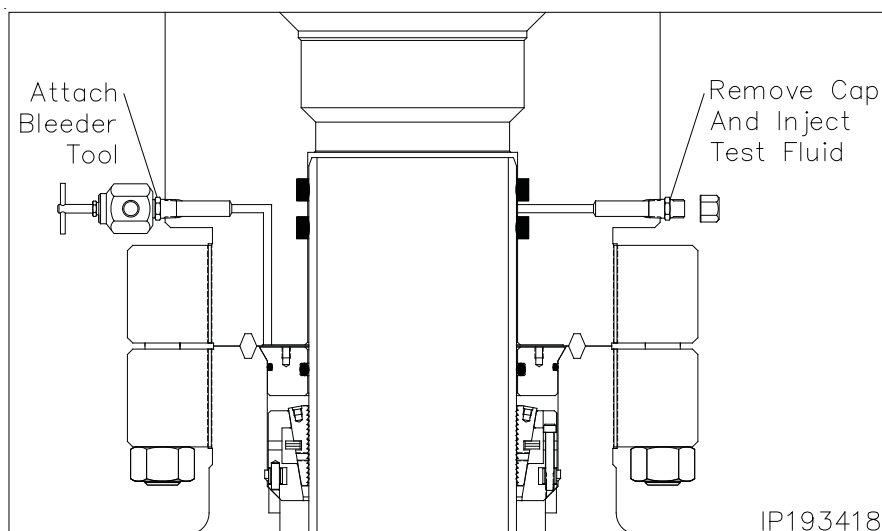


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## Stage 8A — Hang Off the 9-5/8" Casing (Emergency)

### Seal Test

1. Locate the "SEAL TEST" fitting and one "FLANGE TEST" fitting on the upper housing lower body and remove the dust cap from both fittings.
2. Attach a bleeder tool to the open "FLANGE TEST" fitting and open the tool.
3. Attach a test pump to the "SEAL TEST" fitting and pump clean test fluid between the 'HPS' seals until a test pressure of **5,000 psi or 80% of casing collapse — whichever is less.**
4. Hold the test pressure for 15 minutes or as required by drilling supervisor.
5. If pressure drops, a leak has developed. Bleed off test pressure and take the appropriate action in the adjacent table.
6. After a satisfactory test is achieved, bleed off pressure. Remove the test pump, drain test fluid and reinstall the dust cap on the open "SEAL TEST" fitting.



Seal Test	
Leak Location	Appropriate Action
Open bleeder tool - Lower 'HPS' seal is leaking	Remove upper housing and replace leaking seals.
Into housing bore - Upper 'HPS' seal is leaking	Re-land and retest seals

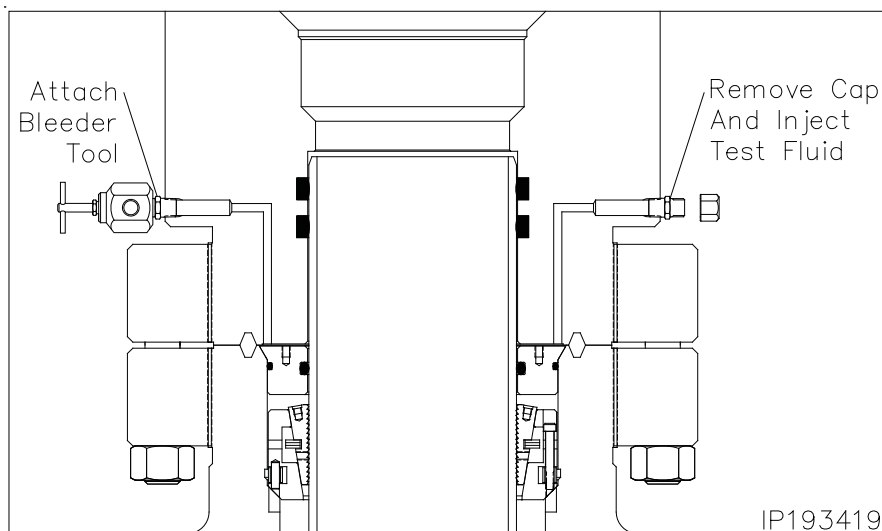


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## Stage 8A — Hang Off the 9-5/8" Casing (Emergency)

### Flange Test

1. Locate the remaining "FLANGE TEST" fitting on the upper housing lower body and remove the dust cap from the fitting.
2. Attach a test pump to the open "FLANGE TEST" fitting and inject test fluid into the flange connection until a stable test pressure of **5,000 psi or 80% of casing collapse - Whichever is less.**
3. Hold the test pressure for 15 minutes or as required by drilling supervisor.
4. If pressure drops a leak has developed. Take the appropriate action from the adjacent chart.
5. Repeat this procedure until a satisfactory test is achieved.
6. Once a satisfactory test is achieved, bleed off pressure. Remove the test pump and bleeder tool, drain all test fluid, and reinstall the dust caps.
7. Reinstall the BOP with the 13-5/8" 10M QCQ adapter.



Flange Test	
Leak Location	Appropriate Action
Between flanges - Ring gasket is leaking	Further tighten the flange connection
Into casing annulus - Primary seal o-rings are leaking	Remove upper housing and primary seal. Replace leaking seals. Reinstall the primary seal and upper housing and retest



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## Stage 9 — Install the MBU-4T Lower Mandrel Hanger Packoff

The following steps detail the installation of the MBU-4T lower packoff assembly for the mandrel hanger.

1. Examine the **13-5/8" x 10.500" 4 Stub Acme 2G LH Box Top MBU-4T-LWR Mandrel Hanger Packoff Assembly (Item A23)**. Verify the following:

- all elastomer seals are in place and undamaged
- internal bore, and ports, are clean and in good condition
- locking is fully retracted
- energizer ring is in its upper most position and retained with shear pins
- guide screws are in place and back off 1/4 turn
- anti-rotation plungers are in place, free to move

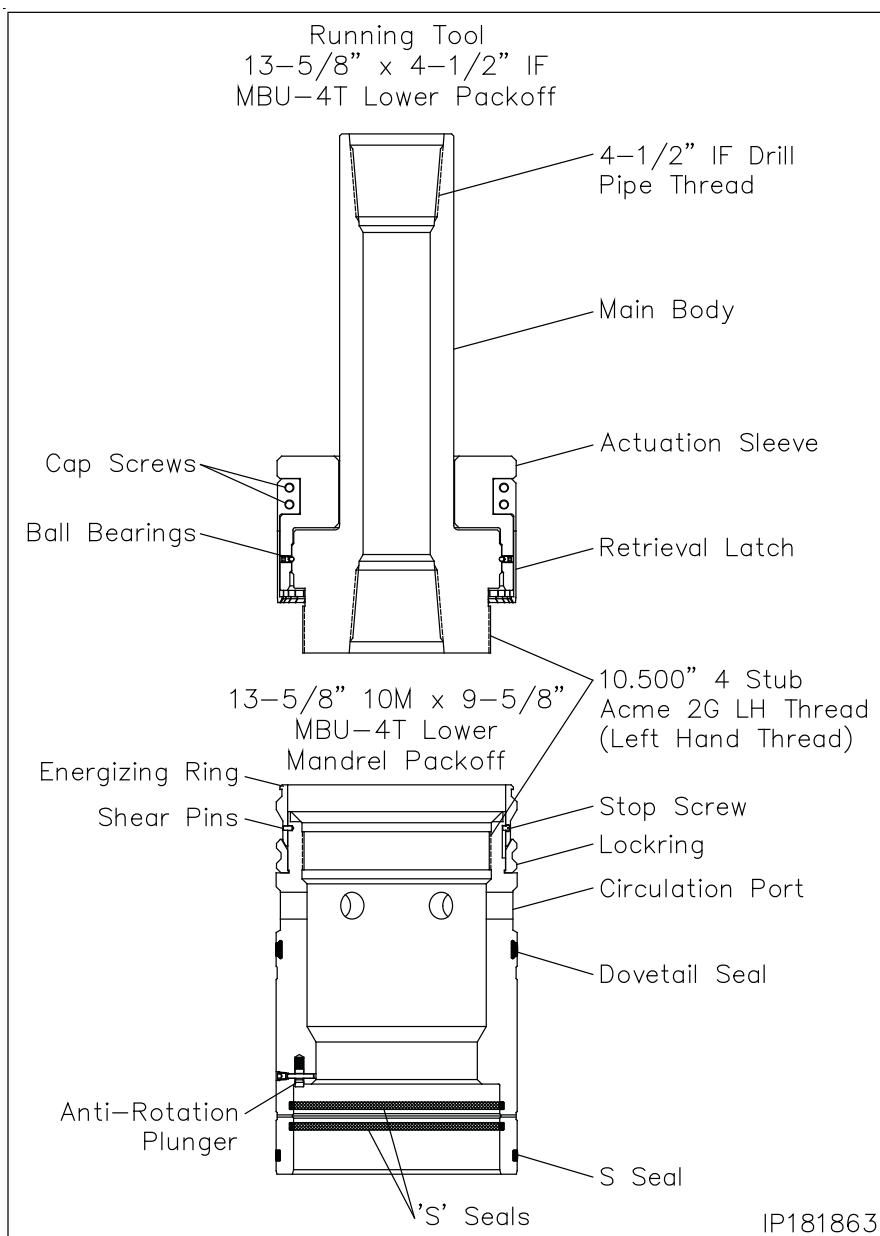
2. Inspect the I.D. and O.D. seals for any damage and replace as necessary.

3. Examine the **13-5/8" Nominal x 10.500" 4 Stub Acme 2G LH, MBU-4T-LWR Packoff Running Tool (Item ST10)**. Verify the following:

- Acme threads are clean and in good condition
- retrieval latch is in position and retained with cap screws
- actuation sleeve rotates freely

4. Remove the retrieval latch and set aside.

5. Make up the running tool to a 4-1/2" IF drill collar and tighten connection to thread manufacturer's optimum make up torque.



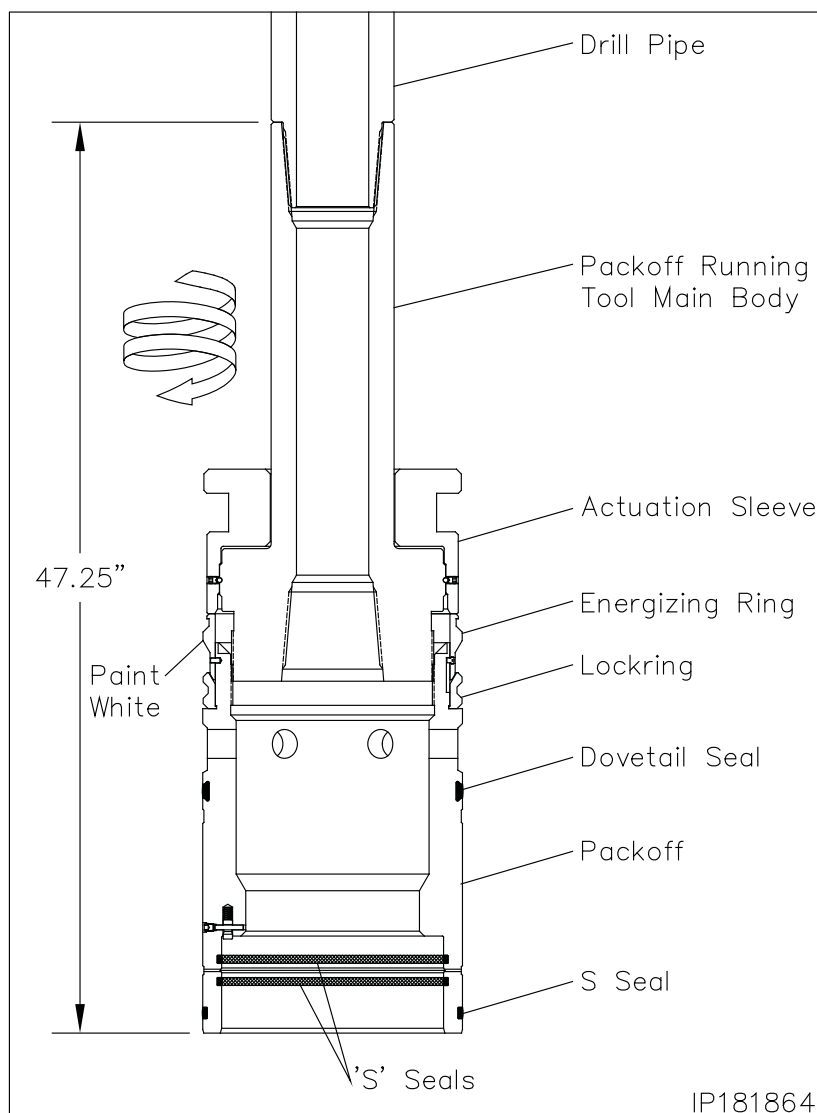
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## Stage 9 — Install the MBU-4T Lower Mandrel Hanger Packoff

6. Pick up the running tool with drill pipe landing joint and suspend it above the packoff.
7. Thoroughly clean and lightly lubricate the mating Acme threads of the running tool and packoff with oil or light grease.
8. Carefully lower the tool into the packoff and thread them together by first rotating the tool clockwise (RIGHT) to locate the thread start and then counter clockwise (LEFT) until the tool actuation sleeve makes contact with the packoff energizing ring. Approximately 4 turns.
9. Place a white paint band around the packoff energizing ring as indicated and allow paint to dry.
10. Pick up the assembly and thoroughly clean and lightly lubricate the packoff I.D. 'S' seals and the O.D. dovetail and 'S' seal with oil or light grease.



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## Stage 9 — Install the MBU-4T Lower Mandrel Hanger Packoff

11. Calculate the landing dimension by taking the previously taken RKB dimension and adding 51.09" the depth of the wellhead.

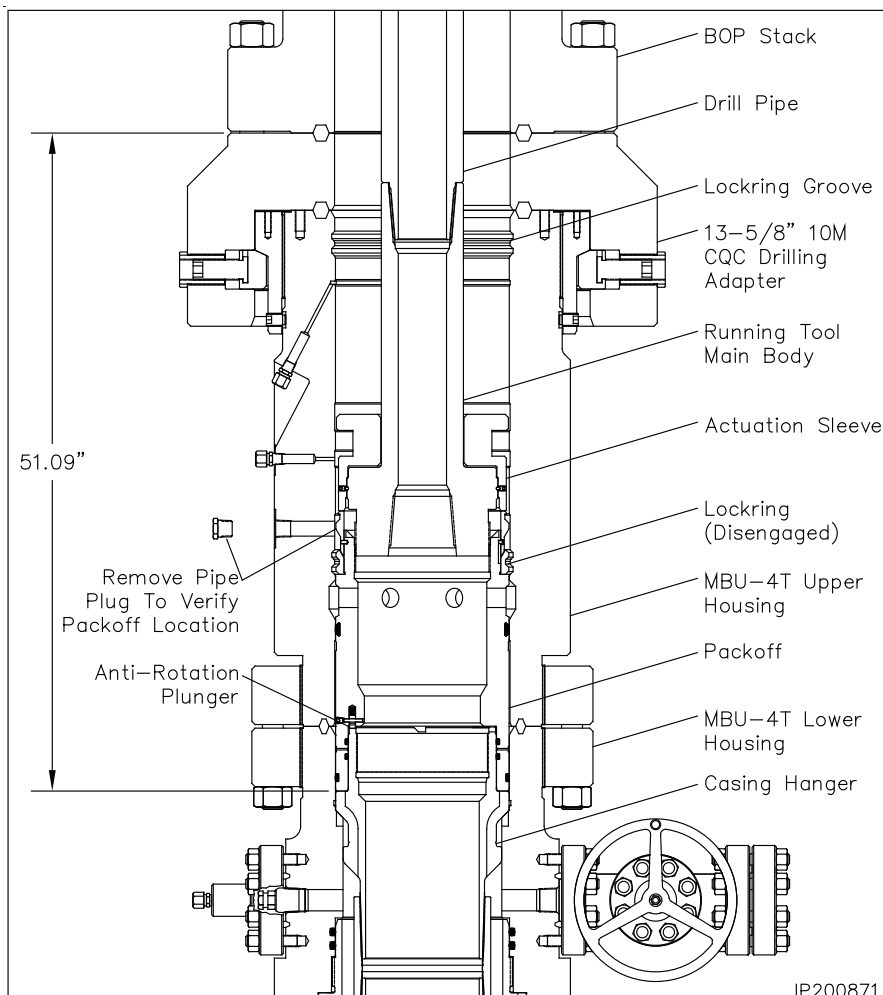
### Landing the Packoff

12. Remove the hole cover.
13. Measure up 5 foot from the bottom of the packoff and place a paint mark on the drill collar.
14. Pick up the packoff/running tool assembly and carefully lower the assembly through the BOP, marking the landing joint every five feet until the calculated dimension is reached.
15. Place a paint mark on the landing joint at that dimension and mark **LANDED**. Place an additional mark 1-1/2" above the first one and mark **ENGAGED**.
16. Continue lowering the packoff until it passes over the neck of the hanger and lands on the casing hanger flutes, 51.09" below the top of the drilling adapter.



**WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

17. Open the upper housing lower side outlet valve.
18. Locate the lower 1" sight port pipe plug in the upper housing and remove the plug.
19. Look through the port to verify that the packoff is properly landed. The white painted energizing ring will be clearly visible in the center of the open port.
20. Reinstall the pipe plug and tighten securely.



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## Stage 9 — Install the MBU-4T Lower Mandrel Hanger Packoff

### Seal Test

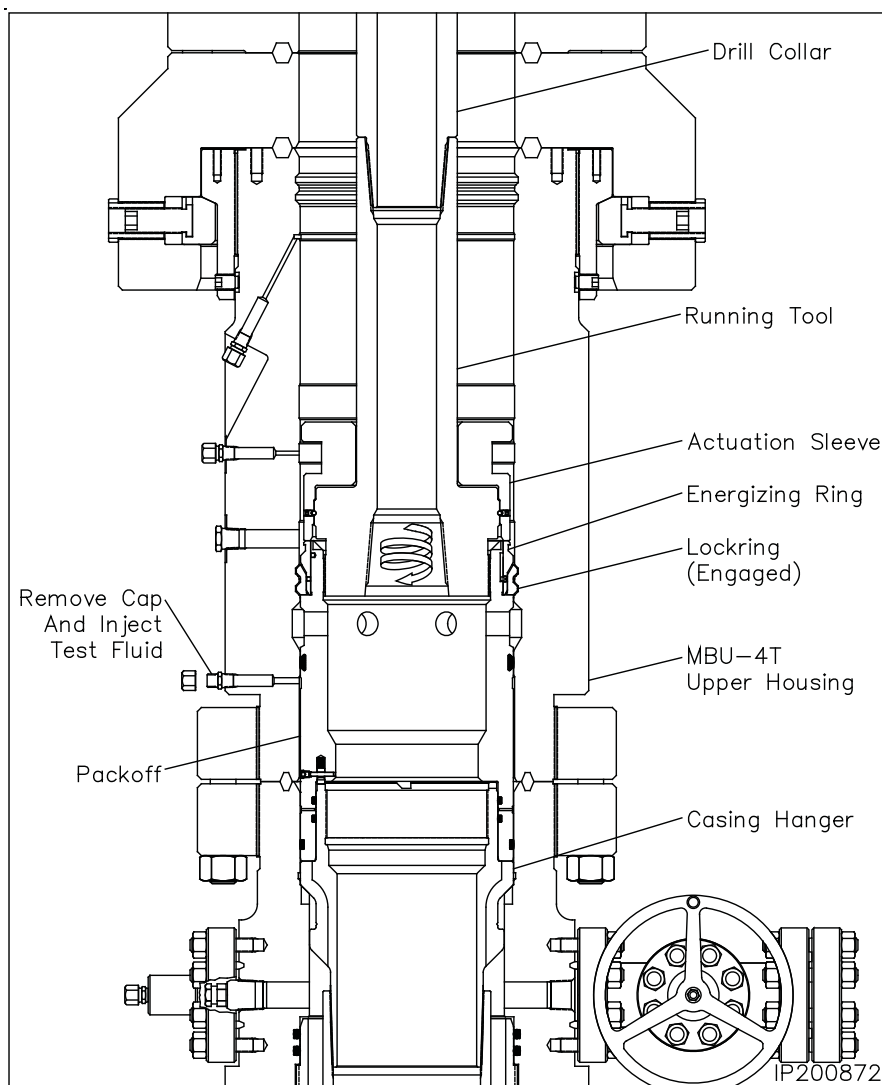
21. Locate the lower "SEAL TEST" fitting on the O.D. of the upper housing and remove the dust cap from the fitting.
22. Attach a test pump to the open fitting and pump clean test fluid between the seals until a stable test pressure of **5,000 psi** is achieved.
23. Hold the test pressure for 15 minutes or as required by drilling supervisor.
24. If a leak develops, bleed off test pressure. Remove the packoff from the wellhead and replace the leaking seals.
25. After a satisfactory test is achieved, bleed off the test pressure but leave the test manifold in place.

### Engaging the Lockring

26. Using chain tongs only, located 180° apart, slowly rotate the drill pipe counter clockwise until the anti-rotation plungers align with the slots in the top of the hanger. Expect torque of approximately 400 ft-lbs to rotate the packoff.
27. Using chain tongs only, rotate the landing joint approximately 6 to 6-1/2 turns counter clockwise to engage the packoff locking in its mating groove in the bore of the MBU-4T upper housing.

**NOTE:** Approximately 800 to 900 ft-lbs of torque will be required to break over the shear pins in the packoff. The torque will drop off and then increase slightly when the energizing ring pushes the locking out. A positive stop will be encountered when the locking is fully engaged.

**NOTE:** When properly engaged the second paint mark on the landing joint will align with the rig floor. **VERIFY PAINT MARKS.**



**CAUTION:** It is imperative that the landing joint remain concentric with the well bore when rotating to engage the locking. This can be accomplished with the use of the air hoist.

**CAUTION:** If the required turns to engage the locking are not met or excessive torque is encountered, remove the packoff. First call local branch. If further assistance is required then call Houston Engineering.

28. Back off the landing joint/running tool approximately three turns. Using the top drive, exert a 40,000 lbs. pull on the landing joint. After satisfactory test, slack off all weight.
29. Reattach the test pump to the open test manifold and retest the packoff seals to **5,000 psi**. This will also verify that the packoff is in place.
30. After satisfactory test is achieved, bleed off all test pressure. Remove test pump and reinstall the dust cap on the open fitting.
31. Using chain tongs only, rotate the landing joint clockwise until the tool comes free of the packoff (approximately 6 to 6-1/2 total turns) and then retrieve the tool with a straight vertical lift.



Franklin Mountain Operating LLC  
(20") x 13-3/8" x 9-5/8" x 7-5/8" x 5-1/2"  
MBU-4T-CFL-R-DBLO Wellhead System

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## Stage 9 — Install the MBU-4T Lower Mandrel Hanger Packoff

In the event the packoff is required to be removed after the lockring is engaged, the following procedure is to be followed.

### Retrieving the Packoff

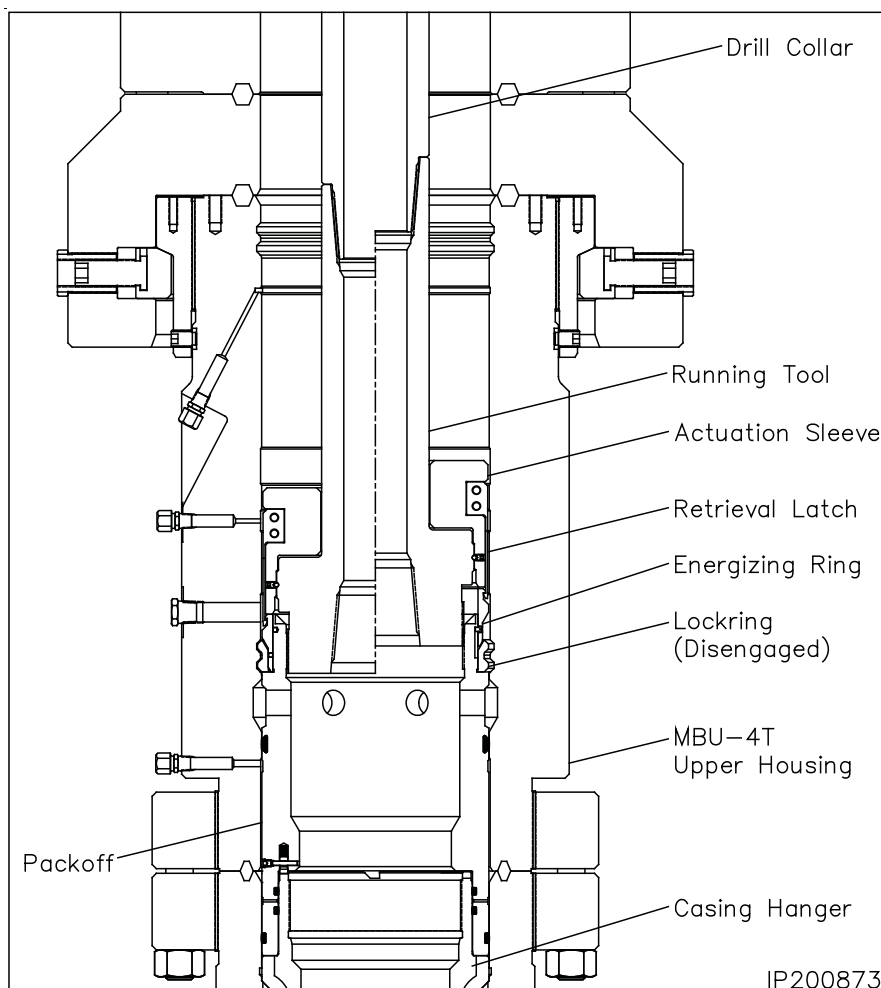
1. Position the retrieval latch so the latch finger extend from the bottom of the running tool body.
2. Reinstall the cap screws and tighten them securely.
3. Ensure the retrieval latch freely rotates on the running tool body.
4. Carefully lower the running tool through the BOP stack and into the packoff.
5. Rotate the drill pipe clockwise (Right) to locate the thread start and then counter clockwise (Left) (approximately 9 to 9-1/2 turns) to a positive stop.

**i NOTE:** At this point the retrieval latches will have passed over the energizing ring and snapped into place.

6. Rotate the drill pipe clockwise (right) approximately 6 turns to a positive stop. The drill pipe should rise approximately 1-1/2".

**! CAUTION:** Do not exceed the 6 turns or the packoff may be seriously damaged.

7. Carefully pick up on the drill pipe and remove the packoff from the MBU-4T wellhead with a straight vertical lift.
8. Rotate the packoff 1 turn clockwise to relax the retrieval latch.
9. Remove the (4) 1/2" cap screws and remove the latch assembly.
10. Redress the packoff and reset as previously outlined.
11. Once the packoff is properly set, reinstall the retrieval latch on the tool.





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## Stage 10 — Test the BOP Stack

Immediately after making up the BOP stack and periodically during the drilling of the well for the next casing string the BOP stack (connections and rams) must be tested.

1. Examine the **13-5/8" Nominal x 4-1/2" IF CW MBU-3T Test Plug/Retrieving Tool (Item ST4)**. Verify the following:
  - 1-1/4" VR plug and weep hole plug are in place and tightened securely
  - elastomer seal is in place and in good condition
  - retractable lift lugs are in place, clean, and free to move
  - drill pipe threads are clean and in good condition
2. Position the test plug with the elastomer seal down and the lift lugs up and make up the tool to a joint of drill pipe.



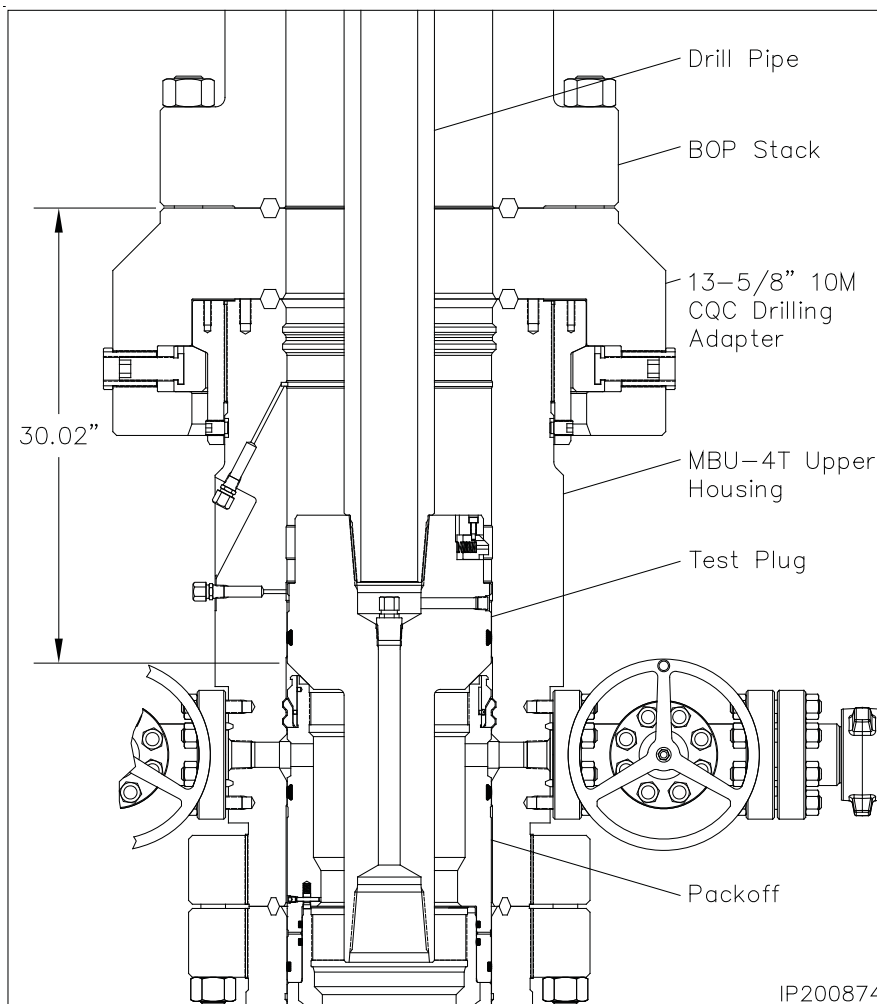
**CAUTION:** Ensure the lift lugs are up and the elastomer seal is down.

3. Remove the 1/2" NPT pipe plug from the weep hole if pressure is to be supplied through the drill pipe.



**WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

4. Open the upper housing lower side outlet valve.
5. Lightly lubricate the test plug seal with oil or light grease.
6. Carefully lower the test plug through the BOP and land it on top of the 9-5/8" packoff or load shoulder in the emergency upper housing, 30.02" below the top of the drilling adapter.
7. Close the BOP rams on the pipe and test the BOP to 10,000 psi.



**NOTE:** Any leakage past the test plug will be clearly visible at the open side outlet valve.

8. After a satisfactory test is achieved, release the pressure and open the rams.
9. Remove as much fluid as possible from the BOP stack. Retrieve the test plug with a straight vertical lift.



**CAUTION:** When performing the BOP blind ram test it is highly recommended to suspend a stand of drill pipe below the test plug to ensure the plug stays in place while disconnecting it from the drill pipe.

10. Close all open valves.
11. Repeat this procedure as required during the drilling of the hole section.



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## Stage 11 — Run the Intermediate Wear Bushing

**CAUTION:** Always use a wear bushing while drilling to protect the load shoulders from damage by the drill bit or rotating drill pipe. The wear bushing **must be retrieved** prior to running the casing.

1. Examine the **13-5/8" Nominal MBU-4T-MID Wear Bushing (Item ST11)**. Verify the following:
  - internal bore is clean and in good condition
  - trash and shear o-ring cord are in place and in good condition
  - anti-rotation plungers are in place, free to move

### Run the Wear Bushing Before Drilling

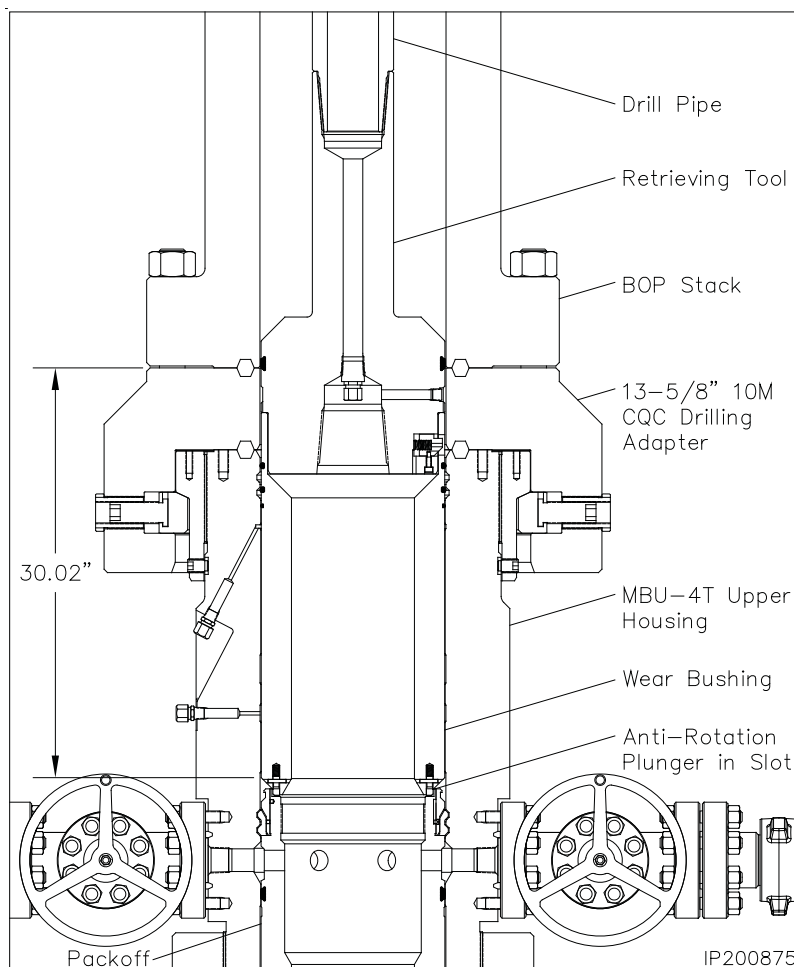
2. Orient the **13-5/8" Nominal x 4-1/2" IF CW Test Plug/Retrieving Tool (Item ST4)** with drill pipe connection neck up.
3. Attach the retrieving tool to a joint of drill pipe.
4. Align the retractable lift lugs with the retrieval holes of the bushing and then carefully lower the tool into the wear bushing until the lugs snap into place.

**NOTE:** If the lugs did not align with the holes, rotate the tool in either direction until they snap into place.

5. Apply a heavy coat of grease, not dope, to the O.D. of the bushing.
6. Slowly lower the tool/bushing assembly through the BOP stack and land it on top of the 9-5/8" packoff or emergency upper housing load shoulder, 30.02" below the top of the upper housing.
7. Rotate the drill pipe clockwise (right) to locate the anti-rotation plungers in their mating slots in the packoff or housing. When properly aligned the bushing will come to a positive stop.

**NOTE:** The shear o-ring on top of the bushing will locate in the upper locking groove in the housing to act as a retaining device for the bushing.

8. Remove the tool from the wear bushing by rotating the drill pipe counter clockwise (left) 1/4 turn and lifting straight up.
9. Drill as required.



**CAUTION:** It is highly recommended to retrieve, clean, inspect, grease, and reset the wear bushing each time the hole is tripped during the drilling of the hole section.

### Retrieve the Wear Bushing

10. Make up the retrieving tool to the drill pipe.
11. Slowly lower the tool into the wear bushing.
12. Pick up and balance the riser weight.
13. Rotate the retrieving tool counter clockwise two full turns to help clear the debris in the wear bushing windows. Then rotate clockwise until a positive stop is felt. This indicates the lugs have snapped into the holes in the bushing.
14. Retrieve the wear bushing. Remove it and the retrieving tool from the drill string.



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## Stage 12 — Hang Off the 7-5/8" Casing

1. Examine the **13-5/8" x 7-5/8" CW, TP8 Casing Hanger Running Tool (Item ST12)**. Verify the following:

- internal bore and threads are clean and in good condition
- o-ring seal is clean and in good condition
- torque dogs are in place, in upper most position and retainer hex head screws are tightened securely

2. Make up a landing joint to the top of the running tool and torque connection to thread manufacturer's maximum make up torque.

3. Lay down the landing joint on the pipe rack.

4. On the pipe rack, examine the **13-5/8" x 7-5/8" CW, MBU-4T-MID-TP8 Mandrel Casing Hanger (Item A24)**. Verify the following:

- internal bore and threads are clean and in good condition
- neck seal area is clean and undamaged
- torque slots are clean and in good condition
- pin threads are clean and in good condition. **Install thread protector**
- place a white band around the hanger as indicated and allow paint to dry

5. Liberally lubricate the mating threads, seal areas and o-ring of the hanger and running tool with an oil or light grease.

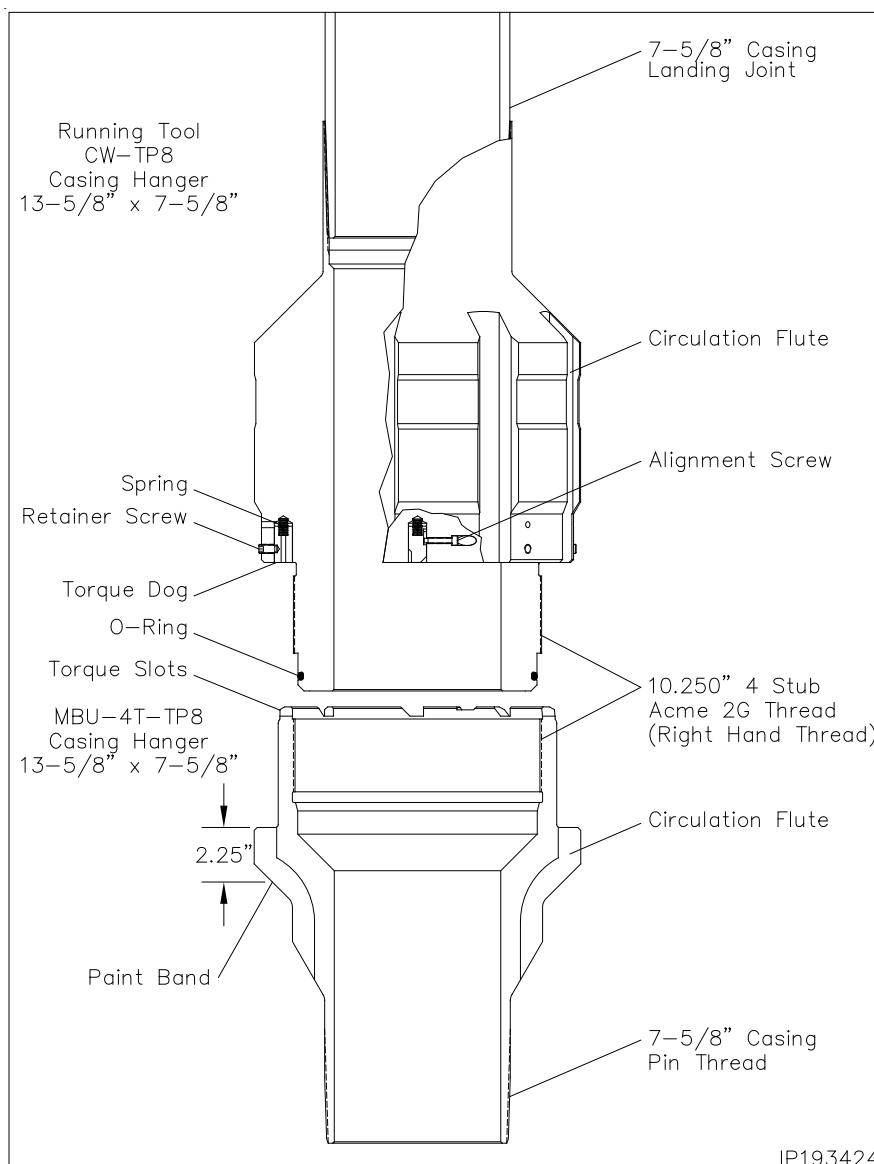
6. **Using chain tongs only**, thread the running tool into the hanger, with right hand rotation, until it shoulders out on the hanger body.



**CAUTION:** Do Not apply torque to the hanger/tool connection.



**NOTE:** If steps 1 through 6 were done prior to being shipped to location, the running tool should be backed off 1 turn and made back up to ensure it will back off freely.

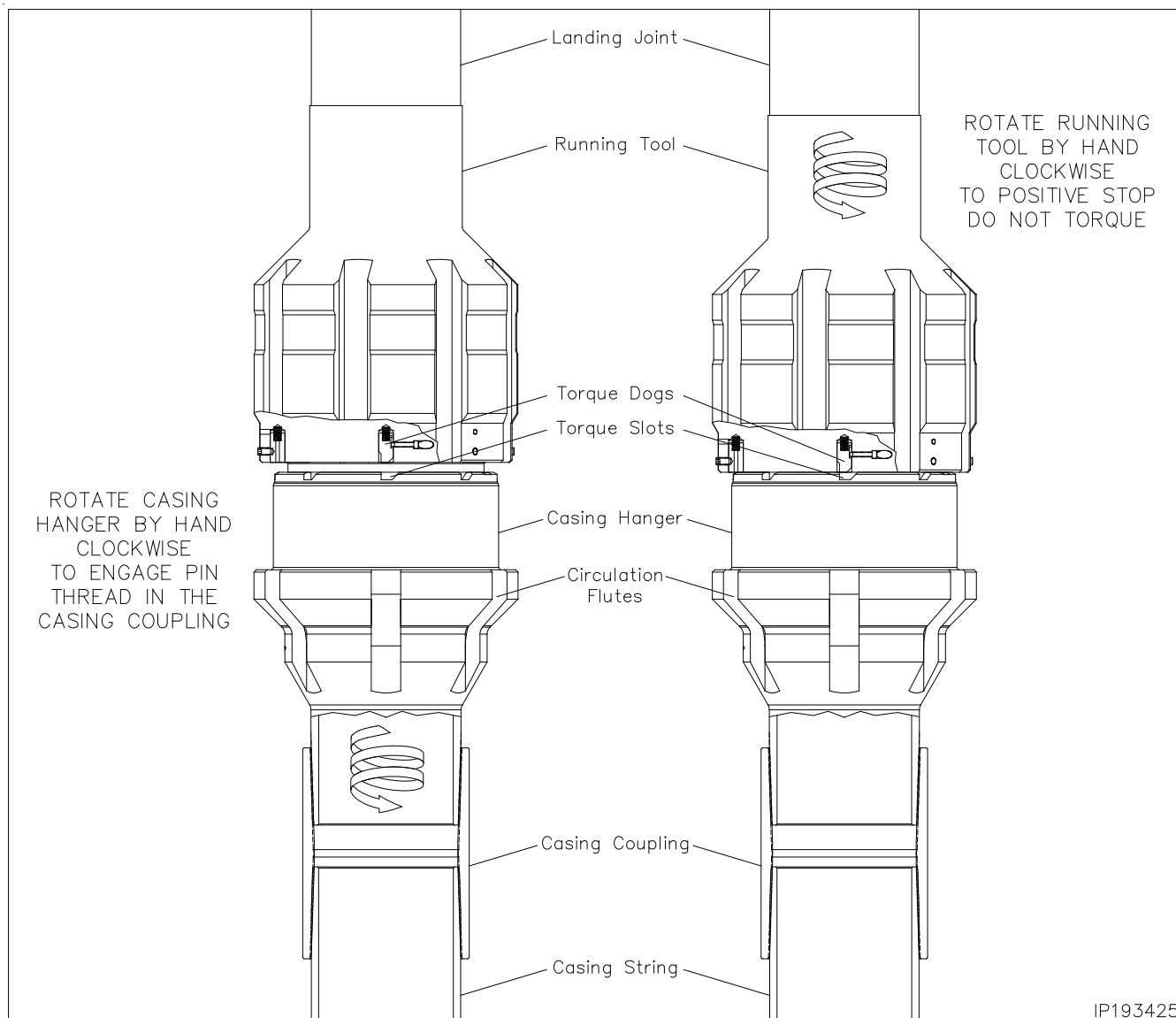


7. Calculate the total landing dimension by adding the previously determined RKB dimension and 30.00", the depth of the wellhead.
8. Starting at the top of the 45° angle load shoulder of the casing hanger measure up the landing joint and place a paint mark on the joint. Mark **HANGER LANDED**.
9. Place a second mark 30.00" below the first and mark **STOP ROTATING**.
10. Run the 7-5/8" casing as required and space out appropriately for the mandrel casing hanger.



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## Stage 12 — Hang Off the 7-5/8" Casing



**NOTE:** If the 7-5/8" casing becomes stuck and the mandrel casing hanger cannot be landed, refer to **Stage 12A** for the emergency slip casing hanger procedure.

11. Pick up the casing hanger/running tool joint assembly.
12. Remove the casing hanger thread protector and carefully thread the hanger into the last joint of casing. Rotate the hanger clockwise, by hand, to a positive stop.
13. Rotate the running tool clockwise by hand to a positive stop.



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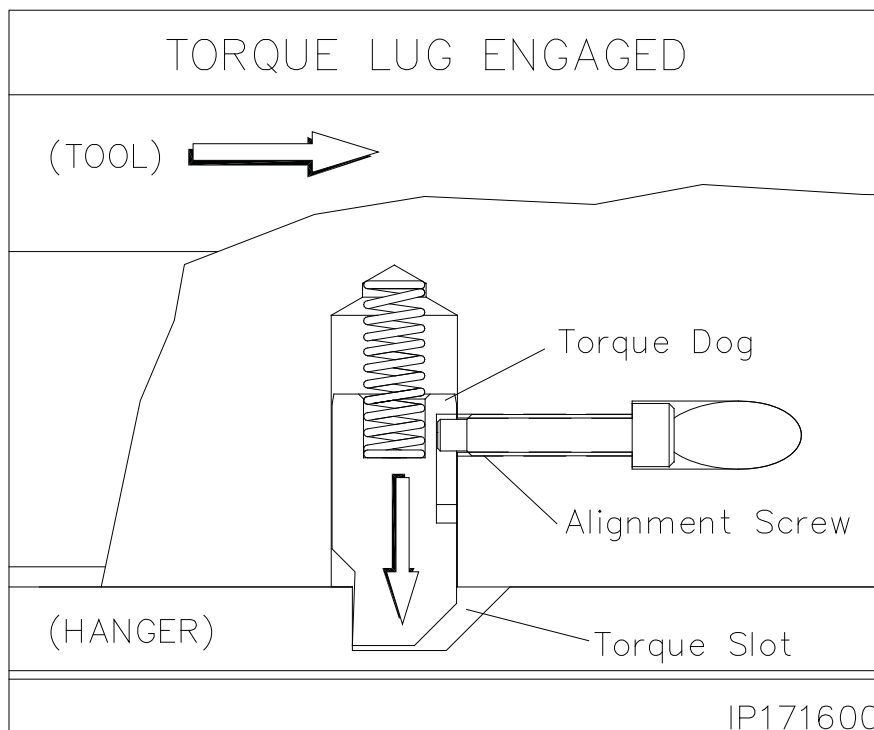
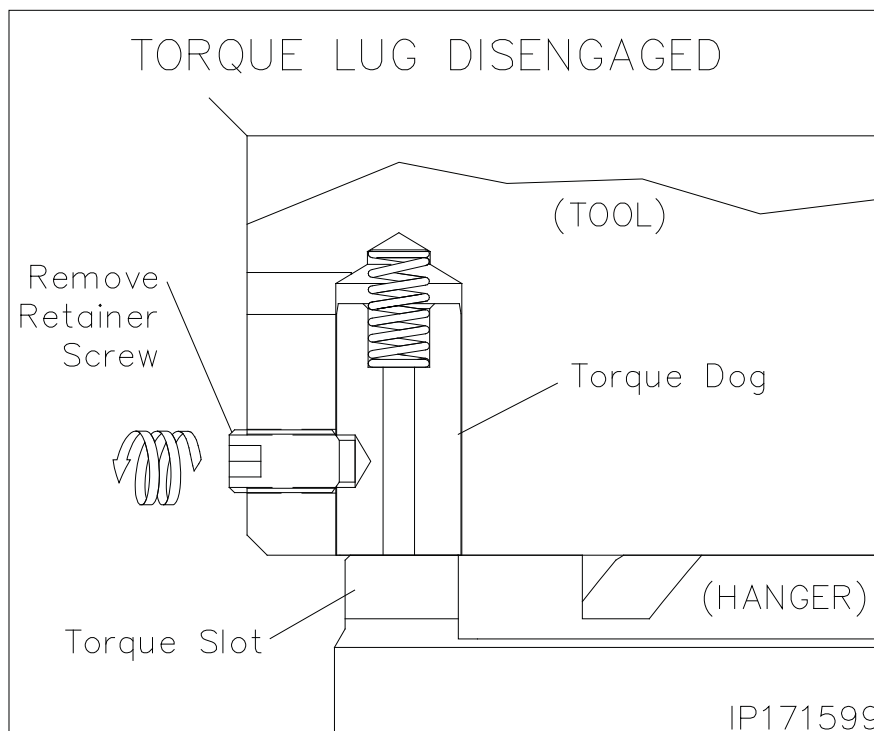
## Stage 12 — Hang Off the 7-5/8" Casing

14. Locate the (8) socket head set screws in the side of the hanger running tool and completely remove the screws from the running tool. This will release the running tool torque dogs allowing them to move downward.

**NOTE:** Place the screws in a safe place to reinstall in the tool when the job is completed.

15. **Using chain tongs only**, rotate the running tool to the left to allow the torque dogs to engage the torque slots in the top of the hanger.

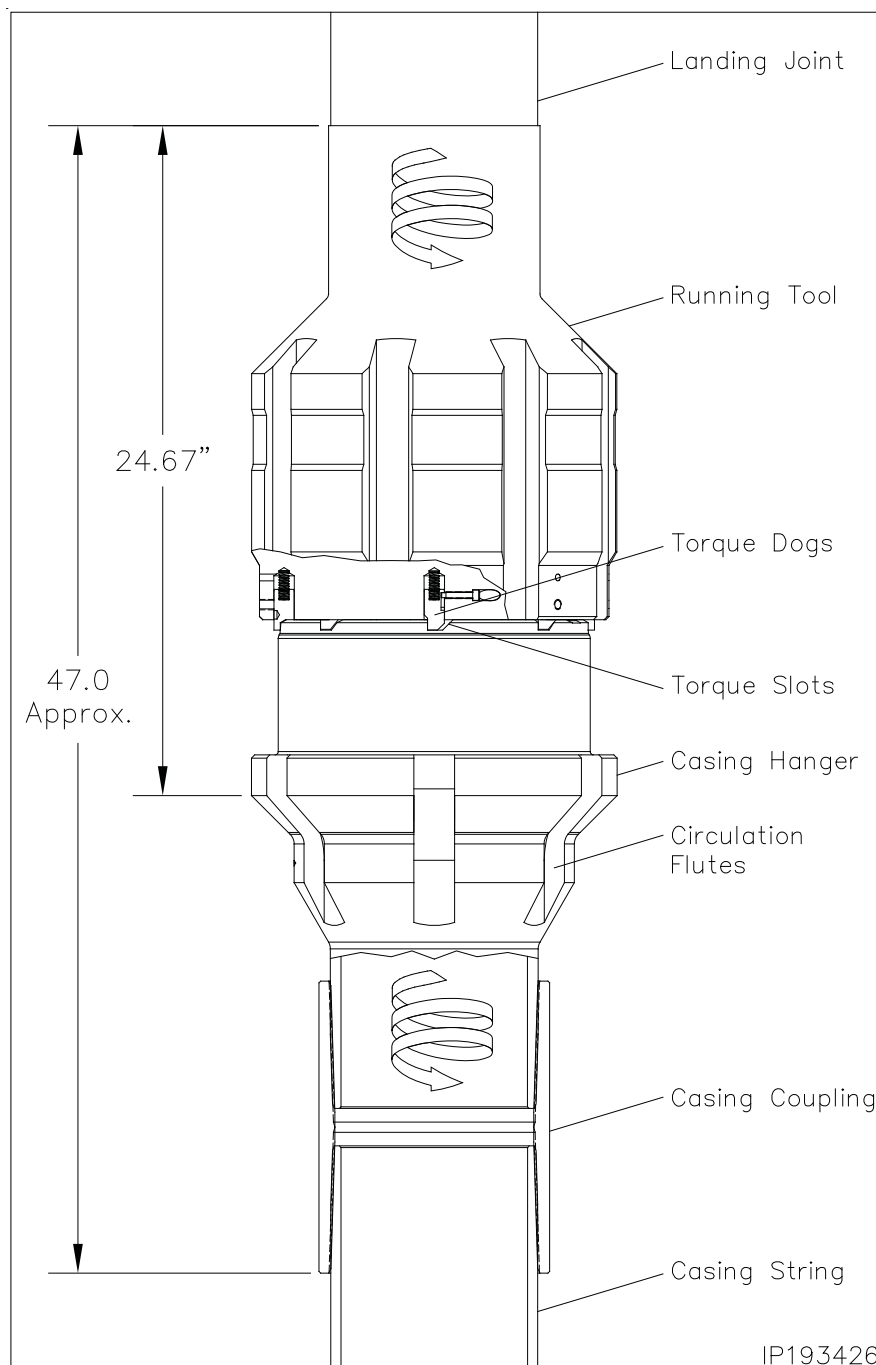
**CAUTION:** Do not rotate the running tool more than 1/4 turn to the left. Doing so will decrease the torque dog engagement.



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## Stage 12 — Hang Off the 7-5/8" Casing

16. Engage the CRT tool in the landing joint and torque the casing hanger in the casing string to thread manufacturer's maximum make up torque.

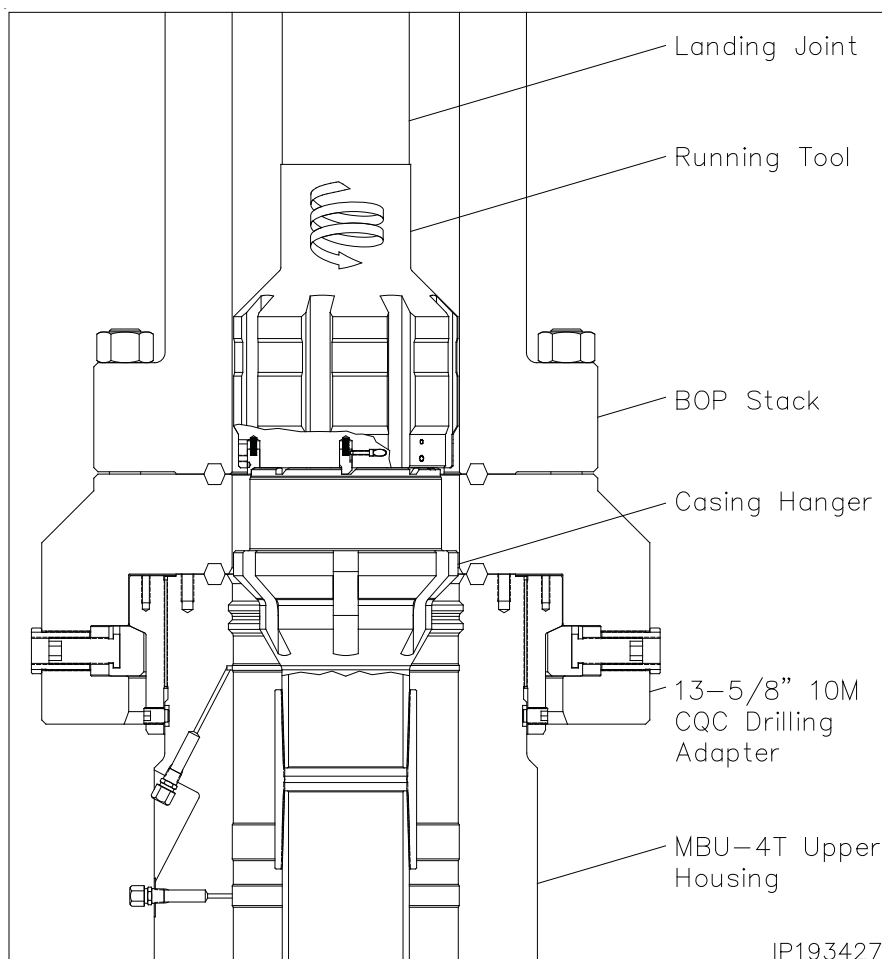


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## Stage 12 — Hang Off the 7-5/8" Casing

17. Pick up the casing string and remove the floor slips and rotary bushings.
18. Carefully lower the hanger completely through the BOP annular and then engage the top drive to allow the casing to be rotated clockwise.
19. While rotating the casing clockwise, carefully lower the casing string until the **STOP ROTATING** mark on the landing joint is level with the rig floor.

**NOTE:** The torque dogs have a maximum rated capacity. Please reference the **Recommended Service Tools** section in the BOM for maximum torque allowed.



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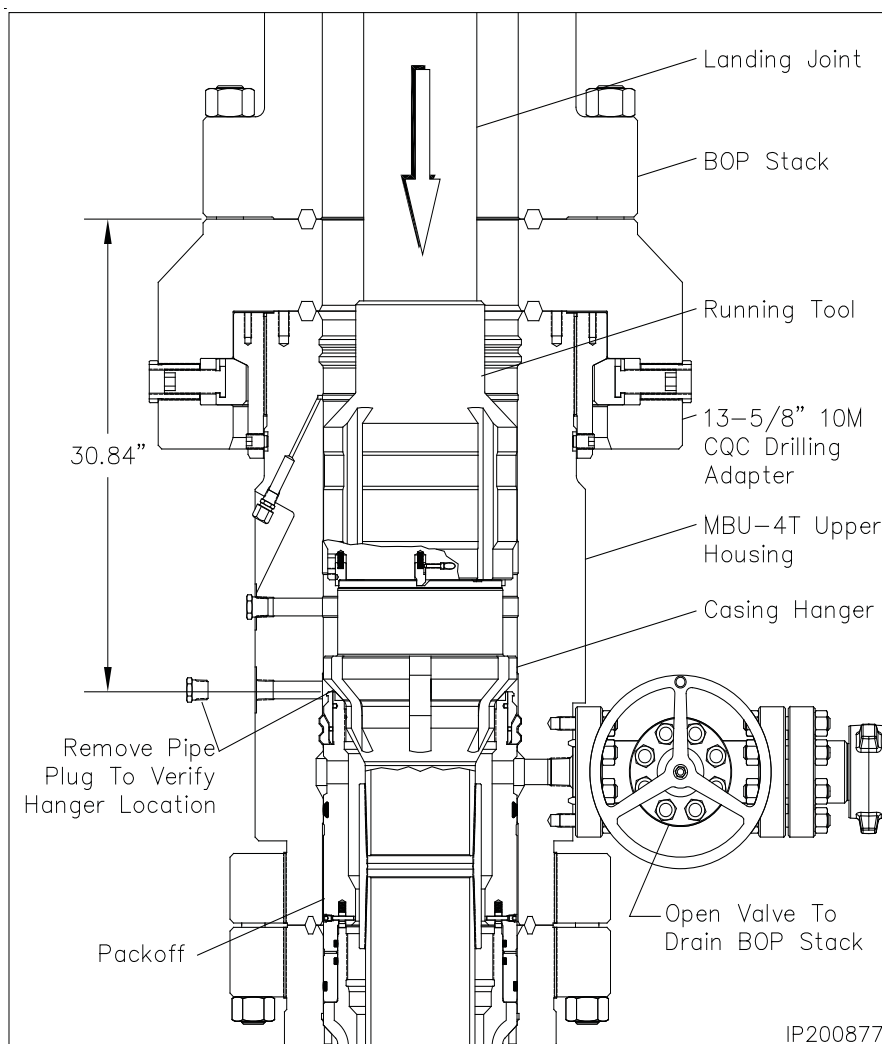
## Stage 12 — Hang Off the 7-5/8" Casing

**CAUTION:** Torque wrap can build in the casing string as it is rotated. Ensure the string comes to a neutral position, by allowing it to back off slowly counter clockwise, before the casing hanger is fully landed.

