

<b>Well Name:</b> LION OIL 28_33 FEDERAL COM	<b>Well Location:</b> T22S / R32E / SEC 28 / NWNE / 32.3677079 / -103.6784195	<b>County or Parish/State:</b> LEA / NM
<b>Well Number:</b> 32H	<b>Type of Well:</b> OIL WELL	<b>Allottee or Tribe Name:</b>
<b>Lease Number:</b> NMNM90	<b>Unit or CA Name:</b>	<b>Unit or CA Number:</b>
<b>US Well Number:</b>	<b>Operator:</b> OXY USA INCORPORATED	

**Notice of Intent**

**Sundry ID:** 2874812

**Type of Submission:** Notice of Intent

**Type of Action:** APD Change

**Date Sundry Submitted:** 09/22/2025

**Time Sundry Submitted:** 01:47

**Date proposed operation will begin:** 12/01/2025

**Procedure Description:** OXY USA Inc., respectfully requests to amend the subject AAPD to revise the TVD and Drill Plan. Old TVD: 11943' New TVD: 12017' \*THERE IS NO ADDITIONAL SURFACE DISTURBANCE RELATED TO THIS SUNDRY" Attached is the updated drill plan, directional, 4S drill plan, blanket designs, variances and APD Change Worksheet.

**NOI Attachments**

**Procedure Description**

- API\_BTC\_SC\_10.750in\_45.50ppf\_L80IC\_AD\_20250922134557.pdf
- LIONOIL28\_33FEDCOM32H\_DrillPlan\_4S\_20250922134537.pdf
- LIONOIL28\_33FEDCOM32H\_ProdCsgAnnClearanceVariance\_20250922134528.pdf
- LIONOIL28\_33FEDCOM32H\_BOPBreakTestingVariance2025\_20250922134521.pdf
- LIONOIL28\_33FEDCOM32H\_VAM\_DWC\_C\_HT\_IS\_5.500in\_20ppf\_P110RY\_20250922134511.pdf
- Combined\_Blanket\_Design\_\_\_A1\_\_\_A2\_\_\_B\_\_\_OXY\_\_\_3S\_Slim\_v8.0\_and\_4S\_Slim\_Contingency\_v4.0\_20250922134451.pdf
- Blanket\_Design\_A\_Pad\_Review\_Document\_RED TNK\_T22SR32E\_28\_04\_20250922134435.pdf
- LIONOIL28\_33FEDCOM32H\_DirectPlan\_20250922134413.pdf
- LIONOIL28\_33FEDCOM32H\_DrillPlan\_20250922134405.pdf

<b>Well Name:</b> LION-OIL 28_33 FEDERAL COM	<b>Well Location:</b> T22S / R32E / SEC 28 / NWNE / 32.3677079 / -103.6784195	<b>County or Parish/State:</b> LEA / NM
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<b>US Well Number:</b>	<b>Operator:</b> OXY USA INCORPORATED	

LIONOIL28\_33FEDCOM32H\_APDCHGSUNDRYWORKSHEET\_20250922134350.pdf

**Conditions of Approval**

**Additional**

LION\_OIL\_28\_33\_FED\_COM\_32H\_\_SUNDRY\_COA\_20260120112944.pdf

**Operator**

*I certify that the foregoing is true and correct. 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. Electronic submission of Sundry Notices through this system satisfies regulations requiring a*

**Operator Electronic Signature:** MELISSA GUIDRY

**Signed on:** SEP 22, 2025 01:47 PM

**Name:** OXY USA INCORPORATED

**Title:** Advisor Regulatory Sr.

**Street Address:** 5 GREENWAY PLAZA SUITE 110

**City:** HOUSTON **State:** TX

**Phone:** (713) 497-2481

**Email address:** MELISSA\_GUIDRY@OXY.COM

**Field**

**Representative Name:**

**Street Address:**

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

**Phone:**

**Email address:**

**BLM Point of Contact**

**BLM POC Name:** KEITH P IMMATTY

**BLM POC Title:** ENGINEER

**BLM POC Phone:** 5759884722

**BLM POC Email Address:** KIMMATTY@BLM.GOV

**Disposition:** Approved

**Disposition Date:** 01/20/2026

**Signature:** KEITH IMMATTY

Form 3160-5  
(October 2024)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0220  
Expires: October 31, 2027

**SUNDRY NOTICES AND REPORTS ON WELLS**  
**Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.**

5. Lease Serial No. **NMNM90**

6. If Indian, Allottee or Tribe Name

**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well  
 Oil Well     Gas Well     Other

2. Name of Operator **OXY USA INCORPORATED**

3a. Address **5 GREENWAY PLAZA SUITE 110, HOUSTON,**    3b. Phone No. (include area code) **(713) 366-5716**

4. Location of Well (Footage, Sec., T.,R.,M., or Survey Description)  
**SEC 28/T22S/R32E/NMP**

7. If Unit of CA/Agreement, Name and/or No.

8. Well Name and No.  
**LION OIL 28\_33 FEDERAL COM/32H**

9. API Well No.

10. Field and Pool or Exploratory Area  
**WC-025 G-08 S223227D/UPPER WOLFCAMP**

11. Country or Parish, State  
**LEA/NM**

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input checked="" type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

OXY USA Inc., respectfully requests to amend the subject AAPD to revise the TVD and Drill Plan.