20. Cease rotation and continue carefully lowering the hanger through the wellhead and land it on top of the 9-5/8" MBU-4T packoff, 30.00" below the top of the drilling adapter.
21. Slack off all weight on the casing and verify that the **HANGER LANDED** paint mark has aligned with the rig floor.

**WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

22. Open the lower outlet valve on the upper housing to drain the BOP stack.
23. Remove the lower 1" NPT sight port in the housing and look through the open port. The white paint mark on the casing hanger will be clearly visible.
24. Reinstall the pipe plug and tighten securely.
25. Close the open valve and place a vertical paint mark on the landing joint to verify if the casing string rotates during the cementing process.
26. Cement the casing as required.



**NOTE:** Returns may be taken through the circulation slots and out the BOP or out the side outlets on the housing.

27. With cement in place, bleed off all pressure and remove the cementing head.
28. Using chain tongs only, located 180° apart, retrieve the running tool and landing joint by rotating the landing joint counter clockwise (left) approximately 15 turns or until the tool comes free of the hanger.

**CAUTION:** The rig floor tong may be used to break the connection but under no circumstances is the top drive to be used to rotate or remove the casing hanger running tool.



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## Stage 12 — Hang Off the 7-5/8" Casing

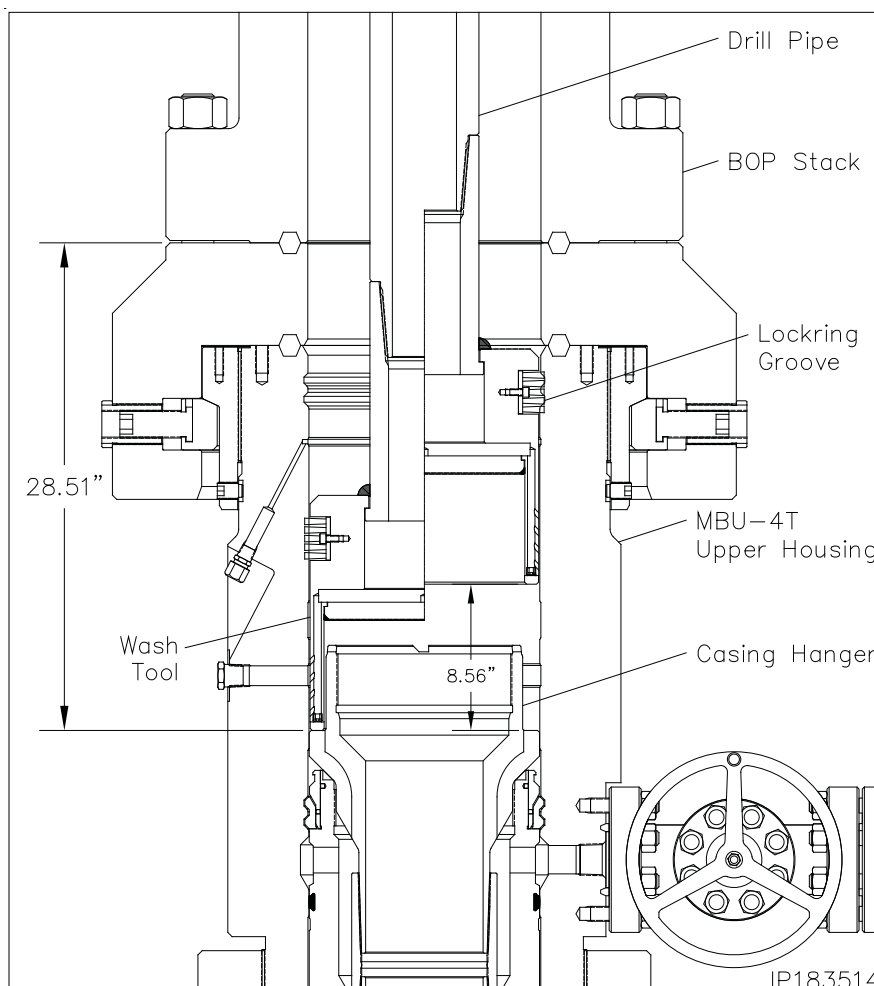
### Running the 13-5/8" Wash Tool

1. Examine the **13-5/8" x 4-1/2" IF Wash Tool (Item ST9)**. Verify the following:
  - drill pipe threads and bore are clean and in good condition
  - all ports are open and free of debris
  - brushes are securely attached and in good condition
2. Orient the wash tool with drill pipe box up. Make up a joint of drill pipe to the tool.
3. Carefully lower the wash tool through the BOP and land it on top of the 7-5/8" casing hanger, 28.51" below the top of the drilling adapter.
4. Place a paint mark on the drill pipe level with the rig floor.
5. Using chain tongs, rotate the tool clockwise (right) approximately 6 turns to loosen any debris that may be on top of the hanger flutes.



**WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

6. Open the lower side outlet valve and drain the BOP stack.
7. Pick up on the tool approximately 1" and attach a high pressure water line or the top drive to the end of the drill pipe and pump water at approximately 25 SPM through the tool and up the BOP stack.
8. Pick up the tool 8.56" total, above its landing position and rotate the tool to brush the lockring groove free of debris.
9. While flushing, raise and lower the tool the full length of the wellhead and BOP stack. The drill pipe should be slowly rotated (approximately 20 RPM) while raising and lowering to wash the inside of the housing and BOP stack to remove all caked on debris.
10. Once washing is complete, land the wash tool on the hanger flutes.



11. Shut down pumps and observe the returns at the open lower outlet for debris.
12. Reengage the pump and fully wash the inside of the wellhead and the entire BOP one additional cycle ensuring the stopping point is with the wash tool resting on top of the hanger flutes.
13. Once the returns are clean and free of debris, retrieve the tool to the rig floor.
14. Using a bright light, sight through the bore of the BOP stack and observe the top of the hanger neck and flutes. Ensure that there are no dark areas on top of the hanger flutes.



**CAUTION:** Observe the returns at the open outlet valve. If returns are not clean, continue flushing until they are.



**CAUTION:** Continue washing until all debris is removed.



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## Stage 12A — Hang Off the 7-5/8" Casing (Emergency)

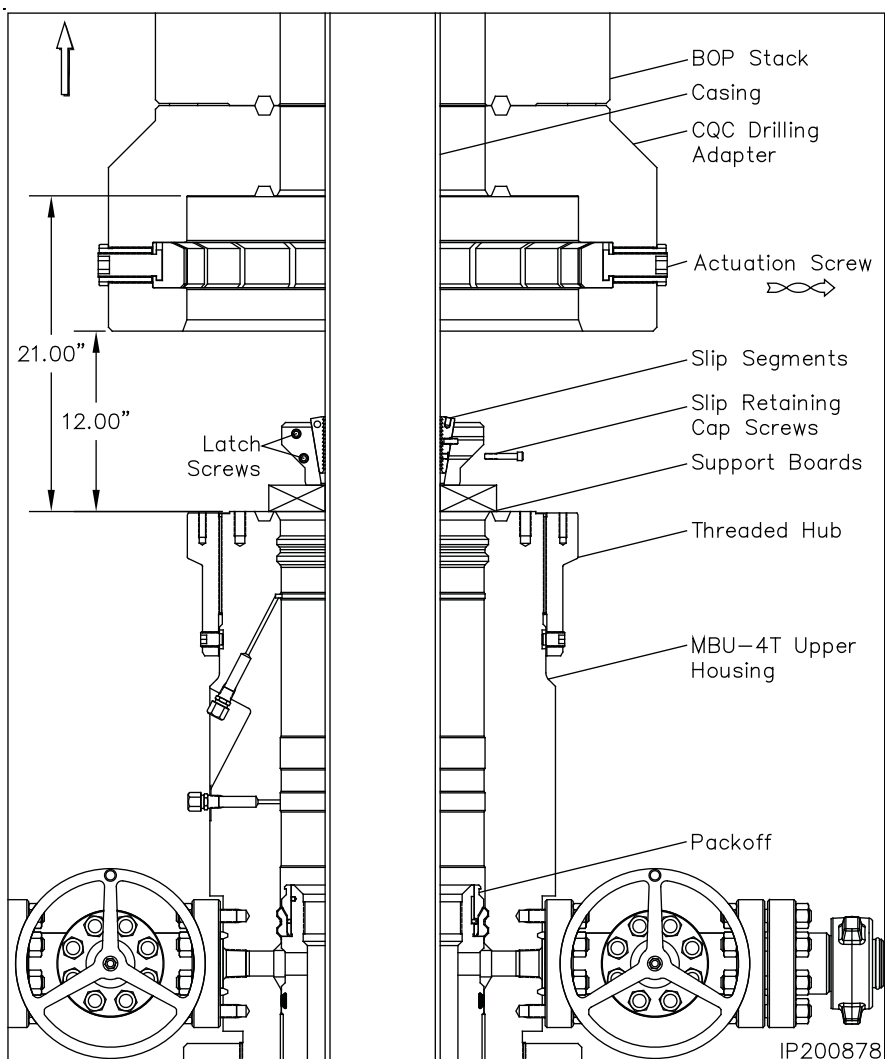
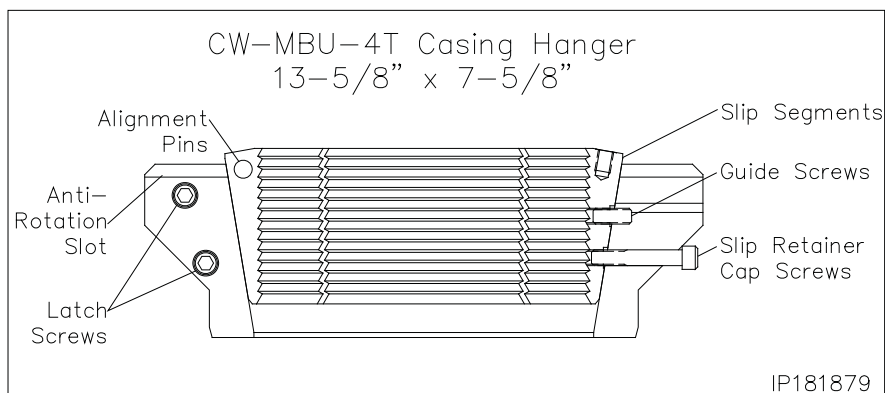
1. Cement the hole as required.

**WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

2. Drain the BOP stack through the housing lower side outlet valve.
3. Locate the actuation screws on the O.D. of the drilling adapter.
4. Using a hex drive, fully retract the actuation screws until they are slightly over flush with the gland nuts.

**WARNING:** Keep body clear of all pinch points and suspended loads.

5. Pick up on the BOP stack a minimum of 12" above the housing and secure with safety slings.
6. Washout bowl as required.
7. Examine the **13-5/8" x 7-5/8" MBU-4T-MID Slip Casing Hanger (Item A24a)**. Verify the following:
  - slips and internal bore are clean and in good condition
  - all screws are in place
8. There are four latch screws located in the side of the casing hanger body. Using a 5/16" Allen wrench, remove the four latch screws located 180° apart and separate the hanger into two halves.
9. Place two boards on the lower adapter against the casing to support the hanger.
10. Pick up one half of the hanger and place it around the casing and on top of the boards.
11. Pick up the second hanger half and place it around the casing adjacent the first half.
12. Slide the two hanger halves together ensuring the slip alignment pins properly engage the opposing hanger half.
13. Reinstall the latch screws and tighten securely.



14. Prepare to lower the hanger into the housing bowl.

**CAUTION:** Do Not drop the casing hanger!



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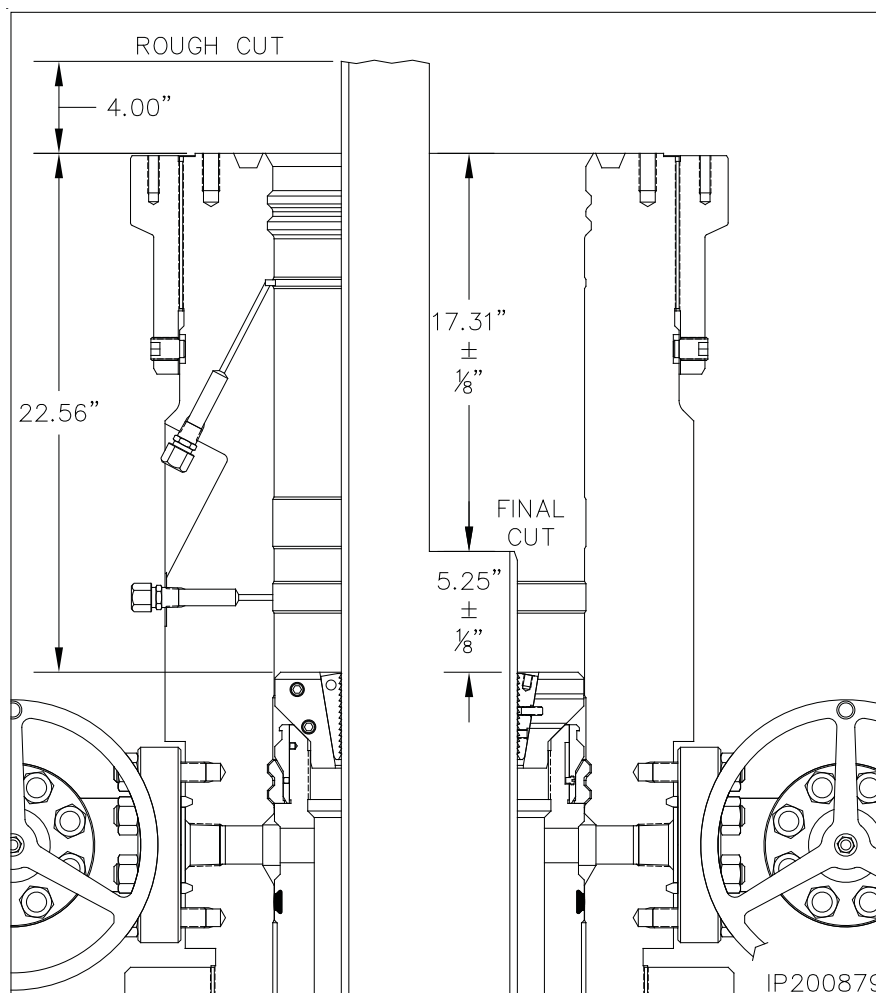
## Stage 12A — Hang Off the 7-5/8" Casing (Emergency)

15. Grease the casing hanger body and remove the slip retaining screws.
16. Pull tension on the casing to the desired hanging weight
17. Remove the boards and allow the hanger to slide into the housing bowl. When properly positioned the top of the hanger will be approximately 22.56" below the top of the housing.
18. Slack off the desired hanging weight.

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

**WARNING:** Due to the potential fire hazard and the risk of loss of life and property, it is highly recommended to check the casing annulus and pipe bore for gases, with an approved sensing device, prior to cutting the casing. If gas is present, do not use an open flame torch to cut the casing. It will be necessary to use an air driven mechanical cutter which is spark free.

19. Rough cut the casing approximately 4" above the top of the housing and move the excess casing out of the way.
20. Using the internal casing cutter, final cut the casing at  $17.31" \pm 1/8"$  below the top of the lower adapter or  $5.25" \pm 1/8"$  above the hanger body.
21. Remove the internal casing cutter assembly and reconfigure the assembly to bevel the casing. Reinstall the cutter assembly and then place a  $3/16" \times 3/8"$  bevel on the O.D. and an I.D. chamfer to match the minimum bore of the packoff to be installed.



**CAUTION:** There must not be any rough edges on the casing or the seals of the packoff will be damaged.

22. Thoroughly clean the housing bowl, removing all cement and cutting debris.



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## Stage 13 — Install the MBU-3T Mandrel Hanger Packoff

The following steps detail the installation of the MBU-3T nested packoff assembly for the mandrel hanger. If the casing was landed using the emergency slip hanger, skip this stage and proceed with **Stage 13A** for installing the emergency MBU-3T nested packoff.

1. Examine the **13-5/8" x 11.250" 4 Stub Acme 2G LH Box Top MBU-3T Mandrel Hanger Nested Packoff Assembly (Item A25)**. Verify the following:

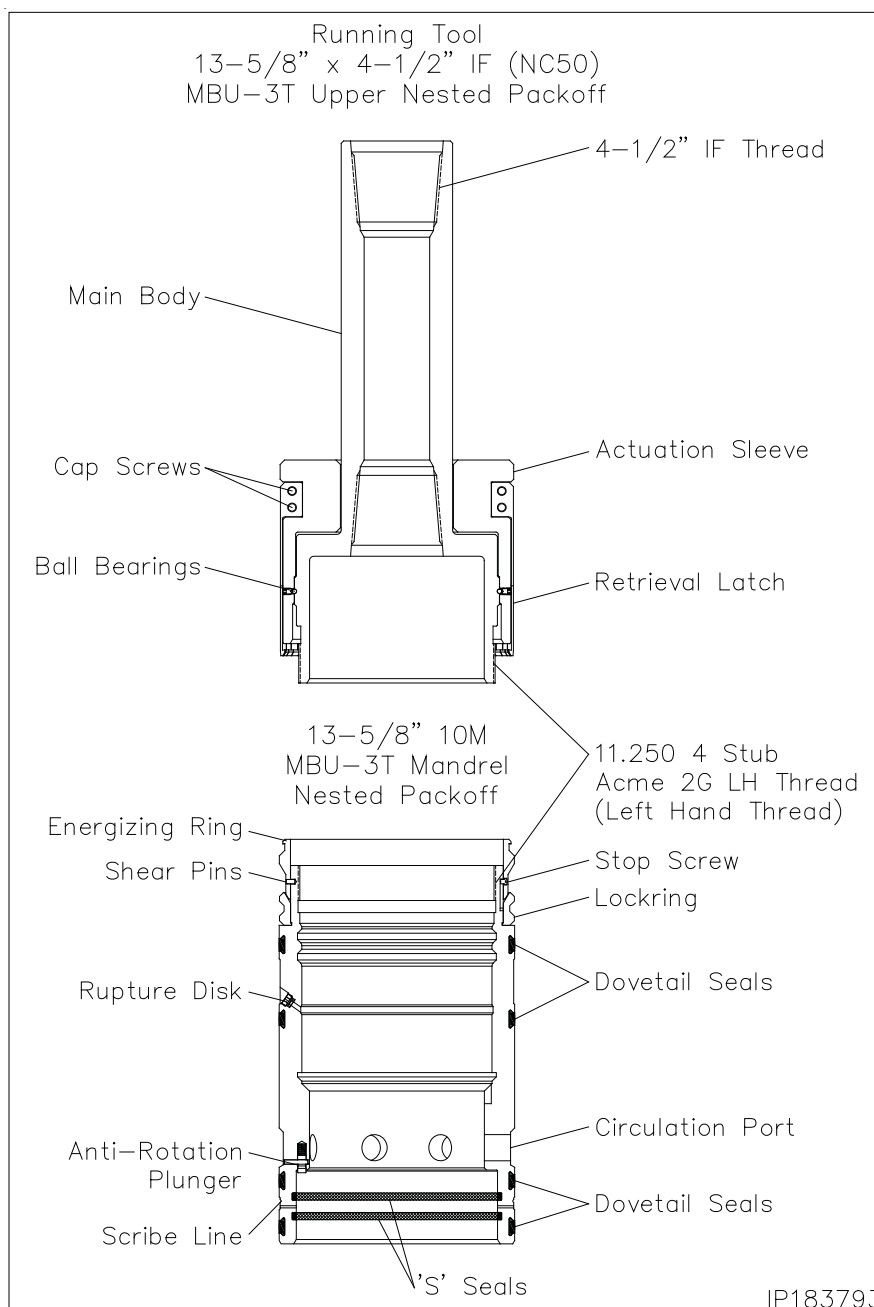
- all elastomer seals are in place and undamaged
- internal bore, and ports, are clean and in good condition
- locking is fully retracted
- rupture disk is in place and tightened securely
- energizer ring is in its upper most position and retained with shear pins
- guide screws are in place and back off 1/4 turn
- anti-rotation plungers are in place, free to move

2. Locate the 5/16" scribe mark between the lower dovetail seals of the packoff and paint only the scribe mark white. Allow the paint to dry.

3. Inspect the I.D. and O.D. seals for any damage and replace as necessary.

4. Examine the **13-5/8" Nominal x 11.250" 4 Stub Acme 2G LH, MBU-3T-UPR Nested Packoff Running Tool (Item ST13)**. Verify the following:

- Acme threads are clean and in good condition
- retrieval latch is in position and retained with cap screws
- actuation sleeve rotates freely
- seal sleeve is removed



IP183793



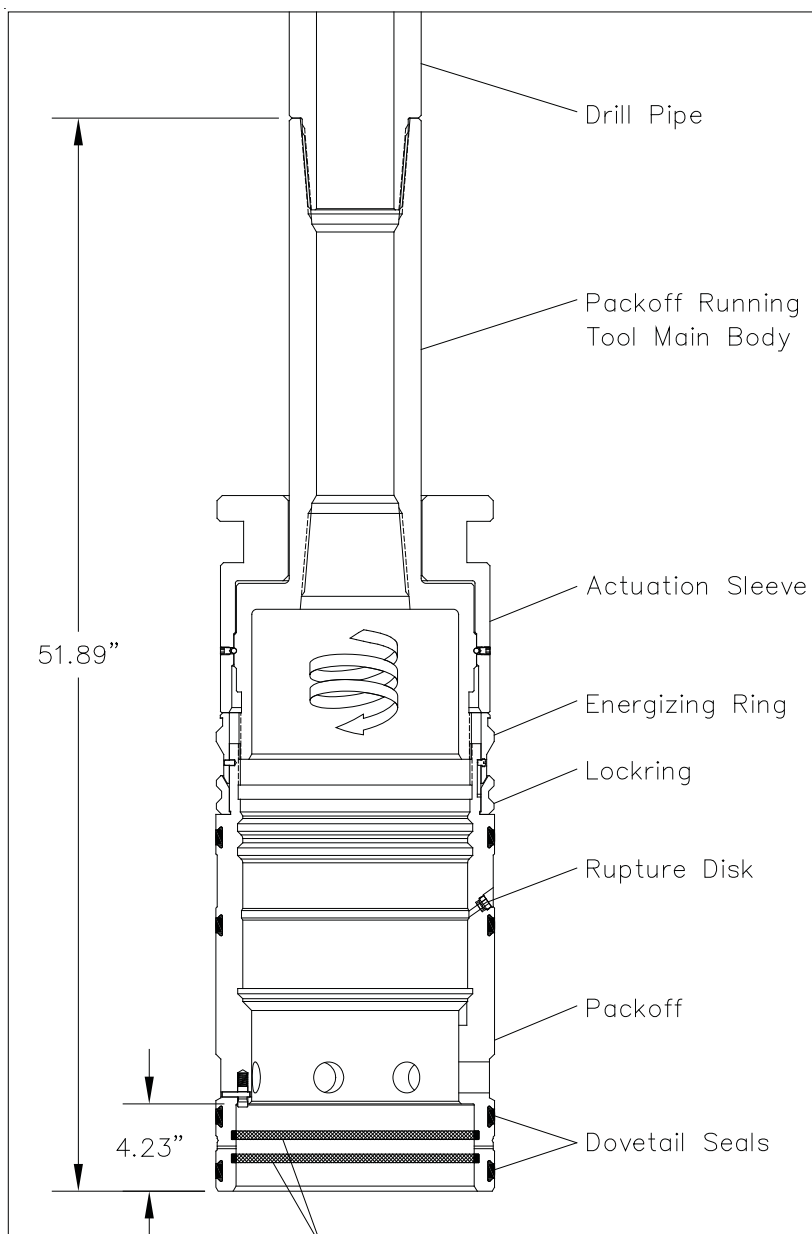
**NOTE:** Alternate tool may also be used.



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## Stage 13 — Install the MBU-3T Mandrel Hanger Packoff

5. Remove the retrieval latch and set aside.
6. Make up the running tool to 4-1/2" IF (NC-50) drill collar and torque the connection to optimum make up torque.
7. Pick up the running tool assembly with drill pipe landing joint and suspend it above the packoff.
8. Carefully lower the tool into the packoff and thread them together by first rotating the tool clockwise (RIGHT) to locate the thread start and then counter clockwise (LEFT) approximately 3 turns until the tool actuation sleeve makes contact with the packoff energizing ring.
9. Pick up the assembly and thoroughly clean and lightly lubricate the packoff I.D. 'S' seals and the O.D. dovetail seals with oil or light grease.
10. Locate the upper and lower "SEAL TEST" fittings on the O.D. of the housing and remove the dust cap from the fittings.
11. Attach a test pump to both fittings and pump clean test fluid thru the fittings and ports to dislodge any old grease and trapped debris.
12. Remove the test pumps and reinstall the fitting dust caps.






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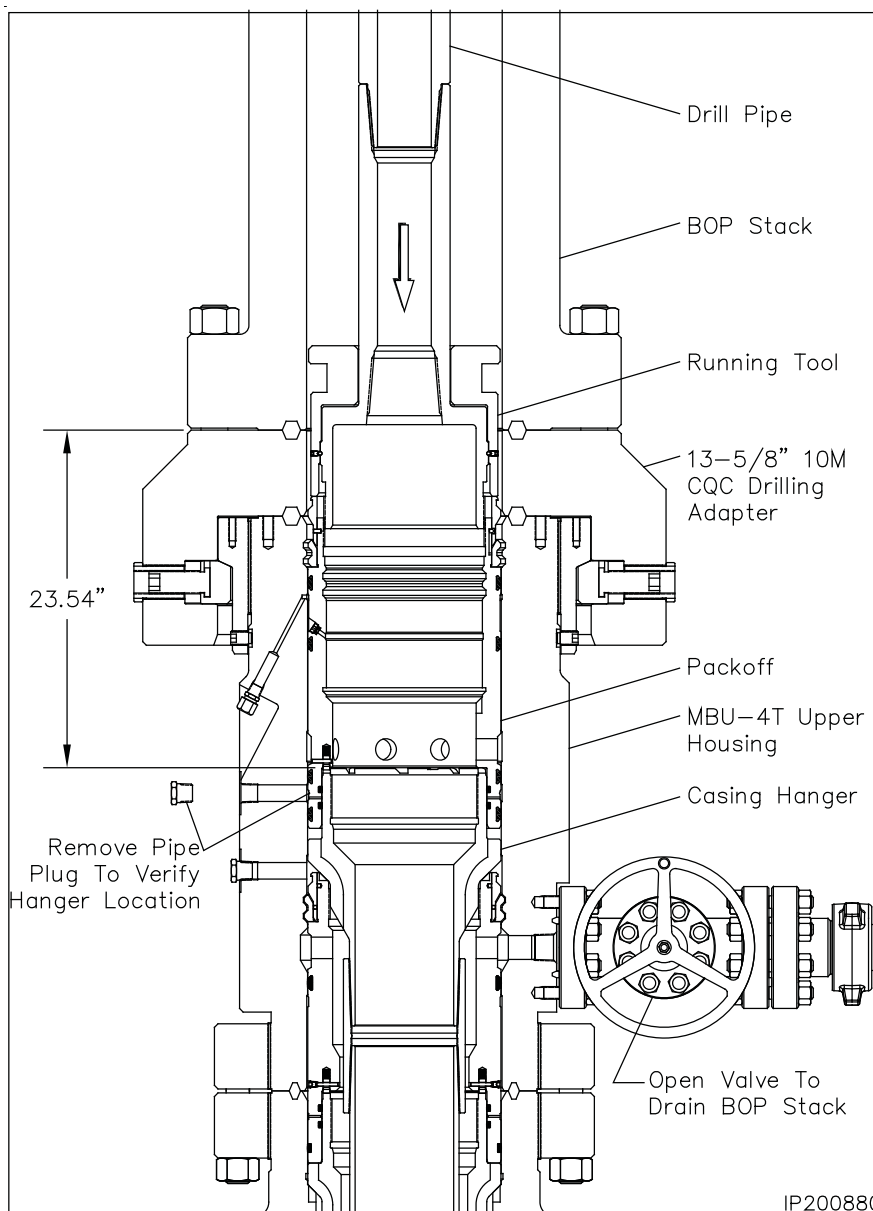
## Stage 13 — Install the MBU-3T Mandrel Hanger Packoff

### Landing the Packoff

13. Remove the hole cover.
14. Place a paint mark on the packoff 4.23" from the bottom.
15. Measure up 5 foot from that mark and place a paint mark on the drill pipe.
16. Pick up the packoff/running tool assembly and carefully lower the assembly through the BOP, marking the landing joint every five feet, until the calculated dimension is reached.
17. Place a paint mark on the landing joint at the dimension and mark **LANDED**. Place an additional mark 1-1/2" above the first one and mark **ENGAGED**.
18. Continue lowering the packoff until it passes over the neck of the hanger and lands on the casing hanger neck, 23.54" below the top of the drilling adapter.

 **WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

19. Open the lower outlet valve on the upper housing to drain the BOP stack.
20. Locate the upper 1" sight port pipe plug and remove the plug.
21. Look through the port to verify that the packoff is properly landed. The white painted scribe mark on the packoff will be clearly visible in the center of the open port.
22. Reinstall the pipe plug and tighten securely.



IP200880



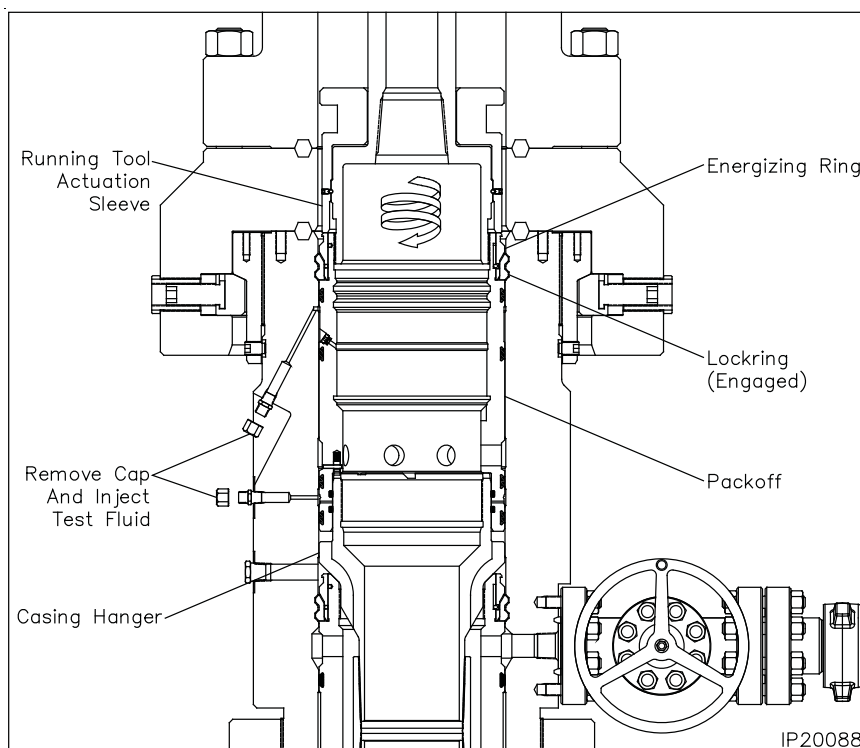


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## Stage 13 — Install the MBU-3T Mandrel Hanger Packoff

### Seal Tests

23. Locate the upper and lower "SEAL TEST" fittings on the O.D. of the upper housing and remove the dust caps from the fittings.
24. Attach a test pump to the open lower fitting and pump clean test fluid between the seals until a stable test pressure of **5,000 psi** is achieved.
25. Hold the test pressure for 15 minutes or as required by drilling supervisor.
26. If a leak develops, bleed off test pressure. Remove the packoff from the wellhead and replace the leaking seals.
27. Repeat steps 20 through 22 for the remaining upper fitting and test the upper seals to **10,000 psi**.
28. After satisfactory tests are achieved, bleed off the test pressure but leave the test manifolds in place.



### Engaging the Lockring

29. Using chain tongs only, located 180° apart, slowly rotate the drill pipe counter clockwise until the anti-rotation plungers align with the slots in the top of the hanger. Expect torque of approximately 400 ft-lbs to rotate the packoff.
30. Using chain tongs only, rotate the landing joint approximately 6 to 6-1/2 turns counter clockwise to engage the packoff locking in its mating groove in the bore of the MBU-4T upper housing.

**NOTE:** Approximately 800 to 900 ft-lbs of torque will be required to break over the shear pins in the packoff. The torque will drop off and then increase slightly when the energizing ring pushes the locking out. A positive stop will be encountered when the locking is fully engaged.

**NOTE:** When properly engaged the second paint mark on the landing joint will align with the rig floor. **VERIFY PAINT MARKS.**

**CAUTION:** It is imperative that the landing joint remain concentric with the well bore when rotating to engage the locking. This can be accomplished with the use of the air hoist.

**CAUTION:** If the required turns to engage the locking are not met or excessive torque is encountered, remove the packoff. First call local branch. If further assistance is required then call Houston Engineering.

31. Back off the landing joint/running tool approximately three turns. Using the top drive, exert a 40,000 lbs. pull on the landing joint. After satisfactory test, slack off all weight.
32. Reattach the test pump to the open test manifolds and retest the packoff seals as previously outlined. This will also verify that the packoff is in place.
33. After satisfactory tests are achieved, remove test pump and manifold from the lower fitting and reinstall the dust cap on the lower fitting.
34. Using the test pump, increase the injection pressure on the upper test fitting to **11,500 psi** to burst the rupture disk in the packoff. This will open the test port passage for the upper packoff.
35. Remove test pump and attach a grease gun to the open upper fitting.
36. Pump grease thru the fitting and port until it flows into the ID of the packoff.
37. Remove the grease gun and reinstall the dust cap on the open fittings.
38. Using chain tongs only, rotate the landing joint clockwise until the tool comes free of the packoff (approximately 9 to 9-1/2 total turns) and then retrieve the tool with a straight vertical lift.



Franklin Mountain Operating LLC  
(20") x 13-3/8" x 9-5/8" x 7-5/8" x 5-1/2"  
MBU-4T-CFL-R-DBLO Wellhead System

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## Stage 13 — Install the MBU-3T Mandrel Hanger Packoff

In the event the packoff is required to be removed after the lockring is engaged the following procedure is to be followed.

### Retrieving the Packoff

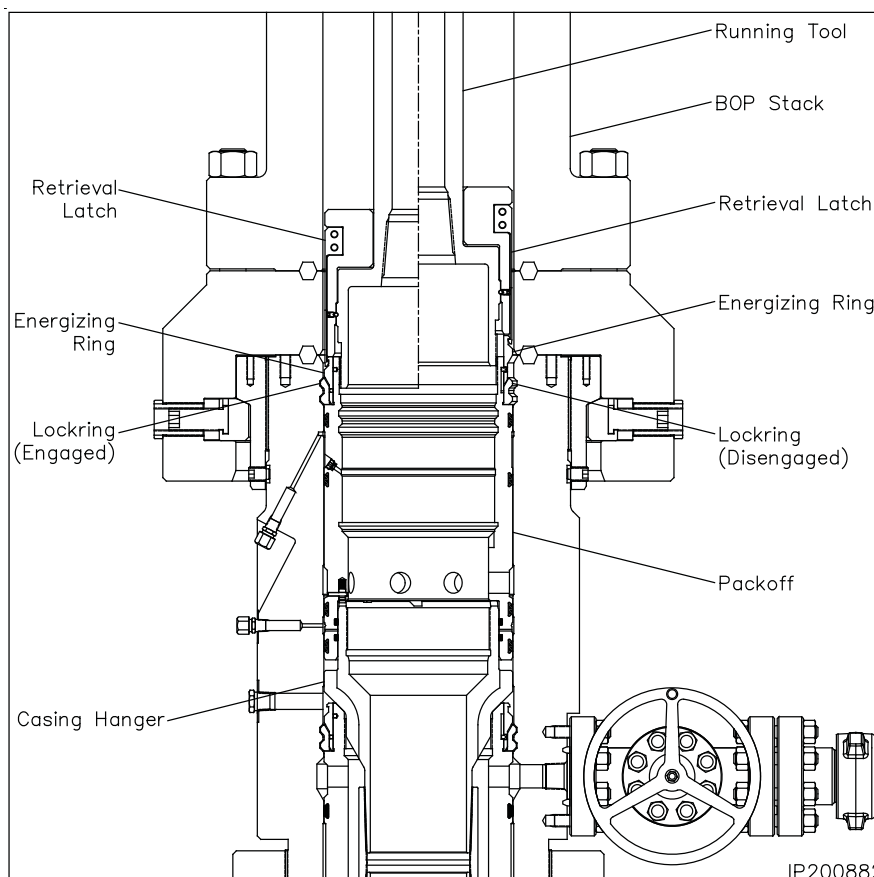
1. Position the retrieval latch so the latch fingers extend from the bottom of the running tool body.
2. Reinstall the cap screws and tighten them securely.
3. Ensure the retrieval latch freely rotates on the running tool body.
4. Carefully lower the running tool through the BOP stack and into the packoff.
5. Rotate the drill pipe clockwise (Right) to locate the thread start and then counter clockwise (Left) (approximately 9 to 9-1/2 turns) to a positive stop.

**NOTE:** At this point the retrieval latches will have passed over the energizing ring and snapped into place.

6. Rotate the drill pipe clockwise (right) approximately 6 turns to a positive stop. The drill pipe should rise approximately 1-1/2".

**CAUTION:** Do not exceed the 6 turns or the packoff may be seriously damaged.

7. Carefully pick up on the drill pipe and remove the packoff from the MBU-4T wellhead with a straight vertical lift.
8. Rotate the packoff 1 turn clockwise to relax the retrieval latch.
9. Remove the (4) 1/2" cap screws and remove the latch assembly.
10. Redress the packoff and reset as previously outlined.
11. Once the packoff is properly set, reinstall the retrieval latch on the tool.



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## Stage 13A — Install the 7-5/8" Emergency Packoff

**NOTE:** Only use this stage if the 7-5/8" casing becomes stuck and the mandrel casing hanger cannot be landed. If the mandrel hanger has been set then skip this stage.

1. Examine the **13-5/8" 10M x 7-5/8" x 11.250" 4 Stub Acme 2G LH Box Top MBU-3T Emergency Nested Packoff Assembly (Item A25a)**.

Verify the following:

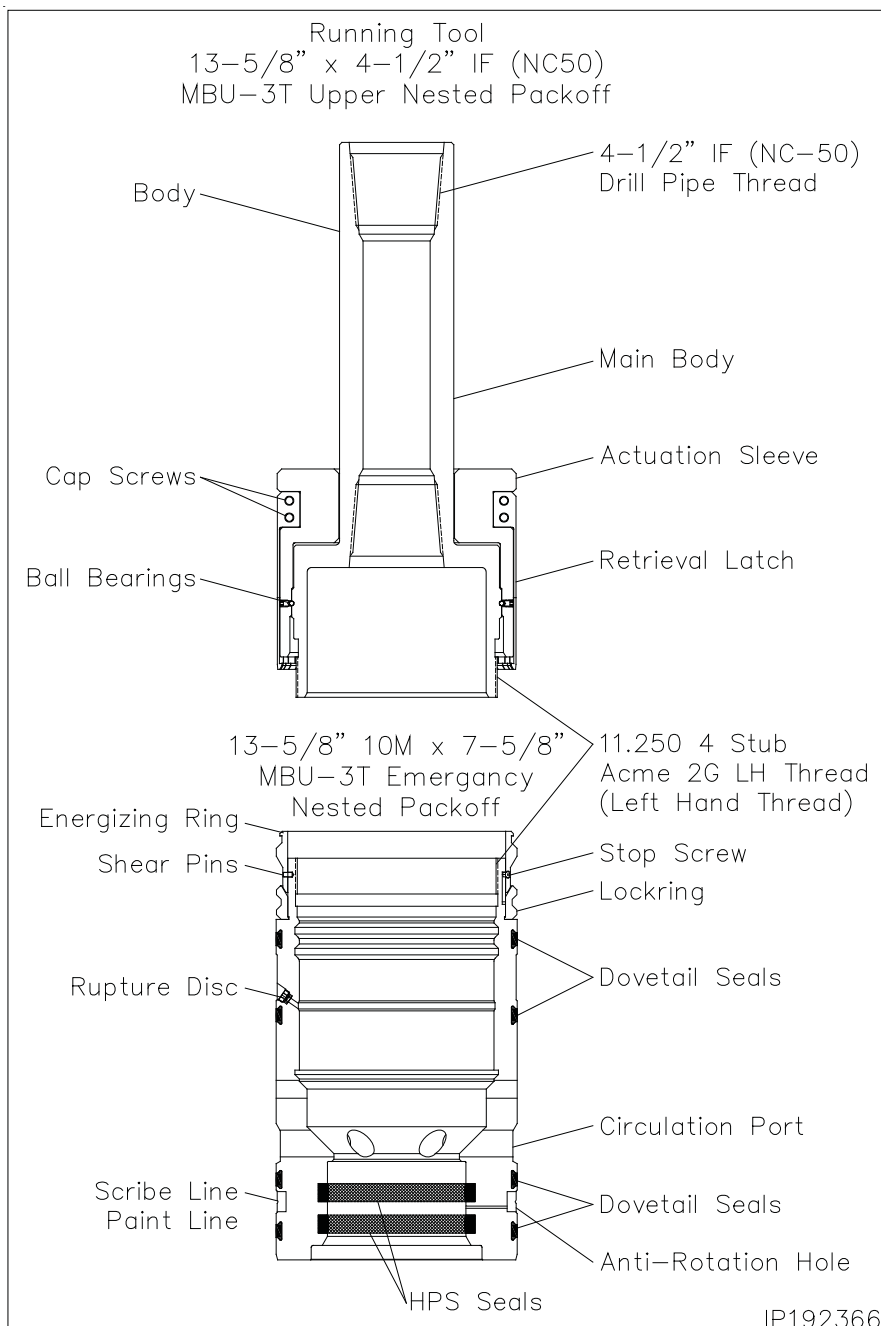
- all elastomer seals are in place and undamaged
- internal bore, and ports, are clean and in good condition
- locking is fully retracted
- rupture disc is in place and tightened securely
- energizer ring is in its upper most position and retained with shear pins
- guide screws are in place and back off 1/4 turn
- paint scribe line white and allow paint to dry

2. Inspect the I.D. and O.D. seals for any damage and replace as necessary.

3. Examine the **13-5/8" Nominal x 11.250" 4 Stub Acme 2G LH, MBU-3T Nested Packoff Running Tool (Item ST13)**. Verify the following:

- Acme threads are clean and in good condition
- retrieval latch is in position and retained with cap screws
- actuation sleeve rotates freely
- seal sleeve is removed

**NOTE:** Alternate tool may also be used.



IP192366



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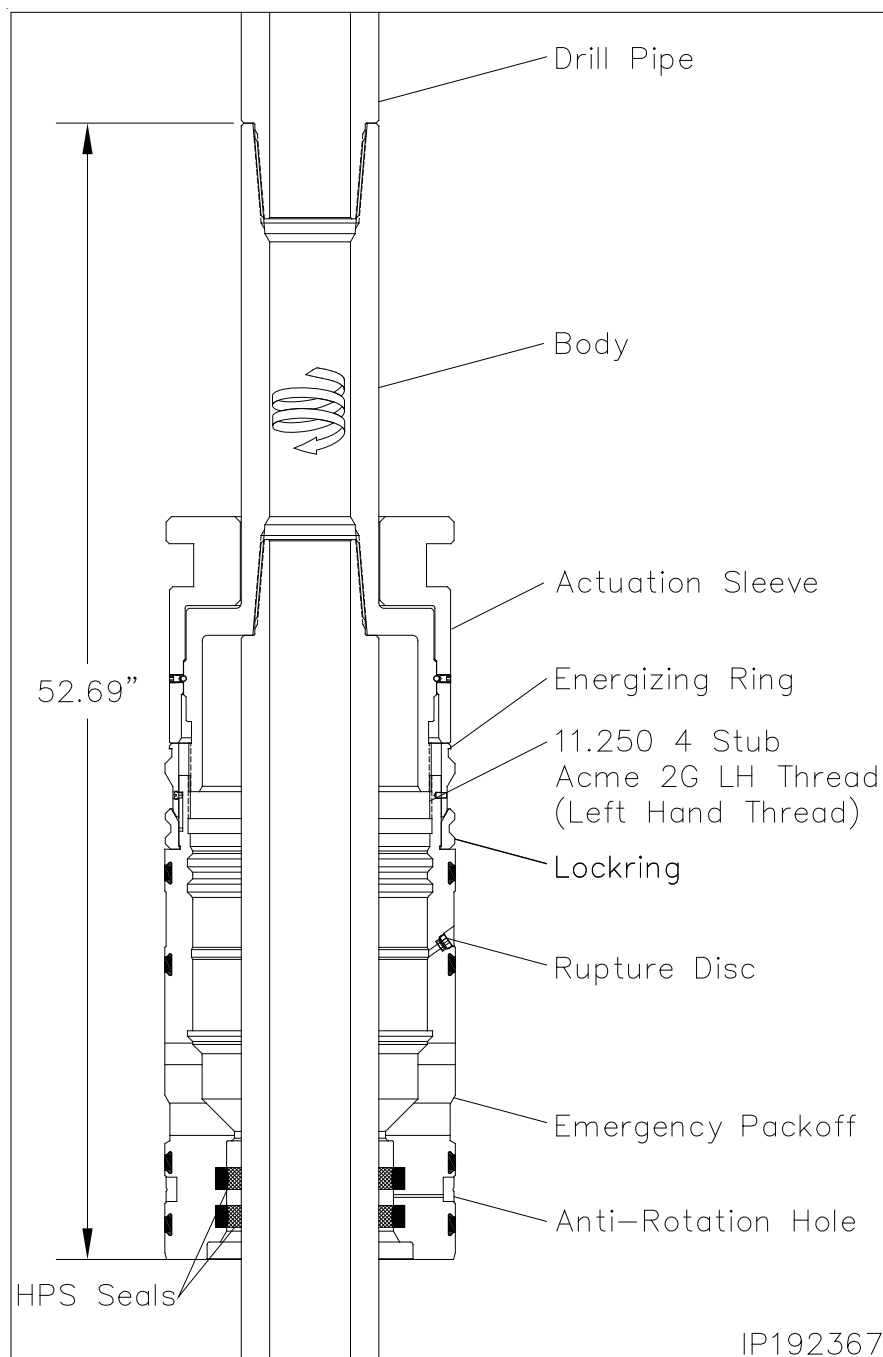
## Stage 13A — Install the 7-5/8" Emergency Packoff

4. Remove the retrieval latch and set aside.
5. Make up a joint 4-1/2" IF (NC-50) drill pipe to the top of the running tool and tighten connection to thread manufacturer's maximum make up torque.
6. Run in the hole with two stands of drill pipe and set in floor slips.
7. Pick up the packoff and carefully pass it over the drill pipe and set it on top of the floor slips.
8. Pick up the running tool with landing joint and make up the running tool to the drill pipe in the floor slips using the appropriate length pin x pin sub.
9. Pick up the packoff and thread it onto the running tool with clockwise (Right) rotation until the energizing ring makes contact with the actuation sleeve of the tool. (Approximately 4 turns).



**CAUTION:** Ensure the rupture disc is in place and tightened securely.

10. Thoroughly clean and lightly lubricate the packoff I.D. 'HPS' seals and the O.D. dovetail seals with oil or light grease.



IP192367



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## Stage 13A — Install the 7-5/8" Emergency Packoff

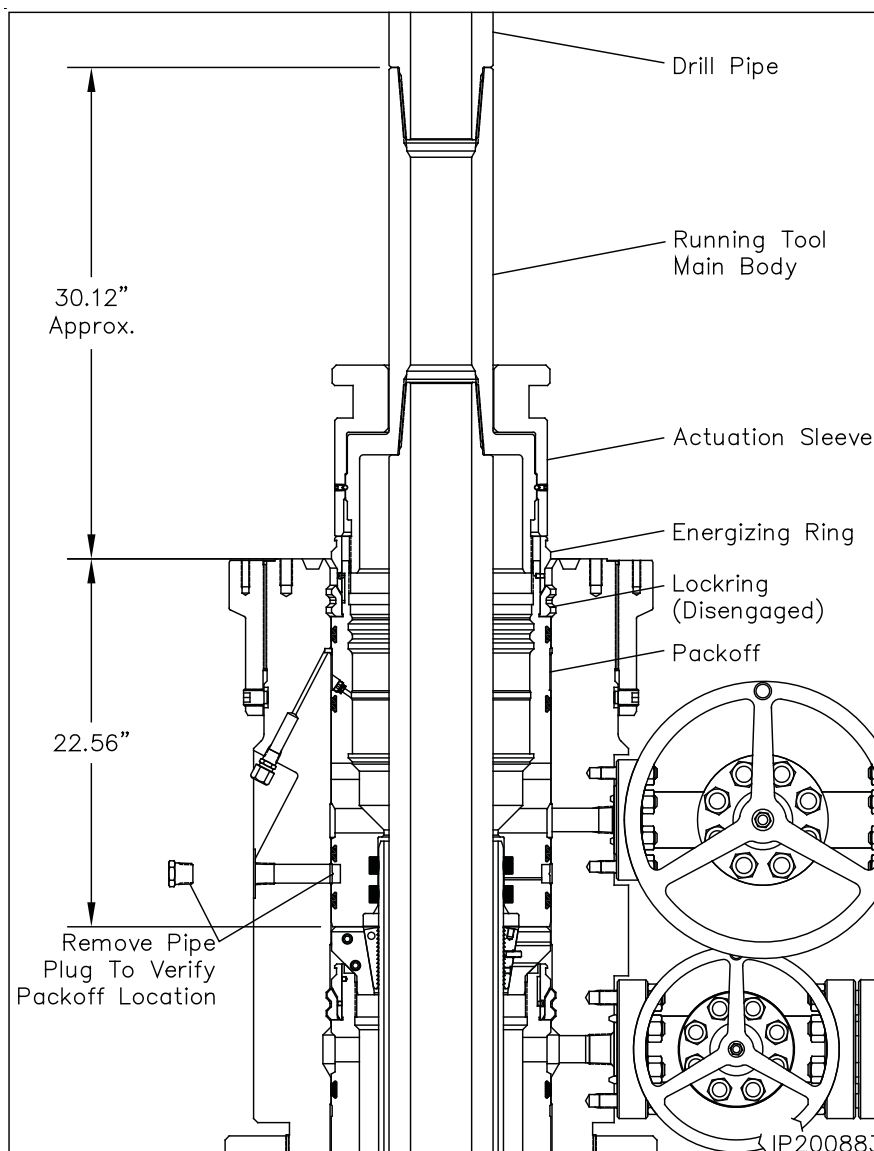
11. Locate the upper and lower "SEAL TEST" fittings on the O.D. of the housing and remove the dust cap from the fittings.
12. Attach a test pump to both fittings and pump clean test fluid thru the fittings and ports to dislodge any old grease and trapped debris.
13. Remove the test pumps and reinstall the fitting dust caps.

### Landing the Packoff

14. Pick up the drill string and remove the floor slips.
15. Carefully lower the packoff through the rig floor and position it just above the housing.
16. Carefully lower the packoff into the housing until it lands on top of the slip hanger.

**NOTE:** When properly positioned the top of the running tool will be approximately 30.12" above the top of the MBU-4T housing.

17. Remove the upper 1" LP pipe plug from the sight port to verify the packoff is properly landed. The 5/16" scribe line should be clearly visible in the center of the port.
18. With landing verified, reinstall the pipe plug and tighten securely.

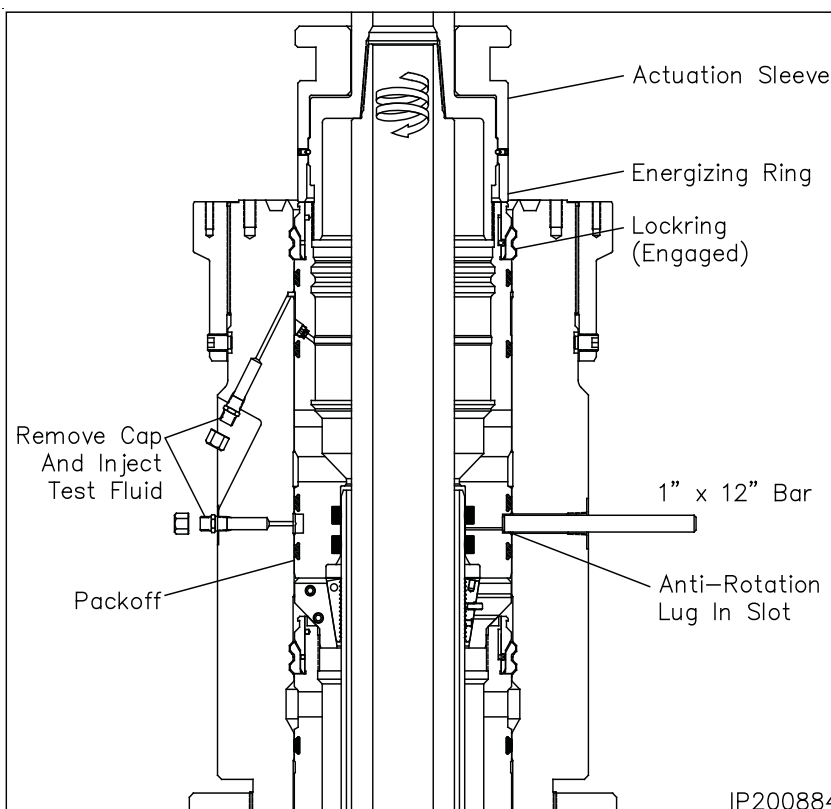


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## Stage 13A — Install the 7-5/8" Emergency Packoff

### Seal Test

19. Locate the upper and lower "SEAL TEST" fittings on the O.D. of the housing and remove the dust caps from the fittings.
20. Attach a test pump to the open lower fitting and pump clean test fluid between the seals until a stable test pressure of **5,000 psi or 80% of casing collapse — whichever is less** is achieved.
21. Hold the test pressure for 15 minutes or as required by drilling supervisor.
22. If a leak develops, bleed off test pressure, remove the packoff from the wellhead and replace the leaking seals.
23. After satisfactory test is achieved, bleed off the test pressure but leave the test manifold in place.
24. Repeat steps 17 through 20 for the remaining upper fitting and test upper seals to **10,000 psi**.



### Engaging the Lockring

25. Remove the 1" sight port pipe plug and set aside.
26. Pass a 1" O.D. bar through the open port and hold inward pressure on the bar.
27. **Using chain tongs only**, rotate the landing joint approximately 6 to 6-1/2 turns counter clockwise (Left) to engage the packoff locking in its mating groove in the bore of the MBU-4T housing.

**NOTE:** Approximately 800 to 900 ft-lbs of torque will be required to break over the shear pins in the packoff. The torque will drop off and then increase slightly when the energizing ring pushes the lockring out. A positive stop will be encountered when the lockring is fully engaged.

**CAUTION:** It is imperative that the drill pipe landing joint remain concentric with the well bore when rotating to engage the locking. This can be accomplished with the use of the air hoist.

**CAUTION:** If the required turns to engage the lockring are not met or excessive torque is encountered, remove the packoff. First call local branch. If further assistance is required then call Houston Engineering.

28. Remove the 1" bar from the sight port and reinstall the pipe plug in the port.
29. Back off the landing joint/running tool approximately three turns. Using the top drive, exert a 40,000 lbs. pull on the landing joint. After satisfactory test, slack off all weight.
30. Reattach the test pump to the upper and lower test fittings and retest seals as previously outlined.
31. After a satisfactory test is achieved, increase the injection pressure in the upper test port to **11,500 psi** to burst the rupture disc in the packoff. This will open the test port passage for the upper packoff.
32. Remove test pump and attach a grease gun to the open upper fitting.
33. Pump grease thru the fitting and port until it flows into the ID of the packoff.
34. Remove the grease gun and reinstall the dust cap on the open fittings.
35. **Using chain tongs only**, rotate the landing joint clockwise until the tool comes free of the packoff (approximately 6 to 6-1/2 total turns) and then retrieve the tool with a straight vertical lift.
36. Reinstall and nipple up the BOP stack.





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## Stage 14 — Test the BOP Stack

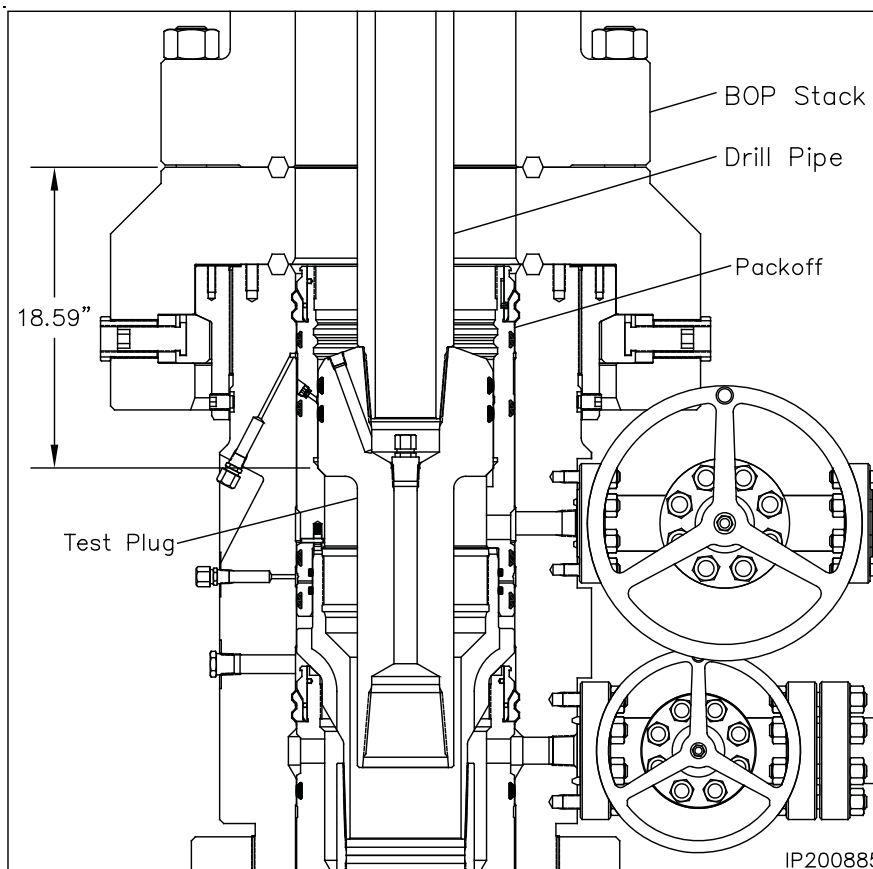
Immediately after making up the BOP stack and periodically during the drilling of the well for the next casing string the BOP stack (connections and rams) must be tested.

1. Examine the **11" Nominal x 4-1/2" IF CW, MBU-3T Inner Test Plug (Item ST14)**. Verify the following:
  - 1-1/4" VR plug and weep hole plug are in place and tightened securely
  - elastomer seals are in place and in good condition
  - drill pipe threads are clean and in good condition
2. Position the test plug with the long tong neck down and make up the tool to a joint of drill pipe.
3. Remove the 1/2" NPT pipe plug from the weep hole if pressure is to be supplied through the drill pipe.



**WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

4. Open the housing upper side outlet valve.
5. Lightly lubricate the test plug seal with oil or light grease.
6. Carefully lower the test plug through the BOP and land it on the load shoulder in the packoff, 18.59" below the top of the drilling adapter.
7. Close the BOP rams on the pipe and test the BOP to **10,000 psi**.



**NOTE:** Any leakage past the test plug will be clearly visible at the open side outlet valve.

8. After a satisfactory test is achieved, release the pressure and open the rams.
9. Remove as much fluid as possible from the BOP stack. Retrieve the test plug with a straight vertical lift.



**CAUTION:** When performing the BOP blind ram test it is highly recommended to suspend a stand of drill pipe below the test plug to ensure the plug stays in place while disconnecting from it with the drill pipe.

10. Close all open valves.
11. Repeat this procedure as required during the drilling of the hole section.





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## Stage 15 — Run the Upper Wear Bushing

**CAUTION:** Always use a wear bushing while drilling to protect the load shoulders from damage by the drill bit or rotating drill pipe. The wear bushing **must be retrieved** prior to running the casing.

1. Examine the **13-5/8" x 11" x 7.00" I.D. MBU-3T-UPR Wear Bushing (Item ST15)**. Verify the following:
  - internal bore is clean and in good condition
  - o-ring is in place and in good condition
  - shear o-ring cord is in place and in good condition

### Run the Wear Bushing Before Drilling

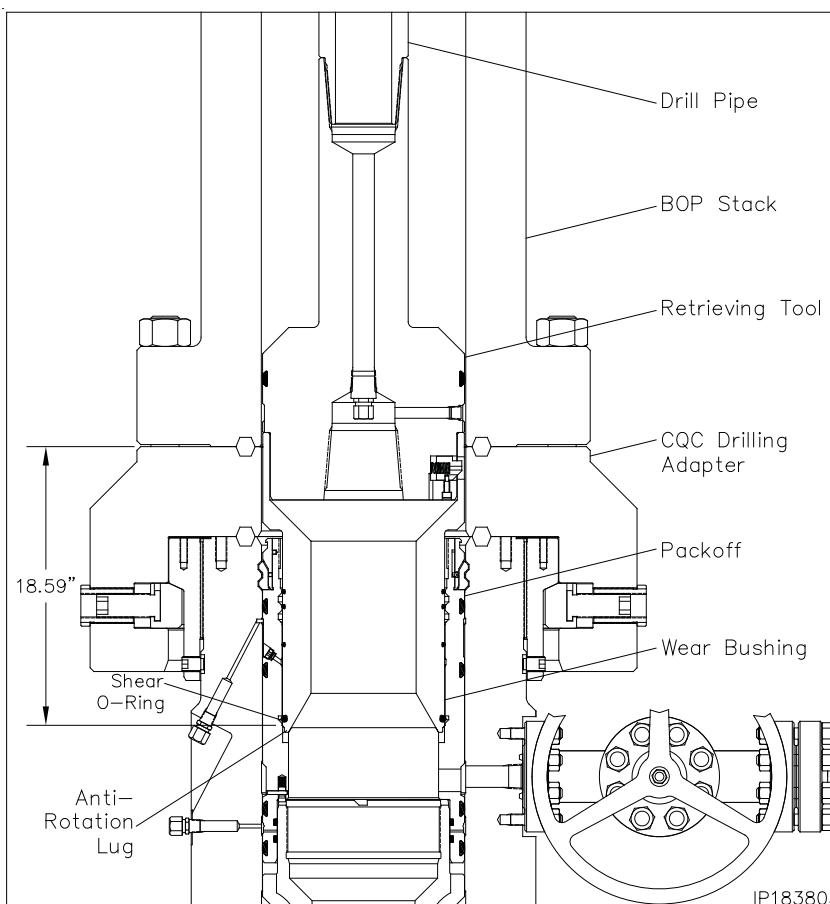
2. Orient the **13-5/8" Nominal x 4-1/2" IF (NC-50) CW Retrieving Tool (Item ST4)** with drill pipe connection neck up.
3. Attach the retrieving tool to a joint of drill pipe.

**CAUTION:** Ensure the lift lugs are facing down.

4. Align the retractable lift lugs with the retrieval holes of the bushing and carefully lower the tool into the wear bushing until the lugs snap into place.

**NOTE:** If the lugs did not align with the holes, rotate the tool in either direction until they snap into place.

5. Apply a heavy coat of grease, not dope, to the O.D. of the bushing.
6. Ensure the BOP stack is drained and free of any debris from previous test.
7. Slowly lower the tool/bushing assembly through the BOP stack and land it on the load shoulder in the packoff, 18.59" below the top of the drilling adapter.
8. Rotate the drill pipe clockwise (right) to locate the stop lugs in their mating notches in the head. When properly aligned the bushing will drop an additional 1/2".



**NOTE:** The shear o-ring on bottom of the bushing will locate in a groove above the load shoulder in the packoff to act as a retaining device for the bushing.

9. Remove the tool from the wear bushing by rotating the drill pipe counter clockwise (left) 1/4 turn and lifting straight up.
10. Drill as required.

**CAUTION:** It is highly recommended to retrieve, clean, inspect, grease, and reset the wear bushing each time the hole is tripped during the drilling of the hole section.

### Retrieve the Wear Bushing After Drilling

11. Make up the retrieving tool to the drill pipe.
12. Slowly lower the tool into the wear bushing.
13. Rotate the retrieving tool clockwise until a positive stop is felt. This indicates the lugs have snapped into the holes in the bushing.
14. Retrieve the wear bushing. Remove it and the retrieving tool from the drill string.



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## Stage 16 — Hang Off the 5-1/2" Casing

1. Examine the **11" x 5-1/2" CW-CTH-TP8 Casing Hanger Running Tool (Item ST16)**. Verify the following:

- internal bore and threads are clean and in good condition
- o-ring seal is clean and in good condition
- torque dogs are in place, in upper most position and retainer set head screws are tightened securely

2. Make up a landing joint to the top of the Running Tool and torque connection to thread manufacturer's maximum make up torque.

3. Lay down the landing joint on the pipe rack.

4. On the pipe rack, examine the **11" x 5-1/2" CW-MBU-3T-TP8 Mandrel Casing Hanger (Item A26)**. Verify the following:

- internal bore and threads are clean and in good condition
- neck seal area is clean and undamaged
- torque slots are clean and in good condition
- pin threads are clean and in good condition. **Install thread protector**

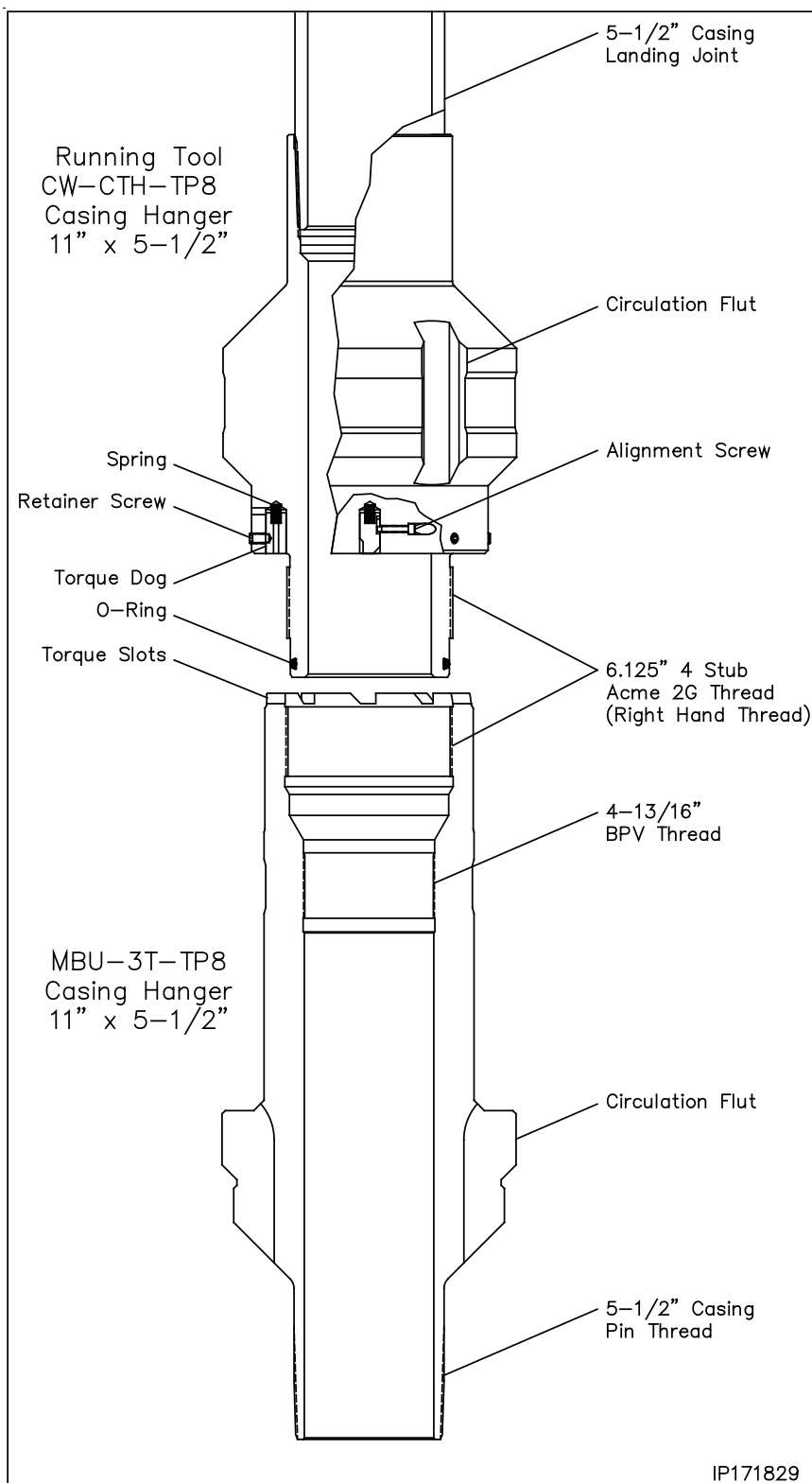
5. Liberally lubricate the mating threads, seal areas and o-ring of the hanger and running tool with a oil or light grease.

6. **Using chain tongs only**, thread the Running Tool into the hanger, with right hand rotation, until it shoulders out on the Hanger body.

**CAUTION:** Do Not apply torque to the Hanger/Tool connection.

**NOTE:** If steps 1 through 6 were done prior to being shipped to location, the running tool should be backed off 1 turn and made back up to ensure it will back off freely.

7. Calculate the total landing dimension by adding the previously determined RKB dimension and 18.59", the depth of the wellhead.

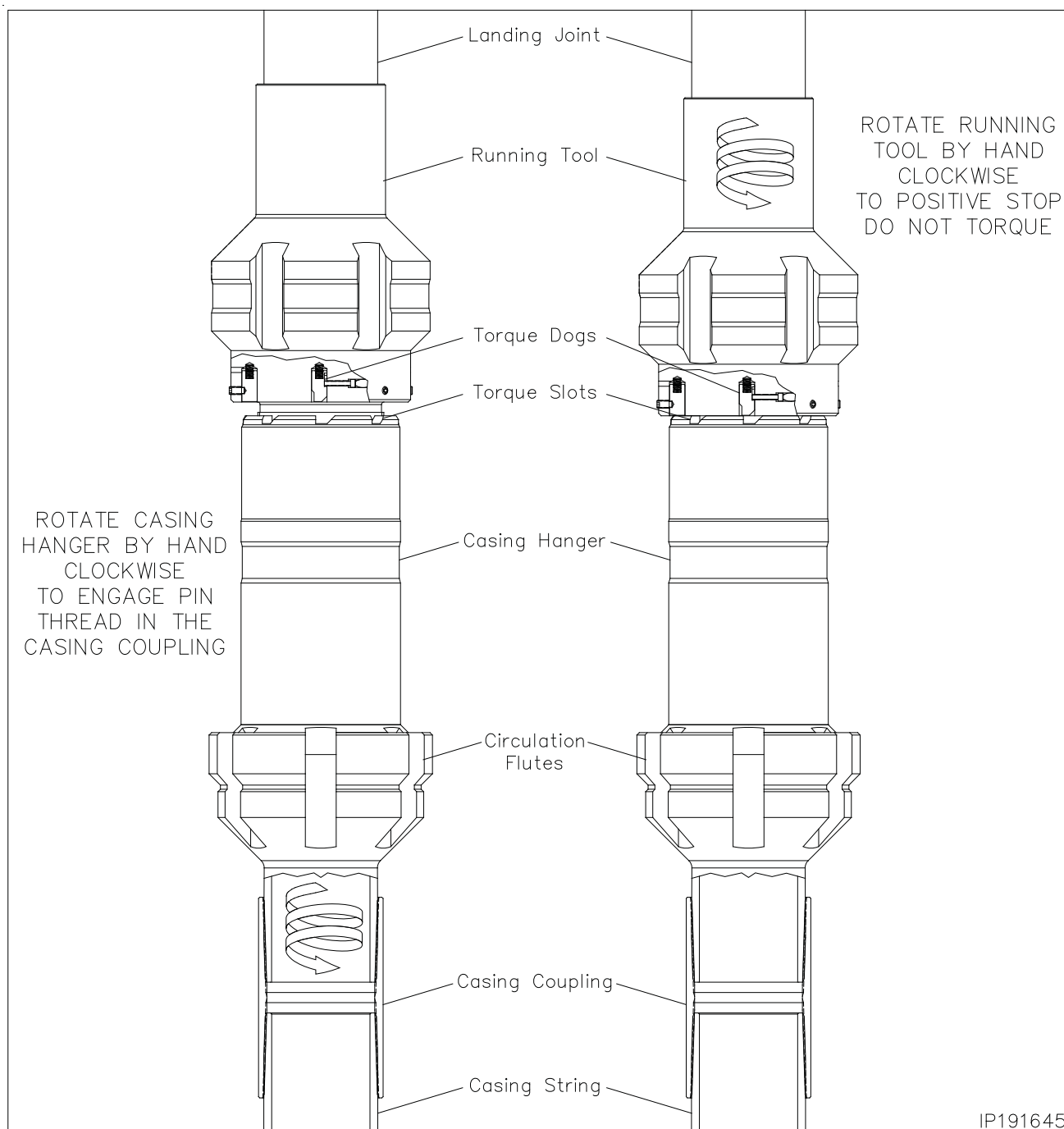


8. Starting at the top of the 45° angle load shoulder of the casing hanger measure up the landing joint and place a paint mark on the joint. Mark **HANGER LANDED**.



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## Stage 16 — Hang Off the 5-1/2" Casing



9. Place a second mark 18.00" below the first and mark **STOP ROTATING**.
10. Run the 5-1/2" casing as required and space out appropriately for the mandrel casing hanger.

**NOTE:** If the 5-1/2" casing becomes stuck and the mandrel casing hanger cannot be landed, Refer to **Stage 16B** for the emergency slip casing hanger procedure.

11. Pick up the casing hanger/running tool joint assembly.

12. Remove the casing hanger thread protector and carefully thread the hanger into the last joint of casing ran. Rotate the hanger clockwise, by hand, to a positive stop.

13. Rotate the running tool clockwise by hand to a positive stop.



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## Stage 16 — Hang Off the 5-1/2" Casing

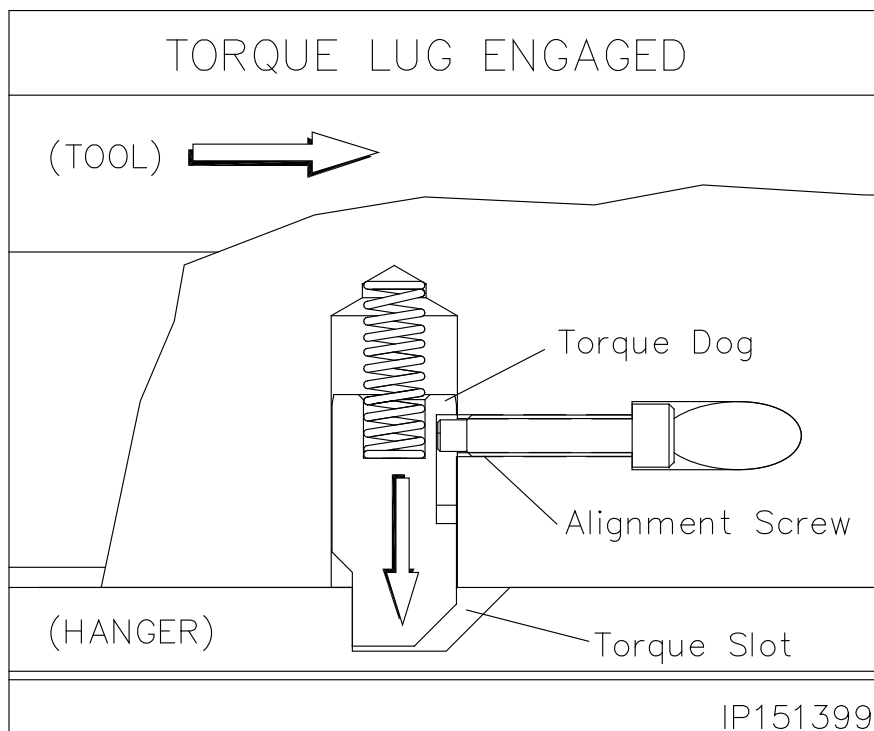
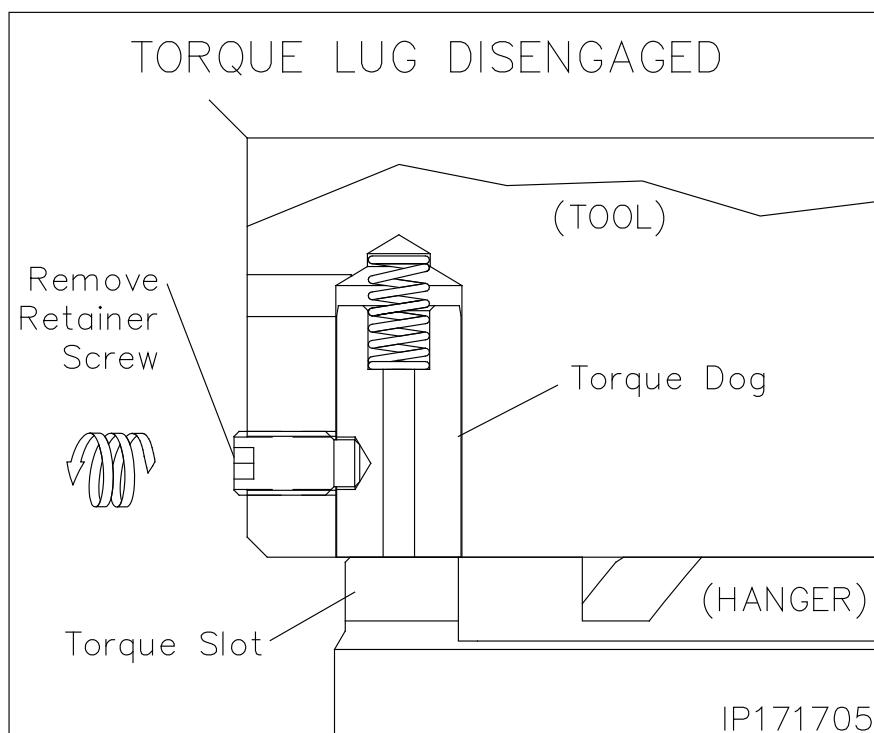
14. Locate the (8) 3/8" socket head set screws in the side of the hanger running tool and remove the screws.

**CAUTION:** Place the screws in a safe place to reinstall in the tool when the job is completed.

**NOTE:** This will release the running tool torque dogs allowing them to move downward.

15. Using only chain tongs, rotate the running tool to the left to allow the torque dogs to engage the torque slots in the top of the hanger.

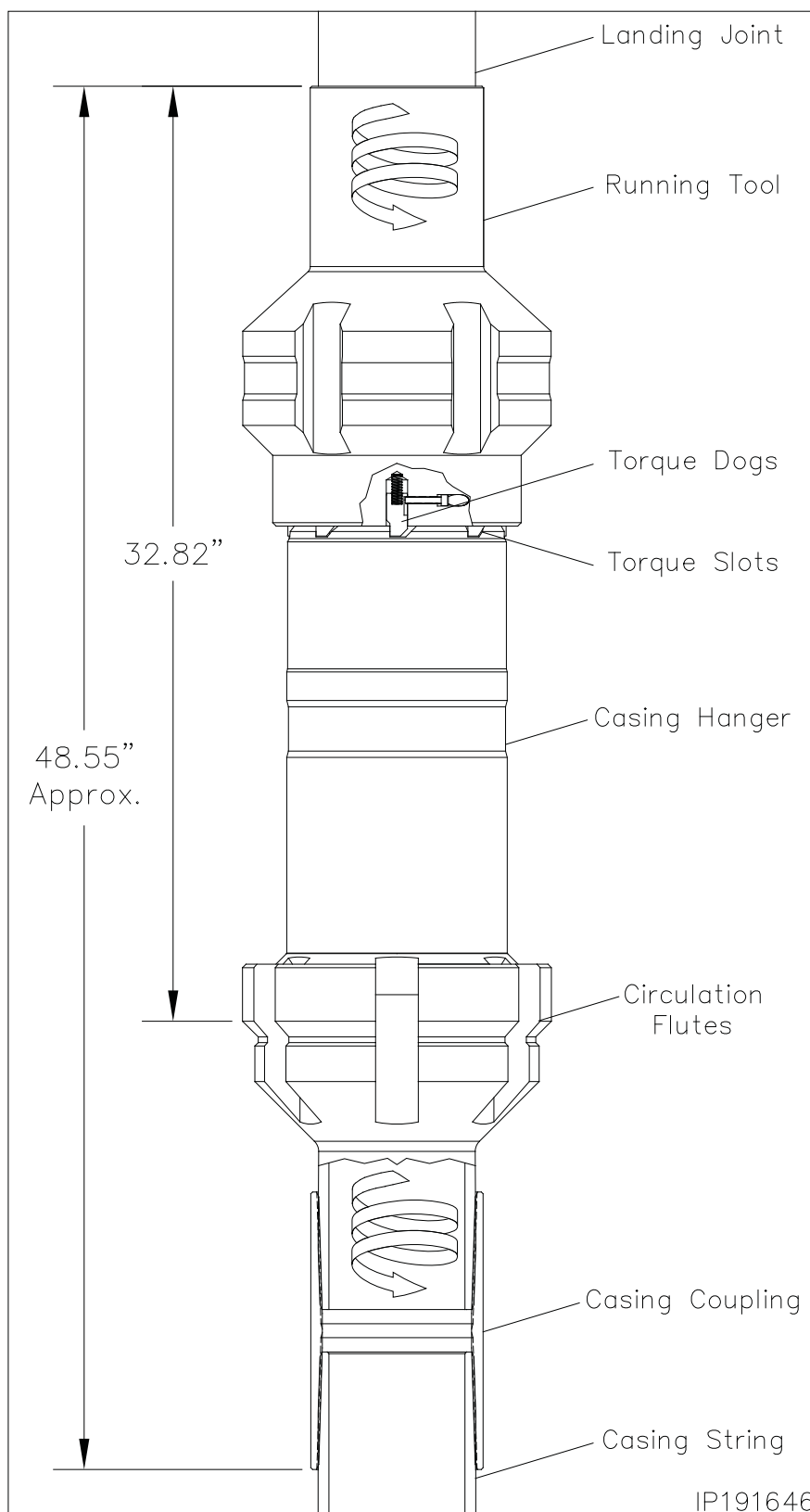
**CAUTION:** Do not rotate the running tool more than 1/4 turn to the left. Doing so will decrease the torque dog engagement



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## Stage 16 — Hang Off the 5-1/2" Casing

16. Engage the CRT tool on the landing joint and torque the casing hanger in the casing string to thread manufacturer's maximum make up torque.

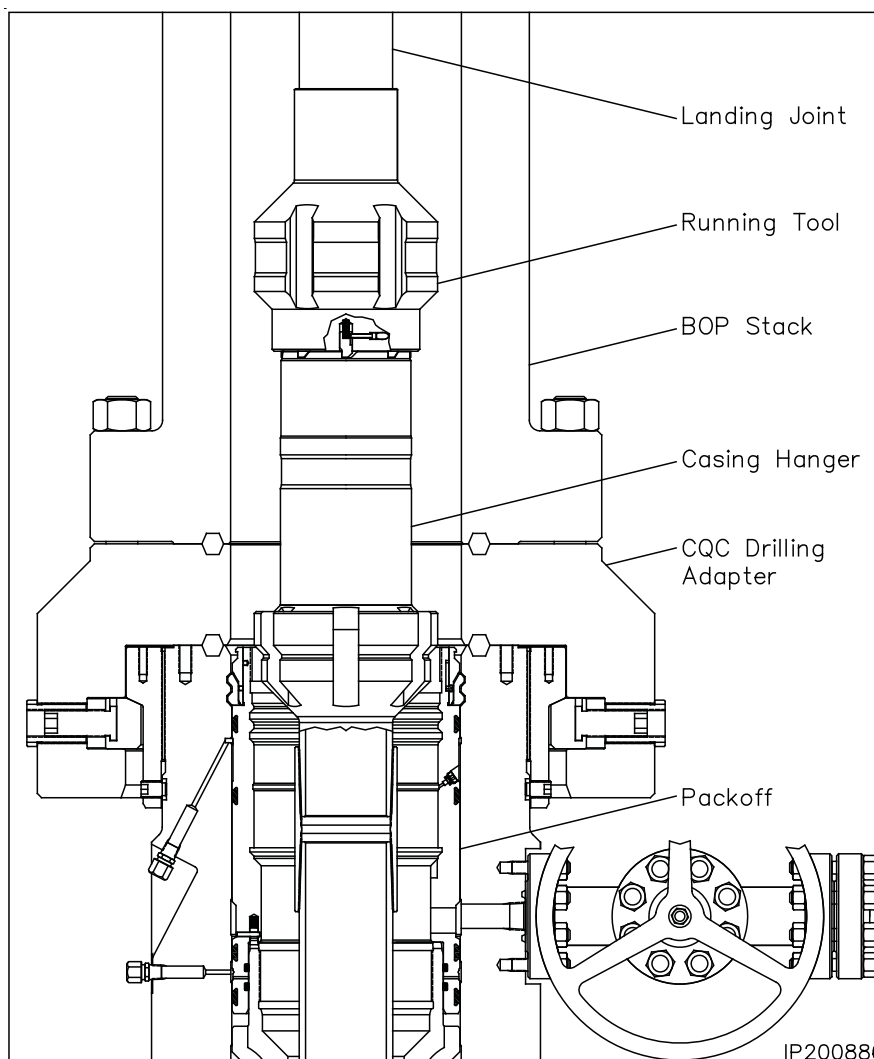


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## Stage 16 — Hang Off the 5-1/2" Casing

17. Pick up the casing string and remove the floor slips and rotary bushings.
18. Carefully lower the hanger completely through the BOP annular and then engage the top drive to allow the casing to be rotated clockwise.
19. While rotating the casing clockwise, carefully lower the casing string until the **STOP ROTATING** mark on the landing joint is level with the rig floor.

**NOTE:** The torque dogs have a maximum rated capacity. Please reference the **Recommended Service Tools** section in the BOM for maximum torque allowed.



IP200886



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## Stage 16 — Hang Off the 5-1/2" Casing

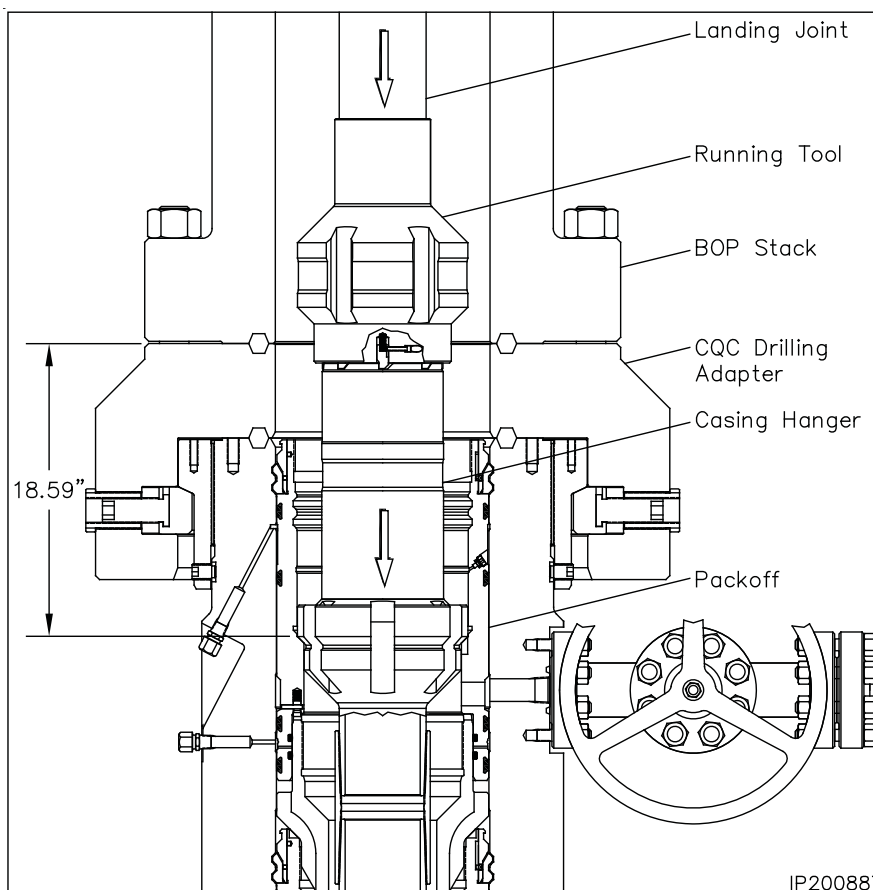
**CAUTION:** Torque wrap can build in the casing string as it is rotated. Ensure the string comes to a neutral position, by allowing it to back off slowly counter clockwise, before the casing hanger is fully landed.

20. Cease rotation and continue carefully lowering the hanger through the wellhead and land it on the load shoulder in the MBU-3T nested packoff, 18.59" below the top of the drilling adapter.
21. Slack off all weight on the casing and verify that the **HANGER LANDED** paint mark has aligned with the rig floor.
22. Place a vertical paint mark on the landing joint to verify if the casing string rotates during the cementing process.
23. Cement the casing as required.

**NOTE:** Returns may be taken through the circulation slots and out the BOP or out the side outlets on the housing.

24. With cement in place, bleed off all pressure and remove the cementing head.
25. Using Chain Tongs Only located 180° apart, retrieve the Running Tool and landing joint by rotating the landing joint counter clockwise (left) approximately 13 turns or until the tool comes free of the hanger.

**CAUTION:** The rig floor tong may be used to break the connection but **under no circumstances is the top drive to be used to rotate or remove the casing hanger running tool.**





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## Stage 16 — Hang Off the 5-1/2" Casing

### Running the 11" Wash Tool

1. Examine the **11" x 4-1/2" IF (NC-50) Wash Tool (Item ST18)**. Verify the following:
  - drill pipe threads and bore are clean and in good condition
  - all ports are open and free of debris

2. Orient the Wash Tool with drill pipe box up. Make up a joint of drill pipe to the tool.

3. Carefully lower the Wash Tool through the BOP and land it on top of the 5-1/2" casing hanger, 16.45" below the top of the drilling adapter.

4. Place a paint mark on the drill pipe level with the rig floor.

5. Using chain tongs, rotate the tool clockwise (right) approximately 6 turns to loosen any debris that may be on top of the hanger flutes.

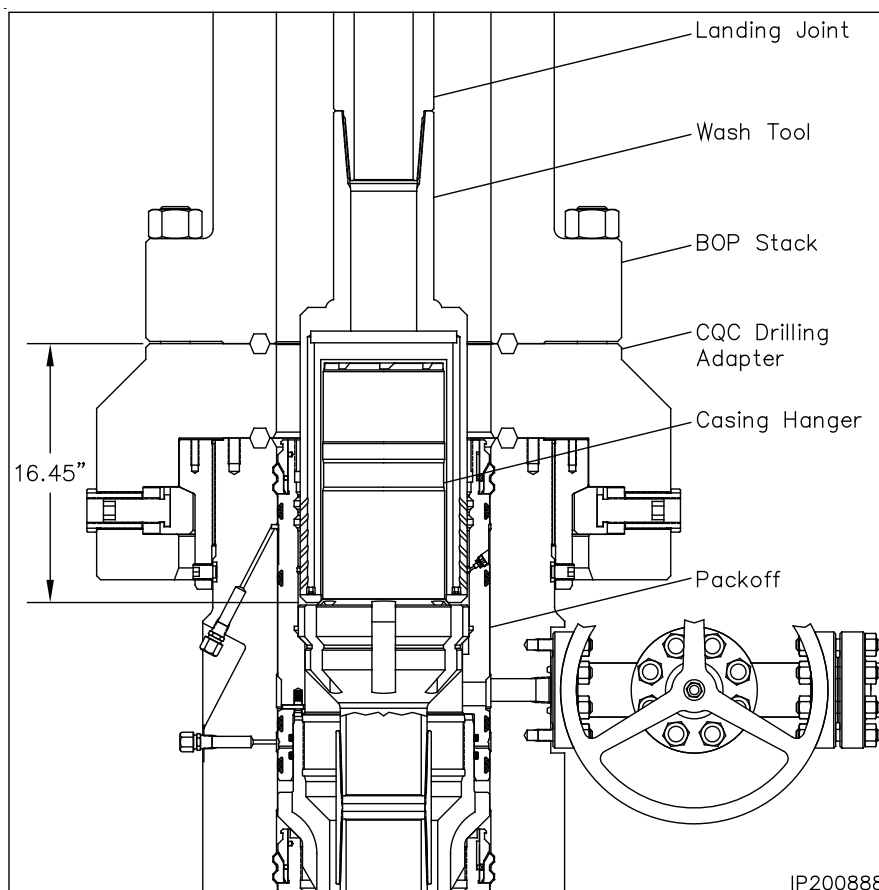
6. Open the upper side outlet valve and drain the BOP stack.

7. Pick up on the tool approximately 1" and attach a high pressure water line or the top drive to the end of the drill pipe and pump water at approximately 25 SPM through the tool and up the BOP stack.

8. While flushing, raise and lower the tool the full length of the wellhead and BOP stack. The drill pipe should be slowly rotated (approximately 20 RPM) while raising and lowering to wash the inside of the housing and BOP stack to remove all caked on debris.

9. Once washing is complete, land the wash tool on the hanger flutes.

10. Shut down pumps and observe the returns at the open lower outlet for debris.



11. Reengage the pump and fully wash the inside of the wellhead and the entire BOP one additional cycle ensuring the stopping point is with the wash tool resting on top of the hanger flutes.

**NOTE:** Observe the returns at the open outlet valve. If returns are not clean, continue flushing until they are.

12. Once the returns are clean and free of debris, retrieve the tool to the rig floor.

13. Using a bright light, sight through the bore of the BOP stack and observe the top of the hanger neck and flutes. Ensure that there are no dark areas on top of the painted flutes of the hanger.

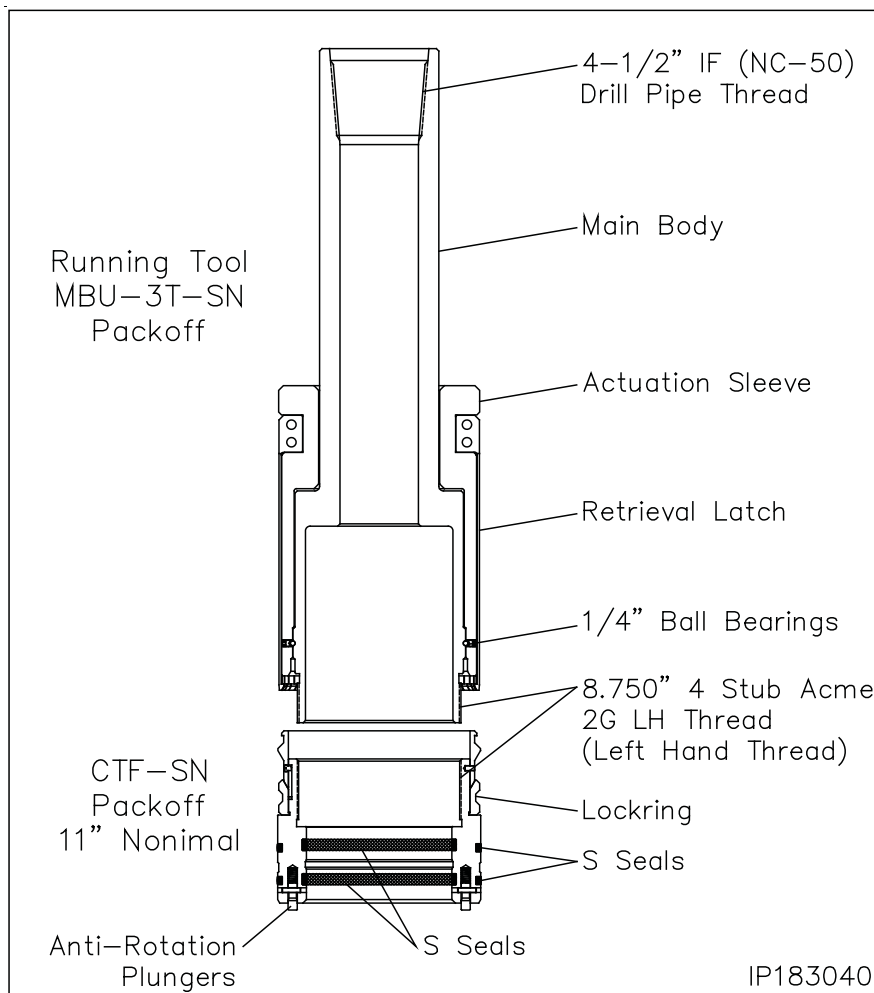
**CAUTION:** Continue washing until all debris is removed.



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## Stage 16A — Install the MBU-3T Packoff

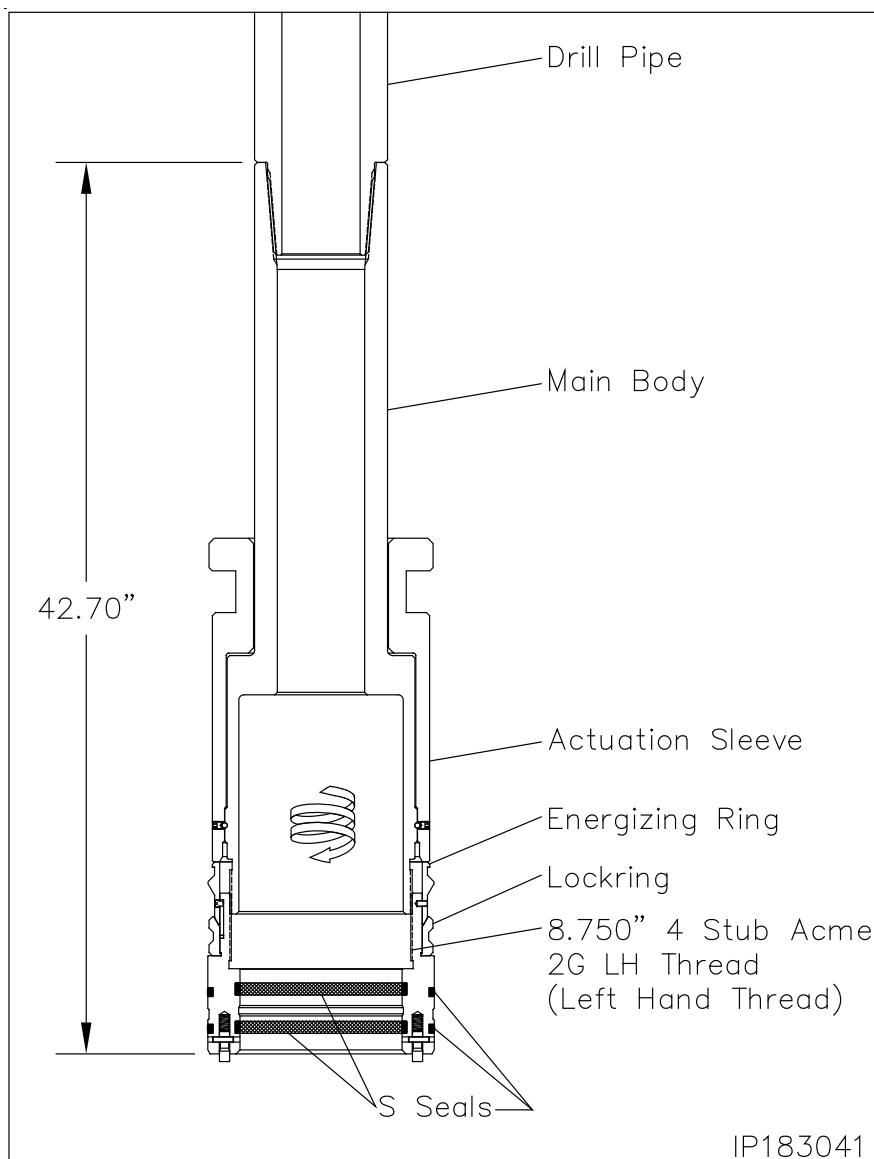
1. Examine the **11" Nominal x 4-1/2" IF (NC-50) x 8.750" 4 Stub Acme 2G LH Pin Bottom MBU-3T-SN Mandrel Packoff Running Tool (Item ST19)**. Verify the following:
  - Acme threads are clean and in good condition
  - actuation sleeve is in place and rotates freely
  - retrieval latch is removed and stored in safe place
2. Make up the running tool to 4-1/2" drill pipe and torque the connection to optimum make up torque.
3. Examine the **11" Nominal x 7-5/8" x 8.750" 4 Stub Acme 2G LH box top CTF/MBU-3T Packoff Assembly (Item A27)**. Verify the following:
  - all elastomer seals are in place and undamaged
  - internal bore, and ports, are clean and in good condition
  - locking is fully retracted
  - energizer ring is in its upper most position and retained with shear pins
  - anti-rotation plungers are in place, free to move



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## Stage 16A — Install the MBU-3T Packoff

4. Thoroughly clean and lightly lubricate the mating acme threads of the running tool and packoff with oil or light grease.
5. Pick up the Running Tool Assembly with landing joint and suspend it above the packoff.
6. Carefully lower the tool into the packoff and thread them together by first rotating the tool clockwise (RIGHT) to locate the thread start and then counter clockwise (LEFT) approximately 3 turns until the tool actuation sleeve makes contact with the packoff Energizing Ring.
7. Pick up the assembly and thoroughly clean and lightly lubricate the packoff ID and OD S seals with oil or light grease.
8. Locate the upper and lower "SEAL TEST" fittings on the O.D. of the housing and remove the dust cap from the fittings.
9. Attach a test pump to both fittings and pump clean test fluid thru the fittings and ports to dislodge any old grease and trapped debris.
10. Remove the test pumps and reinstall the fitting dust caps.

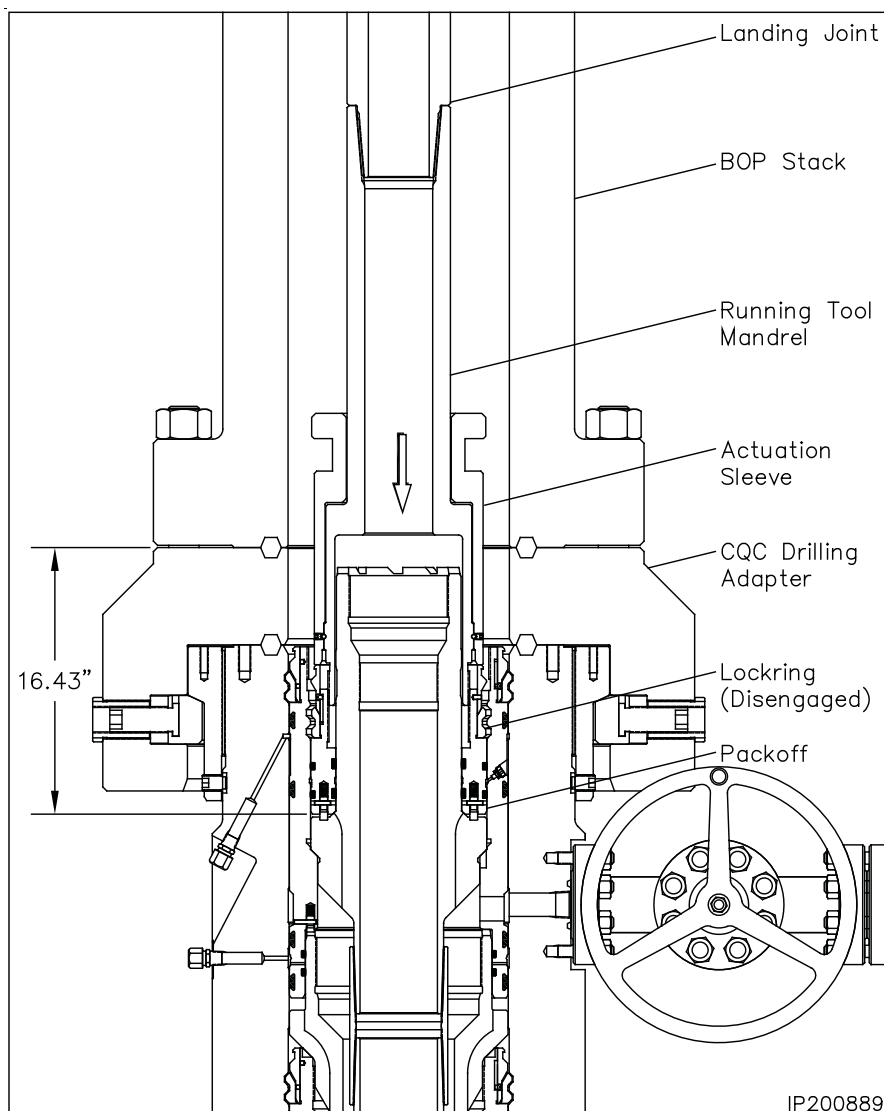


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## Stage 16A — Install the MBU-3T Packoff

### Landing the Packoff

11. Calculate the total landing dimension by taking the determined landing dimension of the 5-1/2" mandrel casing hanger and subtracting 2-1/8"
12. Remove the hole cover.
13. Measure up 5 feet from the bottom of the packoff and place a paint mark on the drill pipe landing joint.
14. Pick up the packoff/running tool assembly and carefully lower the assembly through the BOP marking the landing joint every five feet until you reach the calculated dimension.
15. Place a paint mark on the drill pipe at that dimension and mark land off. Place an additional mark 1-1/2" above the first one and mark engaged.
16. Continue lowering the packoff until it passes over the neck of the hanger and lands on top of the casing hanger load shoulder, 16.43" below the top of the drilling adapter.



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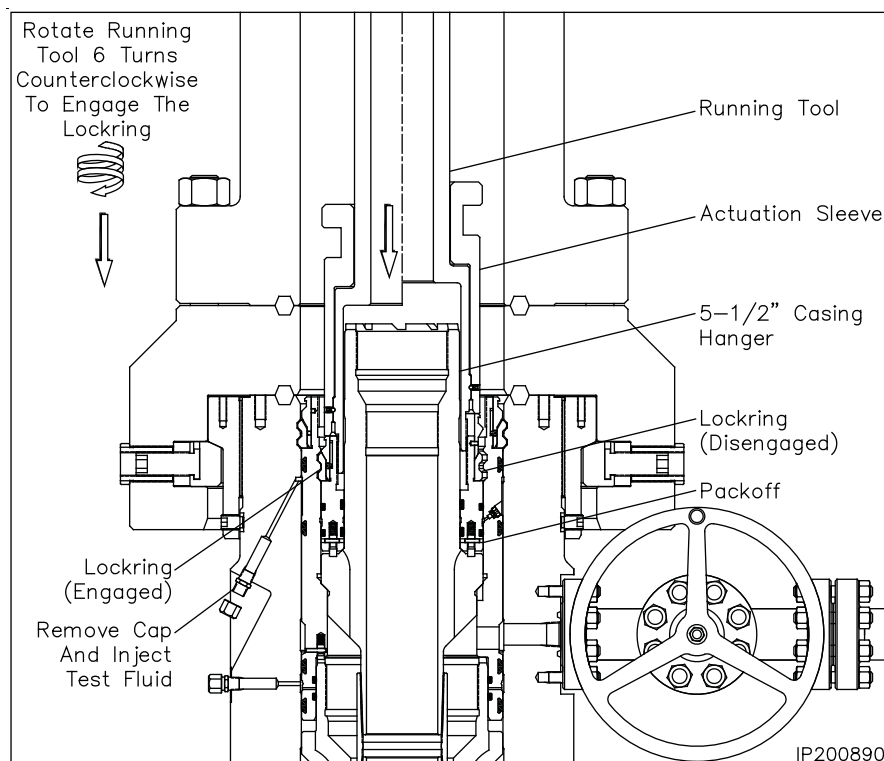
## Stage 16A — Install the MBU-3T Packoff

### Seal Test

17. Locate the upper "SEAL TEST" fitting on the upper OD of the housing and remove the dust cap from the fitting.
18. Attach a test pump with manifold to the open fitting and pump clean test fluid between the packoff seals until a stable test pressure of 10,000 psi is achieved.

**NOTE:** It may be required to pressure up and bleed off test pressure several times to evacuate all air from the test area in order to attain a stable test pressure.

19. Hold test pressure for 15 minutes.
20. If pressure drops a leak has developed, remove the packoff and replace leaking seals.
21. After a satisfactory test is achieved, bleed off test pressure, remove test pump and manifold and reinstall the dust cap on the open fitting.



**NOTE:** When properly engaged the second paint mark on the drill pipe will align with the rig floor.

**CAUTION:** It is imperative that the drill pipe landing joint remain concentric with the well bore when rotating to engage the locking. This can be accomplished with the use of the air hoist.

**CAUTION:** If the required turns to engage the locking are not achieved or excessive torque is encountered, remove the packoff and first call the local branch and then Houston Engineering.

### Engaging the Lockring

22. Using chain tongs only located 180° apart, slowly rotate the packoff assembly counter clockwise (left) until the anti-rotation plunger aligns with one of the circulation flutes of the hanger. Expect torque of approximately 400 ft lbs. to rotate the packoff.
23. Using only chain tongs, rotate the landing joint approximately 6 turns counter clockwise to engage the packoff locking in its mating groove in the bore of the MBU-3T nested packoff.

**NOTE:** Approximately 800 to 900 ft. lbs. of torque will be required to break over the shear pins in the packoff. The torque will drop off and then increase slightly when the energizing ring pushes the locking out. A positive stop will be encountered when the locking is fully engaged.

24. Back off the landing joint/running tool approximately 3 turns. Using the drill pipe elevators, exert a 40,000 lbs. pull on the landing joint.
25. Reattach the test pump to the open test manifold and retest the packoff seals to 10,000 psi for 15 minutes. This will also verify that the packoff is in place.
26. After satisfactory test is achieved, bleed off all test pressure, remove test pump and reinstall the dust cap on the open fitting.
27. Using only chain tongs, rotate the landing joint clockwise (right) until the tool comes free of the packoff (approximately 9 turns) and then retrieve the tool with a straight vertical lift.
28. Using a dry rod with sliding sleeve tool, set the **4-13/16" BPV (Item ST21)** in the bore of the hanger. Ensure that the BPV makes a minimum of 6 turns before final make up and break out. Nipple down and remove the BOP stack.



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## Stage 16A — Install the MBU-3T Packoff

In the event the packoff is required to be removed after the lockring is engaged the following procedure is to be followed.

### Retrieving the Packoff

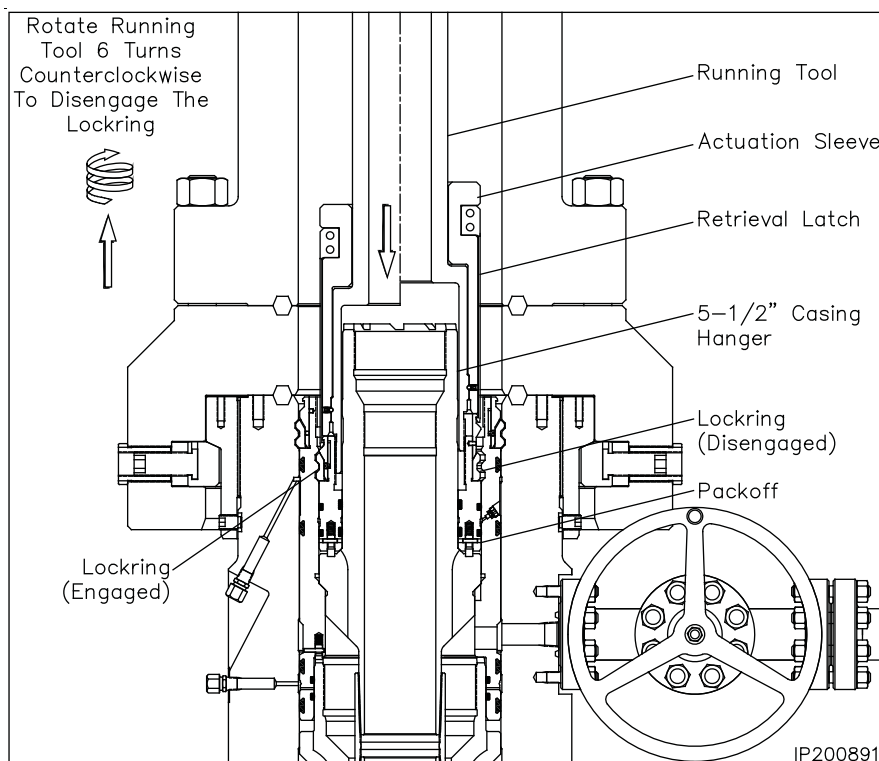
1. Locate the retrieval latch assembly with (4) 3/8" cap screws
2. Install the retrieval latch onto the running tool with the latch fingers facing down and install the cap screws and tighten them securely.
3. Ensure the retrieval latch freely rotates on the running tool actuation sleeve.
4. Carefully lower the running tool through the BOP stack and tag the top of the top of the packoff assembly.
5. Carefully rotate the drill pipe clockwise to locate the thread start and then counter clockwise (left) approximately 12 turns to a positive stop.

**NOTE:** At this point the retrieval latches will have passed over the energizing ring and snapped into place.

6. Rotate the drill pipe clockwise (right) approximately 6-1/2 turns to a positive stop. The drill pipe should rise approximately 1-1/2".

**CAUTION:** Do not exceed the 6-1/2 turns or the packoff may be seriously damaged.

7. Carefully pick up on the drill pipe and remove the packoff from the wellhead with a straight vertical lift.
8. Redress the packoff and reset as previously outlined.





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## Stage 16B — Hang Off the 5-1/2" Casing (Emergency)

**NOTE:** The following procedure should be followed **ONLY** if the 5-1/2" casing should become stuck in the hole. If the casing did not get stuck and is hung off with the Mandrel Casing Hanger, skip this stage.

1. Cement the hole as required.

**WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

2. Drain the BOP stack through the housing upper side outlet valve.

3. Locate the actuation screws on the O.D. of the drilling adapter.

4. Using a hex drive, fully retract the actuation screws until they are slightly over flush with the gland nuts.

**WARNING:** Keep body clear of all pinch points and suspended loads.

5. Pick up on the BOP stack a minimum of 12" above the housing and secure with safety slings.

6. Washout bowl as required.

7. Examine the **11" x 5-1/2" MBU-2LR/3T Upper Slip Casing Hanger (Item A26)**. Verify the following:

- slips and internal bore are clean and in good condition
- all screws are in place

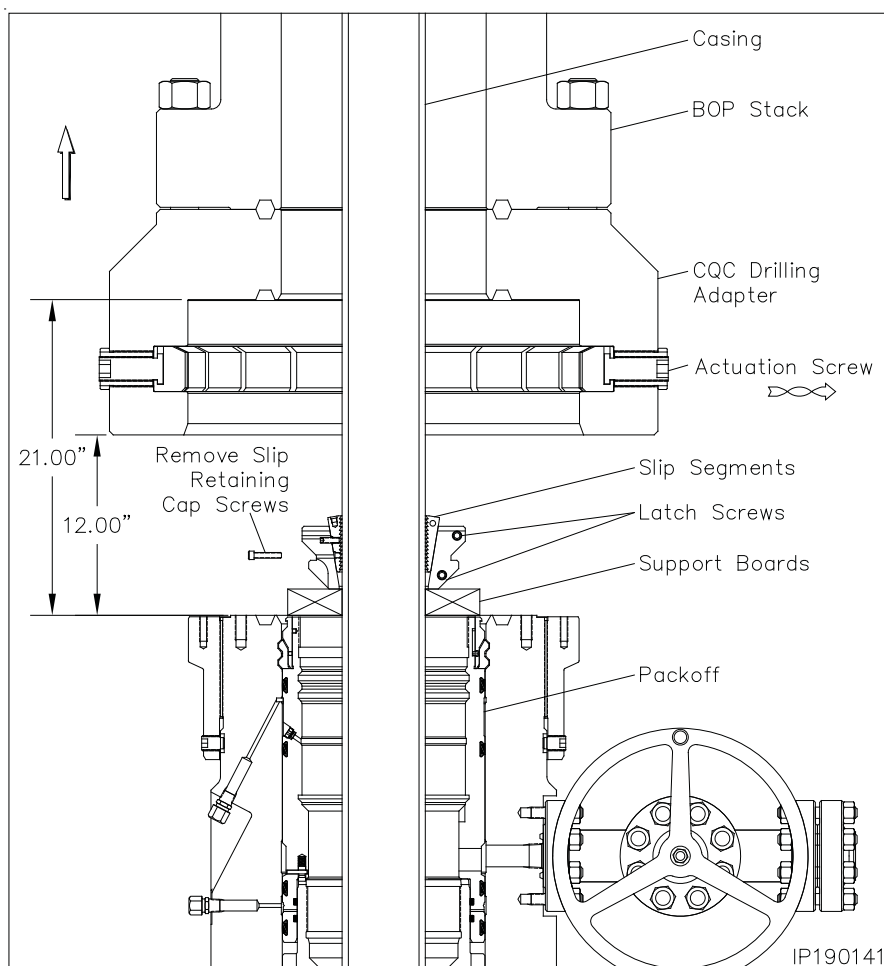
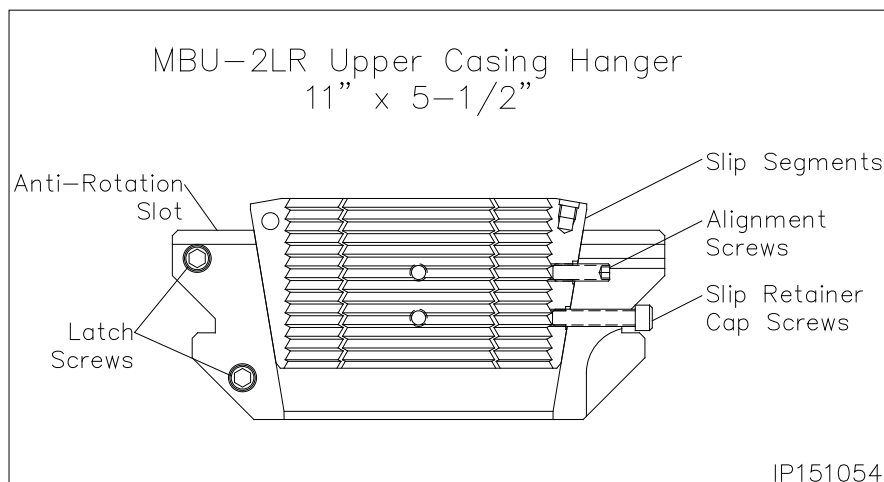
8. Remove the latch cap screws and separate the hanger into two halves.