Old TVD: 11943'  
New TVD: 12017'

\*THERE IS NO ADDITIONAL SURFACE DISTURBANCE RELATED TO THIS SUNDRY\*

Attached is the updated drill plan, directional, 4S drill plan, blanket designs, variances and APD Change Worksheet.

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)  
**MELISSA GUIDRY / Ph: (713) 497-2481**

Signature (Electronic Submission)

Title **Advisor Regulatory Sr.**

Date **09/22/2025**

**THE SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by  
**KEITH P IMMATTY / Ph: (575) 988-4722 / Approved**

Conditions of approval, if any, are attached. Approval of this notice 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.

Title **ENGINEER**    Date **01/20/2026**

Office **CARLSBAD**

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.

(Instructions on page 2)

## GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations and reports of such operations when completed as indicated on Federal and Indian lands pursuant to applicable Federal law 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, are either shown below, will be issued by or may be obtained from the local Federal office.

## SPECIFIC INSTRUCTIONS

*Item 4* - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

*Item 13*: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. 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 the 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., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.

**PRINCIPAL PURPOSE**: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c) and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.

**ROUTINE USES**: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.

**EFFECT OF NOT PROVIDING THE INFORMATION**: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

Response to this request is mandatory.

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 Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240

## Additional Information

### Location of Well

0. SHL: NWNE / 791 FNL / 2256 FEL / TWSP: 22S / RANGE: 32E / SECTION: 28 / LAT: 32.3677079 / LONG: -103.6784195 ( TVD: 0 feet, MD: 0 feet )

PPP: SWNW / 1320 FNL / 982 FWL / TWSP: 22S / RANGE: 32E / SECTION: 33 / LAT: 32.3517207 / LONG: -103.684989 ( TVD: 11943 feet, MD: 18524 feet )

PPP: NWNW / 100 FNL / 990 FWL / TWSP: 22S / RANGE: 32E / SECTION: 28 / LAT: 32.3695969 / LONG: -103.685004 ( TVD: 11943 feet, MD: 12546 feet )

PPP: NWSW / 2641 FSL / 990 FWL / TWSP: 22S / RANGE: 32E / SECTION: 28 / LAT: 32.3626095 / LONG: -103.6849981 ( TVD: 11943 feet, MD: 14563 feet )

BHL: SWSW / 20 FSL / 990 FWL / TWSP: 22S / RANGE: 32E / SECTION: 33 / LAT: 32.3408878 / LONG: -103.6849816 ( TVD: 11943 feet, MD: 22466 feet )

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b> OXY USA INC
<b>WELL NAME &amp; NO.:</b> LION OIL 28 33 FED COM 32H
<b>LOCATION:</b> SEC24 T22S R32E -NMP
<b>COUNTY:</b> <input style="width: 150px;" type="text" value="Lea County, New Mexico"/>

Create COAs

<b>H<sub>2</sub>S</b> <input style="width: 100%;" type="text" value="Present"/>	<b>Cave / Karst</b> <input style="width: 100%;" type="text" value="Low"/>	<b>Waste Prevention Rule</b> <input style="width: 100%;" type="text" value="Waste Minimization Plan"/>
<b>Potash</b> <input style="width: 100%;" type="text" value="None"/>	<b>R-111-Q Design</b> <input style="width: 100%;" type="text"/>	
<b>Wellhead</b> <input style="width: 100%;" type="text" value="Multibowl"/>  <input checked="" type="checkbox"/> Flex Hose <input checked="" type="checkbox"/> Break Testing	<b>Casing</b> <input style="width: 100%;" type="text" value="3-String Well"/> <input type="checkbox"/> Liner <input checked="" type="checkbox"/> Fluid Filled <input type="checkbox"/> Casing Clearance	
	<b>Cementing</b> <input type="checkbox"/> DV Tool <input checked="" type="checkbox"/> Bradenhead <input type="checkbox"/> Echometer <input checked="" type="checkbox"/> Offline Cement <input type="checkbox"/> Open Annulus <input type="checkbox"/> Pilot Hole	
<b>Special Requirements</b> <input type="checkbox"/> Capitan Reef <input type="checkbox"/> Water Disposal <input checked="" type="checkbox"/> COM <input type="checkbox"/> Unit		

**A. HYDROGEN SULFIDE**

A Hydrogen Sulfide (H<sub>2</sub>S) Drilling Plan shall be activated AT SPUD. As a result, the Hydrogen Sulfide area must meet all requirements from 43 CFR 3176, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

**B. CASING**

**WELL APPROVED FOR ALL THREE BLANKET DESIGNS(A1, A2 AND B.)  
PARAMETERS WITHIN BOUNDARY CONDITIONS. INTERMEDIATE CASINGS  
MUST BE KEPT FLUID FILLED TO MEET COLLAPSE SF.**

**DESIGN A1:**

1. The **10-3/4** inch surface casing shall be set at approximately **909** feet (a minimum of **70'** 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 (including 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 **7-5/8** inch intermediate casing is **cement to surface**. If cement does not circulate, see B.1.a, c-d above.