9. Place two boards on the housing flange against the casing to support the hanger.

10. Pick up one half of the hanger and place it around the casing, on top of the support boards.

11. Place the second half adjacent the first and install the latch screws and tighten securely.

12. Prepare to lower the hanger into the housing bowl.





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## Stage 16B — Hang Off the 5-1/2" Casing (Emergency)

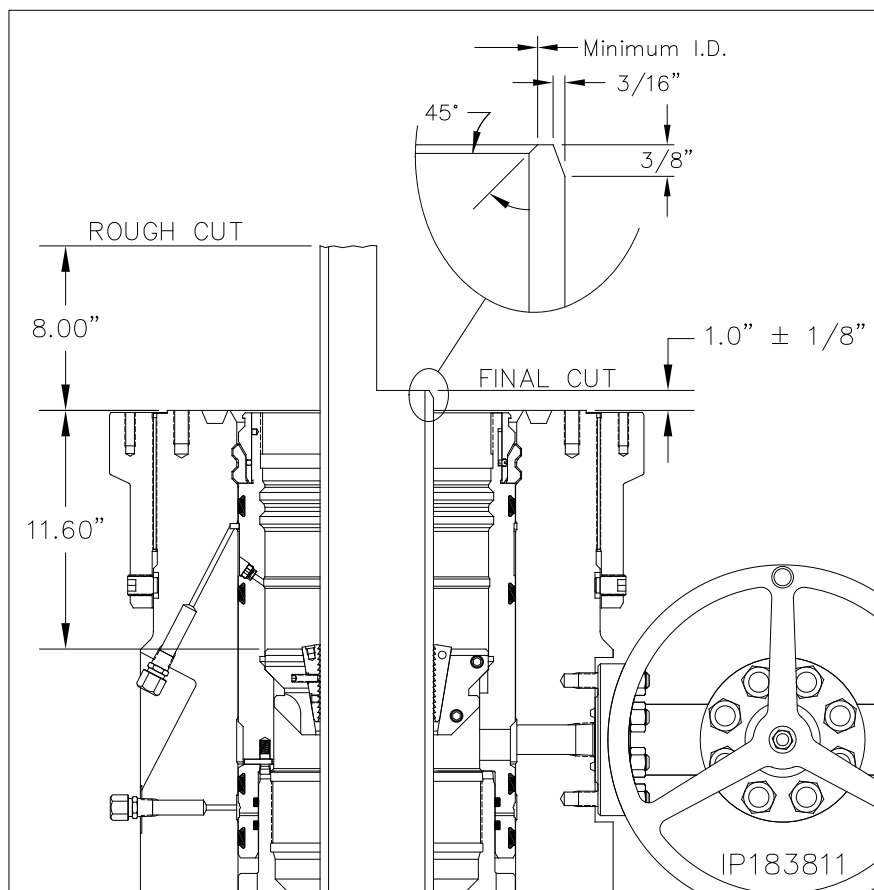
**CAUTION:** Do Not drop the casing hanger!

13. Grease the casing hanger body and remove the slip retaining screws.
14. Pull tension on the casing to the desired hanging weight.
15. Remove the boards and allow the hanger to slide into the packoff bowl. When properly positioned the top of the hanger will be approximately 11.60" below the top of the housing.
16. Slack off the desired hanging weight.

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

**WARNING:** Due to the potential fire hazard and the risk of loss of life and property, it is highly recommended to check the casing annulus and pipe bore for gases, with an approved sensing device, prior to cutting the casing. If gas is present, do not use an open flame torch to cut the casing. It will be necessary to use an air driven mechanical cutter which is spark free.

17. Rough cut the casing approximately 8" above the top flange and move the excess casing out of the way.
18. Final cut the casing at  $1" \pm 1/8"$  above the top of the housing.



19. Grind the casing stub level and then place a  $3/16"$  x  $3/8"$  bevel on the O.D. and an I.D. chamfer to match the minimum bore of the packoff to be installed.

**CAUTION:** There must not be any rough edges on the casing or the seals of the packoff will be damaged.

20. Thoroughly clean the housing bowl, removing all cement and cutting debris.
21. Place a straight edge on top of the slip bowl and in line with the center of one of the anti-rotation notches.
22. Ensure the straight edge is vertical and then place a paint mark on top of the housing in line with the notch in the slip bowl.



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## Stage 16B — Hang Off the 5-1/2" Casing (Emergency)

### Install the Emergency Packoff

1. Examine the **11" x 5-1/2" x 4-13/16" H BPV Thread MBU-3T Nested Emergency Packoff (Item A27)**.

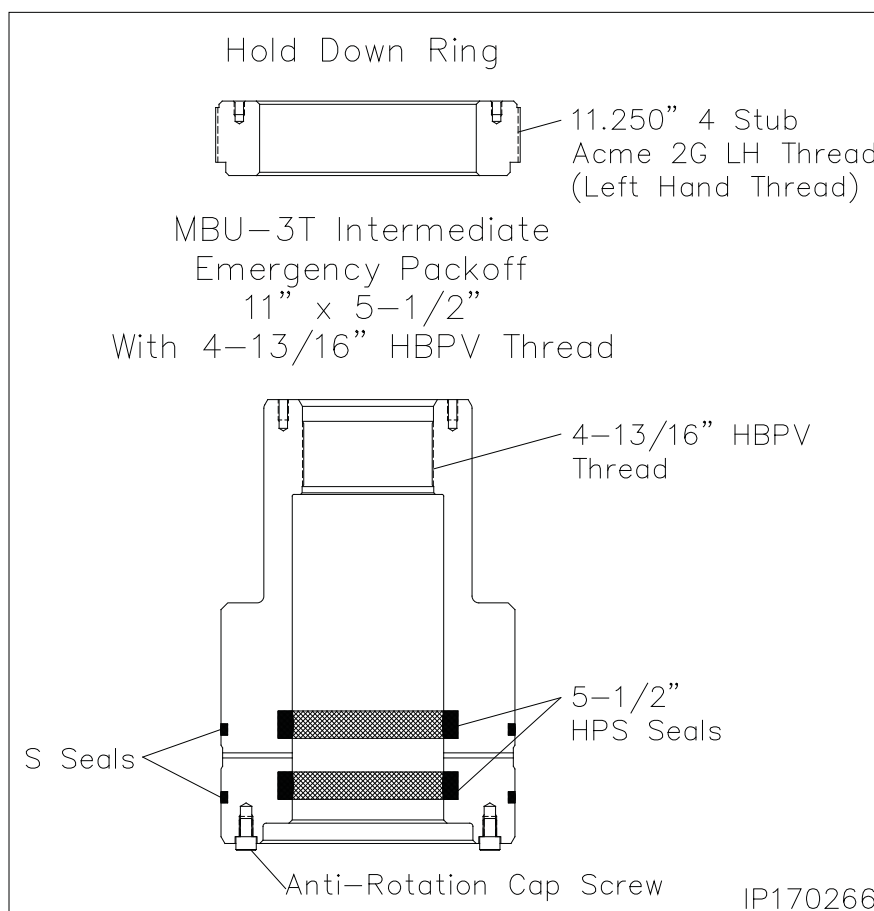
Verify the following:

- bore and internal seal area are clean and in good condition
  - I.D. and O.D. seals are in place and in good condition
  - I.D. BPV threads are clean and in good condition
2. Thoroughly clean the I.D. and O.D. of the packoff removing all old grease and debris.
  3. Carefully inspect the seals for any damage and replace if necessary.
  4. Using a straight edge positioned vertically and centered on the anti-rotation cap screw on the bottom of the packoff, place a white paint mark up the side of the packoff in line with the cap screw.

**NOTE:** The line will be used to guide the packoff anti-rotation lug into its mating notch in the slip bowl.

5. Thoroughly clean and lightly lubricate the I.D. and O.D. seals of the packoff with oil or light grease.

**CAUTION:** Before running packoff, locate the upper "SEAL TEST" fitting on the O.D. of the housing and remove the dust cap from the fitting. Attach a test pump to the open fitting and pump clean test fluid between the seals to insure the rupture disc has been ruptured, and the port is open.

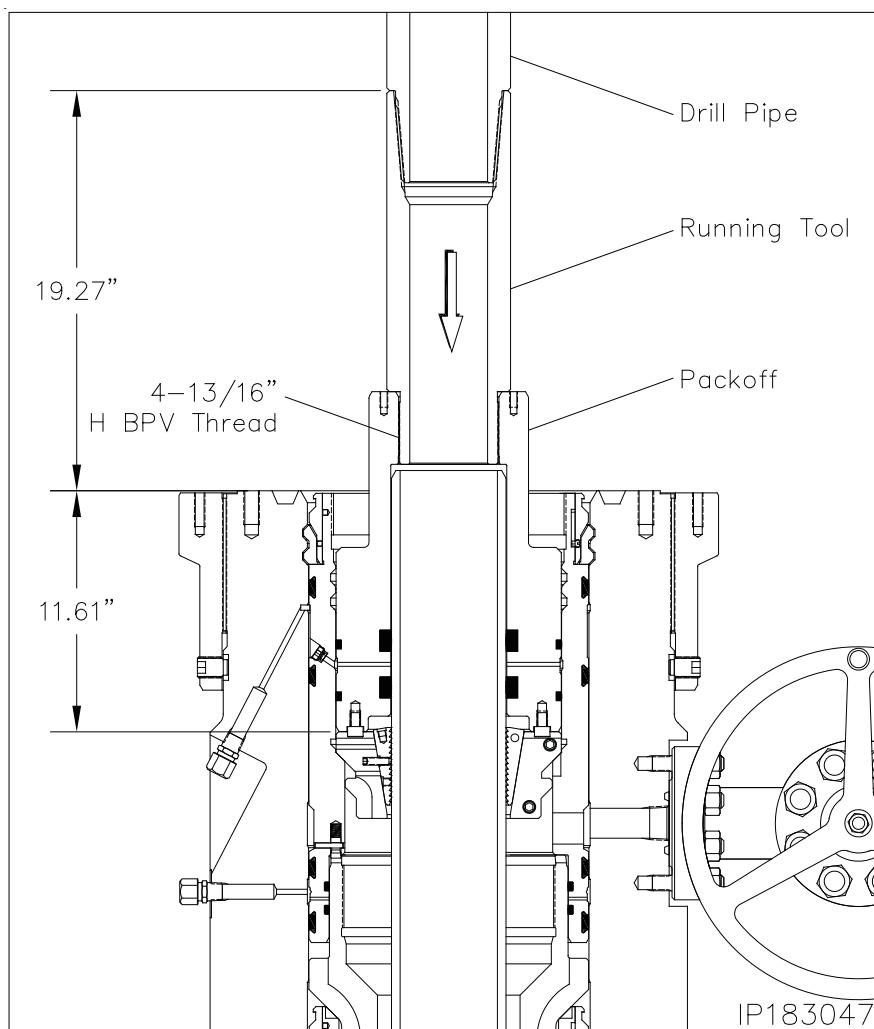


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## Stage 16B — Hang Off the 5-1/2" Casing (Emergency)

6. Examine the **4-1/2" IF (NC-50) x 4-13/16" H BPV Thread Emergency Packoff Running Tool (Item ST20)**. Verify the following:
  - bore and threads are clean and in good condition
7. Make up the running tool to a joint of drill pipe.
8. Lightly lubricate the mating threads of the tool and the packoff with oil or a light grease.
9. Thread the running tool into the top of the packoff with left hand rotation to a positive stop.
10. Pick up the packoff with running tool and position it over the casing stub.
11. Align the anti-rotation cap screws with the mating slots in the top of the slip bowl. Use the marks on the housing and packoff body to keep the packoff properly aligned.
12. Carefully lower the packoff over the casing stub and push it into the packoff bowl until it bottoms out on the slip hanger body.

**CAUTION:** When properly positioned, the main body of the packoff will be 2.72" below the top of the housing flange as indicated.

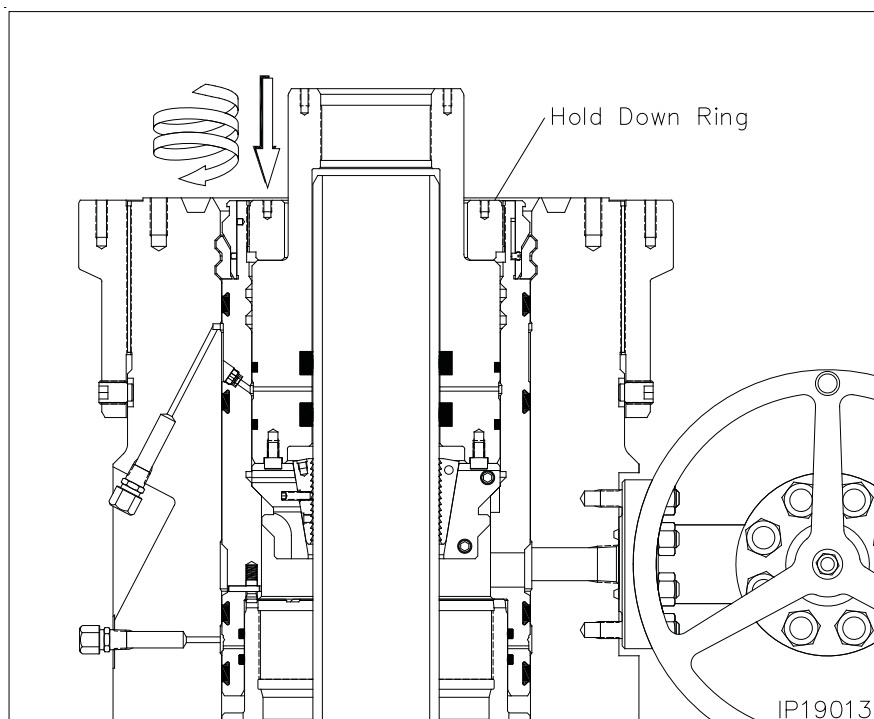
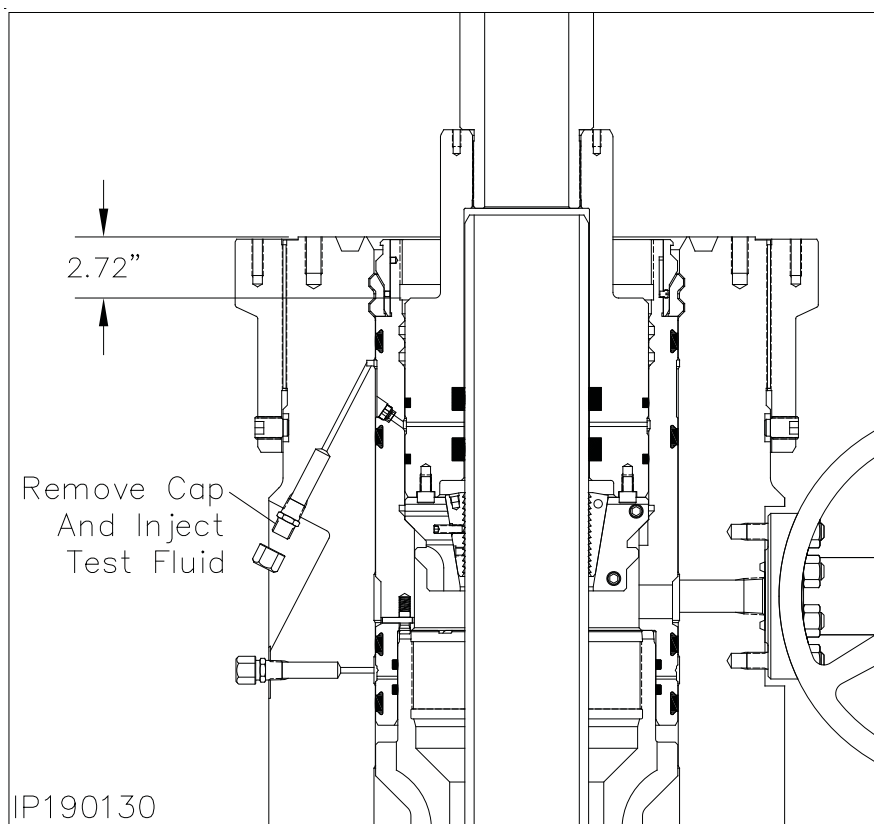


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## Stage 16B — Hang Off the 5-1/2" Casing (Emergency)

### Seal Test

13. Locate the upper "SEAL TEST" fitting on the O.D. of the housing and remove the dust cap from the fitting.
14. Attach a test pump to the open fitting and pump clean test fluid between the seals until a stable test pressure of **10,000 psi or 80% of casing collapse — whichever is less** is attained.
15. Hold the test pressure for 15 minutes or as required by drilling supervisor.
16. If a leak develops, bleed off test pressure, remove the packoff from the wellhead and replace the leaking seals.
17. After satisfactory test is achieved, bleed off test pressure, remove test pump and reinstall the dust cap on the open fitting.
18. Thoroughly clean and lightly lubricate the mating Acme threads of the MBU-3T 7-5/8" packoff and the packoff **Hold Down Ring (Item A27b)**.
19. Thread the ring into the 7-5/8" packoff with counter clockwise rotation to a positive stop on top of the 5-1/2" nested packoff body.
20. Using a dry rod with sliding sleeve tool, set the **4-13/16" One Way H BPV (Item ST21)** in the bore of the packoff. Ensure the BPV makes a minimum of 6 turns before final make up and break out.



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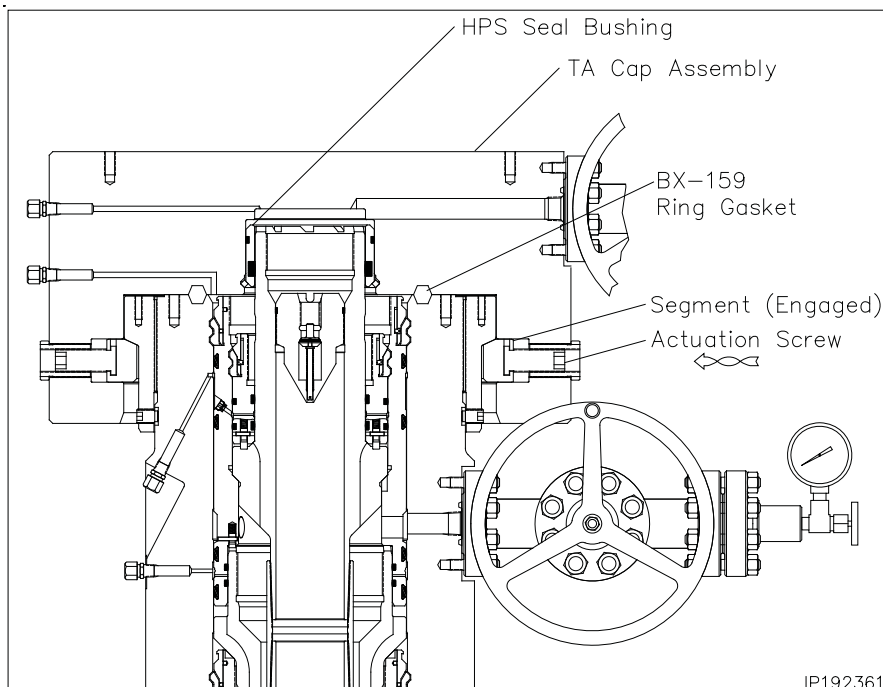
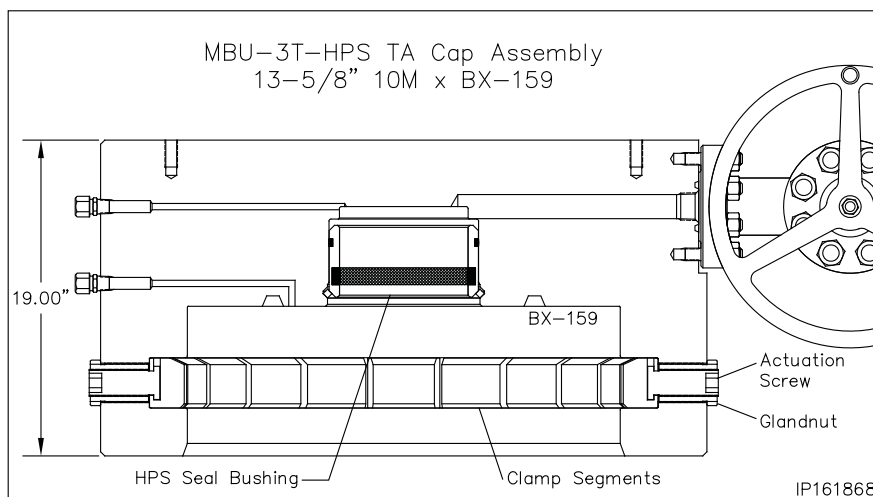
## Stage 17 — Install the Quick Connect TA Cap Assembly

1. Examine the **13-5/8" 10M Quick Connect TA Cap Assembly (Item R4)**. Verify the following:
  - bore is clean and free of debris
  - ring groove is clean and undamaged
  - (20) drive screws and clamp segments are properly installed and fully retracted
  - **7-5/8" HPS seal bushing (Item R5)** is in place and properly retained with the square snap wire
2. Thoroughly clean the top of the MBU-4T housing, threaded hub, and the mating seal surfaces of the TA cap.
3. Install a new **BX-159 Ring Gasket** into the ring groove of the housing.
4. Install the lifting eyes in the top of the TA cap.



**WARNING:** Keep body clear of all pinch points and suspended loads.

5. Using a suitable lifting device with weight rated slings, pick up the TA cap assembly and carefully lower it over the packoff neck and land it on the ring gasket.
6. Ensure the TA cap is level and then carefully run in all of the drive screws of the TA cap to contact point.
7. Ensure the assembly remains level, run in one actuation screw and torque to 100 ft-lbs.
8. Locate the screw 180° from the first and torque to 100 ft-lbs.
9. Locate the screws 90° to the right and left and torque to 100 ft-lbs.
10. Position the second 4 point sequence 90° from the first and torque each screw to 200 ft-lbs.



11. Run in all remaining screws to contact. Torque each screw to 400 ft-lbs.
12. Make one additional round until a stable torque of 650 ft-lbs on all (20) screws is achieved.

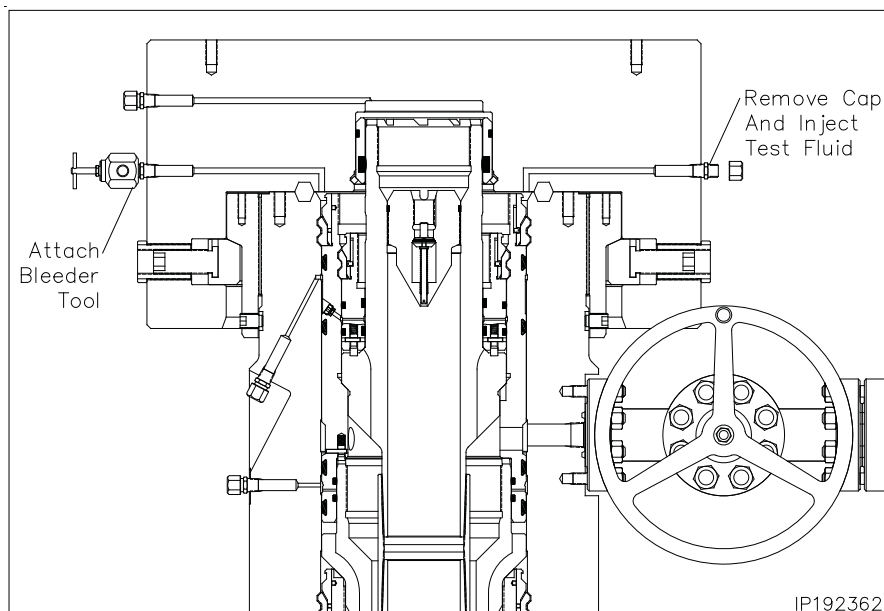


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## Stage 17 — Install the Quick Connect TA Cap Assembly

### Connection Test

1. Open the TA cap ball valve and the housing upper side outlet valve to monitor leakage.
2. Locate the two test fittings marked "FLG TEST" and remove the dust caps from the fittings.
3. Attach a bleeder tool to one of the open fitting and open the tool.
4. Attach a test pump to the remaining open fitting and pump clean test fluid into the void area until a continuous stream flows from the open bleeder tool.
5. Close the tool and continue pumping fluid until a stable test pressure of **10,000 psi**.
6. Hold the test pressure for 15 minutes or as required by drilling supervisor.
7. After a satisfactory test is achieved, bleed off the test pressure, drain the fluid, remove the bleeder tool and re-install the dust cap on the open fittings.
8. Close all open valves.

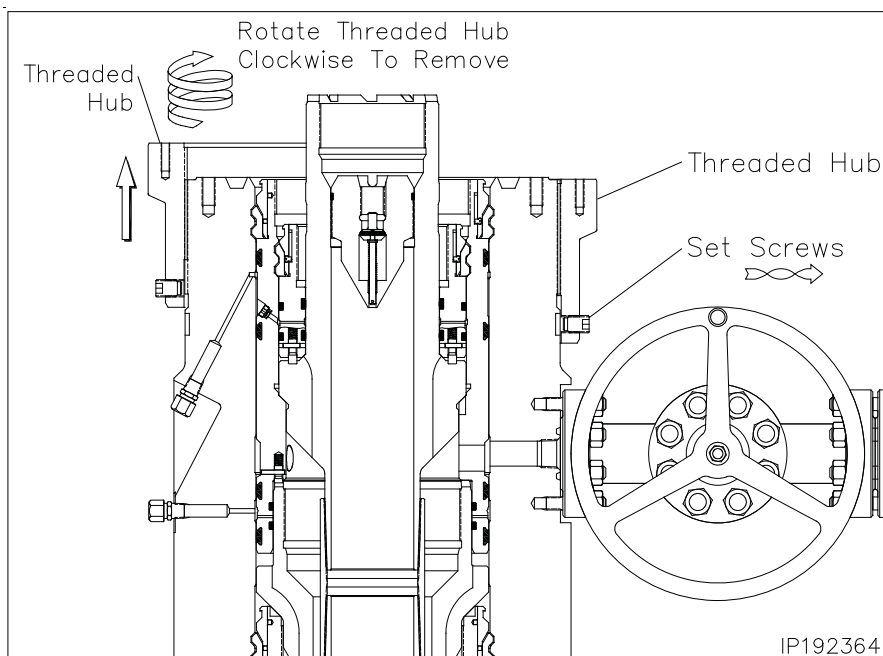
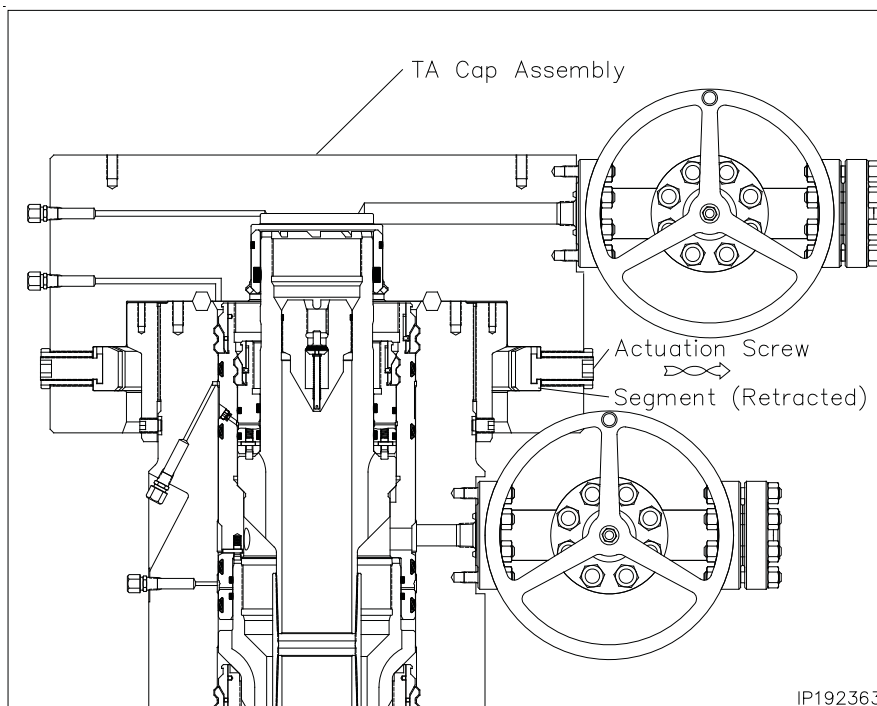


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## Stage 18 — Remove the TA Cap Assembly

**WARNING:** Confirm with Drilling Supervisor that well bore conditions are safe.

1. Open the ball valve on the TA cap to check for trapped pressure.
2. Locate the actuation screws on the O.D. of the TA cap assembly.
3. Using a hex drive, fully retract the actuation screws until they are slightly over flush with the gland nuts.
4. Install lifting eyes with pick up sling to the top of the TA cap and lift the cap free of the wellhead.
5. Remove the threaded hub set screws.
6. Remove the threaded hub from the top of the housing with clockwise rotation.

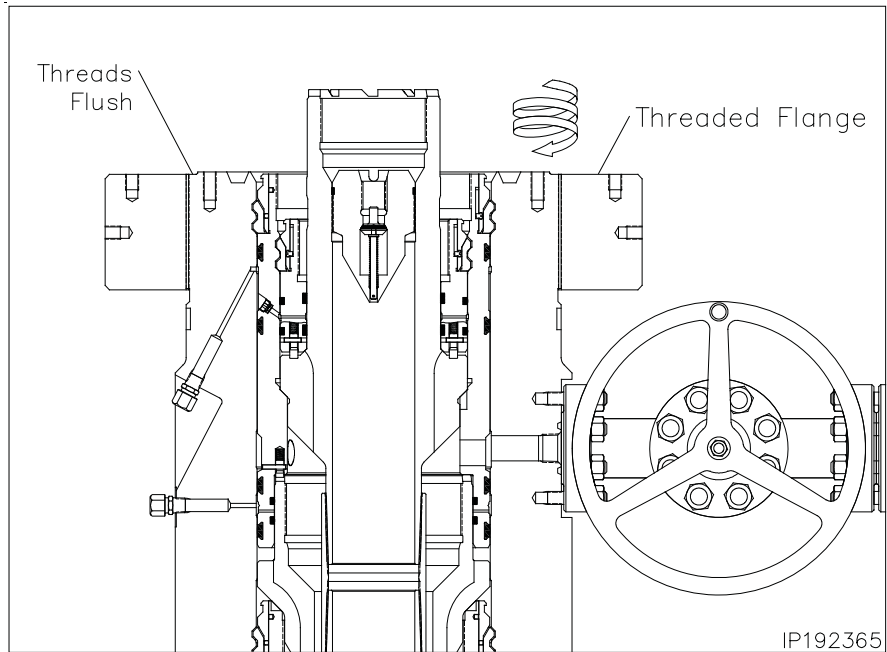




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## Stage 18 — Remove the TA Cap Assembly

1. Examine the **13-5/8" 10M Threaded Flange (Item A6)**. Verify the following:
  - Acme thread are clean and in good condition
2. Thoroughly clean and lightly lubricate the mating threads of the housing and the threaded flange with copper coat or never seize.
3. Pick up the flange and carefully thread it onto the top of the housing with counter clockwise rotation until the top of the flange is level with the top of the Acme thread of the housing.
4. Rotate the flange in either direction to two hole.
5. Prepare to install the tubing head.



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## Stage 19 — Installing the Tubing Head

1. Examine the **13-5/8" 10M x 7-1/16" 15M CTH-DBLHPS Tubing Head (Item B1)**. Verify the following:

- seal area and bore are clean and in good condition
- 'HPS' seals are in place and in good condition
- all peripheral equipment is intact and undamaged
- all lockscrews are in place and fully retracted

2. Clean the mating ring grooves of the housing and tubing head assembly.
3. Lightly lubricate the I.D. 'HPS' seals and the packoff neck with a light grease.



**CAUTION:** Excessive grease may prevent a good seal from forming!

4. Install a new **BX-159 Ring Gasket (Item B12)** in the ring groove of the MBU-4T housing.



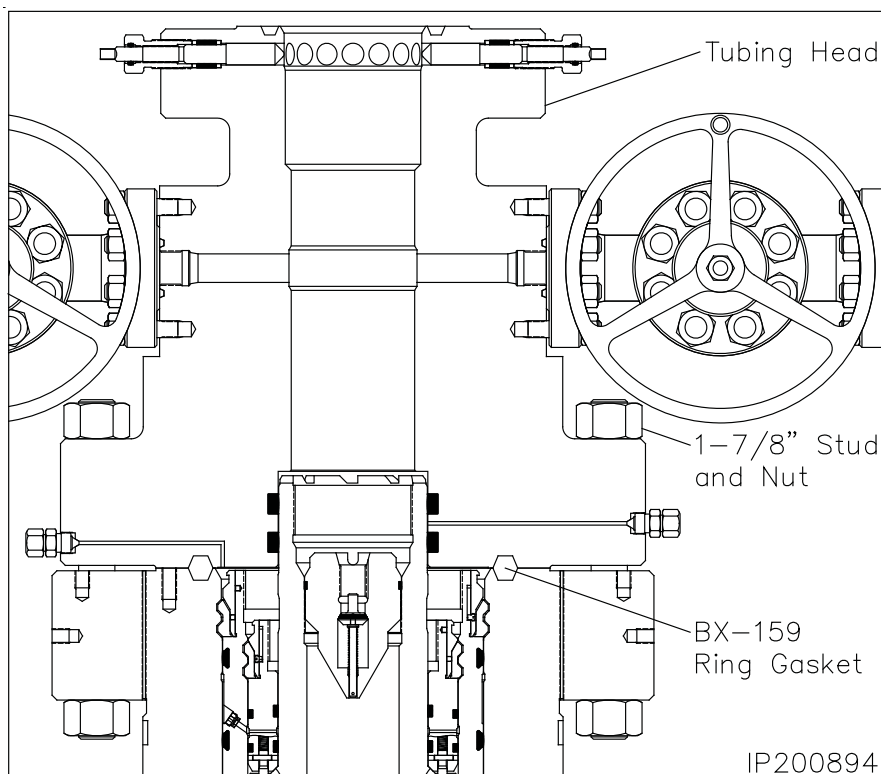
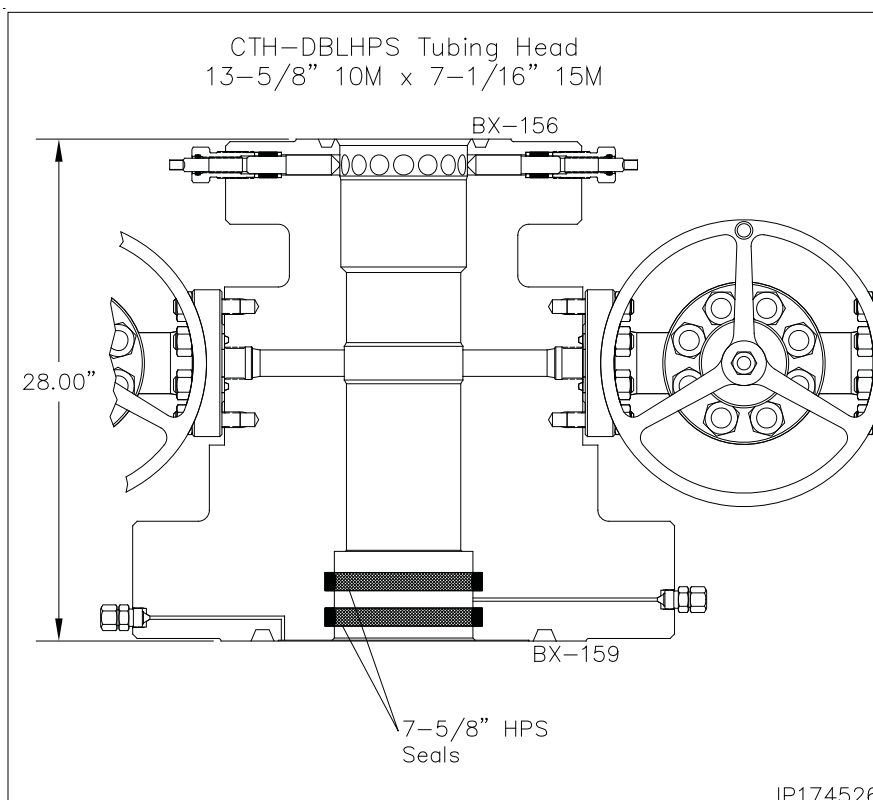
**WARNING:** Keep body clear of all pinch points and suspended loads.

5. Orient the tubing head so the outlets are in the proper position and then carefully lower the tubing head over the packoff neck and land it on the ring gasket.



**CAUTION:** Do Not damage the 'HPS' seal elements or their sealing ability will be impaired!

6. Make up the flange connection using the appropriate size **Studs and Nuts (Item B13)**, tightening them in an alternating cross pattern.

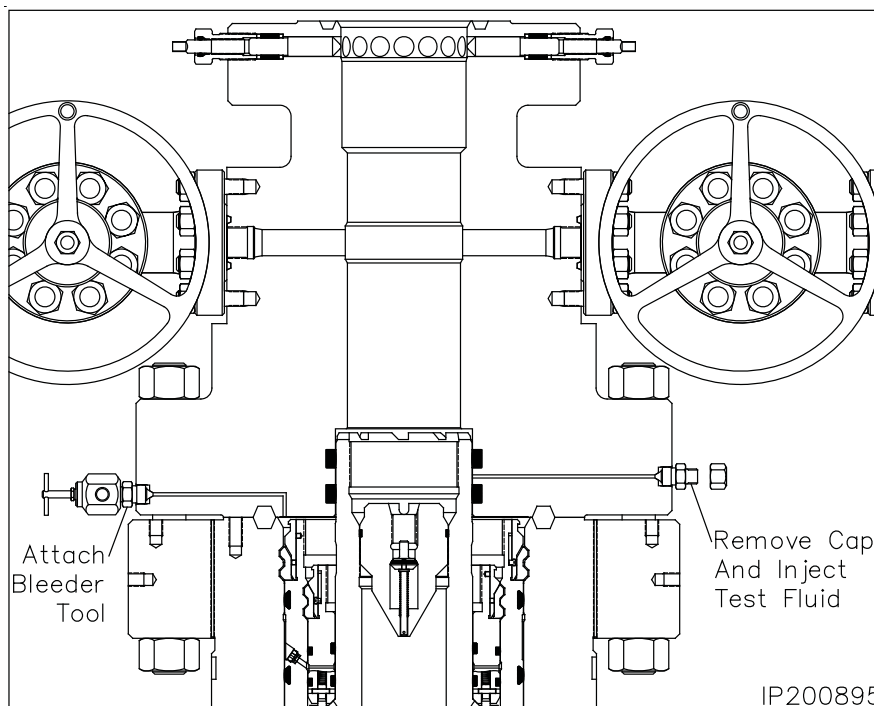


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## Stage 19 — Installing the Tubing Head

### Seal Test

1. Locate the "SEAL TEST" fitting and one "FLG TEST" fitting on the tubing head lower flange and remove the dust cap from both fittings.
2. Attach a bleeder tool to the open "FLG TEST" fitting and open the tool.
3. Attach a test pump to the "SEAL TEST" fitting and pump clean test fluid between the 'HPS' seals until a test pressure of **15,000 psi**.
4. Hold the test pressure for 15 minutes or as required by drilling supervisor.
5. If pressure drops, a leak has developed. Bleed off test pressure and take the appropriate action in the adjacent table.
6. After a satisfactory test is achieved, carefully bleed off all test pressure and remove the test pump and bleeder tool.
7. Reinstall the dust cap on the open "SEAL TEST" fitting.



Seal Test	
Leak Location	Appropriate Action
Open bleeder tool - Lower 'HPS' seal is leaking	Remove tubing head and replace leaking seals.
From open tubing head outlet valve - Upper 'HPS' seal is leaking	Re-land and retest seals

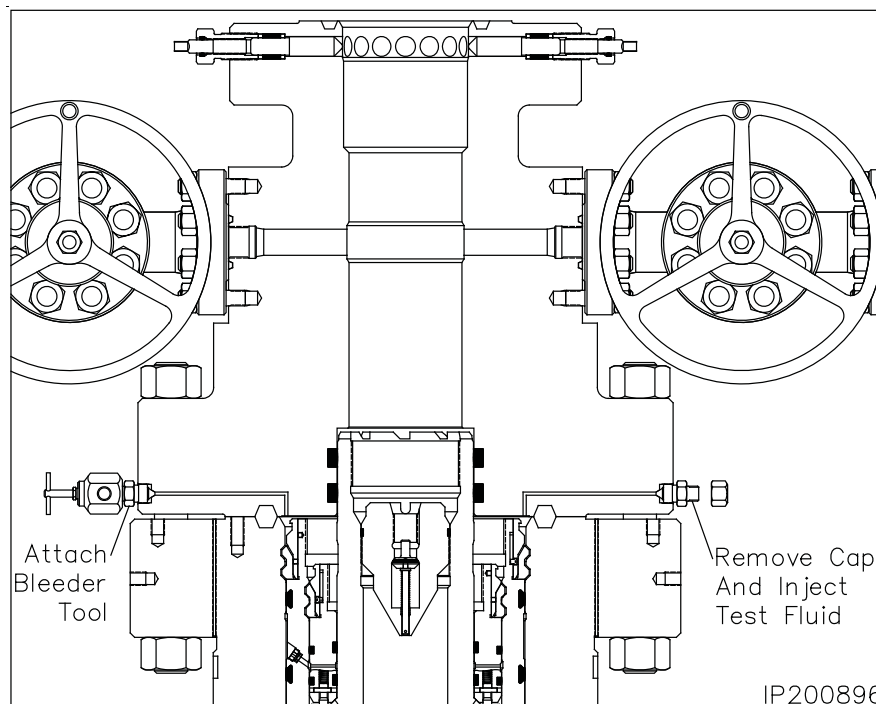


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## Stage 19 — Installing the Tubing Head

### Flange Test

1. Locate the remaining "FLG TEST" fitting on the tubing head lower flange and remove the dust cap from the fitting.
2. Attach a test pump to the open "FLG TEST" fitting and inject test fluid into the flange connection until a continuous stream flows from the opposite "FLG TEST" bleeder tool.
3. Close the bleeder tool and continue pumping test fluid to **10,000 psi**.
4. Hold the test pressure for 15 minutes or as required by drilling supervisor.
5. If pressure drops a leak has developed. Take the appropriate action from the adjacent chart.
6. Repeat this procedure until a satisfactory test is achieved.
7. Once a satisfactory test is achieved, carefully bleed off all test pressure and remove the test pump and bleeder tool.
8. Reinstall the dust caps on the open fittings.



Flange Test	
Leak Location	Appropriate Action
Between flanges - Ring gasket is leaking	Further tighten the flange connection



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## Section 2 — Offline Cementing the 7-5/8" Casing String



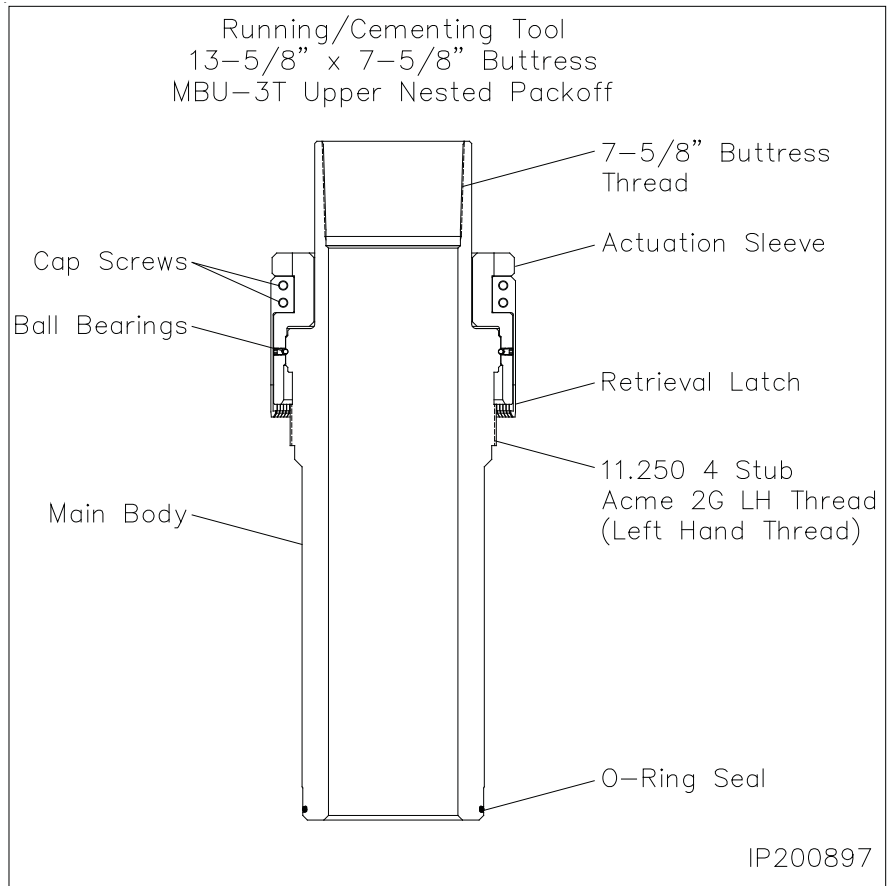
Franklin Mountain Operating LLC  
(20") x 13-3/8" x 9-5/8" x 7-5/8" x 5-1/2"  
MBU-4T-CFL-R-DBLO Wellhead System

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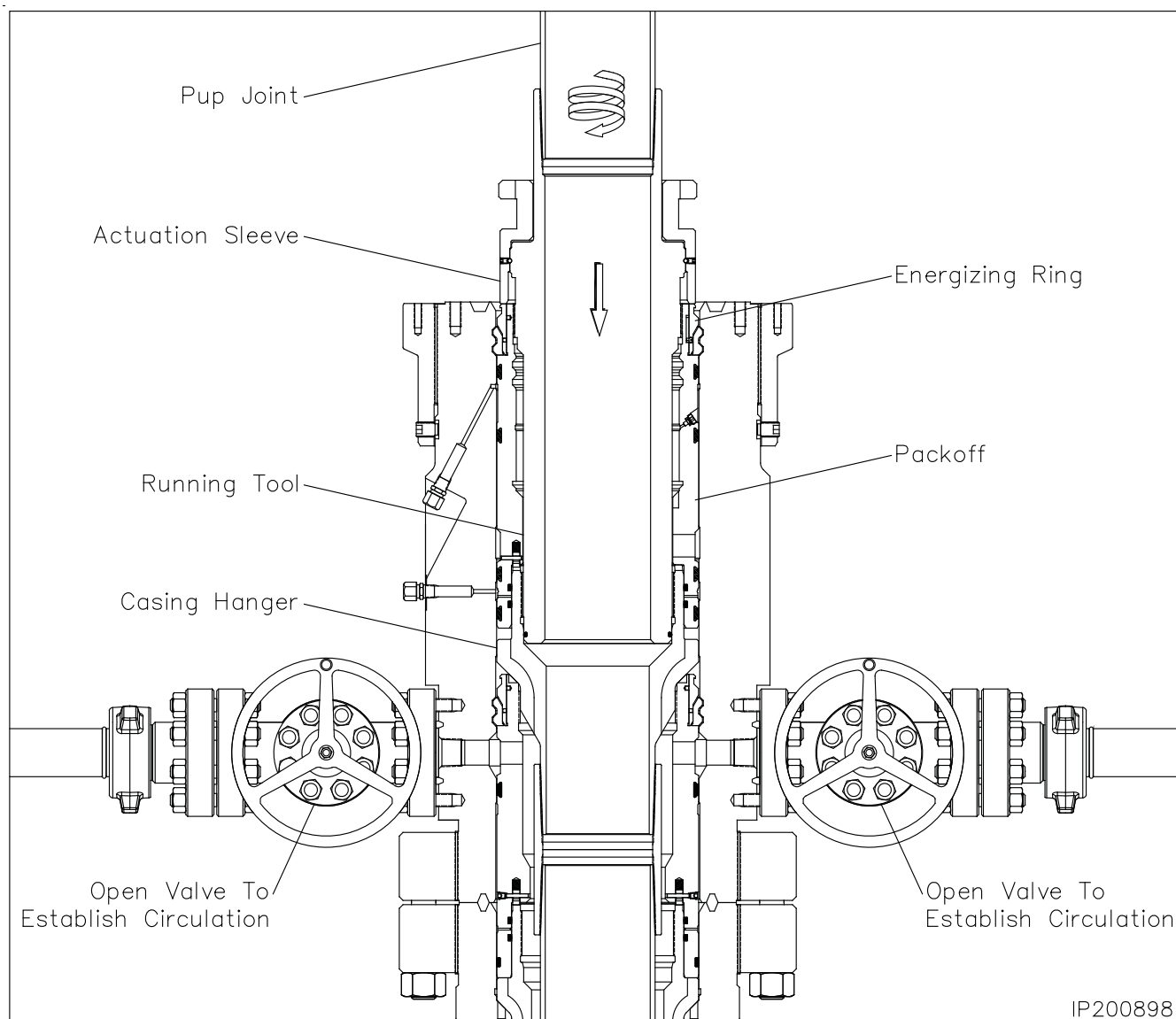
## Stage 1 — Cement 7-5/8" Casing String

1. Examine the **13-5/8" x 7-5/8" Buttress x 11.250" 4 Stub Acme 2G LH, MBU-3T Nested Packoff Running/Cementing Tool (Item R6)**. Verify the following:
  - Acme threads are clean and in good condition
  - retrieval latch is in position and retained with cap screws
  - O-ring seal is in place and in good condition
2. Remove the retrieval latch and set aside.
3. Make up the running tool to a 7-5/8" Buttress pup joint and torque connection to thread manufacturer's optimum make up torque.
4. Pick up the Running Tool with pup joint and suspend it above the packoff.



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## Stage 1 — Cement 7-5/8" Casing String



5. Carefully lower the tool into the packoff and thread them together by first rotating the tool clockwise (RIGHT) to locate the thread start and then counter clockwise (LEFT) until the tool actuation sleeve makes contact with the packoff Energizing Ring. Approximately 8 to 9 turns.
6. Install cement head adapter and cement head.
7. Rig up return lines to the lower outlets of the MBU-4T upper housing.
8. Establish circulation and cement casing as required.
9. With cement in place bleed off cementing pressure and close the side outlet valves.
10. Remove the cement head and adapter from the 7-5/8" pup joint.
11. Using only chain tongs, remove the running/cementing tool with clockwise rotation. Approximately 8 to 9 turns and retrieve the tool with a straight vertical lift.
12. Install TA cap as required



Franklin Mountain Operating LLC  
(20") x 13-3/8" x 9-5/8" x 7-5/8" x 5-1/2"  
MBU-4T-CFL-R-DBLO Wellhead System

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# FRANKLIN MOUNTAIN ENERGY



## Geologic Prognosis

Well Name	Forge Fed Com 707H
Operator	Franklin Mountain Energy, LLC
Project Area	Forge Unit
Well Type	10,000' Upper Wolfcamp Lateral
API	
Rig	

State	NM	County	Lea						
SHL	Township	25S/35E	Section	35	1,888'	FEL	55'	FSL	
BHL	Township	25S/35E	Section	26	980'	FEL	150'	FNL	
Surface Latitude	NAD 83		32.07972						
Surface Longitude	NAD 83		103.33588						
Bottom Hole Latitude	NAD 83		32.108191						
Bottom Hole Longitude	NAD 83		103.332945						
Ground Level	3,117'	Rig KB	30'	KB	3,147'				

Formations	PROG SS	PROG TVD	Picked TVD	delta	Potential/Issues
Cenozoic Alluvium (surface)	3,117'	30'	30'	0	Sand/Gravels/unconsolidated
Rustler	2,256'	891'			Carbonates
Salado	1,465'	1,681'			Salt, Carbonate & Clastics
Base Salt	-319'	3,466'			Shaley Carbonate & Shale
Lamar	-1,757'	4,903'			Carbonate & Clastics
Bell Canyon	-2,030'	5,176'			Sandstone - oil/gas/water
Cherry Canyon	-3,018'	6,165'			Sandstone - oil/gas/water
Brushy Canyon	-4,417'	7,564'			Sand/carb/shales - oil/gas/water
Bone Spring Lime	-5,650'	8,796'			Shale/Carbonates - oil/gas
Avalon	-5,687'	8,834'			Shale/Carbonates - oil/gas
*Chert Zone*	-5,873'	9,019'			Carbonate/Chert
First Bone Spring Sand	-6,949'	10,095'			Sandstone - oil/gas/water
Second Bone Spring Carbonates	-7,045'	10,192'			Shale/Carbonates - oil/gas
Second Bone Spring Sand	-7,403'	10,549'			Sandstone - oil/gas/water
Third Bone Spring Carbonates	-8,002'	11,148'			Shale/Carbonates - oil/gas
Third Bone Spring Sand	-8,663'	11,810'			Sandstone - oil/gas/water
Wolfcamp	-8,942'	12,089'			Overpressure shale/sand- Oil/Gas
Wolfcamp A	-9,004'	12,150'			Overpressure Shale - Oil/Gas
<b>HZ Target</b>	<b>-9,165'</b>	<b>12,312'</b>			<b>Overpressure Shale - Oil/Gas</b>
Wolfcamp B	-9,237'	12,384'			Overpressure Shale - Oil/Gas

Target interval is expected to have an average apparent dip of 0.0 degrees down along the lateral based on the Wolfcamp B structure

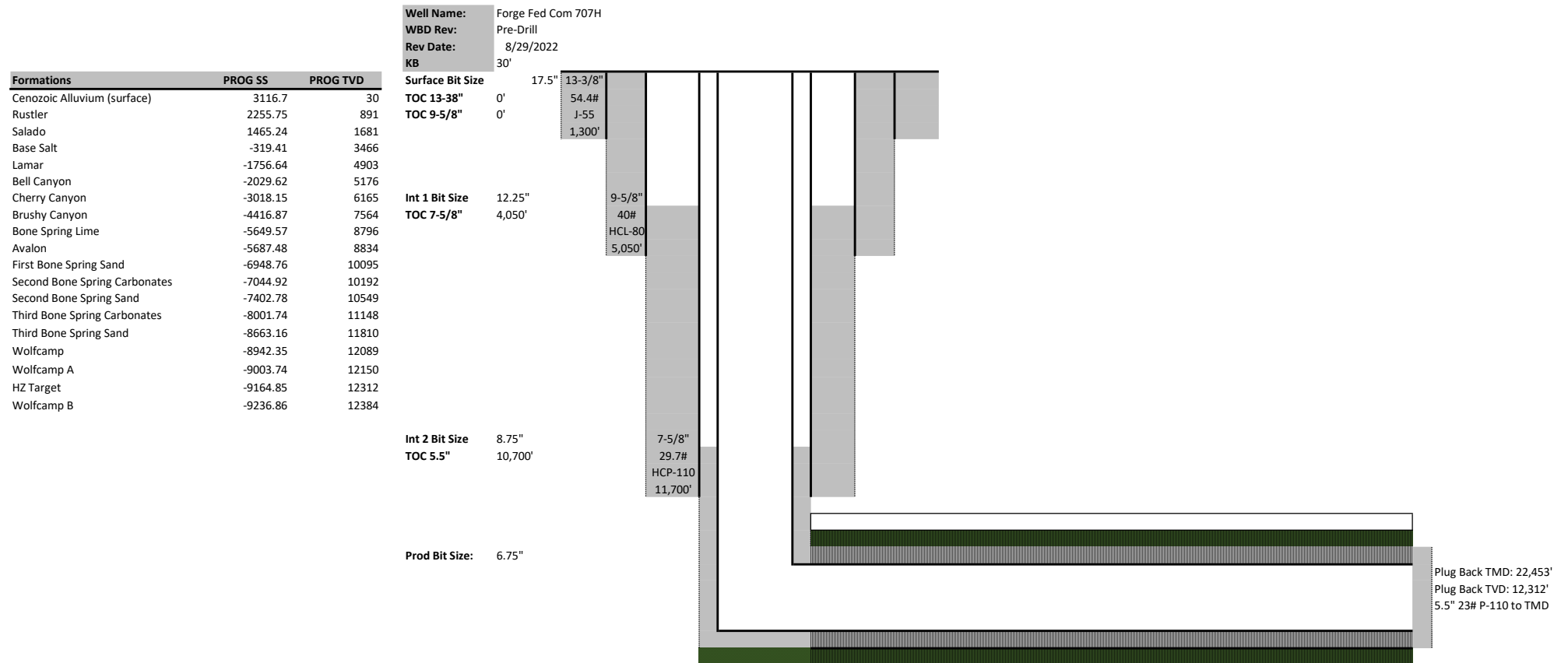
Target window tolerance is set at +/- 10'

Target Line: 12312' KBTVD @ 0' VS w/ 90.0° inc.

Offset Log: TELE DELUX `32` STATE : 4H (30025423620000)

Updated 7/18/22

<b>FME Geologist</b>	Ben Kessel		<a href="mailto:bkessel@fmellc.com">bkessel@fmellc.com</a>	
	Office	720.414.7868	Cell	303.868.9946
<b>FME Engineer</b>				
<b>Electric Logs</b>				
			<b>From</b>	<b>To</b>
Open-Hole	n/a			
MWD/LWD	MWD GR		Int. 1 Csg. Point	TD
<b>Mud Log:</b>				
Start logging at drill out of surface casing				
Sampling:	10' samples in vertical and through curve, 30' samples in lateral			
Samples:	1 set dry samples at footage frequency noted above			
Mud Gas:	Continuous			
Daily Contact:	Email distribution of mud log/daily report at 7:30am and 4:30 pm CST			
<b>Daily Mud Log Email Distribution List</b>				
<b>Final Mud Log Distribution</b>				
	Ben Kessel (bkessel@fmellc.com)		email	
<b>Cuttings/Samples Shipment Information</b>				





## Forge Fed Com 707H

1. Geologic name of surface location: Permian
2. Estimated tops of important geological markers:

Formations	PROG SS	PROG TVD	Potential/Issues
Cenozoic Alluvium (surface)	3,117'	30'	Sand/Gravels/unconsolidated
Rustler	2,256'	891'	Carbonates
Salado	1,465'	1,681'	Salt, Carbonate & Clastics
Base Salt	-319'	3,466'	Shaley Carbonate & Shale
Lamar	-1,757'	4,903'	Carbonate & Clastics
Bell Canyon	-2,030'	5,176'	Sandstone - oil/gas/water
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Avalon	-5,687'	8,834'	Shale/Carbonates - oil/gas
First Bone Spring Sand	-6,949'	10,095'	Sandstone - oil/gas/water
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Wolfcamp	-8,942'	12,089'	Overpressure shale/sand- Oil/Gas
Wolfcamp A	-9,004'	12,150'	Overpressure Shale - Oil/Gas
<b>HZ Target</b>	<b>-9,165'</b>	<b>12,312'</b>	<b>Overpressure Shale - Oil/Gas</b>
Wolfcamp B	-9,237'	12,384'	Overpressure Shale - Oil/Gas

3. Estimated depth of anticipated fresh water, oil or gas:

Upper Permian Sands	0-400'	Fresh Water
Delaware Sands	5,176'	Oil
Avalon	8,834'	Oil
Bone Spring	10,095'	Oil
Wolfcamp	12,089'	Oil

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Surface freshwater sands will be protected by setting 13-3/8" casing at 1,300' and circulating cement back to surface.

4. Casing Program:

All casing strings will be run new. Safety factors calculated assuming the well is vertical.

Casing string	Weight	Grade	Burst	Collapse	Tension	Conn	Length	API design factor			
								Burst	Collapse	Tension	Coupling
Surface 13 3/8"	54.5	J-55	2730	1130	853	BTC 909	1,300	1.18	1.67	4.99	5.32
Intermediate 9 5/8"	40	HCL-80	7430	4230	916	BTC 1042	5,050	1.80	1.79	3.03	3.45
Intermediate 7 5/8"	29.7	HCP-110	8280	7150	827	Liberty 558	11,700	1.13	1.31	1.85	1.25
Long string 5 1/2"	23	P-110	14520	14520	729	Eagle 606	22,453 12,312	1.32	1.38	1.18	0.98 1.58

7-5/8" casing will be set at 11,700' MD / 11,625' TVD at 0° inclination. Stress calculations on 5-1/2" casing performed assuming 22,453' depth. Actual max vertical depth is 12,312'.



### Cementing Program:

Cementing Stage tool can be placed in the 1<sup>st</sup> Intermediate string as a contingency to ensure required TOC to surface.

String Type	Hole Size	Casing		Sacks	Type of cmt	Lead			TOC ft	Tail					
		Size	Setting Depth			Yield ft <sup>3</sup> /sk	Water gal/sk			Sacks	Type of cmt	Yield ft <sup>3</sup> /sk	Water gal/sk	TOC	Excess
Surf	17.5	13.375	1,300	795	Extenda Cem, 13.5 ppg Class C, 3lb/sk Kol-Seal  0.125pps Poly-E-Flake	1.747	9.06		0	335	Tail, 14.8 ppg, Class C,  1% CaCl <sub>2</sub> , 0.125pps Celo-Flake	1.349	6.51	1,000	100%
Int1	12.25	9.625	5,050	1816	Lead, 12.8 ppg, Class C, 5% Salt 0.125 pps Poly-E-Flake, 3lb/sk Kol-Seal	1.45	6.9		0	154	Tail, 14.8 ppg, Class C, 0.1% HR 800 .125 pps Poly-E-Flake	1.33	6.3	4,750	100%
Int2	8.75	7.625	11,700	188	Lite Fill, 9.5 ppg, Class C 3lb/sk Bridgemaker Gel, 5% Salt, 5pps LCM, 0.25pps IntegraSeal	5.1	27.2		4,050	121	IntegraCem 14.8 ppg, Class H,  0.15% ASA 301;P50H; 0.5% FL-66;0.25% R-21	1.33	6.31	10,700	50%
Prod	6.75	5.5	22,453	864	Tail, 14.5 ppg, Class H; 0.25 C-20; 0.04 CSA-1000; 4% STE; 0.45% CFL-1	1.36	6.37		10,700						20%

### 5. Minimum Specifications for Pressure Control:

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer and an annular preventer (5,000-psi WP). Both units will be hydraulically operated, and the ram-type will be equipped with blind rams on bottom and 4 ½" x 7" variable pipe rams on top.

All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5,000/250 psig and the annular preventer to 5,000/250 psig. The surface casing will be tested for 30 minutes to 0.22 psi/ft or 1500 psi, whichever is greater, but not to exceed 70% of Internal yield.

Before drilling out of the intermediate casing, the ram-type BOP and accessory equipment will be tested to 10,000/250 psig and the annular preventer to 5,000/250 psig. The intermediate casing will be for 30 minutes to 0.22 psi/ft or 1500 psi, whichever is greater, but not to exceed 70% of Internal yield prior to drill-out.

Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe.



## 6. Types and characteristics of the proposed mud system:

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal. The applicable depths and properties of the drilling fluid systems are as follows.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 1,300'	Fresh - Gel	8.6-8.8	28-34	N/c
1,300' –11,700'	Brine	8.8-10.2	28-34	N/c
11,700' –22,453' Lateral	Oil Base	10.0-12.0	58-68	3 – 6

The highest mud weight needed to balance formation is expected to be 10-12 ppg. In order to maintain hole stability, mud weights up to 12.5 ppg may be utilized.

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

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

## 7. Auxiliary well control and monitoring equipment:

- (A) A kelly cock will be kept in the drill string at all times.
- (B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.
- (C) H<sub>2</sub>S monitoring and detection equipment will be utilized from surface casing point to TD.
- (D) A wear bushing will be installed in the wellhead prior to drilling out of the surface casing.

## 8. Logging, testing and coring program:

GR–CCL–CNL will be run in cased hole during completions phase of operations.

Open-hole logs are not planned for this well.

## 9. Abnormal conditions, pressures, temperatures and potential hazards:

The estimated bottom-hole temperature at 12,312' TVD (deepest point of the well) is 190°F with an estimated maximum bottom-hole pressure (BHP) at the same point of 8,003 psig (based on 12.5 ppg MW).

Hydrogen sulfide may be present in the area. All necessary precautions will be taken before drilling operations commence. See Hydrogen Sulfide Plan below:

## 10. Hydrogen Sulfide Plan:

- A. All personnel shall receive proper awareness H<sub>2</sub>S training.
- B. Briefing Area: Two perpendicular areas will be designated by signs and readily accessible.
- C. Required Emergency Equipment
  - a. Well Control Equipment
    - i. Flare line 100' from wellhead to be ignited by auto ignition sparking system.
    - ii. Choke manifold with a remotely operated hydraulic choke.
    - iii. Mud/gas separator.
  - b. Protective equipment for essential personnel
    - i. Breathing Apparatus
      - 1. Rescue packs (SCBA) – 1 unit shall be placed at each briefing area, 2 shall be stored in a safety trailer on site.
      - 2. Work / Escape packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.



3. Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.
- ii. Auxiliary Rescue Equipment
  1. Stretcher
  2. Two OSHA full body harnesses
  3. 100 feet of 5/8 inches OSHA approved rope
  4. 1-20# class ABC fire extinguisher
- c. H2S Detection and Monitoring Equipment
  - i. A stationary detector with three sensors will be placed in the doghouse if equipped, set to visually alarm at 10 ppm and audible at 14 ppm. The detector will be calibrated a minimum of every 30 days or as needed. The sensors will be placed in the following places:
    1. Rig Floor
    2. Below Rig Floor / Near BOPs
    3. End of flow line or where well bore fluid is being discharged (near shakers)
  - ii. If H2S is encountered, measured values and formations will be provided to the BLM.
- d. Visual Warning Systems
  - i. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
  - ii. A colored condition flag will be on display, reflecting the current condition at the site at the time.
  - iii. Two windsocks will be placed in strategic locations, visible from all angles.
- e. Mud Program
  - i. The Mud program will be designed to minimize the volume of H2S circulated to surface.
  - ii. The operator will have the necessary mud products to minimize hazards while drilling in H2S bearing zones.
- f. Metallurgy
  - i. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service at the anticipated operating pressures to prevent sour sulfide stress cracking.
- g. Communication
  - i. Communication will be via cell phones and walkie talkies on location.

Franklin Mountain Energy has conducted a review of offset operated wells to determine if an H2S contingency plan is required for the proposed well. Based on concentrations of offset wells, proximity to main roads, and distance to populated areas, the radius of exposure created by a potential release was determined to be minimal and low enough to not necessitate an H2S contingency plan. This will be reevaluated during wellbore construction if H2S is observed and after the well is on production.

#### **11. Anticipated starting date and duration of operations:**

The drilling operations on the well should be finished in approximately one month. However, in order to minimize disturbance in the area and to improve efficiency Franklin Mountain is planning to drill all the wells on the pad prior to commence completion operations. To even further reduce the time heavy machinery is used the "batch drilling" method may be used. The drilling rig with walking/skidding capabilities will be used.



**12. Disposal/environmental concerns:**

- (A) Drilled cuttings will be hauled to and disposed of in a state-certified disposal site.
- (B) Non-hazardous waste mud/cement from the drilling process will be also be hauled to and disposed of in a state-certified disposal site.
- (C) Garbage will be hauled to the Pecos City Landfill.
- (D) Sewage (grey water) will be hauled to the Carlsbad City Landfill.

**13. Wellhead:**

A multi-bowl wellhead system will be utilized.

After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum working pressure of 10,000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5,000 psi pressure test. This pressure test will be repeated at least every 30 days, as per Onshore Order No. 2

The minimum working pressure of the BOP and related BOPE required for drilling below the surface casing shoe shall be 5,000 psi.

After running the 2nd intermediate casing, and before drilling out, the wellhead, BOP, and related equipment will be tested to 10,000/250 psig.

The multi-bowl wellhead will be installed by vendor's representative(s). A copy of the installation instructions for the Cactus Multi-Bowl WH system has been sent to the BLM office in Carlsbad.

The wellhead will be installed by a third-party welder while being monitored by WH vendor's representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing strings. After installation of the first intermediate string the pack-off and lower flanges will be pressure tested to 5,000 psi. After installation of the second intermediate string, the pack-off and upper flange will be pressure tested to 10,000 psi.

Both the surface and intermediate casing strings will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1,500 psi, whichever is greater.

**14. Additional variance requests****A. Casing.**

In order to minimize potential environmental and technical hazards, this well is planned with two intermediate strings of casing.

1. Variance is requested to waive the centralizer requirements for the 7-5/8" casing due to the tight clearance with 9-5/8" string.
2. Variance is requested to waive/reduce the centralizer requirements for the 5-1/2" casing due to the tight clearance with 6-3/4" hole and 5-1/2" casing due to tight clearances.



## FLEX HOSE

Franklin Mountain Energy, LLC (FME), Operator, respectfully requests approval to make the following variance to the proposed drilling plan:

Variance is requested to use a co-flex line between the BOP and choke manifold while drilling with H&P 518, H&P 537, H&P 556 and H&P 602.

Line specs and manufacturers certifications attached.



# H&P 518



ContiTech

 CONTITECH RUBBER  
Industrial Kft.

No: QC-DB- 52 / 2017

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QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 104	
PURCHASER: ContiTech Oil & Marine Corp.				P.O. N°: 4500881802	
CONTITECH RUBBER order N°: 940648		HOSE TYPE: 3" ID Choke and Kill Hose			
HOSE SERIAL N°: 73367		NOMINAL / ACTUAL LENGTH: 4,88 m / 4,875 m			
W.P. 69,0 MPa 10000 psi		T.P. 103,5 MPa 15000 psi		Duration: 60 min.	
Pressure test with water at ambient temperature  <div style="text-align: center;">See attachment ( 1 page )</div>					
COUPLINGS Type		Serial N°		Quality	
3" coupling with		6976 6993		AISI 4130	
3 1/16" 10K API b.w. Flange end				AISI 4130	
				Heat N°	
				A0084Y J6731	
				037532	
<div style="display: flex; justify-content: space-between;"> <div> <b>Fire Rated</b>   <b>Not Designed For Well Testing</b> </div> <div style="background-color: yellow; padding: 5px;"> <b>API Spec 16 C 2<sup>nd</sup> Edition – FSL3</b> </div> <div> <b>Temperature rate: "B"</b> </div> </div>					
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.					
<b>STATEMENT OF CONFORMITY:</b> 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	
28. February 2017.				ContiTech Rubber Industrial Kft. Quality Control Dept. (1)	





ContiTech

 CONTITECH RUBBER  
Industrial Kft.

No: QC-DB- 52 / 2017

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<b>QUALITY CONTROL</b> <b>INSPECTION AND TEST CERTIFICATE</b>		CERT. N°: 105	
PURCHASER: ContiTech Oil & Marine Corp.		P.O. N°: 4500881802	
CONTITECH RUBBER order N°: 940648	HOSE TYPE: 3" ID Choke and Kill Hose		
HOSE SERIAL N°: 73368	NOMINAL / ACTUAL LENGTH: 4,88 m / 4,875 m		
W.P. 69,0 MPa 10000 psi	T.P. 103,5 MPa 15000 psi	Duration: 60 min.	
Pressure test with water at ambient temperature  See attachment ( 1 page )			
COUPLINGS Type	Serial N°	Quality	Heat N°
3" coupling with	6975 6995	AISI 4130	A0084Y J6731
3 1/16" 10K API b.w. Flange end		AISI 4130	037532
<b>Fire Rated</b>  <b>Not Designed For Well Testing</b>		<b>API Spec 16 C 2<sup>nd</sup> Edition – FSL3</b>  <b>Temperature rate: "B"</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.			
<b>STATEMENT OF CONFORMITY:</b> 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	
28. February 2017.		ContiTech Rubber Industrial Kft. Quality Control Dept. (?)  	





ContiTech

 CONTITECH RUBBER  
Industrial Kft.

No: QC-DB- 52 / 2017

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QUALITY CONTROL INSPECTION AND <b>TEST CERTIFICATE</b>				CERT. N°: 106	
PURCHASER: ContiTech Oil & Marine Corp.				P.O. N°: 4500881802	
CONTITECH RUBBER order N°: 940648		HOSE TYPE: 3" ID Choke and Kill Hose			
HOSE SERIAL N°: 73369		NOMINAL / ACTUAL LENGTH: 4,88 m / 4,885 m			
W.P. 69,0 MPa 10000 psi		T.P. 103,5 MPa 15000 psi		Duration: 60 min.	
Pressure test with water at ambient temperature  See attachment ( 1 page )					
COUPLINGS Type		Serial N°		Quality	
3" coupling with		6977 7000		AISI 4130	
3 1/16" 10K API b.w. Flange end				AISI 4130	
				A0084Y J6731	
				037532	
<b>Fire Rated</b> <span style="float: right;"><b>API Spec 16 C 2<sup>nd</sup> Edition – FSL3</b></span>  <b>Not Designed For Well Testing</b> <span style="float: right;"><b>Temperature rate: "B"</b></span>					
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.					
<b>STATEMENT OF CONFORMITY:</b> 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			
28. February 2017.		ContiTech Rubber Industrial Kft. Quality Control Dept. (1)			
		 			

ATTACHMENT OF QUALITY CONTROL  
INSPECTION AND TEST CERTIFICATE

No: 104, 105, 106

CONTITECH RUBBER  
Industrial Kft.

No: QC-DB- 52 / 2017

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1/1

5.000 sec  
2017/02/27 16:17:50.000  
2017/02/27 18:12:35.000

Sampling Int.  
Start Time  
Stop Time

File Name : 017335\_73367,-368,369.GEV,....017346\_73367,-368,369.GEV

File Message : 73367,73368,73369

Device Type : GX10

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Data Count : 1378

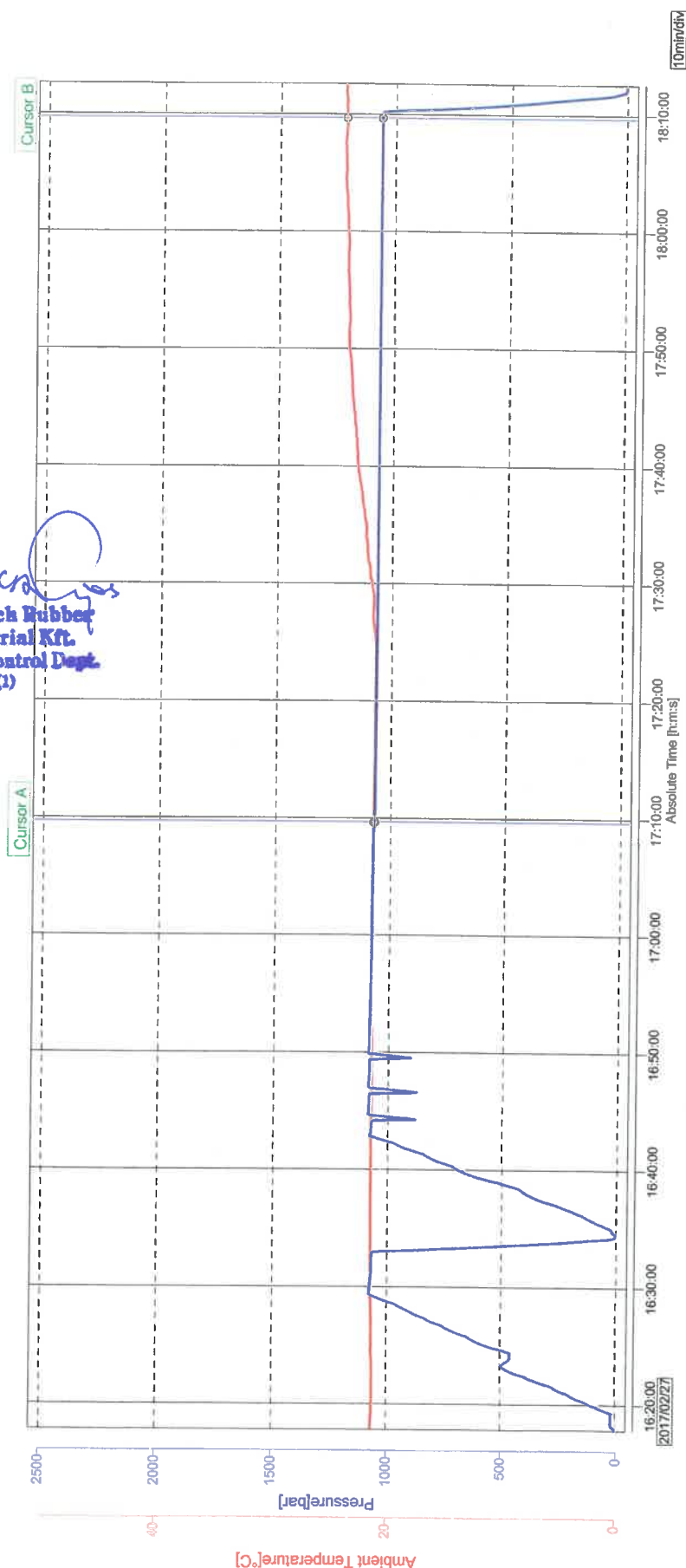
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Print Range : 2017/02/27 16:17:50.000 - 2017/02/27 18:12:35.000

Comment : 73367,73368,73369 Távdó:142056635

Data No.	Cursor A	Cursor B	Difference
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Absolute Time	Value A	Value B	Value B-A
Tag Comment	1070.15	1080.32	-9.83
Pressure[bar]	21.48	24.26	2.78
Ambient Temperature[°C]			

ContiTech Rubber  
Industrial Kft.  
Quality Control Dept.  
(2)







CONTITECH RUBBER  
Industrial Kft.

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ContiTech

<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>		CERT. N°: 107	
PURCHASER: ContiTech Oil & Marine Corp.		P.O. N°: 4500881802	
CONTITECH RUBBER order N°: 940648	HOSE TYPE: 3" ID Choke and Kill Hose		
HOSE SERIAL N°: 73370	NOMINAL / ACTUAL LENGTH: 7,92 m / 7,91 m		
W.P. 69,0 MPa 10000 psi	T.P. 103,5 MPa 15000 psi	Duration: 60 min.	
Pressure test with water at ambient temperature  <p style="text-align: center;">See attachment ( 1 page )</p>			
COUPLINGS Type	Serial N°	Quality	Heat N°
3" coupling with	6998 6992	AISI 4130	J6731
3 1/16" 10K API b.w. Flange end		AISI 4130	037532
<b>Fire Rated</b>		<b>API Spec 16 C 2<sup>nd</sup> Edition – FSL3</b>	
<b>Not Designed For Well Testing</b>		<b>Temperature rate: "B"</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.			
<b>STATEMENT OF CONFORMITY:</b> 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 ContiTech Rubber Industrial Kft. Quality Control Dept. (3)	
28. February 2017.		 	





CONTITECH RUBBER  
Industrial Kft.

No: QC-DB- 53 / 2017

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ContiTech

<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>		CERT. N°: 108	
PURCHASER: ContiTech Oil & Marine Corp.		P.O. N°: 4500881802	
CONTITECH RUBBER order N°: 940648	HOSE TYPE: 3" ID Choke and Kill Hose		
HOSE SERIAL N°: 73371	NOMINAL / ACTUAL LENGTH: 7,92 m / 7,94 m		
W.P. 69,0 MPa 10000 psi	T.P. 103,5 MPa 15000 psi	Duration: 60 min.	
<p>Pressure test with water at ambient temperature</p> <p style="text-align: center;">See attachment ( 1 page )</p>			
COUPLINGS Type	Serial N°	Quality	Heat N°
3" coupling with	6994 6996	AISI 4130	J6731
3 1/16" 10K API b.w. Flange end		AISI 4130	037532
<b>Fire Rated</b>		<b>API Spec 16 C 2<sup>nd</sup> Edition – FSL3</b>	
<b>Not Designed For Well Testing</b>		<b>Temperature rate: "B"</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.			
<b>STATEMENT OF CONFORMITY:</b> 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	
28. February 2017.		<b>ContiTech Rubber Industrial Kft. Quality Control Dept. (1)</b>  	



CONTITECH RUBBER  
Industrial Kft.

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ContiTech

<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>		CERT. N°: 109	
PURCHASER: ContiTech Oil & Marine Corp.		P.O. N°: 4500881802	
CONTITECH RUBBER order N°: 940648	HOSE TYPE: 3" ID Choke and Kill Hose		
HOSE SERIAL N°: 73372	NOMINAL / ACTUAL LENGTH: 7,92 m / 7,94 m		
W.P. 69,0 MPa 10000 psi	T.P. 103,5 MPa 15000 psi	Duration: 60 min.	
<p>Pressure test with water at ambient temperature</p> <p>See attachment ( 1 page )</p>			
COUPLINGS Type	Serial N°	Quality	Heat N°
3" coupling with	6999 6997	AISI 4130	J6731
3 1/16" 10K API b.w. Flange end		AISI 4130	037532
<b>Fire Rated</b>		<b>API Spec 16 C 2<sup>nd</sup> Edition – FSL3</b>	
<b>Not Designed For Well Testing</b>		<b>Temperature rate: "B"</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.			
<b>STATEMENT OF CONFORMITY:</b> 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	ContiTech Rubber Industrial Kft. Quality Control Dept. (1)
28. February 2017.		<i>Prohor Nikolov</i>	<i>Sasha Ciper</i>

ATTACHMENT OF QUALITY CONTROL  
INSPECTION AND TEST CERTIFICATE

No: 101, 102, 103, 107, 108, 109

CONTITECH RUBBER  
Industrial Kft.

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1/1

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: 2017/02/27 15:10:00.000

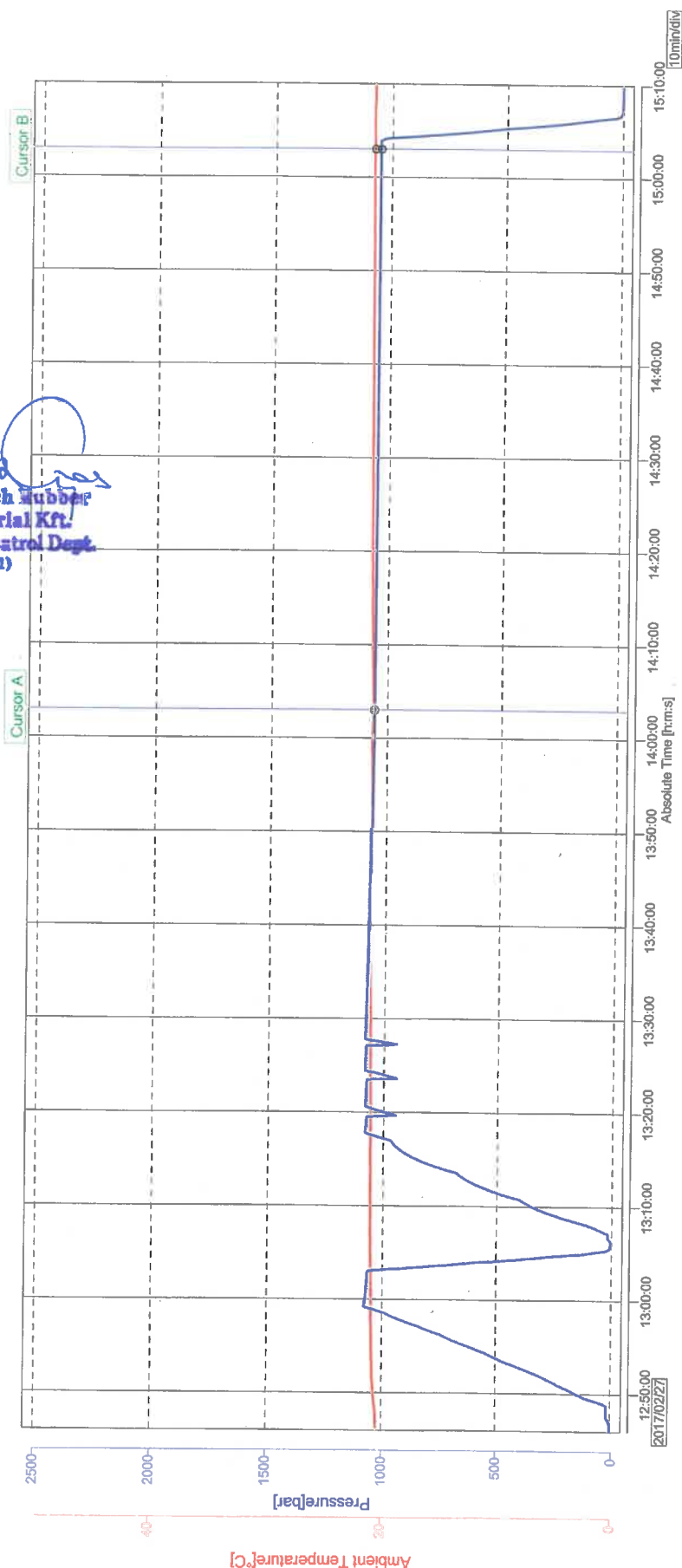
Sampling Int.  
Start Time  
Stop Time

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File Message : 73364,73365,73366,73370,73371,73372  
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Serial No. : S5P606399  
Data Count : 1729

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Print Range : 2017/02/27 12:46:00.000 - 2017/02/27 15:10:00.000  
Comment : 73364,73365,73366,73370,73371,73372 Támadó:142056635

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Tag Comment	Value A	Value B	Value B-A
Pressure[bar]	1056.58	1049.33	-7.25
Ambient Temperature[°C]	21.21	21.51	0.30

*[Signature]*  
ContiTech Rubber  
Industrial Kft.  
Quality Control Dept.  
(3)





CONTITECH RUBBER  
Industrial Kft.

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ContiTech

<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>		CERT. N°: 116	
PURCHASER: ContiTech Oil & Marine Corp.		P.O. N°: 4500886429	
CONTITECH RUBBER order N°: 940686	HOSE TYPE: 2" ID Choke and Kill Hose		
HOSE SERIAL N°: 73382	NOMINAL / ACTUAL LENGTH: 5,49 m / 5,51 m		
W.P. 69,0 MPa 10000 psi	T.P. 103,5 MPa 15000 psi	Duration: 60 min.	
Pressure test with water at ambient temperature			
See attachment ( 1 page )			
COUPLINGS Type	Serial N°	Quality	Heat N°
2" coupling with	7021	AISI 4130	A0355Y
2" 1502 b.w. male+		AISI 4130	55106
2" 1502 nut end	E837/3	AISI 4140	J4279Y
2" coupling with	7014	AISI 4130	A0355Y
2" 1502 int. female end			
<b>Not Designed For Well Testing</b>		<b>API Spec 16 C 2<sup>nd</sup> Edition – FSL3</b>	
<b>Fire Rated</b>		<b>Temperature rate:"B"</b>	
All metal parts are flawless			
<b>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.</b>			
<b>STATEMENT OF CONFORMITY:</b> 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:  02. March 2017.	Inspector	Quality Control ContiTech Rubber Industrial Kft. Quality Control Dept. (1) <i>Robert Kékesi</i> <i>Sándor László</i>	





ContiTech

 CONTITECH RUBBER  
Industrial Kft.

No: QC-DB- 54 / 2017

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<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>		CERT. N°: 117	
PURCHASER: ContiTech Oil & Marine Corp.		P.O. N°: 4500886429	
CONTITECH RUBBER order N°: 940686		HOSE TYPE: 2" ID Choke and Kill Hose	
HOSE SERIAL N°: 73383		NOMINAL / ACTUAL LENGTH: 5,49 m / 5,52 m	
W.P. 69,0 MPa 10000 psi		T.P. 103,5 MPa 15000 psi Duration: 60 min.	
Pressure test with water at ambient temperature  See attachment ( 1 page )			
COUPLINGS Type	Serial N°	Quality	Heat N°
2" coupling with	7018	AISI 4130	A0355Y
2" 1502 b.w. male+		AISI 4130	55106
2" 1502 nut end	E837/3	AISI 4140	J4279Y
2" coupling with	7016	AISI 4130	A0355Y
2" 1502 int. female end			
<b>Not Designed For Well Testing</b>		<b>API Spec 16 C 2<sup>nd</sup> Edition – FSL3</b>	
<b>Fire Rated</b>		<b>Temperature rate:"B"</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.			
<b>STATEMENT OF CONFORMITY:</b> 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:  02. March 2017.	Inspector	Quality Control ContiTech Rubber Industrial Kft. Quality Control Dept. (1)  	





ContiTech

 CONTITECH RUBBER  
Industrial Kft.

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<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>		CERT. N°: 118	
PURCHASER: ContiTech Oil & Marine Corp.		P.O. N°: 4500886429	
CONTITECH RUBBER order N°: 940686	HOSE TYPE: 2" ID Choke and Kill Hose		
HOSE SERIAL N°: 73384	NOMINAL / ACTUAL LENGTH: 5,49 m / 5,51 m		
W.P. 69,0 MPa 10000 psi	T.P. 103,5 MPa 15000 psi	Duration: 60 min.	
Pressure test with water at ambient temperature  See attachment ( 1 page )			
COUPLINGS Type	Serial N°	Quality	Heat N°
2" coupling with	7019	AISI 4130	A0355Y
2" 1502 b.w. male+		AISI 4130	55106
2" 1502 nut end	E837/3	AISI 4140	J4279Y
2" coupling with	7015	AISI 4130	A0355Y
2" 1502 int. female end			
<b>Not Designed For Well Testing</b>		<b>API Spec 16 C 2<sup>nd</sup> Edition – FSL3</b>	
<b>Fire Rated</b>		<b>Temperature rate:"B"</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.			
<b>STATEMENT OF CONFORMITY:</b> 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	
02. March 2017.		ContiTech Rubber Industrial Kft. Quality Control Dept. (1)	
		 	





ContiTech

 CONTITECH RUBBER  
Industrial Kft.

No: QC-DB- 54 / 2017

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<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>		CERT. N°: 119	
PURCHASER: ContiTech Oil & Marine Corp.		P.O. N°: 4500886429	
CONTITECH RUBBER order N°: 940686	HOSE TYPE: 2" ID Choke and Kill Hose		
HOSE SERIAL N°: 73385	NOMINAL / ACTUAL LENGTH: 5,49 m / 5,51 m		
W.P. 69,0 MPa 10000 psi	T.P. 103,5 MPa 15000 psi	Duration: 60 min.	
Pressure test with water at ambient temperature  See attachment ( 1 page )			
COUPLINGS Type	Serial N°	Quality	Heat N°
2" coupling with	7020	AISI 4130	A0355Y
2" 1502 b.w. male+		AISI 4130	55106
2" 1502 nut end	E837/3	AISI 4140	J4279Y
2" coupling with	7017	AISI 4130	A0355Y
2" 1502 int. female end			
<b>Not Designed For Well Testing</b>		<b>API Spec 16 C 2<sup>nd</sup> Edition – FSL3</b>	
<b>Fire Rated</b>		<b>Temperature rate:"B"</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.			
<b>STATEMENT OF CONFORMITY:</b> 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	
02. March 2017.		ContiTech Rubber Industrial Kft. Quality Control Dept. (1)	

ATTACHMENT OF QUALITY CONTROL  
INSPECTION AND TEST CERTIFICATE

No: 116, 117, 118, 119

CONTITECH RUBBER  
Industrial Kft.

No: QC-DB- 54 / 2017

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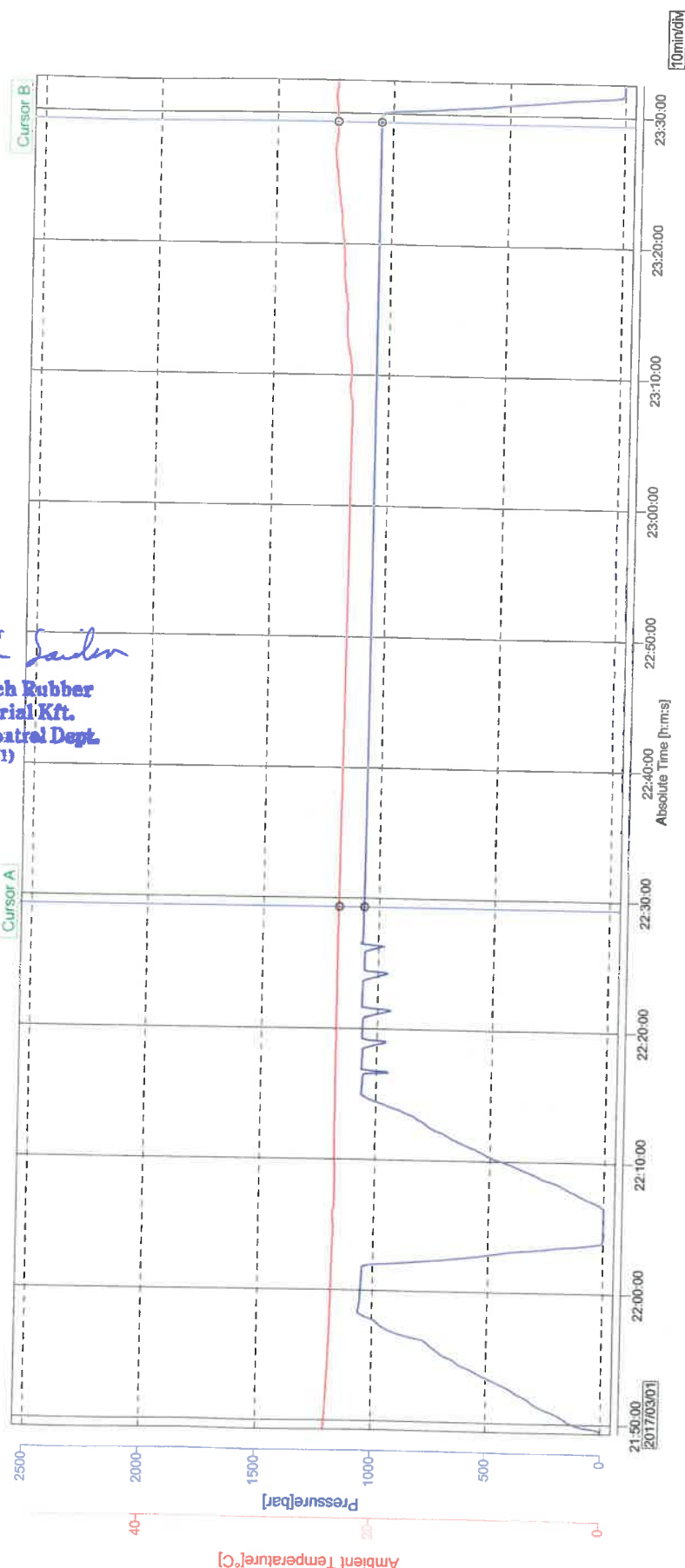
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Start Time  
Stop Time

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 Comment : Távadó:142056635

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Pressure[bar]	1065.36	1050.21	-15.15
Ambient Temperature[°C]	23.46	24.76	1.30

*Sula Sander*  
 Contitech Rubber  
 Industrial Kft.  
 Quality Control Dept.  
 (1)







# H&P 537



ContiTech

CONTITECH RUBBER Industrial Kft.	No:QC-DB- 170/ 2014
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QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 329	
PURCHASER: ContiTech Oil & Marine Corp.			P.O. N°: 4500417686		
CONTITECH RUBBER order N°: 538376		HOSE TYPE: 3" ID Choke and Kill Hose			
HOSE SERIAL N°: 67364		NOMINAL / ACTUAL LENGTH: 4,88 m / 4,86 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 = 25 MPa					
COUPLINGS Type		Serial N°		Quality	
3" coupling with 3 1/16" 10K API b.w. Flange end		1349 1340		AISI 4130 AISI 4130	
				Heat N° A0896U 035608 035285	
NOT DESIGNED FOR WELL TESTING				API Spec 16 C	
Fire Rated				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:  28. February 2014.		Inspector		Quality Control ContiTech Rubber Industrial Kft. Quality Control Dept.  	

*No: 329, 331*

Page: 1 / 1

*Sachin*  
Ganesh Rubber  
Industrial Kft.  
Quality Control Dept.

GNr		RDy		BL		GNr		RDy		BL		GNr		RDy		BL		GNr		RDy		BL	
19.25	°C	28.38	°C	1855	bar	19.25	°C	28.44	°C	1856	bar	19.27	°C	28.46	°C	1857	bar	19.28	°C	28.50	°C	1860	bar
12:48		12:48		12:48		12:48		12:48		12:48		11:48		11:48		11:48		11:48		11:48		11:48	

Cnt  
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 Qual

0 10 20 30 40 50 60 70 80 90 100

28.02.14 11:01

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16m-a-10,5 38609




ContiTech

**CONTITECH RUBBER**  
Industrial Kft.

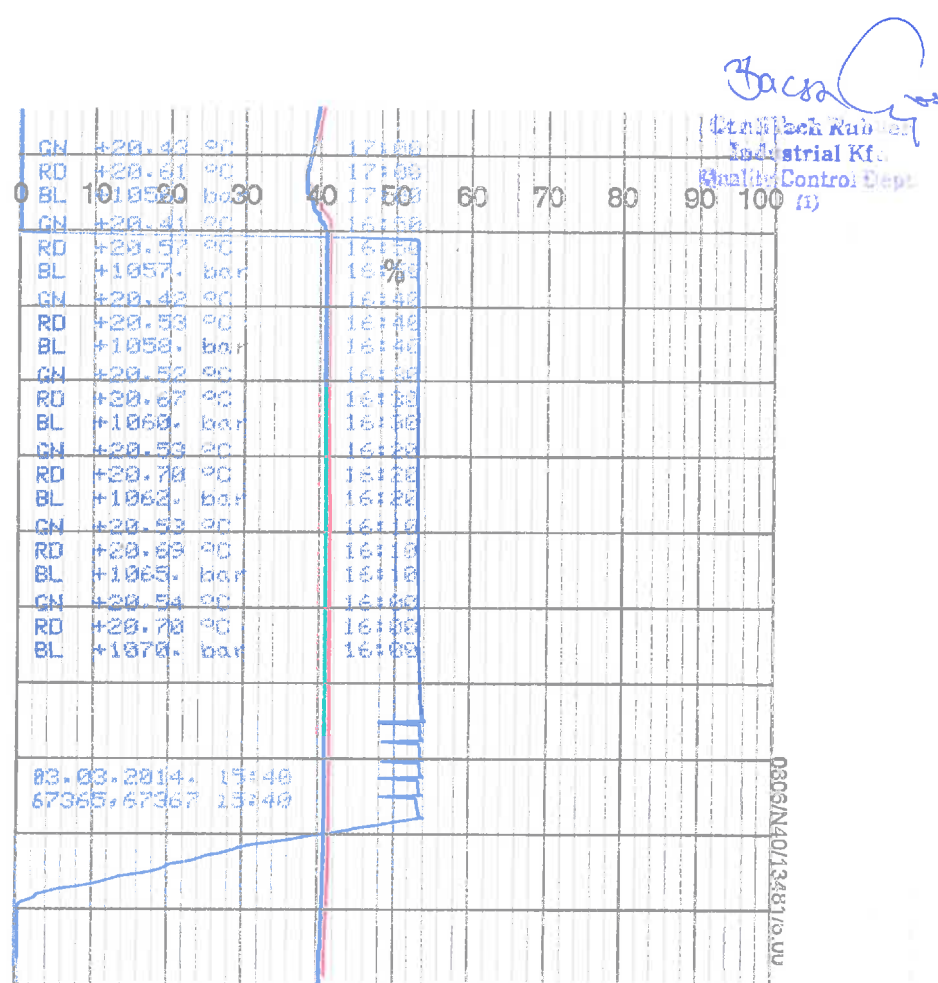
No:QC-DB- 170/ 2014

Page: 6 / 143

<b>QUALITY CONTROL</b> <b>INSPECTION AND TEST CERTIFICATE</b>				CERT. N°: 330	
PURCHASER: ContiTech Oil & Marine Corp.				P.O. N°: 4500417686	
CONTITECH RUBBER order N°: 538376		HOSE TYPE: 3" ID Choke and Kill Hose			
HOSE SERIAL N°: 67365		NOMINAL / ACTUAL LENGTH: 4,88 m / 4,88 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					
<p style="text-align: center;">See attachment. ( 1 page )</p>					
↑ 10 mm = 10 Min. → 10 mm = 20 MPa					
COUPLINGS Type		Serial N°		Quality	
3" coupling with  3 1/16" 10K API b.w. Flange end		1351 1343		AISI 4130  AISI 4130	
				Heat N°  A0896U  035608 035285	
<b>NOT DESIGNED FOR WELL TESTING</b>				<b>API Spec 16 C</b>	
<b>Fire Rated</b>				<b>Temperature rate:"B"</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.					
<b>STATEMENT OF CONFORMITY:</b> 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:  04. March 2014.		Inspector		Quality Control  ContiTech Rubber Industrial Kft. Quality Control Dept. 	

No: 330, 332

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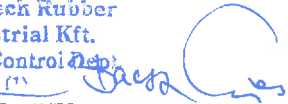






ContiTech

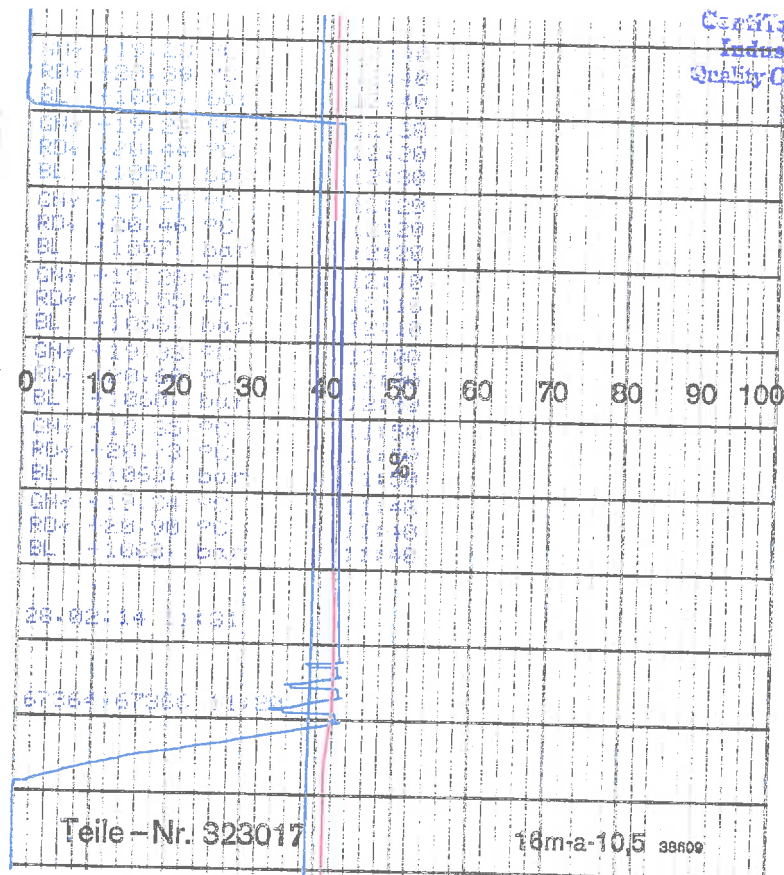
CONTITECH RUBBER Industrial Kft.	No:QC-DB- 170/ 2014
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<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>				CERT. N°: 331	
PURCHASER: ContiTech Oil & Marine Corp.				P.O. N°: 4500417686	
CONTITECH RUBBER order N°: 538376		HOSE TYPE: 3" ID Choke and Kill Hose			
HOSE SERIAL N°: 67366		NOMINAL / ACTUAL LENGTH: 4,88 m / 4,89 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 = 25 MPa					
COUPLINGS Type		Serial N°		Quality	
3" coupling with 3 1/16" 10K API b.w. Flange end		1334 1341		AISI 4130 AISI 4130	
				Heat N° A0709N A0896U 035285	
<b>NOT DESIGNED FOR WELL TESTING</b>				<b>API Spec 16 C</b>	
<b>Fire Rated</b>				<b>Temperature rate:"B"</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.					
<b>STATEMENT OF CONFORMITY:</b> 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:  28. February 2014.		Inspector		Quality Control  ContiTech Rubber Industrial Kft. Quality Control Dept.  	

## ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE

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ContiTech

CONTITECH RUBBER  
Industrial Kft.

No:QC-DB- 170/ 2014

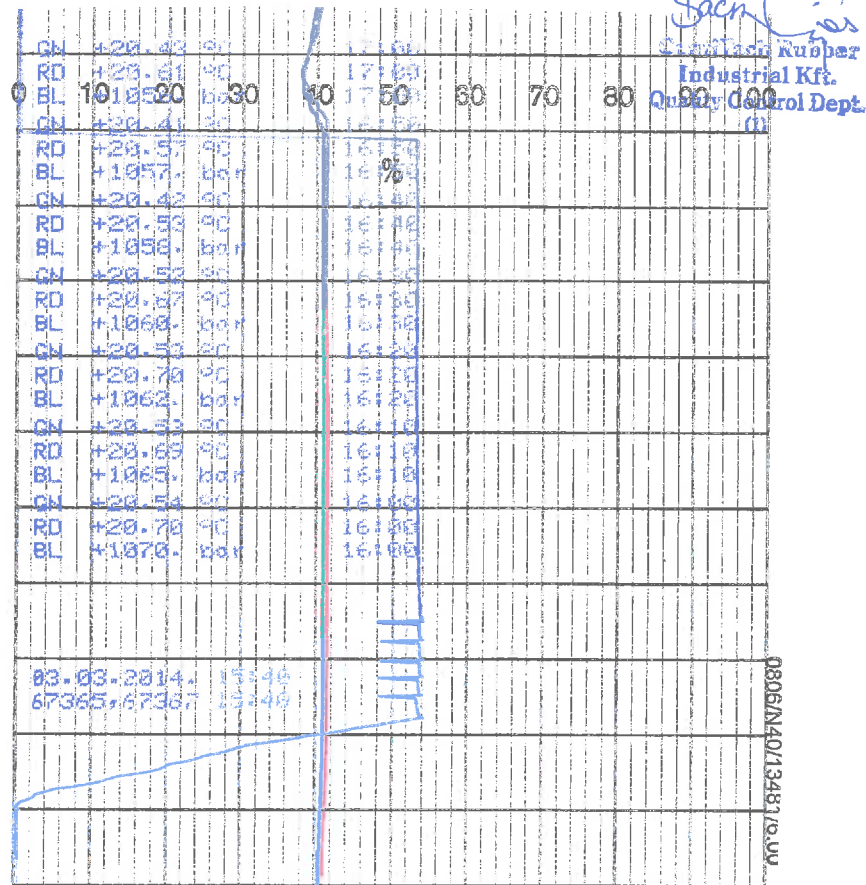
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<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>		CERT. N°: 332	
PURCHASER: ContiTech Oil & Marine Corp.		P.O. N°: 4500417686	
CONTITECH RUBBER order N°: 538376	HOSE TYPE: 3" ID Choke and Kill Hose		
HOSE SERIAL N°: 67367	NOMINAL / ACTUAL LENGTH: 4,88 m / 4,88 m		
W.P. 68,9 MPa 10000 psi	T.P. 103,4 MPa 15000 psi	Duration: 60 min.	
<p>Pressure test with water at ambient temperature</p> <p style="text-align: center;">See attachment. ( 1 page )</p> <p>↑ 10 mm = 10 Min. → 10 mm = 20 MPa</p>			
COUPLINGS Type	Serial N°	Quality	Heat N°
3" coupling with 3 1/16" 10K API b.w. Flange end	1347 1342	AISI 4130 AISI 4130	A0896U 035608 035285
<b>NOT DESIGNED FOR WELL TESTING</b>		<b>API Spec 16 C</b>	
<b>Fire Rated</b>		<b>Temperature rate:"B"</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.			
<b>STATEMENT OF CONFORMITY:</b> 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:  04. March 2014.	Inspector	Quality Control ContiTech Rubber Industrial Kft. Quality Control Dept. 	

## ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE

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CONTITECH RUBBER Industrial Kft.	No:QC-DB- 170/ 2014
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<b>QUALITY CONTROL</b> <b>INSPECTION AND TEST CERTIFICATE</b>		CERT. N°: 333	
PURCHASER: ContiTech Oil & Marine Corp.		P.O. N°: 4500417686	
CONTITECH RUBBER order N°: 538376		HOSE TYPE: 3" ID Choke and Kill Hose	
HOSE SERIAL N°: 67908		NOMINAL / ACTUAL LENGTH: 7,92 m / 7,95 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°	
3" coupling with 3 1/16" 10K API b.w. Flange end		1480 1345	
Quality		Heat N°	
AISI 4130 AISI 4130		A0709N A0896U 035608	
<b>NOT DESIGNED FOR WELL TESTING</b>		<b>API Spec 16 C</b>	
<b>Fire Rated</b>		<b>Temperature rate:"B"</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.			
<b>STATEMENT OF CONFORMITY:</b> 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: 20. March 2014.		Inspector	
Quality Control		Contitech Rubber Industrial Kft. Quality Control Dept.	

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ContiTech

CONTITECH RUBBER Industrial Kft.	No:QC-DB- 170/ 2014
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<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>		CERT. N°: 334	
PURCHASER: ContiTech Oil & Marine Corp.		P.O. N°: 4500417686	
CONTITECH RUBBER order N°: 538376		HOSE TYPE: 3" ID Choke and Kill Hose	
HOSE SERIAL N°: 67369		NOMINAL / ACTUAL LENGTH: 7,92 m / 7,97 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 = 25 MPa			
COUPLINGS Type		Serial N°	Quality
3" coupling with		1353 1352	AISI 4130
3 1/16" 10K API b.w. Flange end			AISI 4130
			Heat N°
			A1031U
			035608
<b>NOT DESIGNED FOR WELL TESTING</b>		<b>API Spec 16 C</b>	
<b>Fire Rated</b>		<b>Temperature rate:"B"</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.			
<b>STATEMENT OF CONFORMITY:</b> 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	
06. March 2014.		<div>ContiTech Rubber Industrial Kft. Quality Control Dept. (1)</div>  	



No: 334, 369, 425

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GNr	+19.81 °C	02:30	
RDr	+20.72 °C	02:30	
BL	+1856 bar	02:30	
GNr	+19.79 °C	02:30	
RDr	+20.72 °C	02:30	
BL	+1857 bar	02:30	
GNr	+19.78 °C	02:30	
RDr	+20.72 °C	02:30	
BL	+1858 bar	02:30	
GNr	+19.76 °C	02:00	
RDr	+20.72 °C	02:00	
BL	+1860 bar	02:00	
GNr	+19.74 °C	01:50	
RDr	+20.71 °C	01:50	
BL	+1862 bar	01:50	
GNr	+19.70 °C	01:40	
RDr	+20.75 °C	01:40	
BL	+1864 bar	01:40	
GNr	+19.67 °C	01:30	
RDr	+20.88 °C	01:30	
BL	+1867 bar	01:30	

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06.00.2018 01:00

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CONTITECH RUBBER  
Industrial Kft.

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QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 335	
PURCHASER: ContiTech Oil & Marine Corp.				P.O. N°: 4500417686	
CONTITECH RUBBER order N°: 538376		HOSE TYPE: 3" ID		Choke and Kill Hose	
HOSE SERIAL N°: 67370		NOMINAL / ACTUAL LENGTH: 7,92 m / 7,97 m			
W.P. 68,9 MPa 10000 psi		T.P. 103,4 MPa 15000 psi		Duration: 60 min.	
<p>Pressure test with water at ambient temperature</p> <p style="text-align: center;">See attachment. ( 1 page )</p> <p>           ↑ 10 mm = 10 Min.            → 10 mm = 25 MPa         </p>					
COUPLINGS Type		Serial N°		Quality	
3" coupling with		1348 1355		AISI 4130	
3 1/16" 10K API b.w. Flange end				AISI 4130	
				Heat N°	
				A0896U A1031U	
				035608	
NOT DESIGNED FOR WELL TESTING				API Spec 16 C	
Fire Rated				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.					
<b>STATEMENT OF CONFORMITY:</b> 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			
07. March 2014.		ContiTech Rubber Industrial Kft. Quality Control Dept. (1)			



## ContiTech

CONTITECH RUBBER Industrial Kft.	No:QC-DB- 170/ 2014
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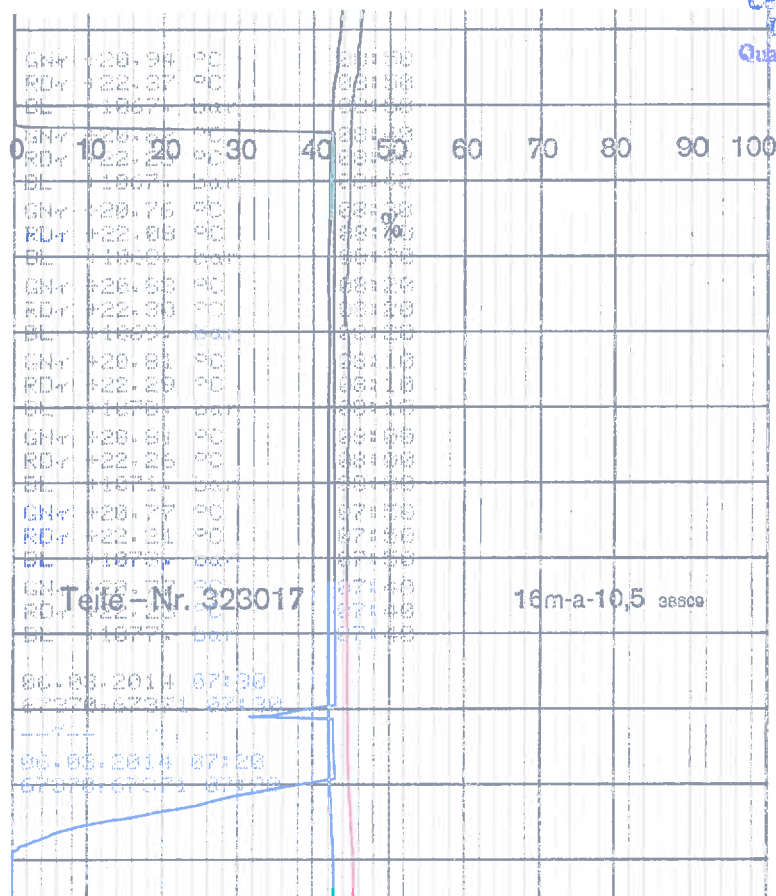
<b>QUALITY CONTROL</b>		CERT. N°: 336	
<b>INSPECTION AND TEST CERTIFICATE</b>			
PURCHASER: ContiTech Oil & Marine Corp.		P.O. N°: 4500417686	
CONTITECH RUBBER order N°: 538376	HOSE TYPE: 3" ID Choke and Kill Hose		
HOSE SERIAL N°: 67371	NOMINAL / ACTUAL LENGTH: 7,92 m / 7,95 m		
W.P. 68,9 MPa 10000 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 = 25 MPa			
COUPLINGS Type	Serial N°	Quality	Heat N°
3" coupling with 3 1/16" 10K API b.w. Flange end	1354 1350	AISI 4130 AISI 4130	A1031U A0896U 035608
<b>NOT DESIGNED FOR WELL TESTING</b>		<b>API Spec 16 C</b>	
<b>Fire Rated</b>		<b>Temperature rate:"B"</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:  07. March 2014.	Inspector	Quality Control  ContiTech Rubber Industrial Kft. Quality Control Dept. 	

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Industrial Kft.  
Quality Control Dept.  
(1)





# Certificate of Conformity

ContiTech

<b>Certificate Number</b> H100063	<b>COM Order Reference</b> 1349433	<b>Customer Name &amp; Address</b> HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA
<b>Customer Purchase Order No:</b> 740330753		
<b>Project:</b>		
<b>Test Center Address</b> ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	<b>Accepted by COM Inspection</b> Signed: Gerson Mejia-Lazo Date: 08/19/21 	<b>Accepted by Client Inspection</b>

We certify that the items detailed below meet the requirements of the customer's Purchase Order referenced above, and are in conformance with the specifications given below.

Item	Part No.	Description	Qty	Serial Number	Specifications
20	RECERTIFICATION	3" ID 10K Choke and Kill Hose x 16ft OAL	1	67364	ContiTech Standard



## Hydrostatic Test Certificate

ContiTech

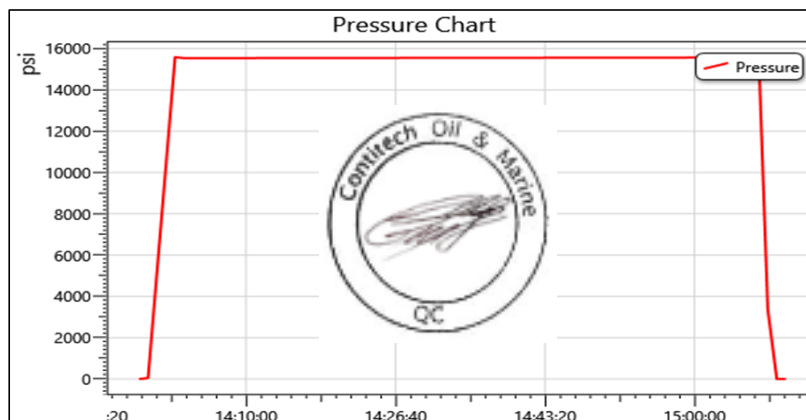
<b>Certificate Number</b> H100063	<b>COM Order Reference</b> 1349433	<b>Customer Name &amp; Address</b> HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA
<b>Customer Purchase Order No:</b> 740330753		
<b>Project:</b>		
<b>Test Center Address</b> ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	<b>Accepted by COM Inspection</b> Signed: Gerson Mejia-Lazo Date: 08/19/21	<b>Accepted by Client Inspection</b>

We certify that the goods detailed hereon have been inspected as described below by our Quality Management System, and to the best of our knowledge are found to conform the requirements of the above referenced purchase order as issued to ContiTech Oil & Marine Corporation.

Item	Part No.	Description	Qty	Serial Number	Work. Press. (psi)	Test Press. (psi)	Test Time (minutes)
20	RECERTIFICATION	3" ID 10K Choke and Kill Hose x 16ft OAL	1	67364	10,000	15,000	60

Record Information	
Start Time	2021-06-15 13:58:04
End Time	2021-06-15 15:10:10
Interval	00:01:00
Number	73
MaxValue	16283
MinValue	-4
AvgValue	14543
RecordName	67364_MD
RecordNumber	536


Gauge Information	
Model	ADT680
SN	21817380014
Range	(0-40000)psi
Unit	psi





# Certificate of Conformity

ContiTech

<b>Certificate Number</b> H100062	<b>COM Order Reference</b> 1349433	<b>Customer Name &amp; Address</b> HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA
<b>Customer Purchase Order No:</b> 740330753		
<b>Project:</b>		
<b>Test Center Address</b> ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	<b>Accepted by COM Inspection</b> Signed: Gerson Mejia-Lazo Date: 08/19/21 	<b>Accepted by Client Inspection</b>

We certify that the items detailed below meet the requirements of the customer's Purchase Order referenced above, and are in conformance with the specifications given below.

Item	Part No.	Description	Qty	Serial Number	Specifications
10	RECERTIFICATION	3" ID 10K Choke and Kill Hose x 26ft OAL	1	67369	ContiTech Standard





# Hydrostatic Test Certificate

ContiTech

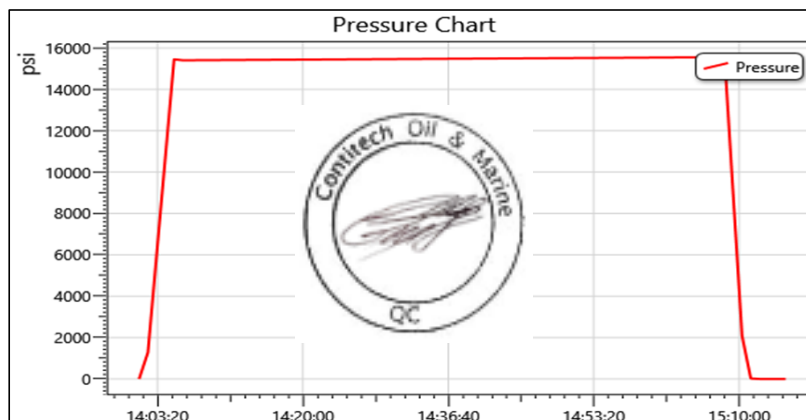
<b>Certificate Number</b> H100062	<b>COM Order Reference</b> 1349433	<b>Customer Name &amp; Address</b> HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA
<b>Customer Purchase Order No:</b> 740330753		
<b>Project:</b>		
<b>Test Center Address</b> ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	<b>Accepted by COM Inspection</b> Signed: Gerson Mejia-Lazo Date: 08/19/21	<b>Accepted by Client Inspection</b>

We certify that the goods detailed hereon have been inspected as described below by our Quality Management System, and to the best of our knowledge are found to conform the requirements of the above referenced purchase order as issued to ContiTech Oil & Marine Corporation.

Item	Part No.	Description	Qty	Serial Number	Work. Press. (psi)	Test Press. (psi)	Test Time (minutes)
10	RECERTIFICATION	3" ID 10K Choke and Kill Hose x 26ft OAL	1	67369	10,000	15,000	60

Record Information	
Start Time	6/16/2021 14:01:13
End Time	6/16/2021 15:15:20
Interval	00:01:00
Number	75
MaxValue	15692
MinValue	-6
AvgValue	13842
RecordName	67369_MD
RecordNumber	141

Gauge Information	
Model	ADT680
SN	21817380014
Range	(0-40000)psi
Unit	psi





# Certificate of Conformity

ContiTech

<b>Certificate Number</b> 961702	<b>COM Order Reference</b> 961702	<b>Customer Name &amp; Address</b>	
<b>Customer Purchase Order No:</b> 740031059		HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA	
<b>Project:</b>			
<b>Test Center Address</b>	<b>Accepted by COM Inspection</b>		<b>Accepted by Client Inspection</b>
ContiTech Rubber Industrial Budapesti ut 10 Szeged HU	Signed: Date:	Gerson Mejia-Lazo 04/16/21	

We certify that the items detailed below meet the requirements of the customer's Purchase Order referenced above, and are in conformance with the specifications given below.

Item	Part No.	Description	Qty	Serial Number	Specifications
20	HCK2FB18ALMALF	2" 10Kpsi C&K HOSE x 18ft OAL c/w 2" Fig 1502 M-F	1	73195	API Spec 16C
			1	73196	API Spec 16C



# H&P 556



ContiTech

CONTITECH RUBBER Industrial Kft.	No: QC-DB- 478 / 2016
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QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 1351	
PURCHASER: ContiTech Oil & Marine Corp.			P.O. N°: 4500844622		
CONTITECH RUBBER order N°: 544518		HOSE TYPE: 2" ID		Choke and Kill Hose	
HOSE SERIAL N°: 73190		NOMINAL / ACTUAL LENGTH: 5,49 m / 5,53 m			
W.P. 69,0 MPa 10000 psi		T.P. 103,5 MPa 15000 psi		Duration: 60 min.	
Pressure test with water at ambient temperature					
See attachment ( 1 page )					
COUPLINGS Type		Serial N°		Quality	
2" coupling with		6762		AISI 4130	
2" 1502 b.w. male+				AISI 4130	
2" 1502 nut end		E714		AISI 4140	
2" coupling with		6768		AISI 4130	
2" 1502 int. female end				J3796	
Not Designed For Well Testing					
API Spec 16 C 2 <sup>nd</sup> Edition – FSL3					
Fire Rated					
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: 14. December 2016.		Inspector		Quality Control	
				ContiTech Rubber Industrial Kft. Quality Control Dept. (1)	
				[Signature]	


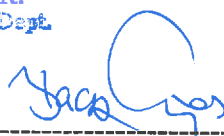


ContiTech

 CONTITECH RUBBER  
Industrial Kft.

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QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 1352	
PURCHASER: ContiTech Oil & Marine Corp.				P.O. N°: 4500844622	
CONTITECH RUBBER order N°: 544518		HOSE TYPE: 2" ID Choke and Kill Hose			
HOSE SERIAL N°: 73191		NOMINAL / ACTUAL LENGTH: 5,49 m / 5,52 m			
W.P. 69,0 MPa 10000 psi		T.P. 103,5 MPa 15000 psi		Duration: 60 min.	
Pressure test with water at ambient temperature  See attachment ( 1 page )					
COUPLINGS Type		Serial N°		Quality	
2" coupling with		6763		AISI 4130	
2" 1502 b.w. male+				AISI 4130	
2" 1502 nut end		E714		AISI 4140	
2" coupling with		6766		AISI 4130	
2" 1502 int. female end					
<b>Not Designed For Well Testing</b> <b>API Spec 16 C 2<sup>nd</sup> Edition – FSL3</b>					
<b>Fire Rated</b> <b>Temperature rate:"B"</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.					
<b>STATEMENT OF CONFORMITY:</b> 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		
14. December 2016.			ContiTech Rubber Industrial Kft. Quality Control Dept.  		



ContiTech

 CONTITECH RUBBER  
Industrial Kft.

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QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 1353	
PURCHASER: ContiTech Oil & Marine Corp.				P.O. N°: 4500844622	
CONTITECH RUBBER order N°: 544518		HOSE TYPE: 2" ID Choke and Kill Hose			
HOSE SERIAL N°: 73192		NOMINAL / ACTUAL LENGTH: 5,49 m / 5,52 m			
W.P. 69,0 MPa 10000 psi		T.P. 103,5 MPa 15000 psi		Duration: 60 min.	
Pressure test with water at ambient temperature  See attachment ( 1 page )					
COUPLINGS Type	Serial N°	Quality	Heat N°		
2" coupling with	6759	AISI 4130	J4944		
2" 1502 b.w. male+		AISI 4130	J6346		
2" 1502 nut end	E714	AISI 4140	A35233		
2" coupling with	6769	AISI 4130	J3796		
2" 1502 int. female end					
<b>Not Designed For Well Testing</b> <b>API Spec 16 C 2<sup>nd</sup> Edition – FSL3</b>					
<b>Fire Rated</b> <b>Temperature rate:"B"</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.					
<b>STATEMENT OF CONFORMITY:</b> 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	ContiTech Rubber Industrial Kft. Quality Control Dept. (1)		
14. December 2016.		 			



ContiTech

 CONTITECH RUBBER  
Industrial Kft.

No: QC-DB- 478 / 2016

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QUALITY CONTROL INSPECTION AND <b>TEST CERTIFICATE</b>				CERT. N°: 1354	
PURCHASER: ContiTech Oil & Marine Corp.				P.O. N°: 4500844622	
CONTITECH RUBBER order N°: 544518		HOSE TYPE: 2" ID Choke and Kill Hose			
HOSE SERIAL N°: 73193		NOMINAL / ACTUAL LENGTH: 5,49 m / 5,52 m			
W.P. 69,0 MPa 10000 psi		T.P. 103,5 MPa 15000 psi		Duration: 60 min.	
Pressure test with water at ambient temperature  See attachment ( 1 page )					
COUPLINGS Type	Serial N°	Quality	Heat N°		
2" coupling with	2901	AISI 4130	19862		
2" 1502 b.w. male+		AISI 4130	J3780		
2" 1502 nut end	E837	AISI 4140	J4279Y		
2" coupling with	6767	AISI 4130	J3796		
2" 1502 int. female end					
<b>Not Designed For Well Testing</b> <b>API Spec 16 C 2<sup>nd</sup> Edition – FSL3</b>					
<b>Fire Rated</b> <b>Temperature rate:"B"</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.					
<b>STATEMENT OF CONFORMITY:</b> 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	ContiTech Rubber Industrial Kft. Quality Control Dept. (1)		
14. December 2016.		 			







ContiTech

 CONTITECH RUBBER  
Industrial Kft.

No: QC-DB- 478 / 2016

Page: 9 / 82

QUALITY CONTROL INSPECTION AND <b>TEST CERTIFICATE</b>				CERT. N°: 1355	
PURCHASER: ContiTech Oil & Marine Corp.				P.O. N°: 4500844622	
CONTITECH RUBBER order N°: 544518		HOSE TYPE: 2" ID Choke and Kill Hose			
HOSE SERIAL N°: 73194		NOMINAL / ACTUAL LENGTH: 5,49 m / 5,52 m			
W.P. 69,0 MPa 10000 psi		T.P. 103,5 MPa 15000 psi		Duration: 60 min.	
Pressure test with water at ambient temperature  See attachment ( 1 page )					
COUPLINGS Type	Serial N°	Quality	Heat N°		
2" coupling with	6761	AISI 4130	J4944		
2" 1502 b.w. male+		AISI 4130	J6346		
2" 1502 nut end	E714	AISI 4140	A35233		
2" coupling with	6765	AISI 4130	J3796		
2" 1502 int. female end					
Not Designed For Well Testing		API Spec 16 C 2 <sup>nd</sup> Edition – FSL3			
Fire Rated		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.					
<b>STATEMENT OF CONFORMITY:</b> 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			
14. December 2016.		ContiTech Rubber Industrial Kft. Quality Control Dept.  			

ATTACHMENT OF QUALITY CONTROL  
INSPECTION AND TEST CERTIFICATENo: 1395, 1396, 1351, 1352, 1353,  
1354, 1355, 1356, 1357CONTITECH RUBBER  
Industrial Kft.

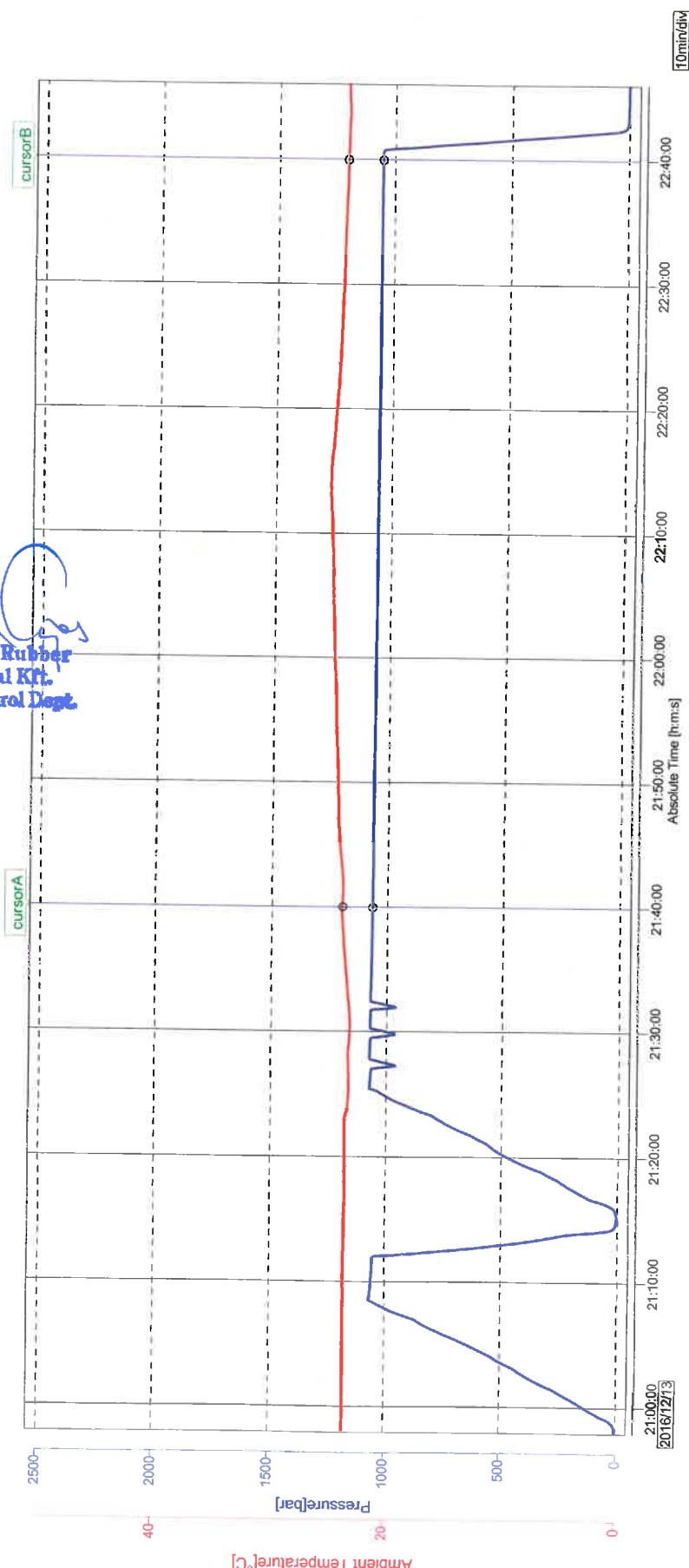
No: QC-DB- 478 / 2016

Page: 10 / 82

1/1

: 5.000 sec  
: 2016/12/13 20:57:55.000  
: 2016/12/13 22:46:00.000Sampling Int.  
Start Time  
Stop TimeFile Name : 016550\_73203-4,73190-96.GEV,....016560\_73203-4,73190-96.GEV  
File Message : 73203,73204,73190,73191,73192,73193,73194,73195  
Device Type : GX10  
Serial No. : S5P606399  
Data Count : 1298  
Print Group : Press-Temp  
Print Range : 2016/12/13 20:57:55.000 - 2016/12/13 22:46:00.000  
Comment : 142056635, 73196

Data No.	Cursor A	Cursor B	Difference
	505	1225	720
Absolute Time	2016/12/13 21:40:00.000	2016/12/13 22:40:00.000	01:00:00.000
Tag Comment	Value A	Value B	Value B-A
Pressure[bar]	1064.24	1052.30	-11.94
Ambient Temperature[°C]	23.90	23.97	0.07

ContiTech Rubber  
Industrial Kft.  
Quality Control Dept.  
(1)



ContiTech Fluid Technology

**COPY**

ContiTech Oil & Marine Corp. # 11535 Brittmoore Park Dr., Houston, TX 77041-6916 USA		<b>Delivery Note</b>	
HELMERICH & PAYNE INT'L DRILLING CO 1755 FEDERAL ROAD WHSE 5-S HOUSTON TX 77015		Document No.	<b>86049955</b>
		Document Date	<b>10/03/2018</b>
		Customer Number	11697
<b>Transport-Details - Shipping</b>		Customer VAT No.	
		Supplier Number	
		N° EORI:	FR4102795330002
		Purchase Order No.	740179938
<b>Conditions</b> Shipping Conditions 0 days Inco Terms EXW Houston Ex Works		Purchase Order Date	09/25/2018
		Sales Order Number	1100421
		Sales Order Date	09/25/2018
		Unloading Point	
		<b>Page 1 of 2</b>	
		<b>Weights (Gross / Net)</b>	
		Total Weight	1,300.000 LB
		Net Weight	1,300.000 LB
Buyer: Kathy Carpenter E-mail: Kathy.Carpenter@hpidc.com Tel: 832-782-6800  Rig/Whse: HOW			
<b>Item</b>	<b>Material/Description</b>	<b>Quantity</b>	<b>Weight</b>
10	OORECERTIFY  Recertification of HP Hoses Serial#62519 3" X 16 FT 10K Choke & Kill Hoses API 16C  End 1: 3 - 1/16" 10Kpsi API Spec 6A Type 6BX Flange End 2: 3 - 1/16" 10Kpsi API Spec 6A Type 6BX Flange c/w BX154 SS Ring Groove each end Standard: API Spec 16C - Monogrammed Working Pressure: 10,000psi Test Pressure: 15,000psi  Serial Number 62519  Inspection & Certification includes: External inspection of the hose & couplings Internal boroscopic inspection of hose liner Hydrostatic pressure test of hose assembly Repair of any external damage to hose body and end connections (limited)	1 PC	1,300.000 LB

ContiTech Oil & Marine Corp.  
 11535 Brittmoore Park Drive  
 Houston, TX 77041  
 USA

Phone: (832)-327-0141  
 Fax: (832)-327-0148  
 www.contitech-oil-gas.com

Managing Director  
 (President)  
 Zuzana Czovek

Bank: Wells Fargo Bank, N.A.,  
 420 Montgomery Street, San Francisco, CA 94163  
 Account #: 4942692294  
 ABA/Routing #: 121000248, SWIFT #: WFBUS6S

## Hose Inspection Report

ContiTech Oil &amp; Marine

Customer	Customer Reference #	COM Reference #	COM Inspector	Date of Inspection
H&P Drilling	740179938	1100421	A. Jaimes	09/27/2018

Hose Manufacturer	Contitech Rubber Industrial
-------------------	-----------------------------

Hose Serial #	62519	Date of Manufacture	02/2012
Hose I.D.	3"	Working Pressure	10000PSI
Hose Type	Choke and Kill	Test Pressure	15000PSI
Manufacturing Standard	API 16C		

## Connections

End A: 3.1/16" 10Kpsi API Spec 6A Type 6BX Flange	End B: 3.1/16" 10Kpsi API Spec 6A Type 6BX Flange
• No damage	• No damage
Material: Carbon Steel ST/ST Inlay Groove	Material: Carbon Steel ST/ST Inlay Groove
Seal Face: BX154	Seal Face: BX154
Length Before Hydro Test: 16'	Length After Hydro test: 16'

**Conclusion:** Hose #62519 passed the external inspection with no notable damage to the hose armor. Internal video inspection showed no damage to the inner liner. Hose #62519 passed the hydrostatic pressure test by holding a pressure of 15,000PSI for 60 minutes. Hose #62519 is suitable for continued service.

**Recommendations:** In general the hose should be inspected on a regular on-going basis. The frequency and degree of the inspection should as a minimum follow these guidelines:

Visual inspection: Every 3 to 6 months (or during installation/removal)  
 Annual: In-situ pressure test (in addition to the 3 to 6 monthly inspections)  
 Initial 5 years service: Major inspection  
 2nd Major inspection: Following subsequent 3 year life cycle  
 (Detailed description of test regime available upon request, QCP 206-1)

**\*\*NOTE:** There are a number of critical elements in the hose that cannot be thoroughly checked through standard inspection techniques. Away from dissecting the hose body, the best way to evaluate the condition of the hose is through review of the operating conditions recorded during the hose service life, in particular maximums and peak conditions.

Issued By: Alejandro Jaimes  
 Date: 9/28/2018

Checked By: Roger Suarez  
 Date: 9/28/2018


Page 1 of 1  
 QF97





# Certificate of Conformity

ContiTech

<b>Certificate Number</b> 1100421	<b>COM Order Reference</b> 1100421	<b>Customer Name &amp; Address</b>	
<b>Customer Purchase Order No:</b> 740179938		HELMERICH & PAYNE DRILLING CO	
<b>Project:</b>		1434 SOUTH BOULDER AVE	
		TULSA, OK 74119	
		USA	
<b>Test Center Address</b>	<b>Accepted by COM Inspection</b>		<b>Accepted by Client Inspection</b>
ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	Signed:	Gerson Mejia-Lazo	
	Date:	10/3/18 	

We certify that the items detailed below meet the requirements of the customer's Purchase Order referenced above, and are in conformance with the specifications given below.

Item	Part No.	Description	Qty	Serial Number	Specifications
10		RECERTIFICATION - 3" ID 10K Choke and Kill Hose x 16 ft OAL	1	62519	ContiTech Standard



# Hydrostatic Test Certificate

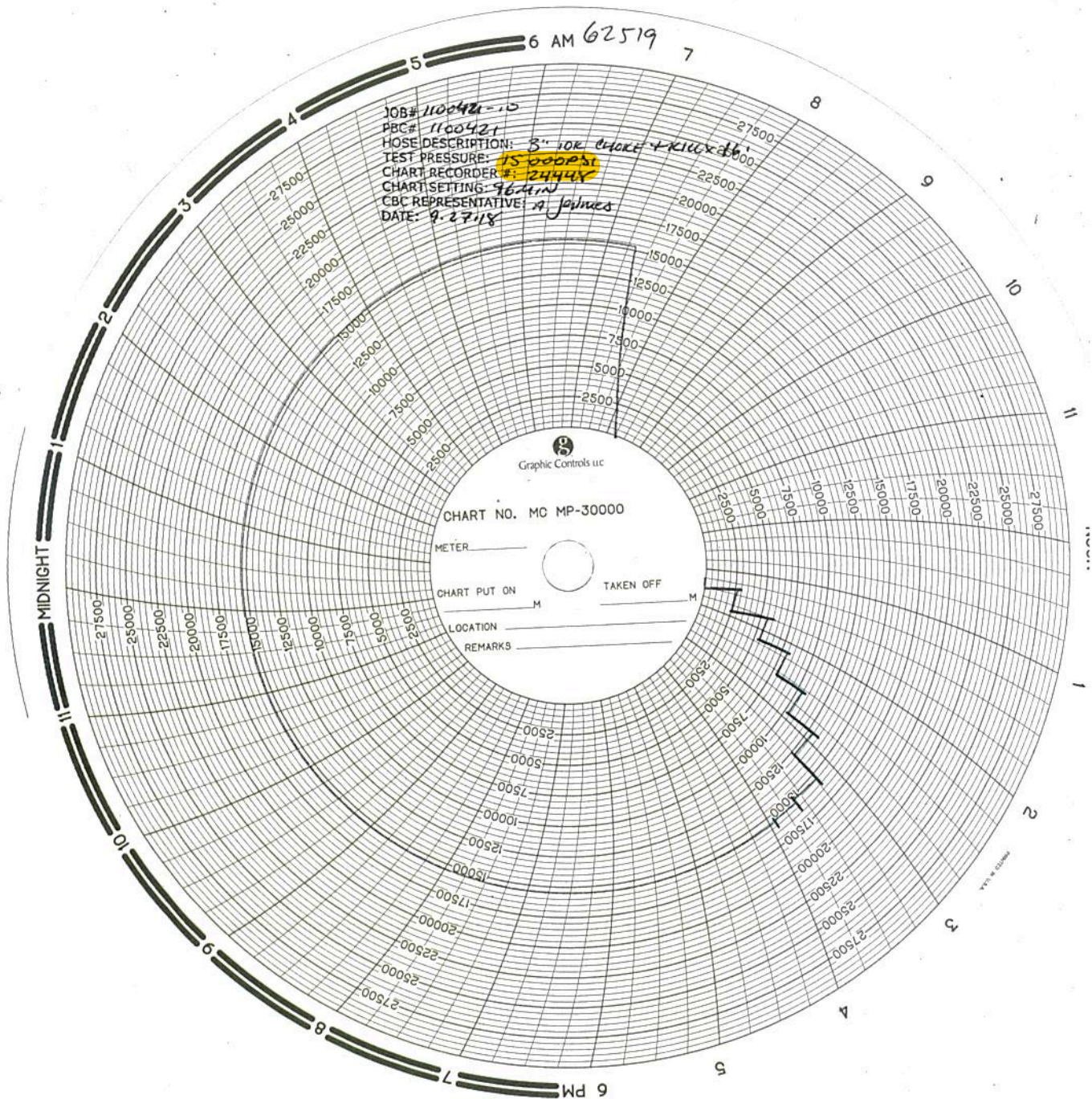
ContiTech

<b>Certificate Number</b> 1100421	<b>COM Order Reference</b> 1100421	<b>Customer Name &amp; Address</b> HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA	
<b>Customer Purchase Order No:</b> 740179938			
<b>Project:</b>			
<b>Test Center Address</b> ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	<b>Accepted by COM Inspection</b> Signed: Gerson Mejia-Lazo Date: 10/3/18 	<b>Accepted by Client Inspection</b>	

We certify that the goods detailed hereon have been inspected as described below by our Quality Management System, and to the best of our knowledge are found to conform the requirements of the above referenced purchase order as issued to ContiTech Oil & Marine Corporation.

Item	Part No.	Description	Qty	Serial Number	Work. Press. (psi)	Test Press. (psi)	Test Time (minutes)
10		RECERTIFICATION - 3" ID 10K Choke and Kill Hose x 16 ft OAL	1	62519	10,000	15,000	60









## ContiTech Fluid Technology

ContiTech Oil & Marine Corp. # 11535 Brittmoore Park Dr., Houston, TX 77041-6916 USA  HELMERICH & PAYNE INT'L DRILLING CO 1755 FEDERAL ROAD WHSE 5-S HOUSTON TX 77015		<b>Delivery Note</b> Document No. <b>86080983</b> Document Date <b>10/16/2018</b> Customer Number 11697 Customer VAT No. Supplier Number N° EORI: FR41027953300021 Purchase Order No. 740179978 Purchase Order Date 09/27/2018 Sales Order Number 1101812 Sales Order Date 09/27/2018 Unloading Point  <b>Page 1 of 2</b>	
<b>Transport-Details - Shipping</b>			
<b>Conditions</b> Shipping Conditions 0 days Inco Terms EXW Houston Ex Works		<b>Weights (Gross / Net)</b> Total Weight 2,150.000 LB Net Weight 2,150.000 LB	
Buyer: Kathy Carpenter E-mail: Kathy.Carpenter@hpidc.com Tel: 832-782-6800  Rig/Whse: HOW			
<b>Item</b>	<b>Material/Description</b>	<b>Quantity</b>	<b>Weight</b>
10	00RECERTIFY Recertification of HP Hoses Serial#62430 ✓ 3" X 26 FT 10K Choke & Kill Hoses API 16C  End 1: 3 - 1/16" 10Kpsi API Spec 6A Type 6BX Flange End 2: 3 - 1/16" 10Kpsi API Spec 6A Type 6BX Flange c/w BX154 SS Ring Groove each end Standard: API Spec 16C - Monogrammed Working Pressure: 10,000psi Test Pressure: 15,000psi  Serial Number 62430  Inspection & Certification includes: External inspection of the hose & couplings Internal boroscopic inspection of hose liner Hydrostatic pressure test of hose assembly Repair of any external damage to hose body and end connections (limited to minor repairs)	1 PC	2,150.000 LB

(88061538)

AB 10-16-18

## Hose Inspection Report

ContiTech Oil &amp; Marine

Customer	Customer Reference #	COM Reference #	COM Inspector	Date of Inspection
H&P Drilling	740179978	1101812	A. Jaimes	10/03/2018

<b>Hose Manufacturer</b>	Contitech Rubber Industrial
--------------------------	-----------------------------

Hose Serial #	62430	Date of Manufacture	06/2012
Hose I.D.	3"	Working Pressure	10000PSI
Hose Type	Choke and Kill	Test Pressure	15000PSI
Manufacturing Standard	API 16C		

## Connections

End A: 3.1/16" 10Kpsi API Spec 6A Type 6BX Flange	End B: 3.1/16" 10Kpsi API Spec 6A Type 6BX Flange
• Scratches	• No damage
Material: Carbon Steel	Material: Carbon Steel
Seal Face: BX154	Seal Face: BX154
Length Before Hydro Test: 26'	Length After Hydro test: 26'

**Conclusion:** Hose #62430 passed the external inspection with no notable damage to the armor. Some scratches and dings were noticed on the flange face but do not affect the integrity of the hose. Internal video inspection showed no damage to the inner liner. Hose #62430 passed the hydrostatic pressure test by holding a pressure of 15,000PSI for 60 minutes. **Hose #62430 is suitable for continued service.**

**Recommendations:** In general the hose should be inspected on a regular on-going basis. The frequency and degree of the inspection should as a minimum follow these guidelines:

Visual inspection: Every 3 to 6 months (or during installation/removal)  
 Annual: In-situ pressure test (in addition to the 3 to 6 monthly inspections)  
 Initial 5 years service: Major inspection  
 2nd Major inspection: Following subsequent 3 year life cycle  
 (Detailed description of test regime available upon request, QCP 206-1)

**\*\*NOTE:** There are a number of critical elements in the hose that cannot be thoroughly checked through standard inspection techniques. Away from dissecting the hose body, the best way to evaluate the condition of the hose is through review of the operating conditions recorded during the hose service life, in particular maximums and peak conditions.

## Flange Face Damage

Image shows damage to flange face.  
 Damage did not affect the hydrostatic pressure test.



**Issued By:** Alejandro Jaimes  
**Date:** 10/5/2018

**Checked By:** Roger Suarez  
**Date:** 10/5/2018

**Page 1 of 1**  
**QF97**





# Certificate of Conformity

ContiTech

<b>Certificate Number</b> 1101812	<b>COM Order Reference</b> 1101812	<b>Customer Name &amp; Address</b> HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA
<b>Customer Purchase Order No:</b> 740179978		
<b>Project:</b>		
<b>Test Center Address</b> ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	<b>Accepted by COM Inspection</b> Signed: Gerson Mejia-Lazo Date: 10/12/18	<b>Accepted by Client Inspection</b>


We certify that the items detailed below meet the requirements of the customer's Purchase Order referenced above, and are in conformance with the specifications given below.

Item	Part No.	Description	Qty	Serial Number	Specifications
10		RECERTIFICATION - 3" ID 10K Choke and Kill Hose x 26 ft OAL	1	62430	ContiTech Standard



## Hydrostatic Test Certificate

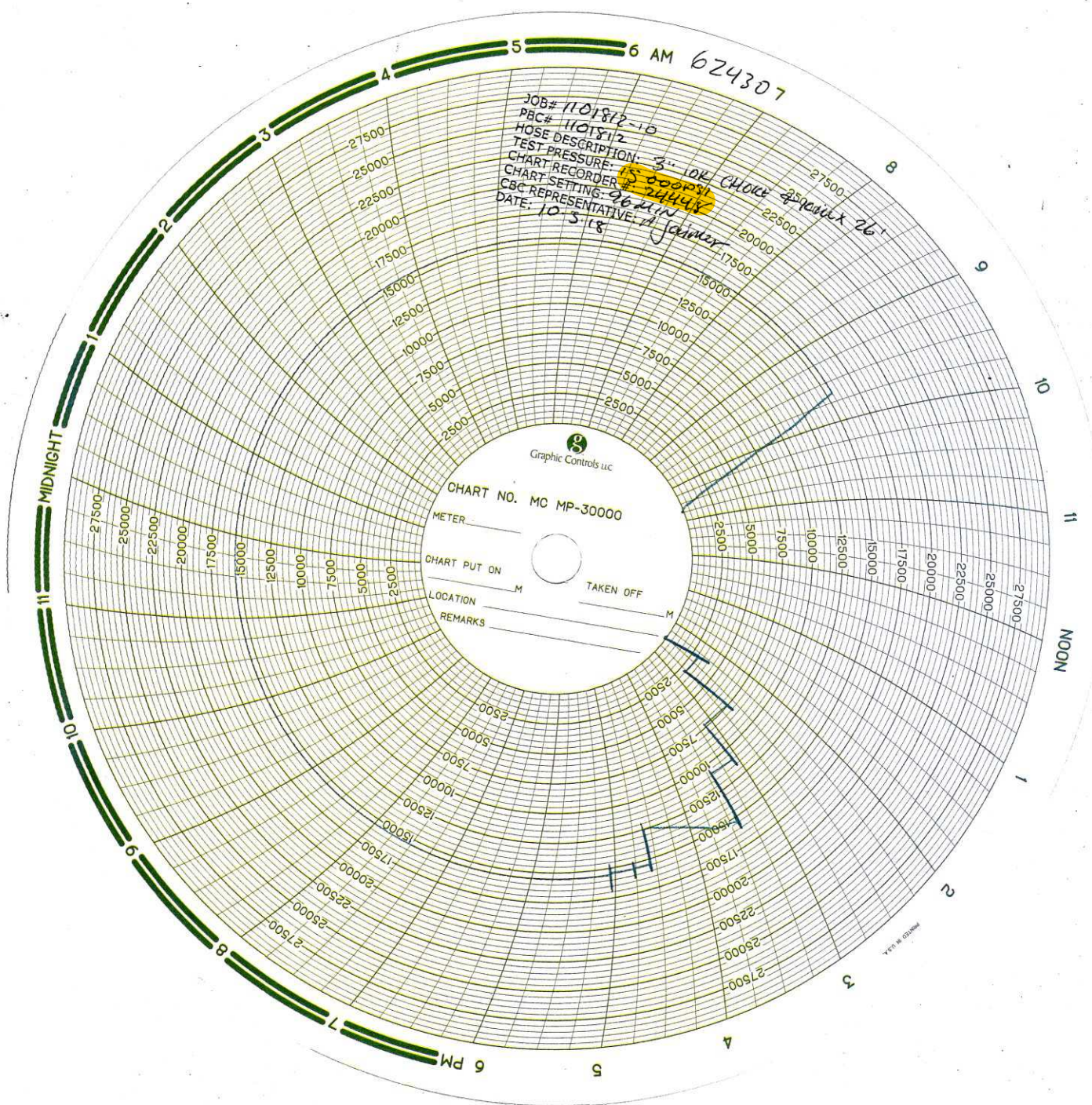
ContiTech

<b>Certificate Number</b> 1101812	<b>COM Order Reference</b> 1101812	<b>Customer Name &amp; Address</b> HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA	
<b>Customer Purchase Order No:</b> 740179978			
<b>Project:</b>			
<b>Test Center Address</b> ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	<b>Accepted by COM Inspection</b> Signed: Gerson Mejia-Lazo Date: 10/12/18 	<b>Accepted by Client Inspection</b>	

We certify that the goods detailed hereon have been inspected as described below by our Quality Management System, and to the best of our knowledge are found to conform the requirements of the above referenced purchase order as issued to ContiTech Oil & Marine Corporation.

Item	Part No.	Description	Qty	Serial Number	Work. Press. (psi)	Test Press. (psi)	Test Time (minutes)
10		RECERTIFICATION - 3" ID 10K Choke and Kill Hose x 26 ft OAL	1	62430	10,000	15,000	60







# H&P 602



Oil Tool Sales • Rental

131 N. Sunnyslane Road

P.O. Box 6145

Moore, Oklahoma 73153

405/793-9101

Fax: 405/799-8735

## Product Specifications

**Name: H&P Tulsa****Date: 11-7-18****Purchase Order No. 28000****Line Item: 1****FMC Part No: 350-C00158****Work Order/ Serial Number: 33788-1****Description: Studded 2- Way 3-1/16"-10M x 3-1/16"-10M w/ 1" Cushions**

### Certificate of Compliance

This is to certify that all item(s) supplied under the referenced order were manufactured, inspected and shipped in compliance with the Horn Equipment Company, Inc., Quality System. All items meet and/or exceed the specific API 6A or 16A requirements as applicable to the Product Specification Level to which they were ordered. Horn Equipment Company, Inc., is a licensed API 6A & 16A manufacturer as evidenced by license numbers 6A-0550 and 16A-0124 respectively. The pressure containing components of the above described product(s) meet NACE MR-0175 hardness requirements. Dimensional inspection has been performed and documented.

**Kolby Hambright**  
**Quality Control Manager**  
**Horn Equipment Company, Inc.**





Oil Tool Sales • Rental

131 N. Sunnyslane Road

P.O. Box 6145

Moore, Oklahoma 73153

405/793-9101

Fax: 405/799-8735

## Product Specifications

**Name: H&P Tulsa****Date: 11-7-18****Purchase Order No. 28000****Line Item: 1****FMC Part No: 350-C00158****Work Order/ Serial Number: 33788-2****Description: Studded 2- Way 3-1/16"-10M x 3-1/16"-10M w/ 1" Cushions**

### Certificate of Compliance

This is to certify that all item(s) supplied under the referenced order were manufactured, inspected and shipped in compliance with the Horn Equipment Company, Inc., Quality System. All items meet and/or exceed the specific API 6A or 16A requirements as applicable to the Product Specification Level to which they were ordered. Horn Equipment Company, Inc., is a licensed API 6A & 16A manufacturer as evidenced by license numbers 6A-0550 and 16A-0124 respectively. The pressure containing components of the above described product(s) meet NACE MR-0175 hardness requirements. Dimensional inspection has been performed and documented.

**Kolby Hambright**  
**Quality Control Manager**  
**Horn Equipment Company, Inc.**



Oil Tool Sales • Rental

131 N. Sunnyslane Road

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Moore, Oklahoma 73153

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Fax: 405/799-8735

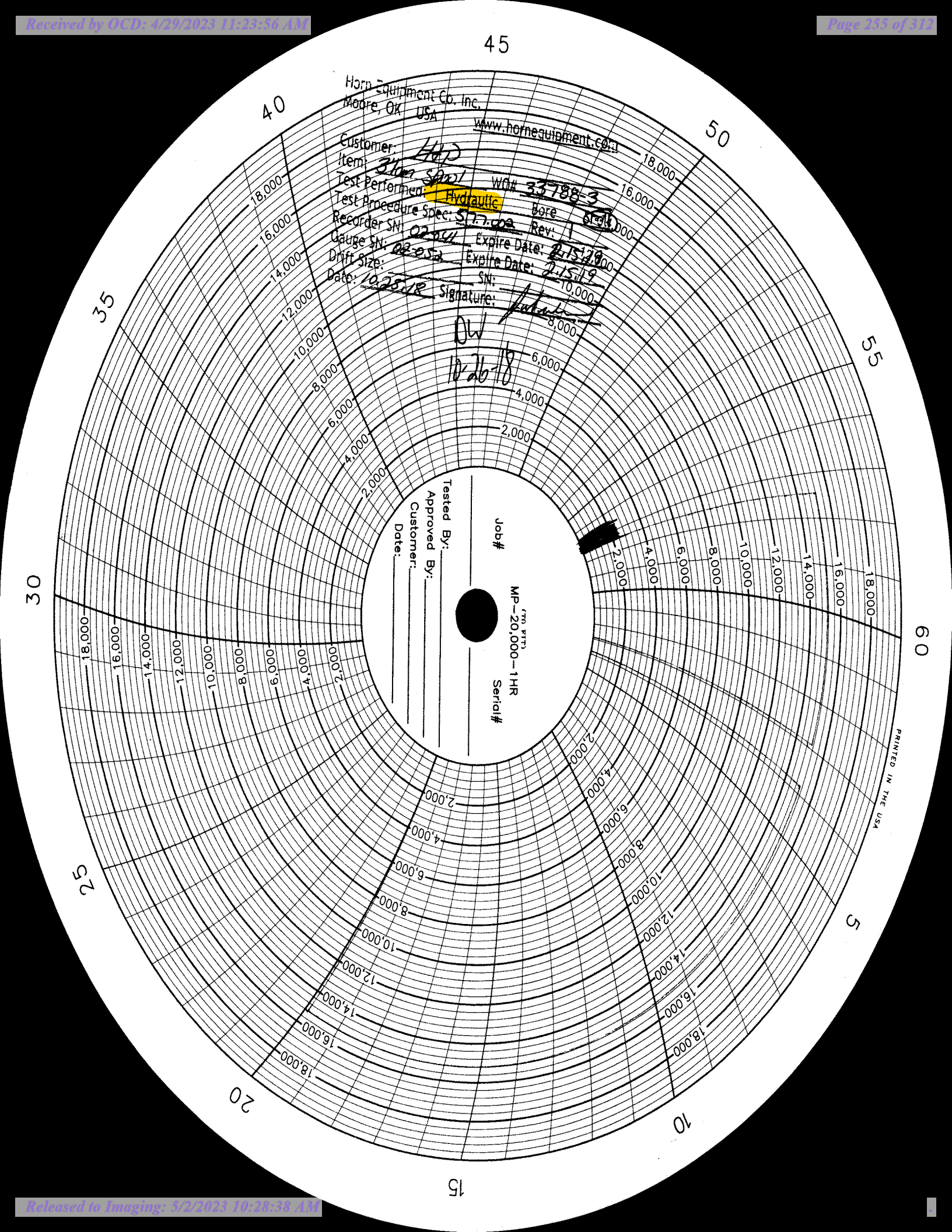
## Product Specifications

**Name: H&P Tulsa****Date: 11-7-18****Purchase Order No. 28000****Line Item: 2****FMC Part No: 350-C00160****Work Order/ Serial Number: 33788-3****Description: Spool 3-1/16"-10M x 3-1/16"-10M 90 Degree 6Ft 7-3/4In Long**

### Certificate of Compliance

This is to certify that all item(s) supplied under the referenced order were manufactured, inspected and shipped in compliance with the Horn Equipment Company, Inc., Quality System. All items meet and/or exceed the specific API 6A or 16A requirements as applicable to the Product Specification Level to which they were ordered. Horn Equipment Company, Inc., is a licensed API 6A & 16A manufacturer as evidenced by license numbers 6A-0550 and 16A-0124 respectively. The pressure containing components of the above described product(s) meet NACE MR-0175 hardness requirements. Dimensional inspection has been performed and documented.

**Kolby Hambright**  
**Quality Control Manager**  
**Horn Equipment Company, Inc.**



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Moore, Oklahoma 73153

405/793-9101

Fax: 405/799-8735

## Product Specifications

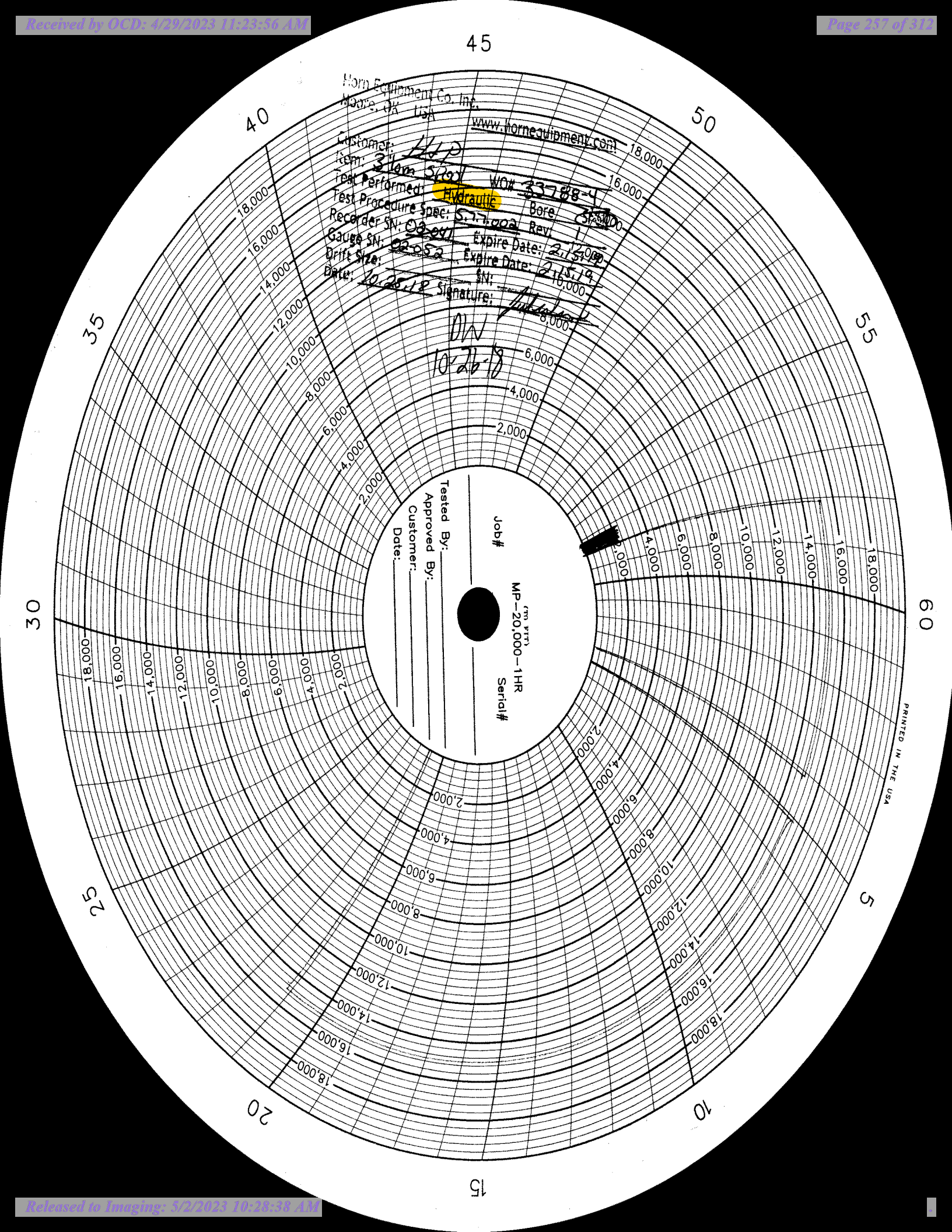
**Name: H&P Tulsa****Date: 11-7-18****Purchase Order No. 28000****Line Item: 2****FMC Part No: 350-C00160****Work Order/ Serial Number: 33788-4****Description: Spool 3-1/16"-10M x 3-1/16"-10M 90 Degree 6Ft 7-3/4In Long**

### Certificate of Compliance

This is to certify that all item(s) supplied under the referenced order were manufactured, inspected and shipped in compliance with the Horn Equipment Company, Inc., Quality System. All items meet and/or exceed the specific API 6A or 16A requirements as applicable to the Product Specification Level to which they were ordered. Horn Equipment Company, Inc., is a licensed API 6A & 16A manufacturer as evidenced by license numbers 6A-0550 and 16A-0124 respectively. The pressure containing components of the above described product(s) meet NACE MR-0175 hardness requirements. Dimensional inspection has been performed and documented.

**Kolby Hambright**  
**Quality Control Manager**  
**Horn Equipment Company, Inc.**







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P.O. Box 6145

Moore, Oklahoma 73153

405/793-9101

Fax: 405/799-8735

## Product Specifications

**Name: H&P Tulsa****Date: 11-7-18****Purchase Order No. 28000****Line Item: 3****FMC Part No: 350-C00161****Work Order/ Serial Number: 33788-5****Description: Spacer Spool 3-1/16"-10M x 3-1/16"-10M 8.6In Long**

### Certificate of Compliance

This is to certify that all item(s) supplied under the referenced order were manufactured, inspected and shipped in compliance with the Horn Equipment Company, Inc., Quality System. All items meet and/or exceed the specific API 6A or 16A requirements as applicable to the Product Specification Level to which they were ordered. Horn Equipment Company, Inc., is a licensed API 6A & 16A manufacturer as evidenced by license numbers 6A-0550 and 16A-0124 respectively. The pressure containing components of the above described product(s) meet NACE MR-0175 hardness requirements. Dimensional inspection has been performed and documented.

**Kolby Hambright**  
**Quality Control Manager**  
**Horn Equipment Company, Inc.**

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Horn Equipment Co. Inc.  
Moore, OK USA

www.hornequipment.com

Customer: ALP  
Item: 3111 WO# 33728-5  
Test Performed: Hydraulic Bore: 5.000  
Test Procedure Spec: 5.2.7.001 Rev: 12.000  
Recorder SN: 02-041 Expire Date: 2151790  
Gauge SN: 02052 Expire Date: 20519  
Drift Size: \_\_\_\_\_ SN: \_\_\_\_\_  
Date: 10.22.18 Signature: [Signature]

Tested By: \_\_\_\_\_  
Approved By: \_\_\_\_\_  
Customer: \_\_\_\_\_  
Date: \_\_\_\_\_  
Job# \_\_\_\_\_  
MP-20,000-1HR  
Serial# \_\_\_\_\_

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Oil Tool Sales • Rental

131 N. Sunnyslane Road

P.O. Box 6145

Moore, Oklahoma 73153

405/793-9101

Fax: 405/799-8735

## Product Specifications

**Name: H&P Tulsa****Date: 11-7-18****Purchase Order No. 28000****Line Item: 3****FMC Part No: 350-C00161****Work Order/ Serial Number: 33788-6****Description: Spacer Spool 3-1/16"-10M x 3-1/16"-10M 8.6In Long**

### Certificate of Compliance

This is to certify that all item(s) supplied under the referenced order were manufactured, inspected and shipped in compliance with the Horn Equipment Company, Inc., Quality System. All items meet and/or exceed the specific API 6A or 16A requirements as applicable to the Product Specification Level to which they were ordered. Horn Equipment Company, Inc., is a licensed API 6A & 16A manufacturer as evidenced by license numbers 6A-0550 and 16A-0124 respectively. The pressure containing components of the above described product(s) meet NACE MR-0175 hardness requirements. Dimensional inspection has been performed and documented.

**Kolby Hambright**  
**Quality Control Manager**  
**Horn Equipment Company, Inc.**

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Horn Equipment Co. Inc.  
Moore OK USA [www.hornequipment.com](http://www.hornequipment.com)

Customer: HED WO# 33780-6000  
Item: Blow 5000 Bore 1.000  
Test Performed: Hydraulic Rev. 1.000  
Test Procedure Spec: 5.7.001  
Recorder SN: 02-041 Expire Date: 2/15/19  
Gauge SN: 02-052 Expire Date: 2/15/19  
Drift Size: 10.000 SN: 10.000  
Date: 10/21/18 Signature: [Signature]

Tested By: \_\_\_\_\_  
Approved By: \_\_\_\_\_  
Customer: \_\_\_\_\_  
Date: \_\_\_\_\_  
Job# \_\_\_\_\_  
MP-20,000-1HR  
Serial# \_\_\_\_\_

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131 N. Sunnyslane Road

P.O. Box 6145

Moore, Oklahoma 73153

405/793-9101

Fax: 405/799-8735

## Product Specifications

**Name: H&P Tulsa****Date: 1-27-21****Purchase Order No. 37635****Line Item: 1****FMC Part No: 350-C00161****Work Order/ Serial Number: 37564-2****Description: Spacer Spool 3-1/16"-10M x 3-1/16"-10M 8.6 Inches Long**

### Certificate of Compliance

This is to certify that all item(s) supplied under the referenced order were manufactured, inspected and shipped in compliance with the Horn Equipment Company, Inc., Quality System. All items meet and/or exceed the specific API 6A or 16A requirements as applicable to the Product Specification Level to which they were ordered. Horn Equipment Company, Inc., is a licensed API 6A & 16A manufacturer as evidenced by license numbers 6A-0550 and 16A-0124 respectively. The pressure containing components of the above described product(s) meet NACE MR-0175 hardness requirements. Dimensional inspection has been performed and documented.

**Kolby Hambright**  
**Quality Control Manager**  
**Horn Equipment Company, Inc.**



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P.O. Box 6145

Moore, Oklahoma 73153

405/793-9101

Fax: 405/799-8735

## Product Specifications

**Name: H&P Tulsa****Date: 1-27-21****Purchase Order No. 37635****Line Item: 2****FMC Part No: 350-C00158****Work Order/ Serial Number: 37564-3****Description: Studded 90 3-1/16"-10M x 3-1/16"-10M w/ Cushions**

### Certificate of Compliance

This is to certify that all item(s) supplied under the referenced order were manufactured, inspected and shipped in compliance with the Horn Equipment Company, Inc., Quality System. All items meet and/or exceed the specific API 6A or 16A requirements as applicable to the Product Specification Level to which they were ordered. Horn Equipment Company, Inc., is a licensed API 6A & 16A manufacturer as evidenced by license numbers 6A-0550 and 16A-0124 respectively. The pressure containing components of the above described product(s) meet NACE MR-0175 hardness requirements. Dimensional inspection has been performed and documented.

**Kolby Hambright**  
**Quality Control Manager**  
**Horn Equipment Company, Inc.**



Oil Tool Sales • Rental

131 N. Sunnyslane Road

P.O. Box 6145

Moore, Oklahoma 73153

405/793-9101

Fax: 405/799-8735

## Product Specifications

**Name: H&P Tulsa****Date: 1-27-21****Purchase Order No. 37635****Line Item: 2****FMC Part No: 350-C00158****Work Order/ Serial Number: 37564-4****Description: Studded 90 3-1/16"-10M x 3-1/16"-10M w/ Cushions**

### Certificate of Compliance

This is to certify that all item(s) supplied under the referenced order were manufactured, inspected and shipped in compliance with the Horn Equipment Company, Inc., Quality System. All items meet and/or exceed the specific API 6A or 16A requirements as applicable to the Product Specification Level to which they were ordered. Horn Equipment Company, Inc., is a licensed API 6A & 16A manufacturer as evidenced by license numbers 6A-0550 and 16A-0124 respectively. The pressure containing components of the above described product(s) meet NACE MR-0175 hardness requirements. Dimensional inspection has been performed and documented.

**Kolby Hambright**  
**Quality Control Manager**  
**Horn Equipment Company, Inc.**



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

# SUPO Data Report

04/28/2023

APD ID: 10400087939

Submission Date: 09/08/2022

Operator Name: FRANKLIN MOUNTAIN ENERGY LLC

Well Name: FORGE FED COM

Well Number: 707H

Well Type: OIL WELL

Well Work Type: Drill

Highlighted data  
reflects the most  
recent changes

[Show Final Text](#)

## Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Forge\_Pad\_4\_Existing\_Roads\_Diagram\_20220907144139.pdf

Existing Road Purpose: ACCESS

Row(s) Exist? NO

**ROW ID(s)**

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

## Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

FME\_Forge\_Unit\_Development\_New\_Access\_Roads\_Map\_20230113102131.pdf

New road type: RESOURCE

Length: 4458

Feet

Width (ft.): 40

Max slope (%): 2

Max grade (%): 1

Army Corp of Engineers (ACOE) permit required? N

ACOE Permit Number(s):

New road travel width: 30

New road access erosion control: Ditching, draining, crowning and capping or sloping and dipping as necessary

New road access plan or profile prepared? N

New road access plan

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**Access road engineering design?** N**Access road engineering design****Turnout?** N**Access surfacing type:** OTHER**Access topsoil source:** ONSITE**Access surfacing type description:** Caliche**Access onsite topsoil source depth:** 6**Offsite topsoil source description:****Onsite topsoil removal process:** Blading**Access other construction information:****Access miscellaneous information:****Number of access turnouts:****Access turnout map:**

### Drainage Control

**New road drainage crossing:** CROSSING**Drainage Control comments:** Ditching, draining, crowning and capping or sloping and dipping as necessary**Road Drainage Control Structures (DCS) description:** As outlined in BLM Gold Book**Road Drainage Control Structures (DCS) attachment:**

### Access Additional Attachments

### Section 3 - Location of Existing Wells

**Existing Wells Map?** YES**Attach Well map:**

Forge\_Pad\_4\_Existing\_Wells\_Diagram\_20220907144202.pdf

### Section 4 - Location of Existing and/or Proposed Production Facilities

**Submit or defer a Proposed Production Facilities plan?** SUBMIT**Production Facilities description:** Production from the proposed well will be stored on the associated CTB until sold. A 3-phase test separator will be connected via flowline to each wellhead on the well pad; if on pad, will be strategically placed to allow for maximum interim reclamation, recontouring and revegetation of the well location.**Production Facilities map:**

FORGE\_FEDERAL\_CTB\_\_\_FINAL\_\_\_6\_24\_2022\_20220817141205.pdf



**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H

Standard\_Tank\_Battery\_Configuration\_\_\_DRAFT\_30Mar20\_20220817100511.pdf

**Section 5 - Location and Types of Water Supply****Water Source Table****Water source type:** GW WELL**Water source use type:** DUST CONTROL  
INTERMEDIATE/PRODUCTION  
CASING  
STIMULATION**Source latitude:** **Source longitude:****Source datum:****Water source permit type:** PRIVATE CONTRACT**Water source transport method:** PIPELINE**Source land ownership:** PRIVATE**Source transportation land ownership:** PRIVATE**Water source volume (barrels):** 600000**Source volume (acre-feet):** 77.3358578**Source volume (gal):** 25200000**Water source and transportation**

FME\_Forge\_Unit\_Development\_Fresh\_Water\_Map\_20220817141231.pdf

**Water source comments:** FME plans to source water from a collection of 57 brackish water producing wells owned and operated by Seawolf Water in Blocks 54 and 55, Township 1 South, Section 24, Loving County, Texas. It is Franklin Mountain Energy's understanding the BLM is aware of these producing water wells and has allowed them to be utilized by other operators for completion operations in New Mexico. Wherever possible, Operator will use established or constructed oil and gas ROW's to transport fresh water to the well site.

**New water well?** N**New Water Well Info****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:**

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**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:**

### Section 6 - Construction Materials

**Using any construction materials:** YES**Construction Materials description:** Caliche will be obtained from the actual wellsite if available. If not available onsite, caliche will be obtained from providers shown on the attached map; SWSW Sec 19 25S 36E**Construction Materials source location**

FME\_Forge\_Unit\_Development\_Caliche\_Map\_20220817141246.pdf

### Section 7 - Methods for Handling

**Waste type:** DRILLING**Waste content description:** Drill cuttings, mud/fluids, salts and other chemicals from the well during drilling and completion operations**Amount of waste:** 2000 barrels**Waste disposal frequency :** Daily**Safe containment description:** steel tanks**Safe containmant attachment:****Waste disposal type:** HAUL TO COMMERCIAL FACILITY**Disposal location ownership:** COMMERCIAL**Disposal type description:****Disposal location description:** NMOCD approved disposal facility**Waste type:** SEWAGE**Waste content description:** black and grey water**Amount of waste:** 20000 gallons**Waste disposal frequency :** Weekly**Safe containment description:** poly tanks**Safe containmant attachment:****Waste disposal type:** HAUL TO COMMERCIAL FACILITY**Disposal location ownership:** STATE

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**Disposal type description:****Disposal location description:** local wastewater treatment plant**Waste type:** GARBAGE**Waste content description:** garbage and trash produced during drilling and completion operations**Amount of waste:** 200 pounds**Waste disposal frequency :** Weekly**Safe containment description:** 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.**Safe containmant attachment:****Waste disposal type:** HAUL TO COMMERCIAL FACILITY**Disposal location ownership:** STATE**Disposal type description:****Disposal location description:** local landfill

### Reserve Pit

**Reserve Pit being used?** NO**Temporary disposal of produced water into reserve pit?** NO**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

**Cuttings Area being used?** NO**Are you storing cuttings on location?** Y**Description of cuttings location** Drill cuttings, mud/fluids, salts and other chemicals from the well during drilling and completion operations will be stored safely in steel tanks onsite until hauled away and disposed of properly at an NMOCD approved disposal facility.**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**

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**Section 8 - Ancillary****Are you requesting any Ancillary Facilities?:** N**Ancillary Facilities****Comments:****Section 9 - Well Site****Well Site Layout Diagram:**

Forge\_Pad\_4\_Pad\_Layout\_Diagrams\_20220907144230.pdf

**Comments:****Section 10 - Plans for Surface****Type of disturbance:** New Surface Disturbance**Multiple Well Pad Name:** Tatanka/Forge Pad #4**Multiple Well Pad Number:** 9**Recontouring**

Forge\_Pad\_4\_Reclamation\_Diagram\_20220907144247.pdf

**Drainage/Erosion control construction:** As outlined in the BLM Gold Book - construction will include ditching, draining, crowning and capping or sloping and dipping as necessary.**Drainage/Erosion control reclamation:** The areas planned for interim reclamation will be recontoured to the original contour if feasible. If not feasible, to an interim contour that blends with the surrounding topography as much as possible. Where applicable, the fill material will be backfilled into the cut to bring the area back to the original contour. The interim cut and fill slopes prior to reseeding will not be steeper than a 3:1 ratio, unless the adjacent native topography is steeper. Topsoil will be evenly respread and aggressively revegetated over the entire disturbed area not needed for all-weather operations, including cut and 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, in order to break the soil crust and create seed germination micro-sites. Proper erosion control methods will be used on the area to control erosion, run-off siltation of the surrounding area. The interim reclamation will be monitored periodically to ensure that vegetation has reestablished and the erosion is controlled.**Well pad proposed disturbance (acres):** 5.45**Road proposed disturbance (acres):** 3.64**Powerline proposed disturbance (acres):** 0.82**Pipeline proposed disturbance (acres):** 9.93**Other proposed disturbance (acres):** 11.71**Total proposed disturbance:** 31.55**Well pad interim reclamation (acres):** 2.53**Road interim reclamation (acres):** 0.91**Powerline interim reclamation (acres):** 0**Pipeline interim reclamation (acres):** 9.93**Other interim reclamation (acres):** 0**Total interim reclamation:** 13.37**Well pad long term disturbance (acres):** 2.92**Road long term disturbance (acres):** 2.73**Powerline long term disturbance (acres):** 0.82**Pipeline long term disturbance (acres):** 0**Other long term disturbance (acres):** 11.71**Total long term disturbance:** 18.18

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**Disturbance Comments:**

**Reconstruction method:** The long-term objective of final reclamation is to return the land to a condition similar to 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. Prior to final reclamation procedures, the well pad, road and surrounding area will be cleared of material, trash and equipment. All unused equipment in structures including pipelines, electric line poles, tanks etc. that serviced the well(s) will be removed. 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 redistribution:** 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.

**Soil treatment:** 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 the seeding, dozer tracking or other imprinting, in order to break the soil crust and create seed germination micro-sites.

**Existing Vegetation at the well pad:** Chihuahuan desertscrub

**Existing Vegetation at the well pad**

**Existing Vegetation Community at the road:** Chihuahuan desertscrub

**Existing Vegetation Community at the road**

**Existing Vegetation Community at the pipeline:** N/A

**Existing Vegetation Community at the pipeline**

**Existing Vegetation Community at other disturbances:** N/A

**Existing Vegetation Community at other disturbances**

**Non native seed used?**

**Non native seed description:**

**Seedling transplant description:**

**Will seedlings be transplanted for this project?**

**Seedling transplant description**

**Will seed be harvested for use in site reclamation?**

**Seed harvest description:**

**Seed harvest description attachment:**

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**Seed****Seed Table****Seed Summary****Total pounds/Acre:****Seed Type****Pounds/Acre****Seed reclamation****Operator Contact/Responsible Official****First Name:****Last Name:****Phone:****Email:****Seedbed prep:****Seed BMP:****Seed method:****Existing invasive species?** N**Existing invasive species treatment description:****Existing invasive species treatment****Weed treatment plan description:** To BLM Gold Book standards**Weed treatment plan****Monitoring plan description:** All reclaimed areas will be monitored periodically to ensure that revegetation occurs, that the area is not redisturbed and that erosion is controlled.**Monitoring plan****Success standards:** To BLM Gold Book standards**Pit closure description:** N/A**Pit closure attachment:****Section 11 - Surface****Disturbance type:** NEW ACCESS ROAD**Describe:****Surface Owner:** BUREAU OF LAND MANAGEMENT**Other surface owner description:****BIA Local Office:****BOR Local Office:**

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC

**Well Name:** FORGE FED COM

**Well Number:** 707H

**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:**



**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**Disturbance type:** TRANSMISSION LINE**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:** OTHER**Describe:** CTB**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:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**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:**

## Section 12 - Other

**Right of Way needed?** Y**Use APD as ROW?** Y**ROW Type(s):** 281001 ROW - ROADS**ROW****SUPO Additional Information:****Use a previously conducted onsite?** Y

**Previous Onsite information:** An onsite was conducted on June 3rd 2021 (well pad) and June 3rd 2022 (CTB). Attendees included Caroline Kaufman (BLM), Rachael Overbey (FME), BJ Briley (Construction) and Casey Jones (Topographic).

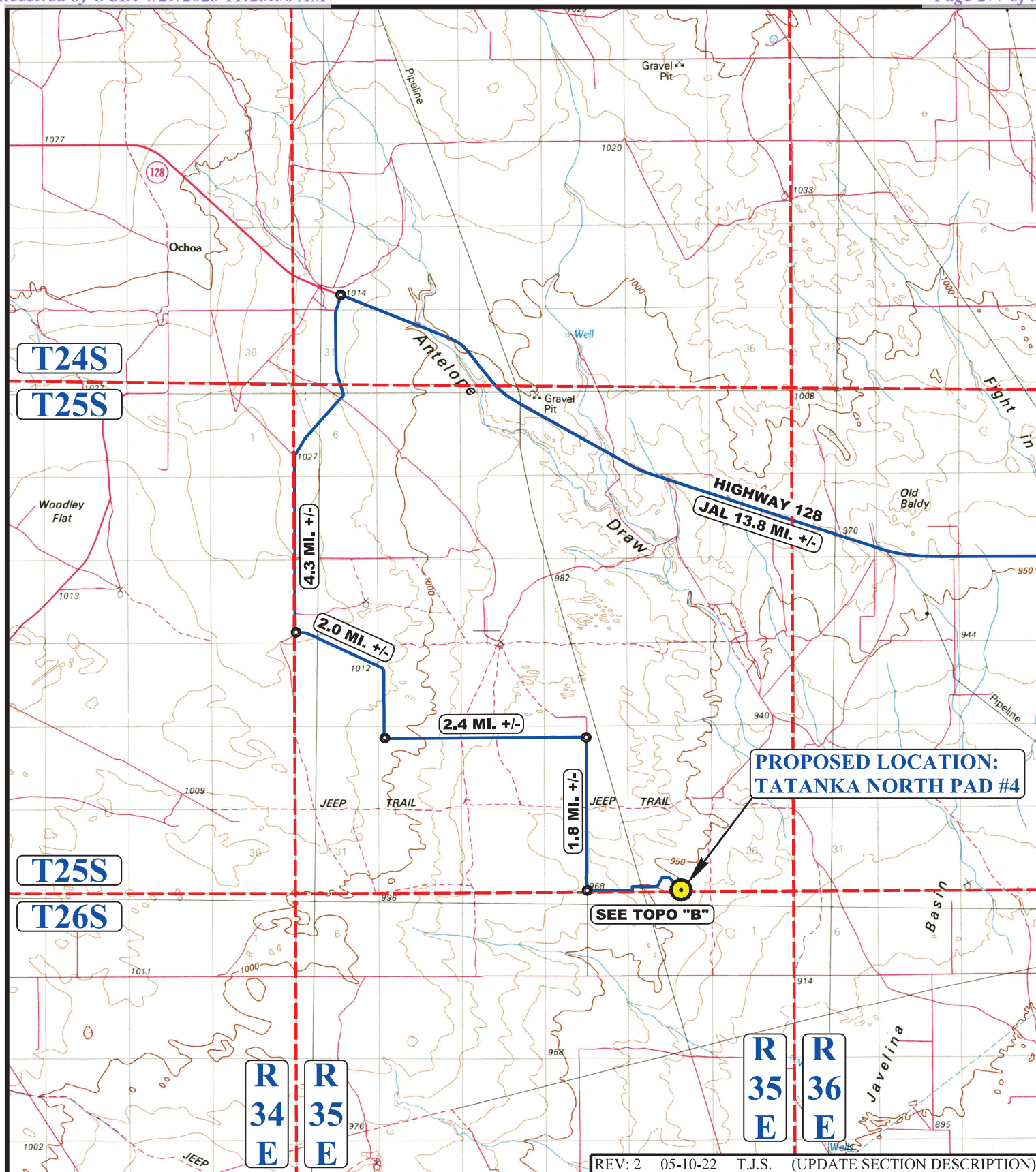
**Other SUPO**

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC

**Well Name:** FORGE FED COM

**Well Number:** 707H

SUPO\_Forge\_Fed\_Com\_20220907144411.pdf



REV: 2 05-10-22 T.J.S. (UPDATE SECTION DESCRIPTION)

**LEGEND:**

PROPOSED LOCATION

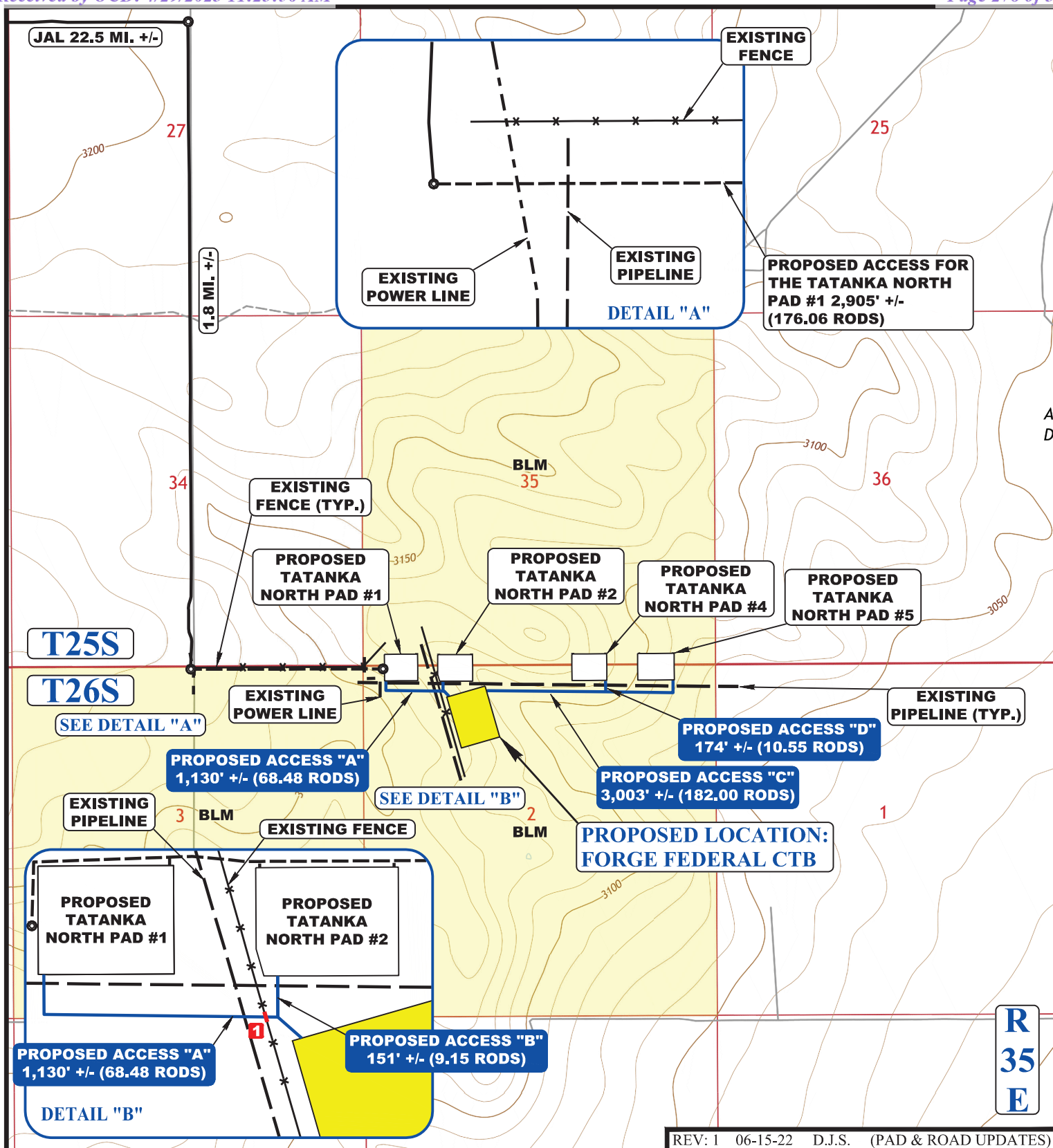


**UELS, LLC**  
Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017

**FRANKLIN MOUNTAIN ENERGY LLC**

**TATANKA NORTH PAD #4**  
NW 1/4 NE 1/4, SECTION 2, T26S, R35E, N.M.P.M. &  
SW 1/4 SE 1/4, SECTION 35, T25S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO

SURVEYED BY	N.R., R.C.	04-19-21	SCALE
DRAWN BY	T.L.L.	04-29-21	1 : 100,000
<b>ACCESS ROAD MAP</b>			<b>TOPO A</b>



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 UTAH ENGINEERING AND LAND SURVEYING (UELS) FOR ACCURACY OF THE PARCEL DATA.

# LEGEND:

- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED ROAD (SERVICING OTHER WELLS)
- EXISTING POWER LINE
- EXISTING PIPELINE
- EXISTING FENCE

1 INSTALL CATTLE GUARD

UELS, LLC

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

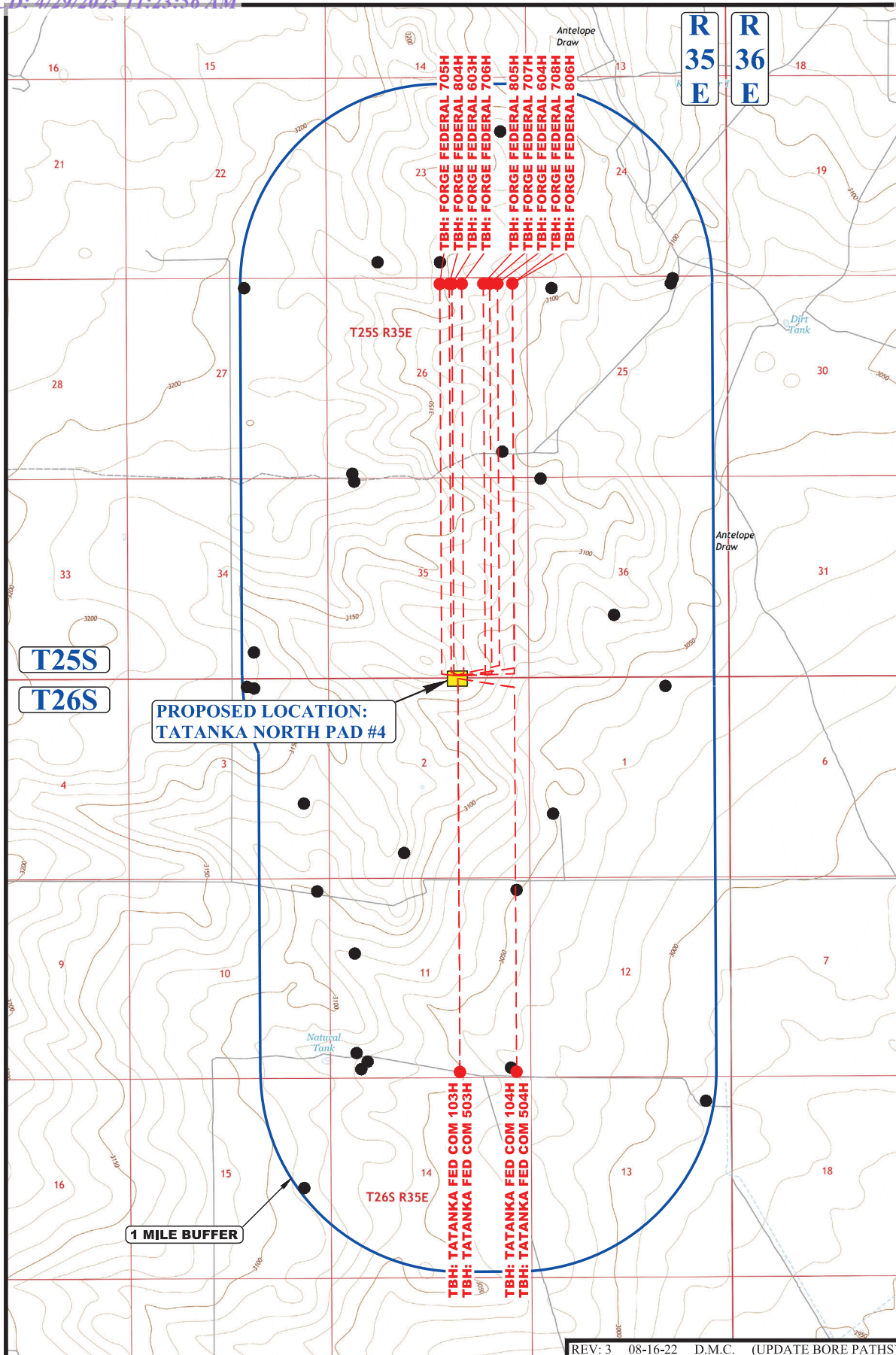


FRANKLIN MOUNTAIN ENERGY LLC

FORGE FEDERAL CTB  
SECTION 2, T26S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO

SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	Z.L.	05-20-22	1 : 24,000
ACCESS ROAD MAP		TOPO B	



**LEGEND:**

● OIL/GAS WELLS

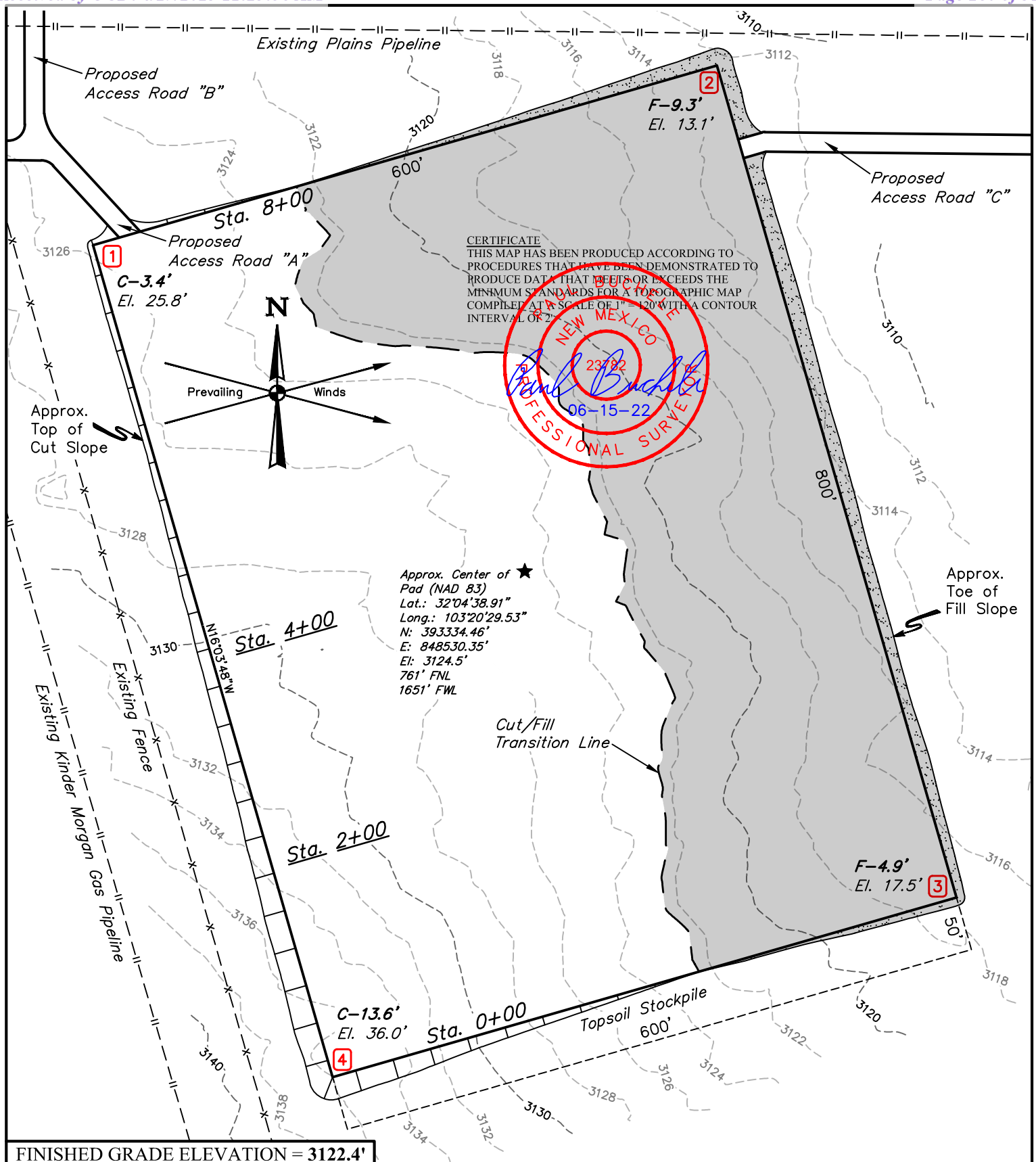


**UELS, LLC**  
Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017

**FRANKLIN MOUNTAIN ENERGY LLC**

**TATANKA NORTH PAD #4**  
NW 1/4 NE 1/4, SECTION 2, T26S, R35E, N.M.P.M. &  
SW 1/4 SE 1/4, SECTION 35, T25S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO

SURVEYED BY	N.R., R.C.	04-19-21	SCALE
DRAWN BY	T.L.L.	04-29-21	1 : 36,000
<b>WELL PROXIMITY MAP</b>		<b>TOPO C</b>	

**NOTES:**

- Contours shown at 2' intervals.
- Underground utilities shown on this sheet are for visualization purposes only, actual locations to be determined prior to construction.
- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00" (NAD 83)
- Coordinates shown are New Mexico Coordinate system of 1983, East Zone, U.S. feet.

**FRANKLIN MOUNTAIN ENERGY LLC**

**FORGE FEDERAL CTB**  
NE 1/4 NW 1/4, SECTION 2, T26S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO

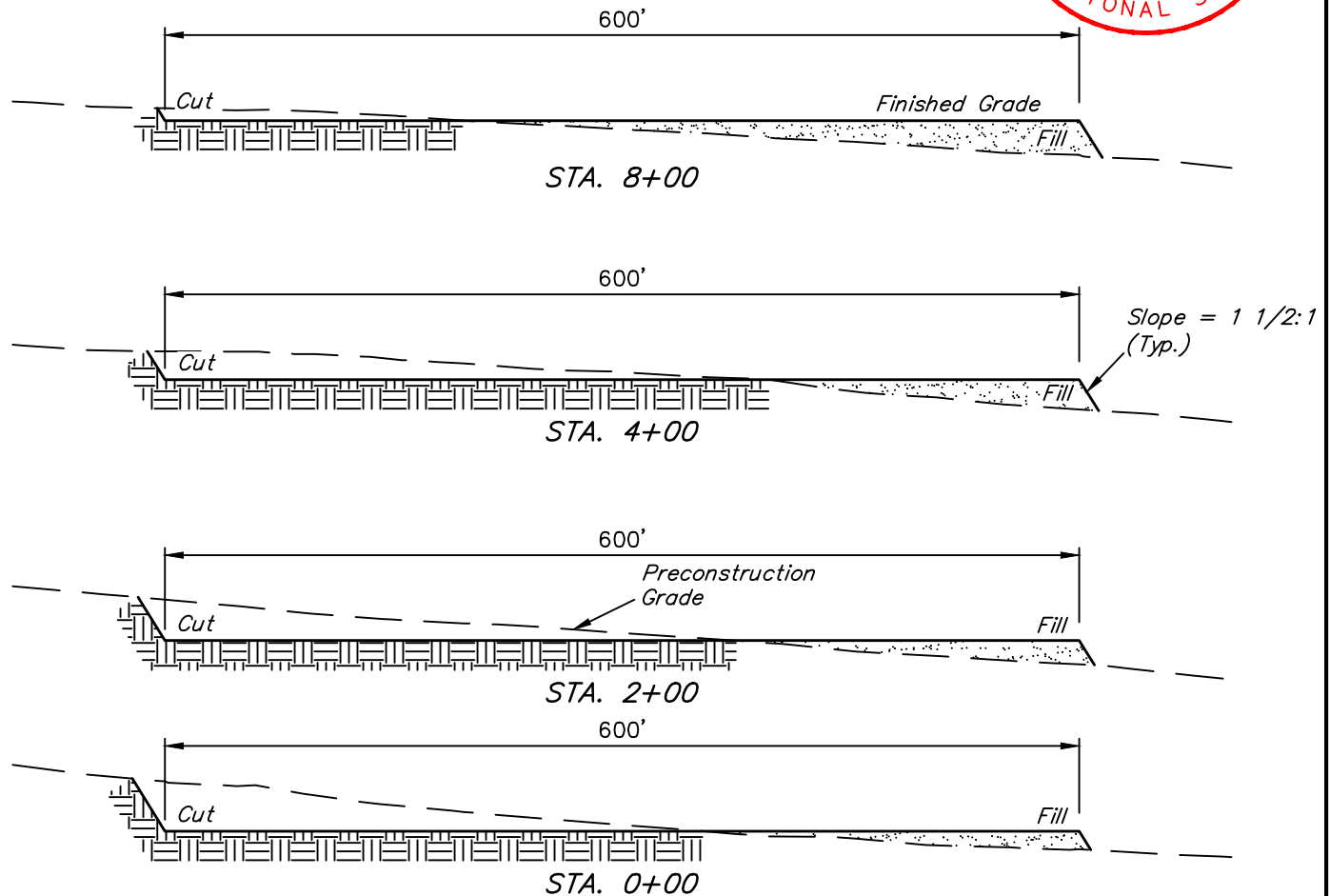
SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	D.J.S.	06-15-22	1" = 120'
<b>LOCATION LAYOUT</b>			



**UELS, LLC**  
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Vernal, UT 84078 \* (435) 789-1017



X-Section  
Scale  
1" = 120'



APPROXIMATE EARTHWORK QUANTITIES	
(6") TOPSOIL STRIPPING	9,420 Cu. Yds.
REMAINING LOCATION	40,670 Cu. Yds.
<b>TOTAL CUT</b>	<b>50,090 Cu. Yds.</b>
<b>FILL</b>	<b>40,670 Cu. Yds.</b>
EXCESS MATERIAL	9,420 Cu. Yds.
TOPSOIL	9,420 Cu. Yds.
<b>EXCESS UNBALANCE</b> (After Interim Rehabilitation)	<b>0 Cu. Yds.</b>

APPROXIMATE SURFACE DISTURBANCE AREAS		
	DISTANCE	ACRES
SITE DISTURBANCE	NA	±12.256
30' WIDE POWER LINE R-O-W DISTURBANCE	±1070.18'	±0.737
100' WIDE MULTI-USE COR. R-O-W "A" DISTURBANCE	±1111.27'	±2.551
100' WIDE MULTI-USE COR. R-O-W "B" DISTURBANCE	±121.61'	±0.279
100' WIDE MULTI-USE COR. R-O-W "C" DISTURBANCE	±2950.90'	±6.774
100' WIDE MULTI-USE COR. R-O-W "D" DISTURBANCE	±142.98'	±0.328
<b>TOTAL SURFACE USE AREA</b>		<b>±22.925</b>

**NOTES:**

- Fill quantity includes 5% for compaction.

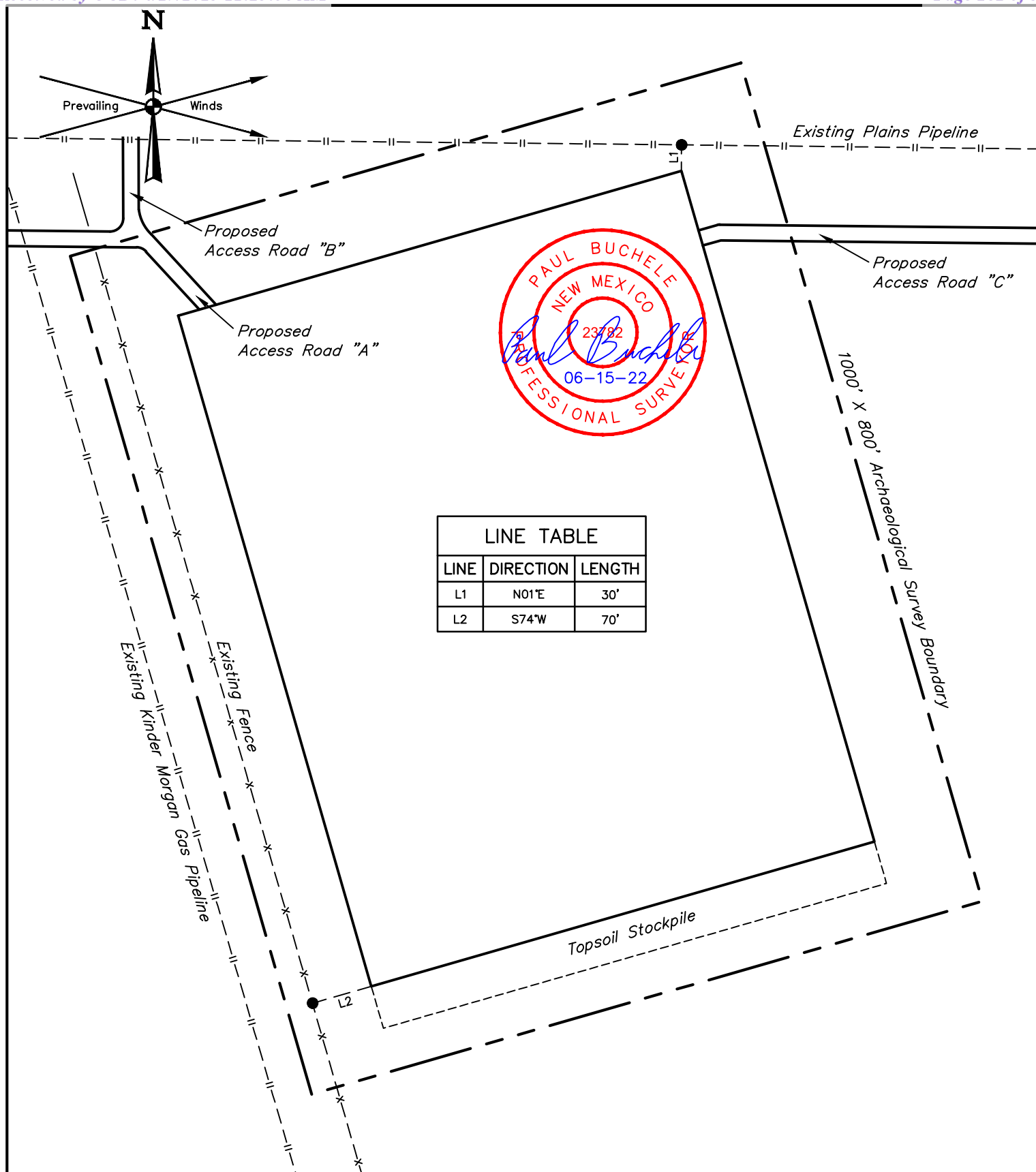
**FRANKLIN MOUNTAIN ENERGY LLC**

**FORGE FEDERAL CTB**  
NE 1/4 NW 1/4, SECTION 2, T26S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO



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

SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	D.J.S.	06-15-22	AS SHOWN
<b>TYPICAL CROSS SECTIONS</b>			

**NOTES:**

- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00" (NAD 83)

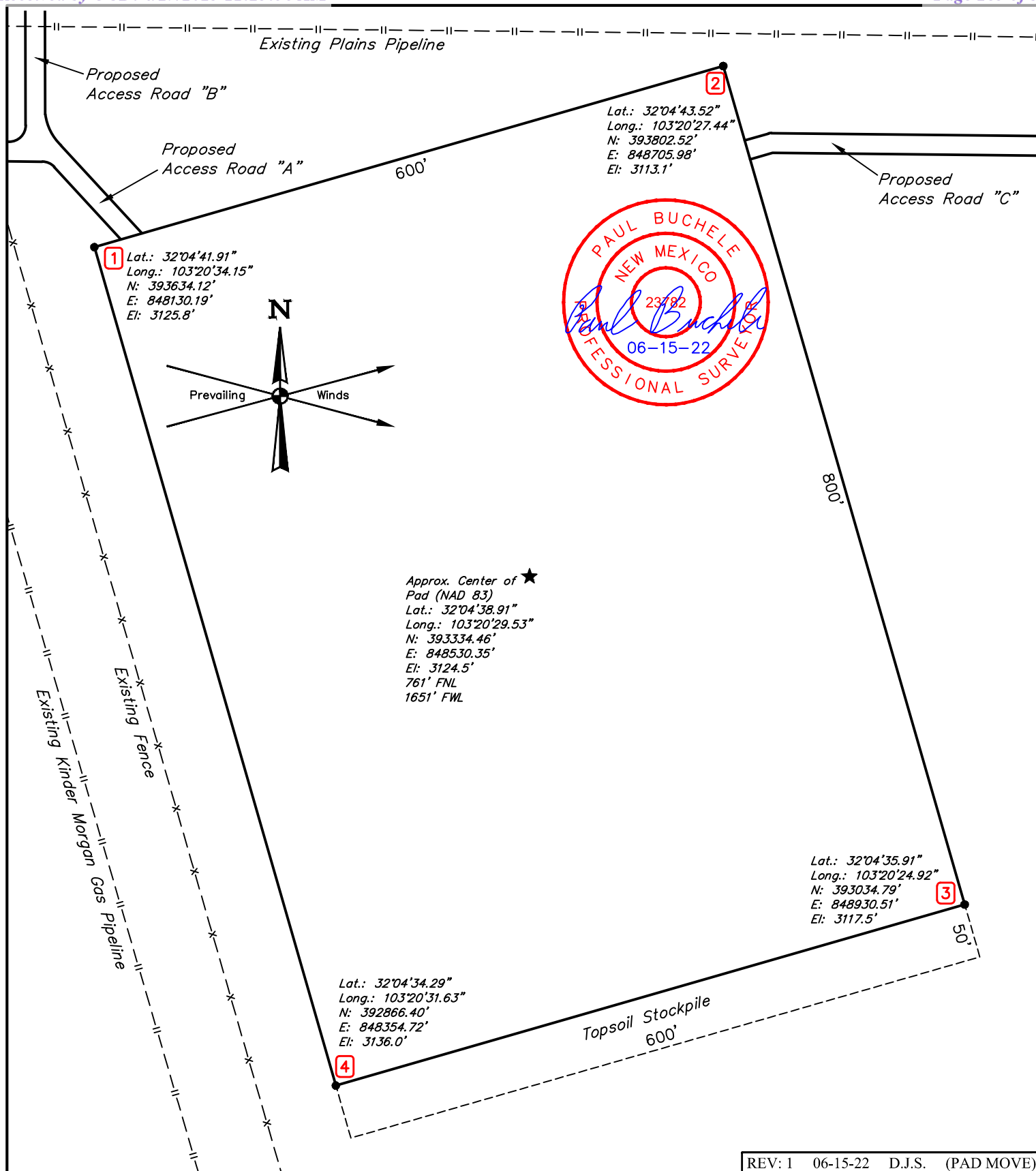
**FRANKLIN MOUNTAIN ENERGY LLC**

**FORGE FEDERAL CTB**  
 NE 1/4 NW 1/4, SECTION 2, T26S, R35E, N.M.P.M.  
 LEA COUNTY, NEW MEXICO



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

SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	D.J.S.	06-15-22	1" = 150'
ARCHAEOLOGICAL SURVEY BOUNDARY			



## NOTES:

- Latitude and Longitude Coordinates are NAD 83.
- Coordinates shown are New Mexico Coordinate system of 1983, East Zone, U.S. feet.

## FRANKLIN MOUNTAIN ENERGY LLC

FORGE FEDERAL CTB  
NE 1/4 NW 1/4, SECTION 2, T26S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO

SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	T.J.S.	05-19-22	1" = 120'
SITE PLAN			



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

BEGINNING AT THE INTERSECTION OF HIGHWAY 18 & HIGHWAY 128 IN JAL, NEW MEXICO PROCEED IN A WESTERLY, THEN NORTHWESTERLY DIRECTION ALONG HIGHWAY 128 APPROXIMATELY 13.8 MILES TO THE JUNCTION OF THIS ROAD AND AN EXISTING ROAD TO THE SOUTH; TURN LEFT AND PROCEED IN A SOUTHERLY, THEN SOUTHWESTERLY, THEN SOUTHERLY DIRECTION APPROXIMATELY 4.3 MILES TO THE JUNCTION OF THIS ROAD AND AN EXISTING ROAD TO THE SOUTHEAST; TURN LEFT AND PROCEED IN AN SOUTHEASTERLY, THEN SOUTHERLY DIRECTION APPROXIMATELY 2.0 MILES TO THE JUCTION OF THIS ROAD AND AN EXISTING ROAD TO THE EAST; TURN LEFT AND PROCEED IN AN EASTERLY DIRECTION APPROXIMATELY 2.4 MILES TO THE JUNCTION OF THIS ROAD AND AN EXISTING ROAD TO THE SOUTH; TURN RIGHT AND PROCEED IN A SOUTHERLY DIRECTION APPROXIMATELY 1.8 MILES TO THE BEGINNING OF THE PROPOSED ACCESS FOR THE TATANKA NORTH PAD #1 TO THE EAST; FOLLOW ROAD FLAGS IN AN EASTERLY, THEN NORTHERLY DIRECTION APPROXIMATELY 2,905' TO THE PROPOSED TATANKA NORTH PAD #1 LOCATION AND THE BEGINNING OF THE PROPOSED ACCESS TO THE SOUTH; FOLLOW ROAD FLAGS IN A SOUTHERLY, THEN EASTERLY, THEN SOUTHEASTERLY DIRECTION APPROXIMATELY 1,130' TO THE PROPOSED LOCATION.

TOTAL DISTANCE FROM JAL, NEW MEXICO TO THE PROPOSED WELL LOCATION IS APPROXIMATELY 25.1 MILES.

REV: 1 06-15-22 D.J.S. (PAD & ROAD UPDATES)

### FRANKLIN MOUNTAIN ENERGY LLC

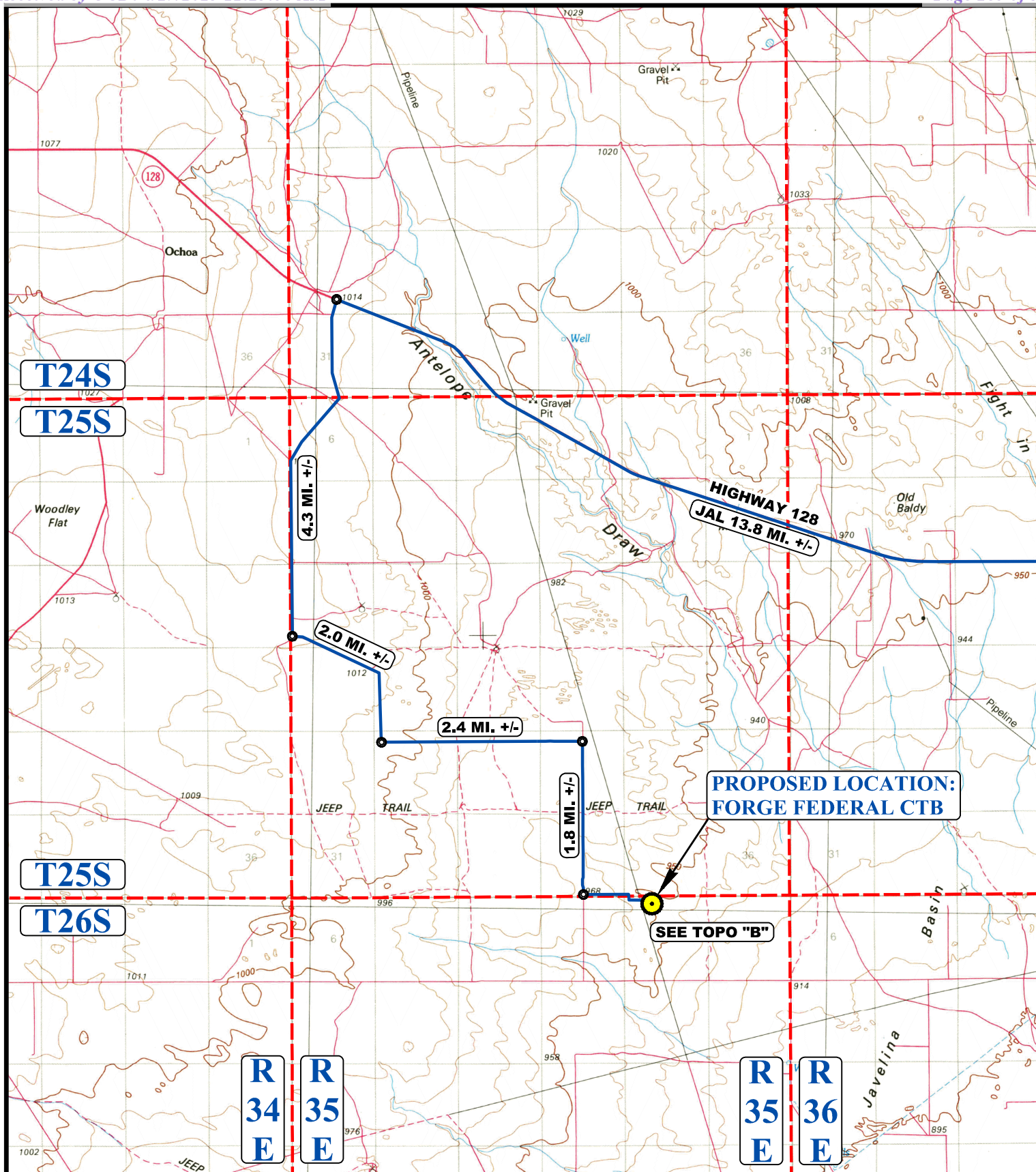
**FORGE FEDERAL CTB  
SECTION 2, T26S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO**

#### UELS, LLC

Regional Office \* 606 US Highway 385 N  
Seminole, TX 79360 \* (432) 955-6100  
Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017



SURVEYED BY	S.R., J.H.	06-10-22	
DRAWN BY	Z.L.	05-20-22	
<b>ROAD DESCRIPTION</b>			

**LEGEND:**

 PROPOSED LOCATION

**FRANKLIN MOUNTAIN ENERGY LLC**

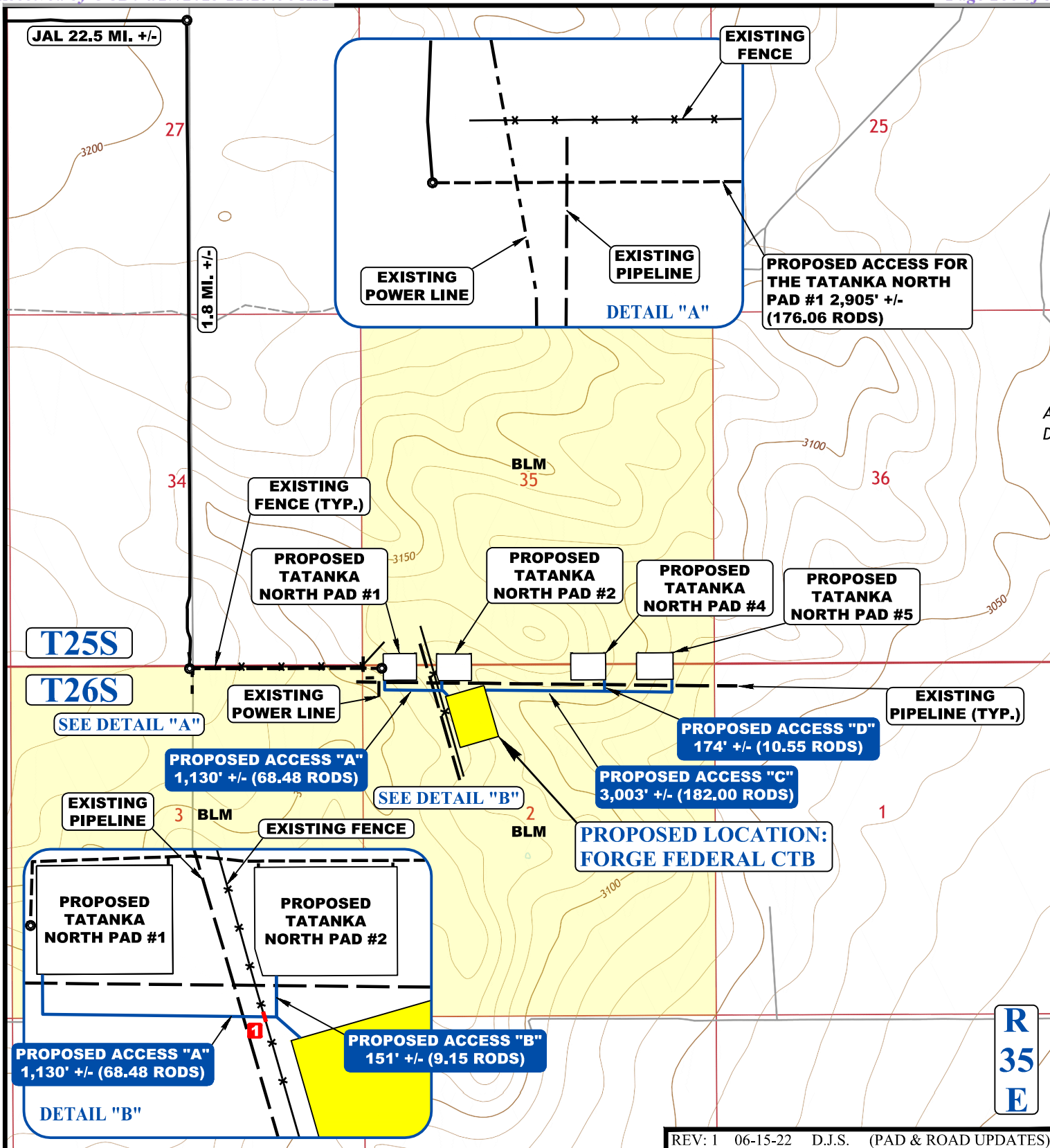
**FORGE FEDERAL CTB**  
**SECTION 2, T26S, R35E, N.M.P.M.**  
**LEA COUNTY, NEW MEXICO**



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

SURVEYED BY	S.R., D.C.	05-16-22	SCALE
DRAWN BY	Z.L.	05-20-22	1 : 100,000
<b>ACCESS ROAD MAP</b>			<b>TOPO A</b>





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 UTAH ENGINEERING AND LAND SURVEYING (UELS) FOR ACCURACY OF THE PARCEL DATA.

#### LEGEND:

- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED ROAD (SERVICING OTHER WELLS)
- EXISTING POWER LINE
- EXISTING PIPELINE
- EXISTING FENCE

1 INSTALL CATTLE GUARD



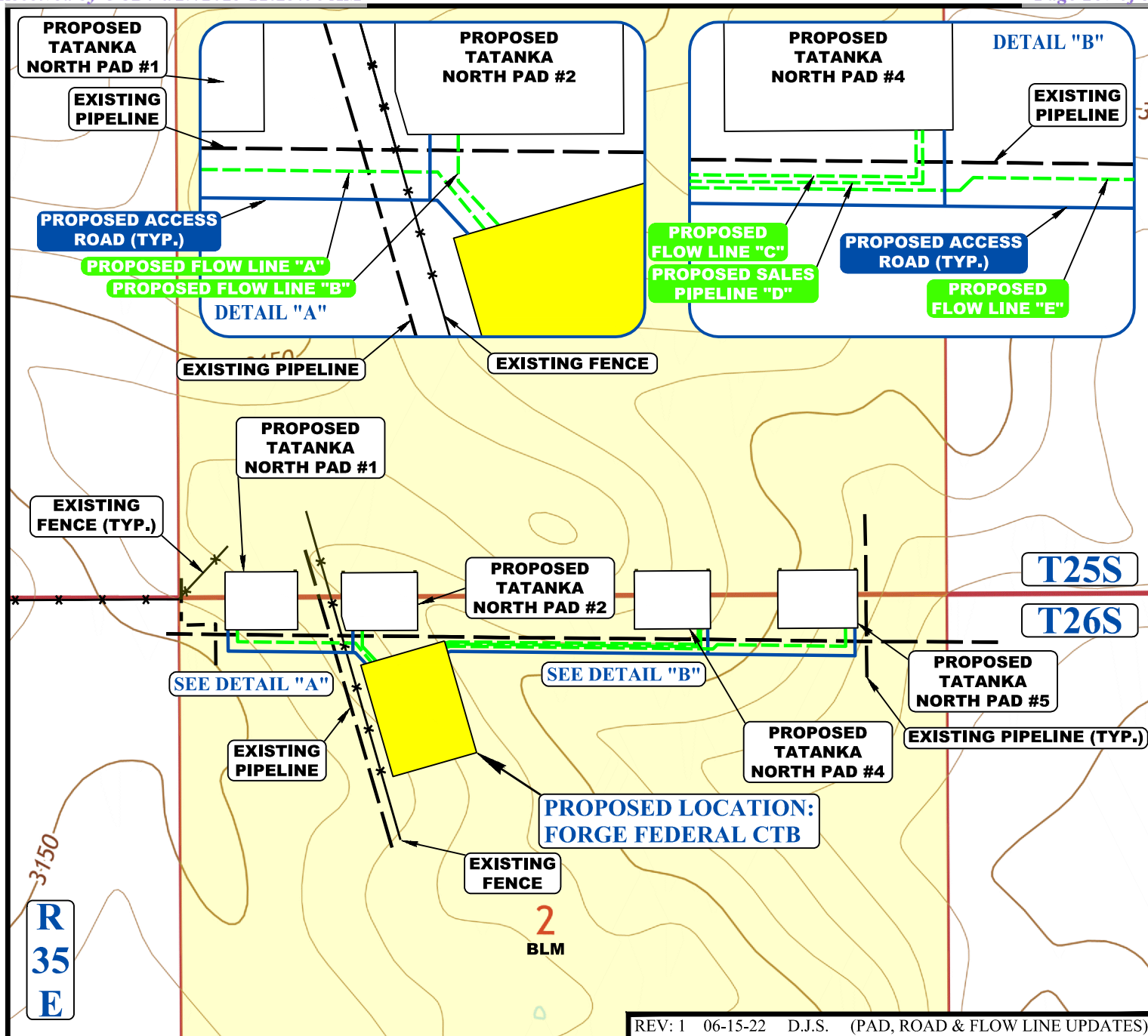
UELS, LLC  
Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017



FRANKLIN MOUNTAIN ENERGY LLC

FORGE FEDERAL CTB  
SECTION 2, T26S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO

SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	Z.L.	05-20-22	1 : 24,000
ACCESS ROAD MAP		TOPO B	



APPROXIMATE TOTAL FLOW LINE "A" DISTANCE = 1,067' +/-

APPROXIMATE TOTAL FLOW LINE "B" DISTANCE = 245' +/-

APPROXIMATE TOTAL FLOW LINE "C" DISTANCE = 1,856' +/-

APPROXIMATE TOTAL SALES PIPELINE "D" DISTANCE = 1,882' +/-

APPROXIMATE TOTAL FLOW LINE "E" DISTANCE = 2,894' +/-

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 UTAH ENGINEERING AND LAND SURVEYING (UELS) FOR ACCURACY OF THE PARCEL DATA.

#### LEGEND:

- EXISTING PIPELINE
- PROPOSED ROAD
- PROPOSED PIPELINE
- \* \* \* EXISTING FENCE
- PROPOSED ROAD (SERVICING OTHER WELLS)



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

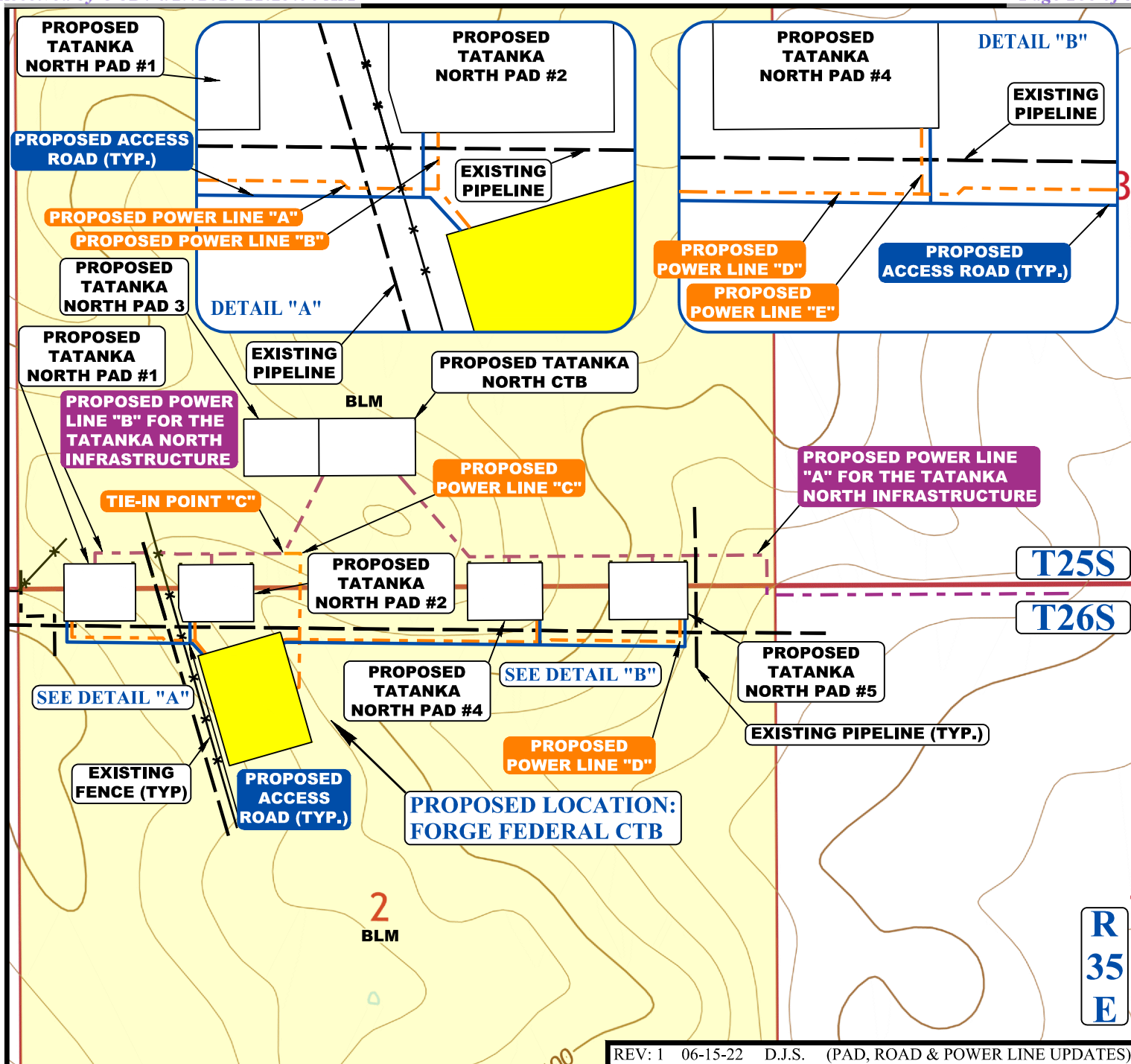


#### FRANKLIN MOUNTAIN ENERGY LLC

**FORGE FEDERAL CTB**  
**SECTION 2, T26S, R35E, N.M.P.M.**  
**LEA COUNTY, NEW MEXICO**

SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	Z.L.	05-20-22	1 : 12,000
<b>OVERALL PIPELINE MAP</b>			<b>TOPO D</b>





APPROXIMATE TOTAL POWER LINE "A" DISTANCE = 1,097' +/-

APPROXIMATE TOTAL POWER LINE "B" DISTANCE = 132' +/-

APPROXIMATE TOTAL POWER LINE "C" DISTANCE = 1,070' +/-

APPROXIMATE TOTAL POWER LINE "D" DISTANCE = 2,944' +/-

APPROXIMATE TOTAL POWER LINE "E" DISTANCE = 153' +/-

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 UTAH ENGINEERING AND LAND SURVEYING (UELS) FOR ACCURACY OF THE PARCEL DATA.

#### LEGEND:

- PROPOSED POWER LINE
- EXISTING PIPELINE
- PROPOSED ROAD
- EXISTING FENCE
- PROPOSED ROAD (SERVICING OTHER WELLS)
- PROPOSED POWER LINE (SERVICING OTHER WELLS)



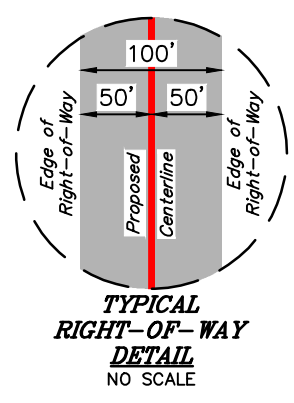
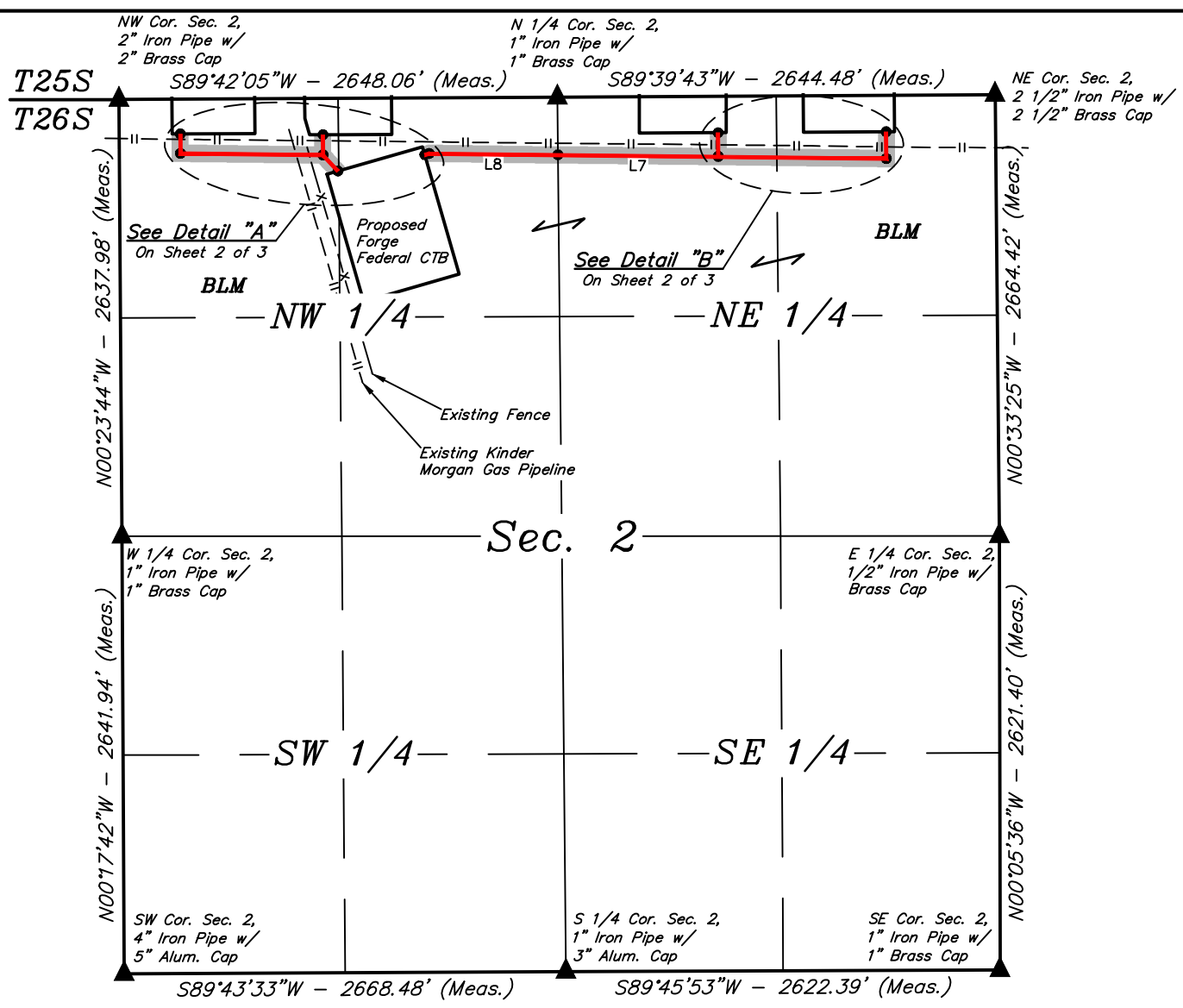
**UELS, LLC**  
Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017



#### FRANKLIN MOUNTAIN ENERGY LLC

**FORGE FEDERAL CTB**  
**SECTION 2, T26S, R35E, N.M.P.M.**  
**LEA COUNTY, NEW MEXICO**

SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	Z.L.	05-20-22	1 : 12,000
<b>OVERALL POWER LINE MAP</b>			<b>TOPO E</b>



ACREAGE / LENGTH TABLE "A"			
LOCATION	FEET	RODS	ACRES
SEC. 2 (NW 1/4)	1111.27	67.35	2.551

ACREAGE / LENGTH TABLE "B"			
LOCATION	FEET	RODS	ACRES
SEC. 2 (NW 1/4)	121.61	7.37	0.279

ACREAGE / LENGTH TABLE "C"			
LOCATION	FEET	RODS	ACRES
SEC. 2 (NE 1/4)	2145.52	130.03	4.925
SEC. 2 (NW 1/4)	805.38	48.81	1.849
TOTAL	2950.90	178.84	6.774

ACREAGE / LENGTH TABLE "D"			
LOCATION	FEET	RODS	ACRES
SEC. 2 (NE 1/4)	142.98	8.67	0.328

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S00°17'55"E	117.03'
L2	S89°22'42"E	861.04'
L3	S42°39'38"E	133.20'
L4	S00°08'53"E	121.61'
L5	S00°20'17"E	162.06'
L6	N89°16'11"W	1015.18'
L7	N89°25'18"W	968.28'
L8	N89°25'18"W	778.20'
L9	S73°56'11"W	27.18'
L10	S00°20'16"E	142.98'

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.

*Paul Buckle*  
23782  
06-17-22  
PROFESSIONAL SURVEYOR

▲ = SECTION CORNERS LOCATED.

NOTES:

- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00" (NAD 83)

FRANKLIN MOUNTAIN ENERGY LLC

FORGE FEDERAL CTB  
ON BLM LANDS IN  
SECTION 2, T26S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO

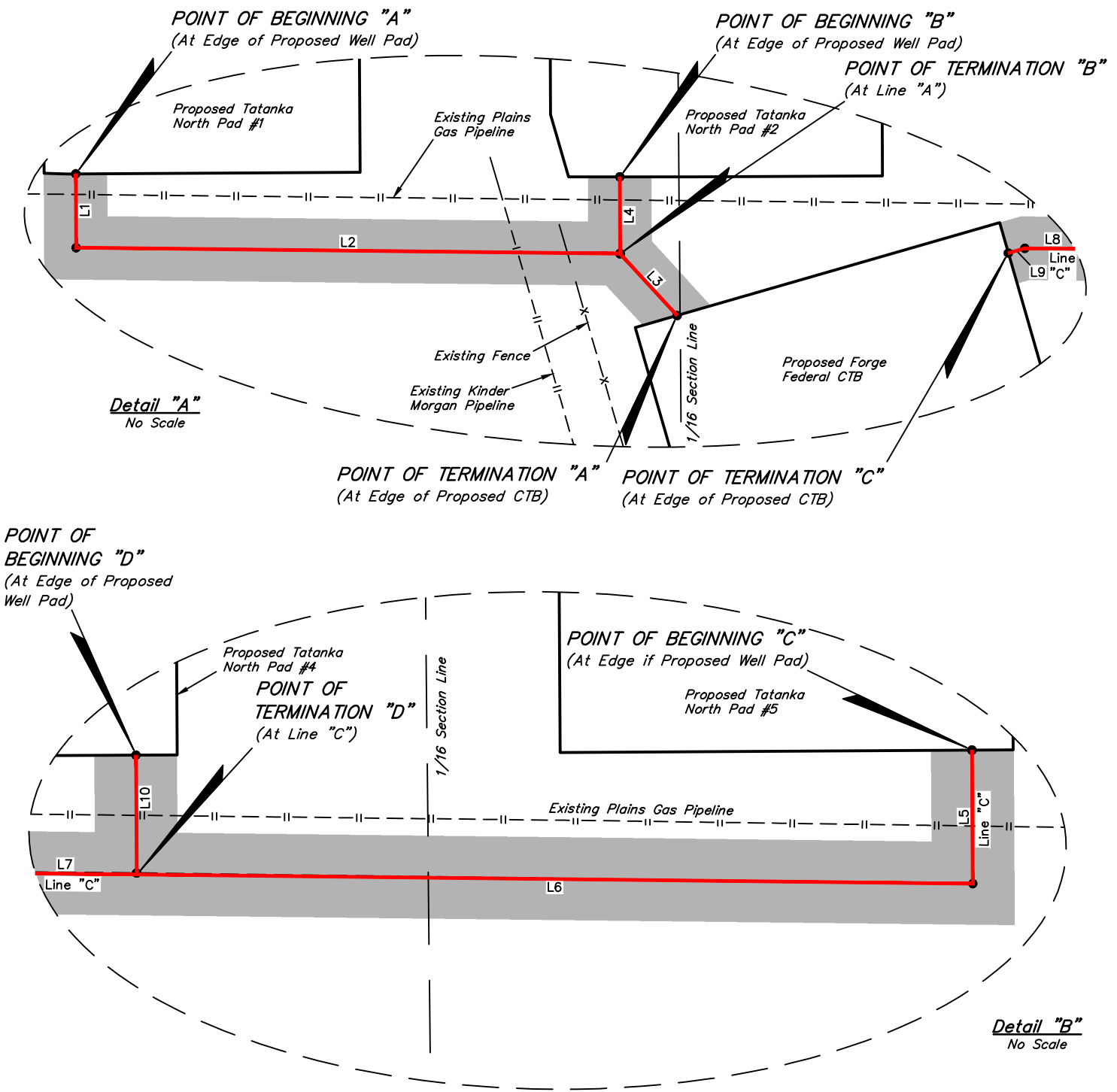
SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	L.K.	06-16-22	1" = 1000'
FILE	F - 510 - A		

UTILITY CORRIDOR R-O-W

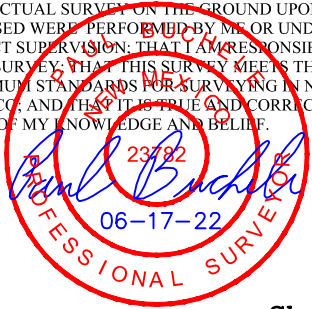


UELS, LLC  
Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017





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Sheet 2 of 3

FRANKLIN MOUNTAIN ENERGY LLC

FORGE FEDERAL CTB  
ON BLM LANDS IN  
SECTION 2, T26S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO

SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	L.K.	06-16-22	N/A
FILE	F - 510 - A2		

**UTILITY CORRIDOR R-O-W**



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



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Received by OCD: 4/29/2023 11:23:56 AM

Released to Imaging: 5/2/2023 10:28:38 AM

UTILITY CORRIDOR "A" RIGHT-OF-WAY DESCRIPTION

A 100' WIDE RIGHT-OF-WAY 50' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

COMMENCING AT THE NORTH 1/4 CORNER OF SECTION 2, T26S, R35E, N.M.P.M.; THENCE S89°42'05"W 2648.06' ALONG THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 2 TO THE NORTHWEST CORNER OF SAID SECTION 2; THENCE S60°43'30"E 425.46' TO A POINT IN THE NW 1/4 NW 1/4 OF SAID SECTION 2 AND THE POINT OF BEGINNING; THENCE S00°17'55"E 117.03'; THENCE S89°22'42"E 861.04'; THENCE S42°39'38"E 133.20' TO A POINT IN THE NW 1/4 NW 1/4 OF SAID SECTION 2 AND THE POINT OF TERMINATION, WHICH BEARS S71°54'06"E 1391.85' FROM THE NORTHWEST CORNER OF SAID SECTION 2. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. CONTAINS 2.551 ACRES MORE OR LESS.

UTILITY CORRIDOR "B" RIGHT-OF-WAY DESCRIPTION

A 100' WIDE RIGHT-OF-WAY 50' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

COMMENCING AT THE NORTH 1/4 CORNER OF SECTION 2, T26S, R35E, N.M.P.M.; THENCE S89°42'05"W 2648.06' ALONG THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 2 TO THE NORTHWEST CORNER OF SAID SECTION 2; THENCE S80°12'09"E 1250.65' TO A POINT IN THE NW 1/4 NW 1/4 OF SAID SECTION 2 AND THE POINT OF BEGINNING; THENCE S00°08'53"E 121.61' TO A POINT IN THE NW 1/4 NW 1/4 OF SAID SECTION 2 AND THE POINT OF TERMINATION, WHICH BEARS S74°49'18"E 1277.28' FROM THE NORTHWEST CORNER OF SAID SECTION 2. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. CONTAINS 0.279 ACRES MORE OR LESS.

UTILITY CORRIDOR "C" RIGHT-OF-WAY DESCRIPTION

A 100' WIDE RIGHT-OF-WAY 50' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

COMMENCING AT THE NORTH 1/4 CORNER OF SECTION 2, T26S, R35E, N.M.P.M.; THENCE N89°39'43"E 2644.48' ALONG THE NORTH LINE OF THE NE 1/4 OF SAID SECTION 2 TO THE NORTHEAST CORNER OF SAID SECTION 2; THENCE S71°13'38"W 695.63' TO A POINT IN THE NE 1/4 NE 1/4 OF SAID SECTION 2 AND THE POINT OF BEGINNING; THENCE S00°20'17"E 162.06'; THENCE N89°16'11"W 1015.18'; THENCE N89°25'18"W 968.28' TO A POINT ON THE WEST LINE OF THE NW 1/4 NE 1/4 OF SAID SECTION 2; THENCE CONTINUING N89°25'18"W 778.20'; THENCE S73°56'11"W 27.18' TO A POINT IN THE NE 1/4 NW 1/4 OF SAID SECTION 2 AND THE POINT OF TERMINATION, WHICH BEARS S66°33'24"W 872.89' FROM THE NORTH 1/4 CORNER OF SAID SECTION 2. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. CONTAINS 6.774 ACRES MORE OR LESS.

UTILITY CORRIDOR "D" RIGHT-OF-WAY DESCRIPTION

A 100' WIDE RIGHT-OF-WAY 50' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

COMMENCING AT THE NORTHEAST CORNER OF SECTION 2, T26S, R35E, N.M.P.M.; THENCE S89°39'43"W 2644.48' ALONG THE NORTH LINE OF THE NE 1/4 OF SAID SECTION 2 TO THE NORTH 1/4 CORNER OF SAID SECTION 2; THENCE S77°32'47"E 994.22' TO A POINT IN THE NW 1/4 NE 1/4 OF SAID SECTION 2 AND THE POINT OF BEGINNING; THENCE S00°20'16"E 142.98' TO A POINT IN THE NW 1/4 NE 1/4 OF SAID SECTION 2 AND THE POINT OF TERMINATION, WHICH BEARS S69°48'22"E 1035.31' FROM THE NORTH 1/4 CORNER OF SAID SECTION 2. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. CONTAINS 0.328 ACRES MORE OR LESS.

POINT OF BEGINNING "A" BEARS S60°43'30"E 425.46' FROM THE NORTHWEST CORNER OF SECTION 2, T26S, R35E, N.M.P.M.

POINT OF TERMINATION "A" BEARS S71°54'06"E 1391.85' FROM THE NORTHWEST CORNER OF SECTION 2, T26S, R35E, N.M.P.M.

POINT OF BEGINNING "B" BEARS S80°12'09"E 1250.65' FROM THE NORTHWEST CORNER OF SECTION 2, T26S, R35E, N.M.P.M.

POINT OF TERMINATION "B" BEARS S74°49'18"E 1277.28' FROM THE NORTHWEST CORNER OF SECTION 2, T26S, R35E, N.M.P.M.

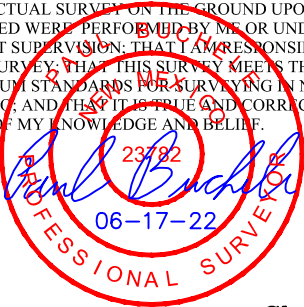
POINT OF BEGINNING "C" BEARS S71°13'38"W 695.63' FROM THE NORTHEAST CORNER OF SECTION 2, T26S, R35E, N.M.P.M.

POINT OF TERMINATION "C" BEARS S66°33'24"W 872.89' FROM THE NORTH 1/4 CORNER OF SECTION 2, T26S, R35E, N.M.P.M.

POINT OF BEGINNING "D" BEARS S77°32'47"E 994.22' FROM THE NORTH 1/4 CORNER OF SECTION 2, T26S, R35E, N.M.P.M.

POINT OF TERMINATION "D" BEARS S69°48'22"E 1035.31' FROM THE NORTH 1/4 CORNER OF SECTION 2, T26S, R35E, N.M.P.M.

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.



Sheet 3 of 3

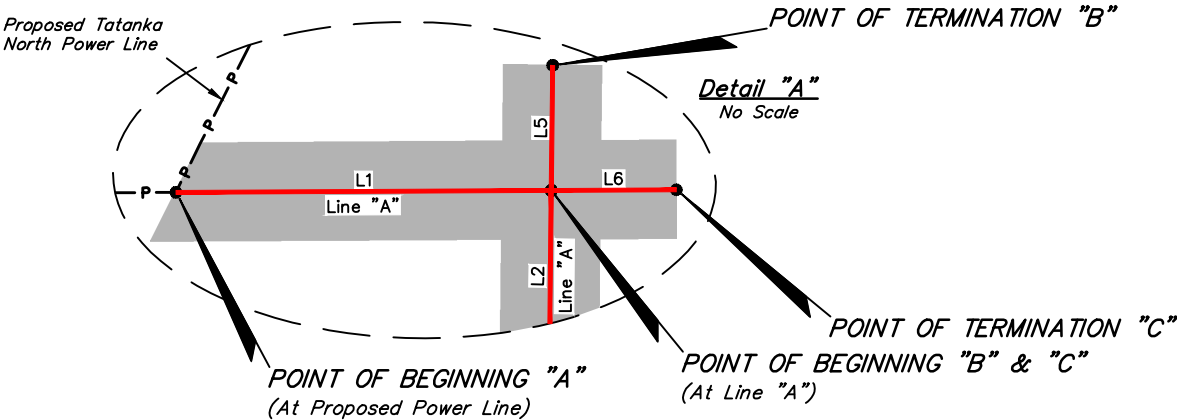
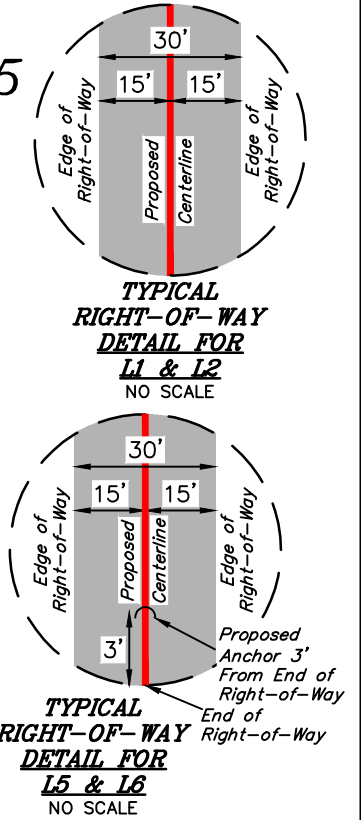
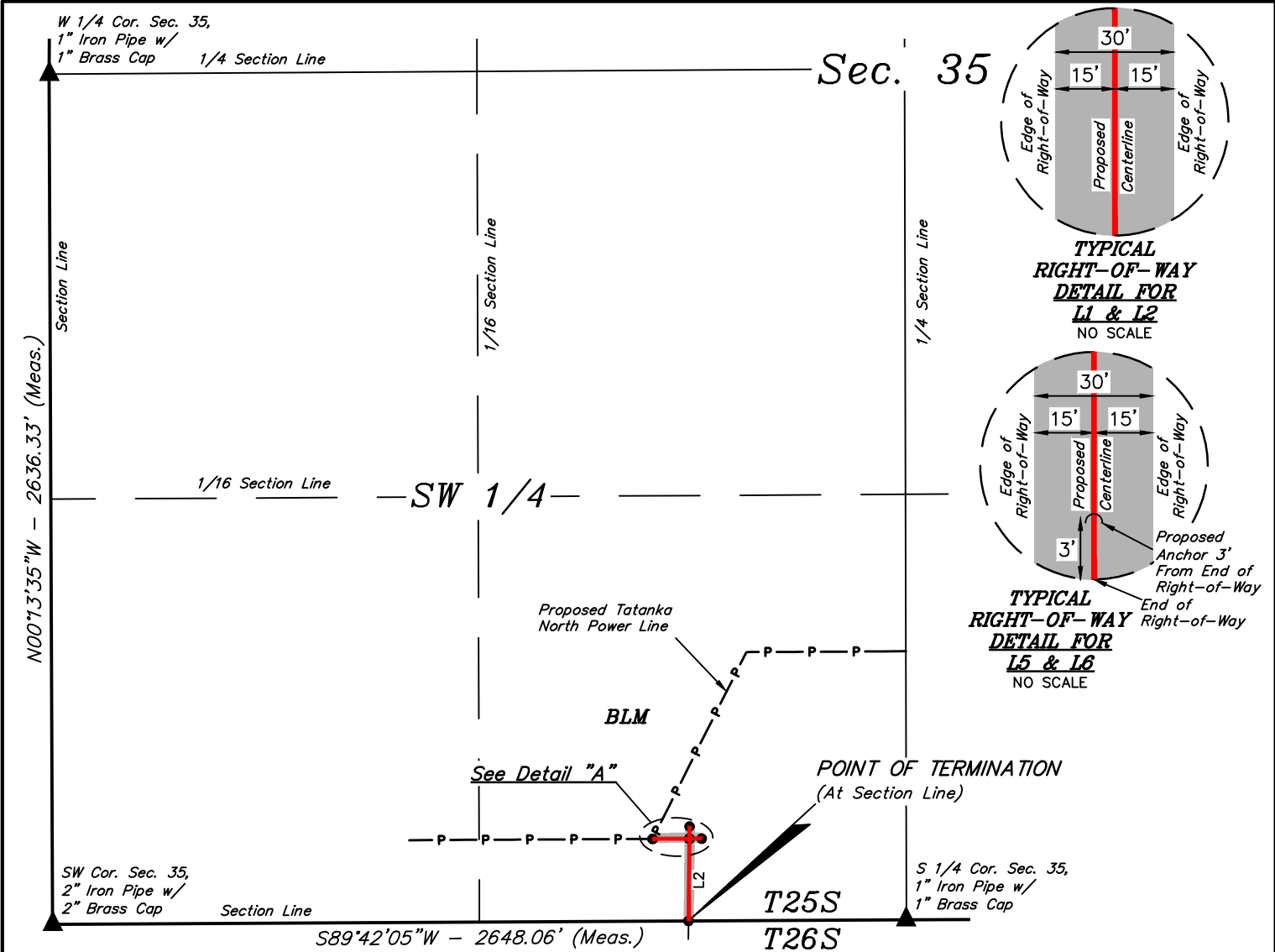
FRANKLIN MOUNTAIN ENERGY LLC

FORGE FEDERAL CTB  
ON BLM LANDS IN  
SECTION 2, T26S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO

SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	L.K.	06-16-22	N/A
FILE	F - 510 - A3		
UTILITY CORRIDOR R-O-W			



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



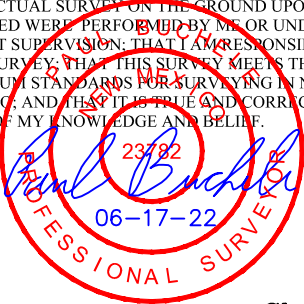
ACREAGE / LENGTH TABLE "A"			
LOCATION	FEET	RODS	ACRES
SEC. 35 (SW 1/4)	369.15	22.37	0.254

ACREAGE / LENGTH TABLE "B"			
LOCATION	FEET	RODS	ACRES
SEC. 35 (SW 1/4)	38.00	2.30	0.026

ACREAGE / LENGTH TABLE "C"			
LOCATION	FEET	RODS	ACRES
SEC. 35 (SW 1/4)	38.00	2.30	0.026

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	N89°42'04"E	114.12'
L2	S00°37'19"W	255.03'
L5	N00°37'19"E	38.00'
L6	N89°42'04"E	38.00'

CERTIFICATE  
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▲ = SECTION CORNERS LOCATED.

NOTES:  
• Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00" (NAD 83)

FRANKLIN MOUNTAIN ENERGY LLC

FORGE FEDERAL CTB  
ON BLM LANDS IN  
SECTION 35, T25S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO

SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	L.K.	06-16-22	1" = 500'
FILE	F - 510 - A1		
POWER LINE R-O-W			



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





Page 293 of 312

Received by OCD: 4/29/2023 11:23:56 AM

Released to Imaging: 5/2/2023 10:28:38 AM

POWER LINE "A" RIGHT-OF-WAY DESCRIPTION

A 30' WIDE RIGHT-OF-WAY 15' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

COMMENCING AT THE SOUTHWEST CORNER OF SECTION 35, T25S, R35E, N.M.P.M.; THENCE N89°42'05"E 2648.06' ALONG THE SOUTH LINE OF THE SW 1/4 OF SAID SECTION 35 TO THE SOUTH 1/4 CORNER OF SAID SECTION 35; THENCE N72°18'53"W 825.91' TO A POINT IN THE SE 1/4 SW 1/4 OF SAID SECTION 35 AND THE POINT OF BEGINNING; THENCE N89°42'04"E 114.12'; THENCE S00°37'19"W 255.03' TO A POINT ON THE SOUTH LINE OF THE SE 1/4 SW 1/4 OF SAID SECTION 35 AND THE POINT OF TERMINATION, WHICH BEARS S89°42'05"W 675.54' FROM THE SOUTH 1/4 CORNER OF SAID SECTION 35. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. CONTAINS 0.254 ACRES MORE OR LESS.

POWER LINE "B" RIGHT-OF-WAY DESCRIPTION

A 30' WIDE RIGHT-OF-WAY 15' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

COMMENCING AT THE SOUTHWEST CORNER OF SECTION 35, T25S, R35E, N.M.P.M.; THENCE N89°42'05"E 2648.06' ALONG THE SOUTH LINE OF THE SW 1/4 OF SAID SECTION 35 TO THE SOUTH 1/4 CORNER OF SAID SECTION 35; THENCE N69°30'10"W 718.23' TO A POINT IN THE SE 1/4 SW 1/4 OF SAID SECTION 35 AND THE POINT OF BEGINNING; THENCE N00°37'19"E 38.00' TO A POINT IN THE SE 1/4 SW 1/4 OF SAID SECTION 35 AND THE POINT OF TERMINATION, WHICH BEARS N66°42'16"W 732.02' FROM THE SOUTH 1/4 CORNER OF SAID SECTION 35. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. CONTAINS 0.026 ACRES MORE OR LESS.

POWER LINE "C" RIGHT-OF-WAY DESCRIPTION

A 30' WIDE RIGHT-OF-WAY 15' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

COMMENCING AT THE SOUTHWEST CORNER OF SECTION 35, T25S, R35E, N.M.P.M.; THENCE N89°42'05"E 2648.06' ALONG THE SOUTH LINE OF THE SW 1/4 OF SAID SECTION 35 TO THE SOUTH 1/4 CORNER OF SAID SECTION 35; THENCE N69°30'10"W 718.23' TO A POINT IN THE SE 1/4 SW 1/4 OF SAID SECTION 35 AND THE POINT OF BEGINNING; THENCE N89°42'04"E 38.00' TO A POINT IN THE SE 1/4 SW 1/4 OF SAID SECTION 35 AND THE POINT OF TERMINATION, WHICH BEARS N68°22'14"W 682.84' FROM THE SOUTH 1/4 CORNER OF SAID SECTION 35. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. CONTAINS 0.026 ACRES MORE OR LESS.

POINT OF BEGINNING "A" BEARS N72°18'53"W 825.91' FROM THE SOUTH 1/4 CORNER OF SECTION 35, T25S, R35E, N.M.P.M.

POINT OF TERMINATION "A" BEARS S89°42'05"W 675.54' FROM THE SOUTH 1/4 CORNER OF SECTION 35, T25S, R35E, N.M.P.M.

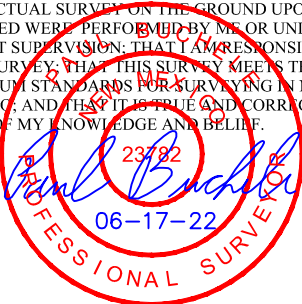
POINT OF BEGINNING "B" BEARS N69°30'10"W 718.23' FROM THE SOUTH 1/4 CORNER OF SECTION 35, T25S, R35E, N.M.P.M.

POINT OF TERMINATION "B" BEARS N66°42'16"W 732.02' FROM THE SOUTH 1/4 CORNER OF SECTION 35, T25S, R35E, N.M.P.M.

POINT OF BEGINNING "C" BEARS N69°30'10"W 718.23' FROM THE SOUTH 1/4 CORNER OF SECTION 35, T25S, R35E, N.M.P.M.

POINT OF TERMINATION "C" BEARS N68°22'14"W 682.84' FROM THE SOUTH 1/4 CORNER OF SECTION 35, T25S, R35E, N.M.P.M.

CERTIFICATE  
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Sheet 2 of 2

NOTES:  
• Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00" (NAD 83)

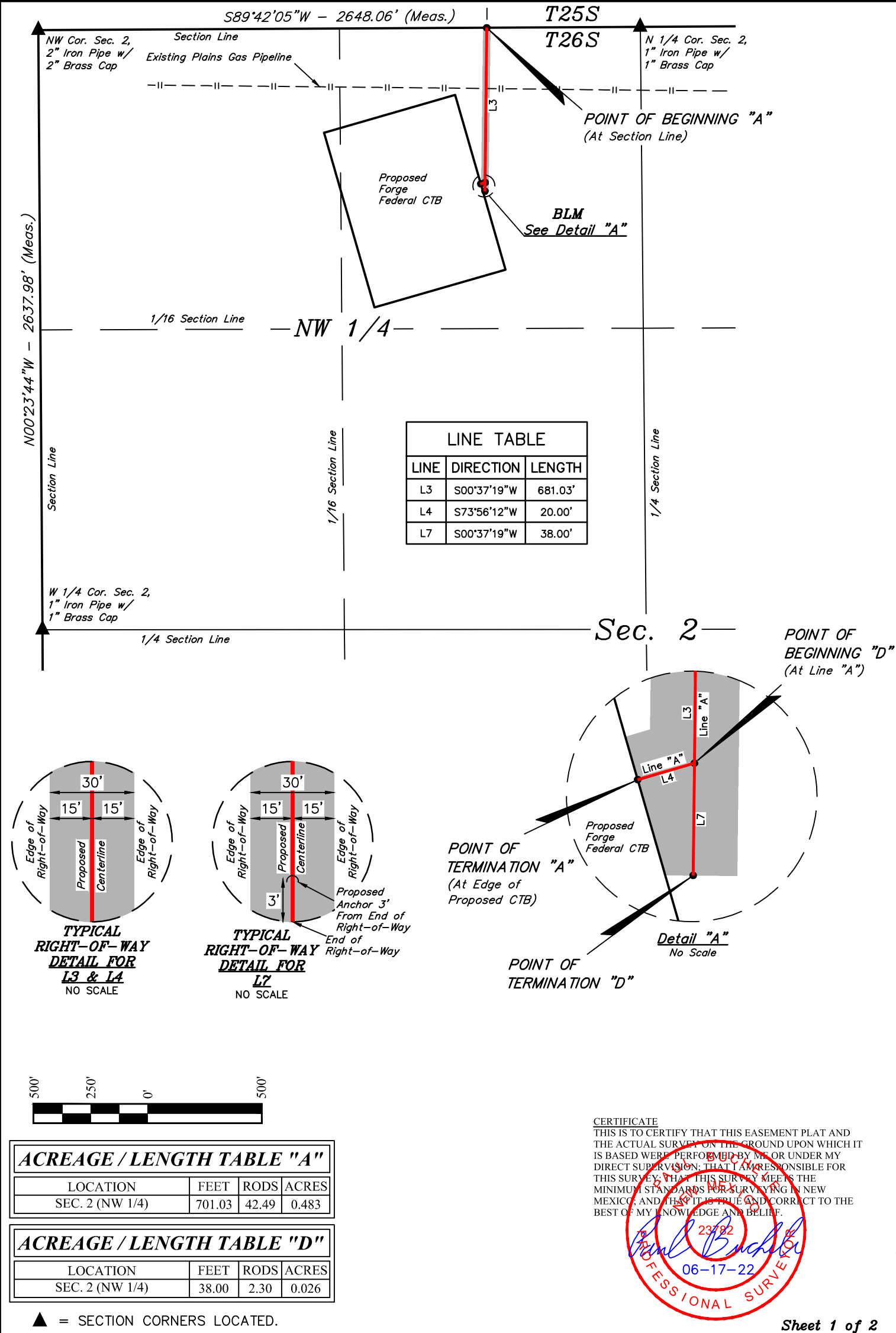
FRANKLIN MOUNTAIN ENERGY LLC

FORGE FEDERAL CTB  
ON BLM LANDS IN  
SECTION 35, T25S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO

SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	L.K.	06-16-22	N/A
FILE	F - 510 - A2		
POWER LINE R-O-W			



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



**NOTES:**

- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00" (NAD 83)

**FRANKLIN MOUNTAIN ENERGY LLC**

**FORGE FEDERAL CTB  
ON BLM LANDS IN  
SECTION 2, T26S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO**

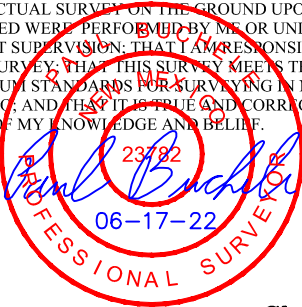
SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	L.K.	06-16-22	1" = 500'
FILE	F - 510 - B1		

**POWER LINE R-O-W**



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

**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.





POWER LINE "A" RIGHT-OF-WAY DESCRIPTION

A 30' WIDE RIGHT-OF-WAY 15' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

COMMENCING AT THE NORTHWEST CORNER OF SECTION 2, T26S, R35E, N.M.P.M.; THENCE N89°42'05"E 2648.06' ALONG THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 2 TO THE NORTH 1/4 CORNER OF SAID SECTION 2; THENCE S89°42'05"W 675.54' ALONG THE NORTH LINE OF THE NE 1/4 NW 1/4 OF SAID SECTION 2 TO THE POINT OF BEGINNING; THENCE S00°37'19"W 681.03'; THENCE S73°56'12"W 20.00' TO A POINT IN THE NE 1/4 NW 1/4 OF SAID SECTION 2 AND THE POINT OF TERMINATION, WHICH BEARS S45°29'52"W 984.46' FROM THE NORTH 1/4 CORNER OF SAID SECTION 2. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. CONTAINS 0.483 ACRES MORE OR LESS.

POWER LINE "D" RIGHT-OF-WAY DESCRIPTION

A 30' WIDE RIGHT-OF-WAY 15' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

COMMENCING AT THE NORTHWEST CORNER OF SECTION 2, T26S, R35E, N.M.P.M.; THENCE N89°42'05"E 2648.06' ALONG THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 2 TO THE NORTH 1/4 CORNER OF SAID SECTION 2; THENCE S44°56'00"W 966.92' TO A POINT IN THE NE 1/4 NW 1/4 OF SAID SECTION 2 AND THE POINT OF BEGINNING; THENCE S00°37'19"W 38.00' TO A POINT IN THE NE 1/4 NW 1/4 OF SAID SECTION 2 AND THE POINT OF TERMINATION, WHICH BEARS S43°24'14"W 994.46' FROM THE NORTH 1/4 CORNER OF SAID SECTION 2. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. CONTAINS 0.026 ACRES MORE OR LESS.

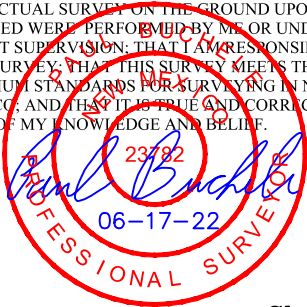
POINT OF BEGINNING "A" BEARS S89°42'05"W 675.54' FROM THE NORTH 1/4 CORNER OF SECTION 2, T26S, R35E, N.M.P.M.

POINT OF TERMINATION "A" BEARS S45°29'52"W 984.46' FROM THE NORTH 1/4 CORNER OF SECTION 2, T26S, R35E, N.M.P.M.

POINT OF BEGINNING "D" BEARS S44°56'00"W 966.92' FROM THE NORTH 1/4 CORNER OF SECTION 2, T26S, R35E, N.M.P.M.

POINT OF TERMINATION "D" BEARS S43°24'14"W 994.46' FROM THE NORTH 1/4 CORNER OF SECTION 2, T26S, R35E, N.M.P.M.

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.



Sheet 2 of 2

- NOTES:
- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00" (NAD 83)

FRANKLIN MOUNTAIN ENERGY LLC

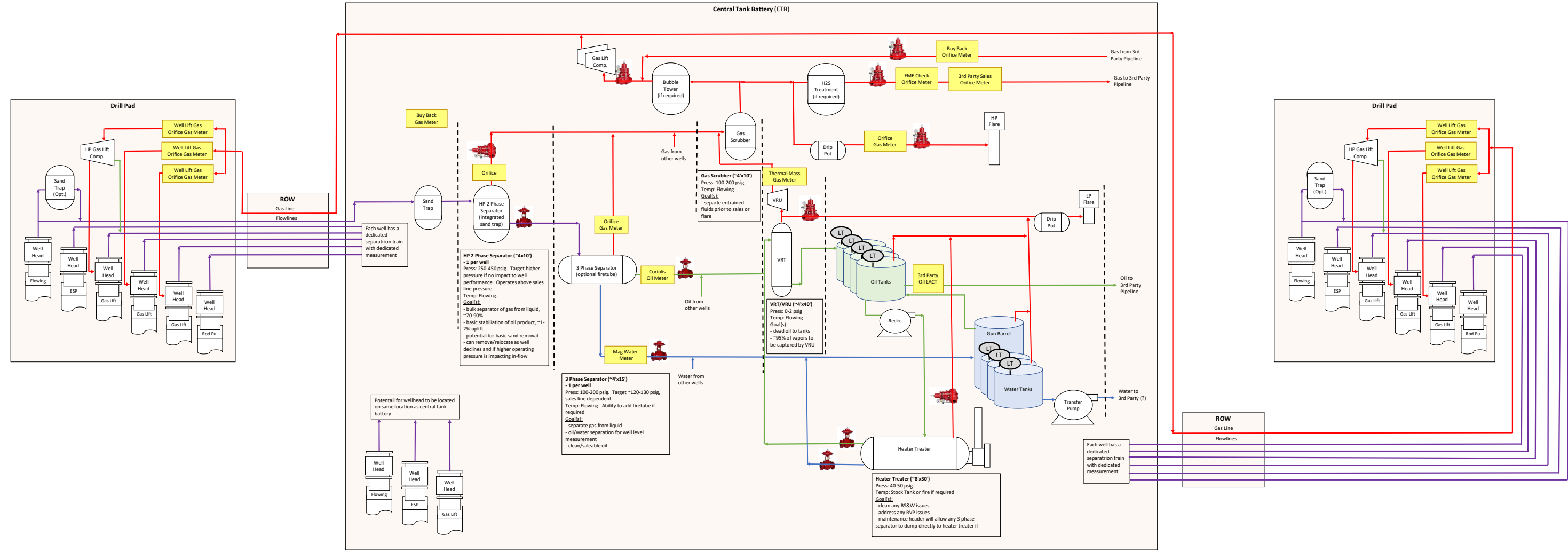
FORGE FEDERAL CTB  
ON BLM LANDS IN  
SECTION 2, T26S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO

SURVEYED BY	S.R., J.H.	06-10-22	SCALE
DRAWN BY	L.K.	06-16-22	N/A
FILE	F - 510 - B2		
POWER LINE R-O-W			



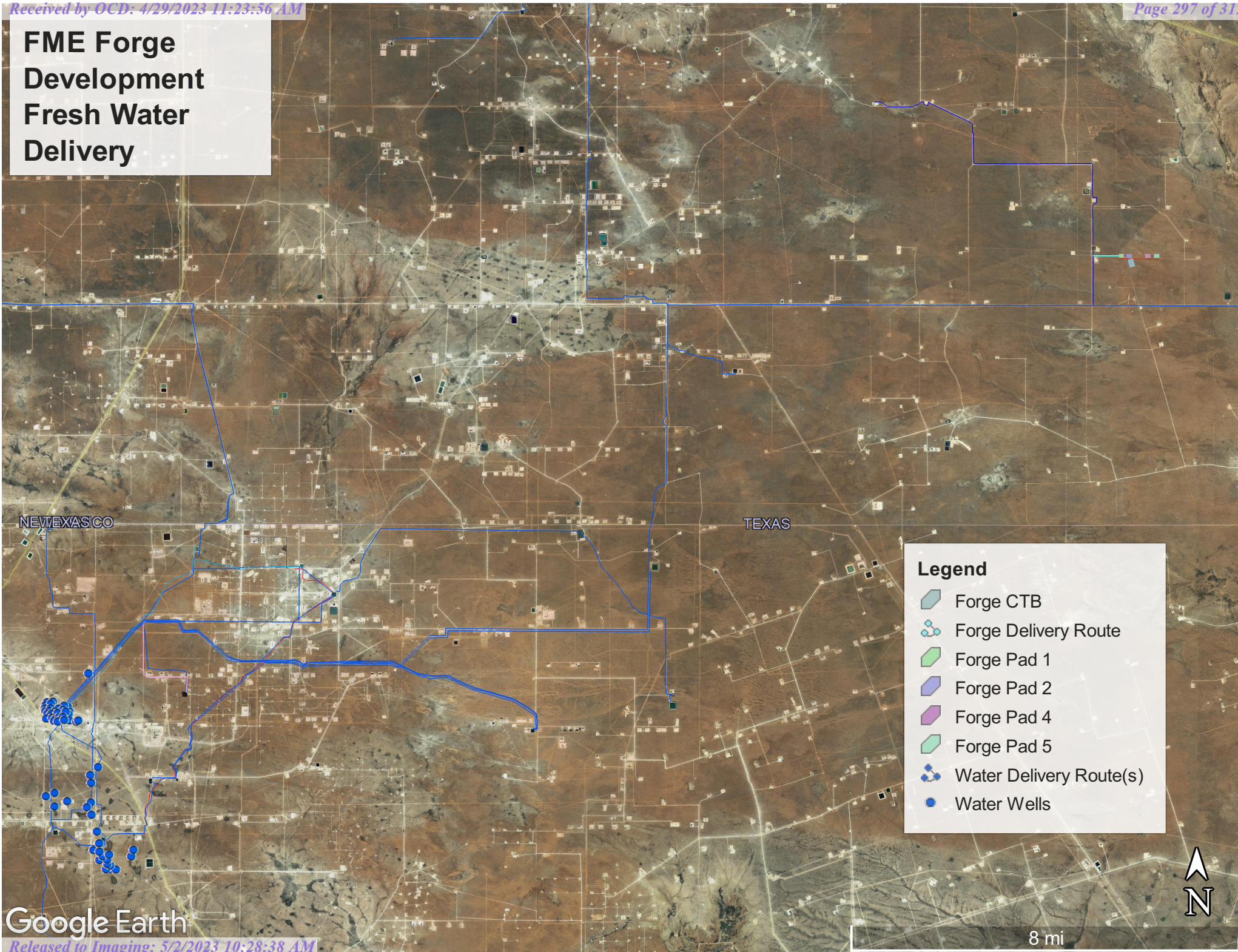
UELS, LLC  
Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017

Standard Tank Battery Configuration  
Draft - 30Mar20





# FME Forge Development Fresh Water Delivery

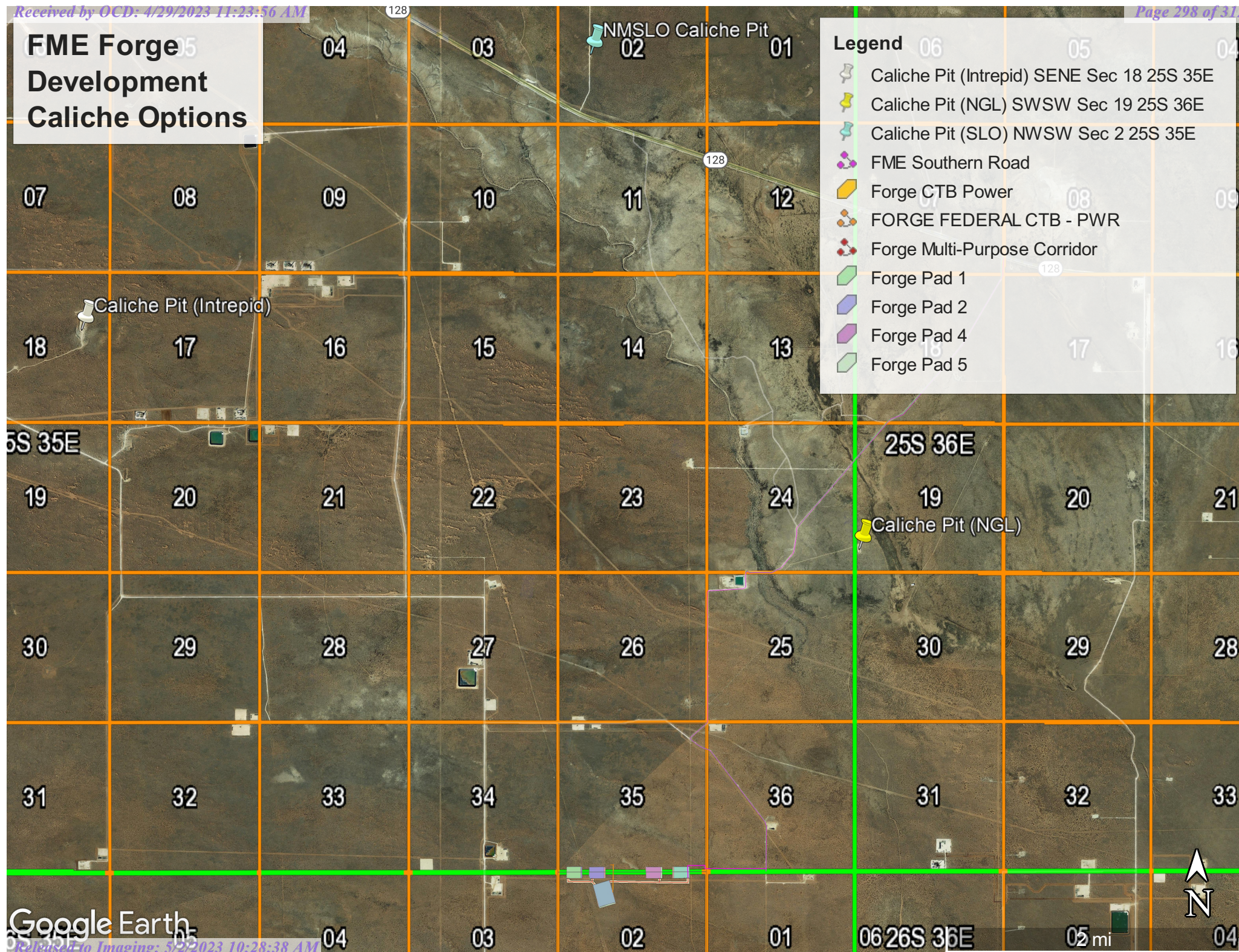




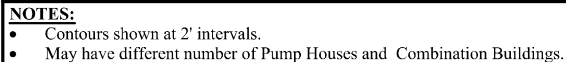
# FME Forge Development Caliche Options

## Legend

- Caliche Pit (Intrepid) SENE Sec 18 25S 35E
- Caliche Pit (NGL) SWSW Sec 19 25S 36E
- Caliche Pit (SLO) NWSW Sec 2 25S 35E
- FME Southern Road
- Forge CTB Power
- FORGE FEDERAL CTB - PWR
- Forge Multi-Purpose Corridor
- Forge Pad 1
- Forge Pad 2
- Forge Pad 4
- Forge Pad 5







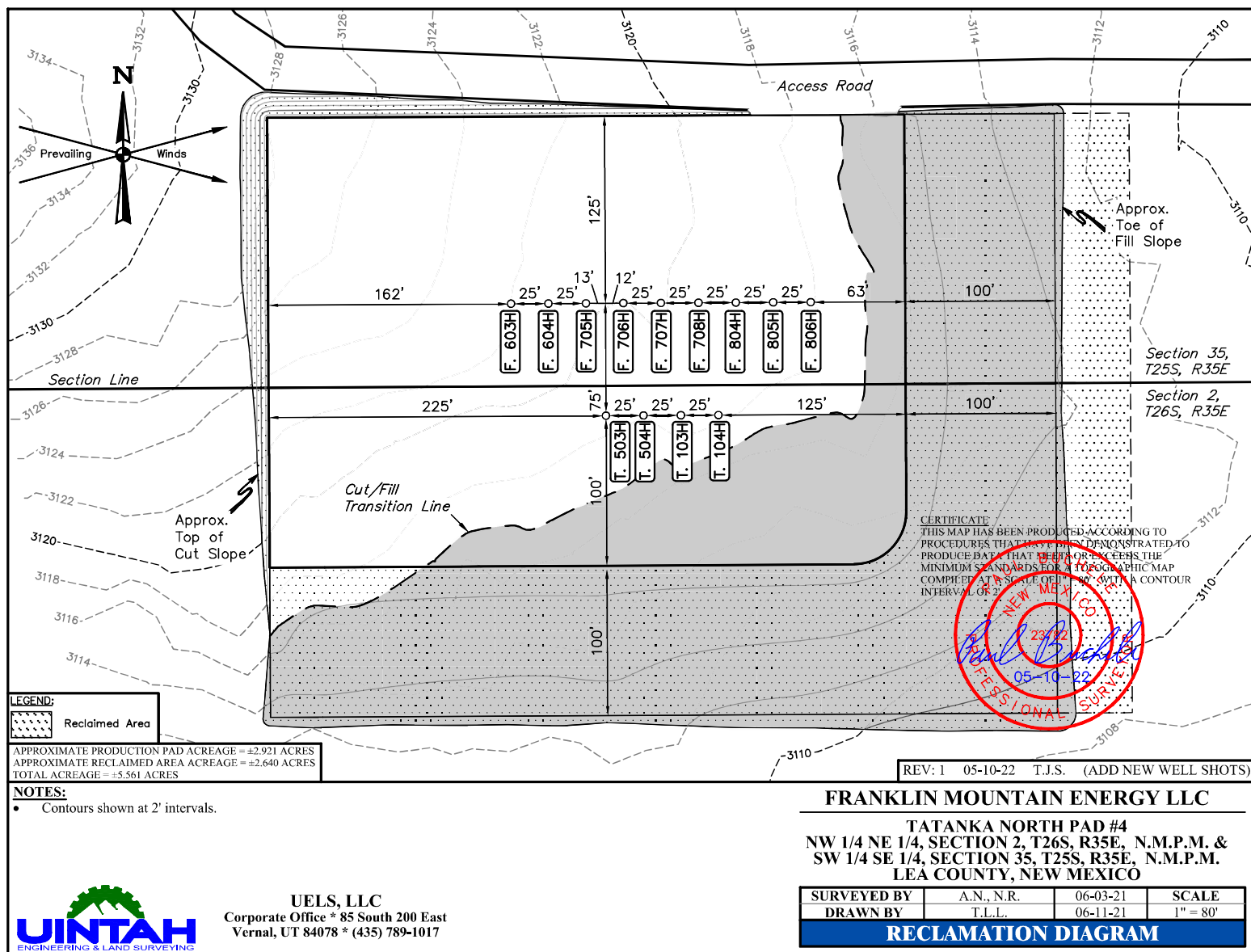
**UELS, LLC**  
Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017

**FRANKLIN MOUNTAIN ENERGY LLC**

**TATANKA NORTH PAD #4  
NW 1/4 NE 1/4, SECTION 2, T26S, R35E, N.M.P.M. &  
SW 1/4 SE 1/4, SECTION 35, T25S, R35E, N.M.P.M.  
LEA COUNTY, NEW MEXICO**

<b>SURVEYED BY</b>	A.N., N.R.	06-03-21	<b>SCALE</b>
<b>DRAWN BY</b>	T.L.L.	06-11-21	1" = 80'

## TYPICAL RIG LAYOUT



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



Franklin Mountain Energy, LLC  
Section 35, Township 25S, Range 35E  
Lea County, NM

## Surface Use Plan of Operations

### Introduction:

The following Surface Use Plan of Operations (SUPO) will be Implemented by Franklin Mountain Energy, LLC (FME) after APD approval. No other disturbance will be created other than those described in this surface use plan. If any additional surface disturbance becomes necessary after APD approval, a BLM approved sundry notice or right of way application will be acquired prior to such disturbance. Before any surface disturbance created, stakes or flagging will be installed to mark boundaries of permitted areas of disturbance, including soil storage areas. As necessary, slope, grade and other construction control stakes will be placed to ensure construction in accordance with the service plan. All boundary markers will be maintained in place until final construction cleanup is completed. If disturbance boundary markers are displaced, they will be replaced before construction proceeds. Adjacent operators will be contacted prior to commencing construction to mark adjacent pipelines. If terms and conditions are attached to the approved APD and amend any of the proposed actions in the services plan, FME will adhere to the terms and conditions.

### Section 1 - Existing Roads:

- a. The existing access road route to the proposed project is depicted on the attached Access Road Map. Improvements to the driving surface will be completed 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. Necessary Right-Of-Way will be acquired before construction begins.
- 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 potholes, clear ditches, repair the crown, etc. All existing structures on the entire access route such as cattle guards, other range improvement projects, culverts etc. will be properly repaired or replaced if they are damaged or have deteriorated beyond practical use.
- d. Operator will prevent and abate fugitive dust as needed, weather 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 the roadways.

### Section 2 – New or Reconstructed Access Roads:

- a. A short access road(s) 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 project is about 3963 feet.
- c. The maximum driving width of the access road will be 30 feet. The maximum width of the surface disturbance when constructing the new access road will not exceed 40 feet. All areas outside of the driving surface will be re-vegetated.
- 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.
- 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%.





- h. No turnouts will be constructed on the proposed access road.
- i. No cattle guards or fencing are needed for the construction of this proposed access road.
- j. No BLM right away Grant is needed for the construction of this proposed access road.
- k. No culverts will be constructed for this proposed access road.
- l. No low-water crossings will be constructed for this proposed 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 (BLM), will be constructed as outlined in the BLM "Gold Book" and 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.

**Section 3 – Location of Existing Wells:**

- a. Attached Well Radius Map of the APD depicts all known wells within a 1 mile radius of the proposed well.

**Section 4 – Location of Existing and/or Proposed Production Facilities:**

- a. The multiple well pad will be located in Section 35 and will measure ~525'x400'. The top 6" of soil and brush will be stockpiled to the east of the well pad. Should any type of production facilities be located on the well pad, they will be strategically placed to allow for maximum interim reclamation, recontouring and revegetation of the well location.
- b. Production from the proposed well will be stored on the associated CTB until sold. A 3-phase test separator will be connected via flowline to each wellhead on the well pad; if on pad, will be strategically placed to allow for maximum interim reclamation, recontouring and revegetation of the well location.
- c. Approximately 4,3267 feet of multiuse corridor will be constructed to serve the Forge Unit. The maximum width of disturbance will be 100 feet.
- d. Approximately 1,184 feet of overhead electrical line will be constructed to serve the Forge Unit. The maximum width of disturbance will be 30 feet.
- e. All permanent (lasting more than six months) above ground structures including but not limited to pump jacks, 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.
- f. If any plans change regarding the production facility or other infrastructure (pipeline, electrical lines, etc.), operator will submit a sundry notice or right-of-way (if applicable) prior to installation or construction.

**Section 5 – Location and Types of Water:**

- a. Well(s) will be drilled using a combination of water and mud systems (outlined in the 14 Pt. Plan). The water will be obtained from pre-existing water wells, stored in an adjacent pit and transported to location by running a pump directly to the drilling rig or completion equipment.
- b. In cases where a polyline is used to transport water for drilling and completion purposes, the existing and proposed roads into location will be utilized.

**Section 6 – Construction Material:**

- a. Clean caliche from BLM or third-party source will be used. See map provided.

**Section 7 – Methods for Handling Waste:**

- a. Well(s) will be drilled utilizing a closed loop system. Drill cuttings, mud/fluids, salts and other chemicals from the well during drilling and completion operations will be stored safely in steel tanks onsite until hauled away and disposed of properly at 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 materials will be removed and disposed of properly at a state approved disposal facility.

**Section 8 – Ancillary Facilities:**

- a. No ancillary facilities will be needed for this proposed project.

**Section 9 – Well Site Layout:**

- a. The following information is presented in the well site survey plat(s) or diagrams:
  - i. Reasonable scale
  - ii. Well pad dimensions
  - iii. Well pad orientation
  - iv. Drilling rig components
  - v. Proposed access road
  - vi. Elevations
  - vii. Topsoil stockpile
  - viii. Other disturbances
  - ix. Archaeological survey areas
  - x. Driving directions
  - xi. Surface ownership
- b. The proposed drilling pad was staked and surveyed by a professional surveyor. The attached survey plat(s) of the well site depict the drilling pad layout as staked.
- c. The submitted survey plat package depicts 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 re-spread evenly on the site following topsoil respreading. 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.

## **Section 10 – Plans for Surface Reclamation:**

### **Reclamation Objectives**

- a. The objective of interim reclamation is to restore vegetative cover and a portion of the landform sufficient to maintain healthy, biologically active topsoil, to control erosion, and to maximize habitat and forage loss, visual impact, and weed infestation, during the life of the well or facilities.
- b. The long-term objective of final reclamation is to return the land to a condition similar to 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.
- c. The BLM will be notified at least 3 days prior to the commencement of any reclamation procedures.
- d. 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. Operator will gain written permission from the BLM if more time is needed.
- e. Interim reclamation will be performed on the wellsite after the well is drilled and completed. Attached Reclamation Diagram depicts the location and dimension of the planned interim reclamation for the wellsite.

### **Interim Reclamation Procedures (if performed)**

- a. 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.
- b. In areas planned for interim reclamation, all the surfacing materials will be removed and returned to the original mineral pit or recycled to repair or rebuild roads and well pads.
- c. The areas planned for interim reclamation will then be recontoured to the original contour if feasible, 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 reseeding 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.
- d. Topsoil will be evenly respread and aggressively revegetated over the entire disturbed area not needed for all-weather operations, including cut and 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, in order to break the soil crust and create seed germination micro-sites.
- e. Proper erosion control methods will be used on the area to control erosion, run-off siltation of the surrounding area.
- f. The interim reclamation will be monitored periodically to ensure that vegetation has reestablished, and the erosion is controlled.

Final Reclamation (well pad, buried pipelines, etc.)



- a. Prior to final reclamation procedures, the well pad, road and surrounding area will be cleared of material, trash and equipment.
- b. All surfacing materials will be removed and returned to the original mineral pit or recycled to repair or build roads and well pads.
- c. 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.
- d. 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 the seeding, dozer tracking or other imprinting, in order to break the soil crust and create seed germination micro-sites.
- e. Proper erosion control methods will be used on the entire area to control erosion, run-off and siltation of the surrounding area.
- f. All unused equipment in structures including pipelines, electric line poles, tanks etc. that serviced the well(s) will be removed.
- g. All reclaimed areas will be monitored periodically to ensure that revegetation occurs, that the area is not redisturbed and that erosion is controlled.

#### **Section 11 – Surface Ownership:**

- a. The surface ownership of the proposed project is Federal.

#### **Section 12 – Other Information:**

- a. There are no dwellings within 1 mile of this location.
- b. An onsite was conducted on June 3<sup>rd</sup> 2021 (well pad) and June 3<sup>rd</sup> 2022 (CTB). Attendees included Caroline Kaufman (BLM), Rachael Overbey (FME), BJ Briley (Construction) and Casey Jones (Topographic).
- c. The well pad described in this document, Tatanka/Forge #2, will contain 9 total wells that will produce into a central tank battery (CTB) to be located on a separate pad to the south. All production will be measured via 3-phase separator and will move via flowline to storage and sales points on the CTB pad. The wells share a common pad access road, pipeline easement and electrical corridor. Flow lines for these wells will be 4" or less in diameter. The 9 flowlines from the individual wells will share a common corridor that will terminate into the CTB. The wells that share the pad are:

#### **Proposed Wells:**

Forge Fed Com 601H	Forge Fed Com 704H
Forge Fed Com 602H	Forge Fed Com 801H
Forge Fed Com 701H	Forge Fed Com 802H
Forge Fed Com 702H	Forge Fed Com 803H
Forge Fed Com 703H	

#### **Previously Approved Wells:**

Tatanka Fed Com 101H  
Tatanka Fed Com 102H  
Tatanka Fed Com 501H



Tatanka Fed Com 502H

Elevation diagrams can be furnished upon request.

**Section 13 – Maps and Diagrams:**

- a. Attached.



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

## PWD Data Report

04/28/2023

**APD ID:** 10400087939

**Submission Date:** 09/08/2022

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC

**Well Name:** FORGE FED COM

**Well Number:** 707H

**Well Type:** OIL WELL

**Well Work Type:** Drill

### Section 1 - General

Would you like to address long-term produced water disposal? NO

### Section 2 - Lined

Would you like to utilize Lined Pit PWD options? N

**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**

**Pit liner description:**

**Pit liner manufacturers**

**Precipitated solids disposal:**

**Describe precipitated solids disposal:**

**Precipitated solids disposal**

**Lined pit precipitated solids disposal schedule:**

**Lined pit precipitated solids disposal schedule**

**Lined pit reclamation description:**

**Lined pit reclamation**

**Leak detection system description:**

**Leak detection system**



**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**Lined pit Monitor description:****Lined pit Monitor****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**

### Section 3 - Unlined

**Would you like to utilize Unlined Pit PWD options?** N**Produced Water Disposal (PWD) Location:****PWD disturbance (acres):****PWD surface owner:****Unlined pit PWD on or off channel:****Unlined pit PWD discharge volume (bbl/day):****Unlined pit****Precipitated solids disposal:****Describe precipitated solids disposal:****Precipitated solids disposal****Unlined pit precipitated solids disposal schedule:****Unlined pit precipitated solids disposal schedule****Unlined pit reclamation description:****Unlined pit reclamation****Unlined pit Monitor description:****Unlined pit Monitor****Do you propose to put the produced water to beneficial use?****Beneficial use user****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****State****Unlined Produced Water Pit Estimated****Unlined pit: do you have a reclamation bond for the pit?**

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC**Well Name:** FORGE FED COM**Well Number:** 707H**Is the reclamation bond a rider under the BLM bond?****Unlined pit bond number:****Unlined pit bond amount:****Additional bond information****Section 4 -****Would you like to utilize Injection PWD options?** N**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****Underground Injection Control (UIC) Permit?****UIC Permit****Section 5 - Surface****Would you like to utilize Surface Discharge PWD options?** N**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:****Section 6 -****Would you like to utilize Other PWD options?** N**Produced Water Disposal (PWD) Location:****PWD surface owner:****PWD disturbance (acres):****Other PWD discharge volume (bbl/day):**

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC

**Well Name:** FORGE FED COM

**Well Number:** 707H

**Other PWD type description:**

**Other PWD type**

**Have other regulatory requirements been met?**

**Other regulatory requirements**



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

## Bond Info Data

04/28/2023

**APD ID:** 10400087939

**Submission Date:** 09/08/2022

Highlighted data  
reflects the most  
recent changes  
[Show Final Text](#)

**Operator Name:** FRANKLIN MOUNTAIN ENERGY LLC

**Well Name:** FORGE FED COM

**Well Number:** 707H

**Well Type:** OIL WELL

**Well Work Type:** Drill

### Bond

**Federal/Indian APD:** FED

**BLM Bond number:** NMB001761

**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**

**Reclamation bond number:**

**Reclamation bond amount:**

**Reclamation bond rider amount:**

**Additional reclamation bond information**

**District I**

1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720

**District II**

811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720

**District III**

1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170

**District IV**

1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS

Action 211905

**CONDITIONS**

Operator: Franklin Mountain Energy LLC 44 Cook Street, Suite 1000 Denver, CO 80206	OGRID: 373910
	Action Number: 211905
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

**CONDITIONS**

Created By	Condition	Condition Date
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	5/2/2023
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	5/2/2023
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	5/2/2023
pkautz	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	5/2/2023