**Bradenhead Squeeze:** Operator has proposed to cement in two stages by conventionally cementing the first stage and performing a bradenhead squeeze on the second stage, contingent upon no returns to surface.

- a. **First stage:** Operator will cement with intent to reach the top of the **Brushy Canyon**.
- b. **Second stage:** Operator to squeeze and top-out. Cement to meet requirements listed for this casing string. If cement does not circulate see B.1.a, c-d above.

Operator has proposed to pump down **Surface X Intermediate 1** annulus. Submit results to the BLM. If cement does not tie-back into the previous casing shoe, a third stage remediation BH may be performed. The appropriate BLM office shall be notified.

**Operator must top out cement after the bradenhead squeeze and verify cement to surface. Operator can also check TOC with Echo-meter. CBL must be run from TD of the 7-5/8" casing to surface if confidence is lacking on the quality of the bradenhead squeeze cement job. Submit results to BLM.**

3. The minimum required fill of cement behind the **5-1/2** inch production casing is at least **200 feet** into previous casing string. Operator shall provide method of verification.
  - If cement does not circulate to surface on the previous casing, this string must come to surface. BLM must be notified with updated cementing and ECD monitoring plans.

**DESIGN A2:**

1. The **13-3/8** inch surface casing shall be set at approximately **909** feet (a minimum of **70'** 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 (including 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 **7-5/8** inch intermediate casing is **cement to surface**. If cement does not circulate, see B.1.a, c-d above.

**Bradenhead Squeeze:** Operator has proposed to cement in two stages by conventionally cementing the first stage and performing a bradenhead squeeze on the second stage, contingent upon no returns to surface.

- a. **First stage:** Operator will cement with intent to reach the top of the **Brushy Canyon**.
- b. **Second stage:** Operator to squeeze and top-out. Cement to meet requirements listed for this casing string. If cement does not circulate see B.1.a, c-d above.

Operator has proposed to pump down **Surface X Intermediate 1** annulus. Submit results to the BLM. If cement does not tie-back into the previous casing shoe, a third stage remediation BH may be performed. The appropriate BLM office shall be notified.

**Operator must top out cement after the bradenhead squeeze and verify cement to surface. Operator can also check TOC with Echo-meter. CBL must be run from TD of the 7-5/8" casing to surface if confidence is lacking on the quality of the bradenhead squeeze cement job. Submit results to BLM.**

3. The minimum required fill of cement behind the **5-1/2** inch production casing is at least **200 feet** into previous casing string. Operator shall provide method of verification.
  - If cement does not circulate to surface on the previous casing, this string must come to surface. BLM must be notified with updated cementing and ECD monitoring plans.

**DESIGN B:**

1. The **13-3/8** inch surface casing shall be set at approximately **909** feet (a minimum of **70'** 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 (including 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 **10-3/4** inch 1st intermediate casing is **cement to surface**. If cement does not circulate, see B.1.a, c-d above.
3. The minimum required fill of cement behind the **7-5/8** inch 2nd intermediate casing is at least **200 feet** into previous casing string. If cement does not circulate, see B.1.a, c-d above.

**Bradenhead Squeeze:** Operator has proposed to cement in two stages by conventionally cementing the first stage and performing a bradenhead squeeze on the second stage, contingent upon no returns to surface.

- a. **First stage:** Operator will cement with intent to reach the top of the **Brushy Canyon**.
- b. **Second stage:** Operator to squeeze to achieve tie-back. Cement to meet requirements listed for this casing string.

Operator has proposed to pump down **Surface X Intermediate 1** annulus. Submit results to the BLM. If cement does not tie-back into the previous casing shoe, a third stage remediation BH may be performed. The appropriate BLM office shall be notified.

**If operator does not top out to surface (not required,) TOC verification will be needed with Echo-meter. CBL must be run from TD of the 7-5/8" casing to surface if confidence is lacking on the quality of the bradenhead squeeze cement job. Submit results to BLM.**

4. The minimum required fill of cement behind the **5-1/2** inch production casing is at least **200 feet** into previous casing string. Operator shall provide method of verification.
  - If cement does not circulate to surface on the previous casing, this string must come to surface. BLM must be notified with updated cementing and ECD monitoring plans.

### C. PRESSURE CONTROL

1. Operator has proposed a multi-bowl wellhead assembly. 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. Variance is approved to use a 5000 (5M) annular which shall be tested to 3500 (3.5M) 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 43 CFR 3172 must be followed.
2. 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).
3. Break testing has been approved for this well ONLY on those intervals utilizing a 5M BOPE or less. **(Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP.)** If in the event break testing is not utilized, then a full BOPE test would be conducted.
  - BOPE Break Testing is ONLY permitted for hole sections with 5M MASP or less.
  - The break test should involve a shell test that includes testing the upper pipe rams as proposed.
  - Variance only pertains to the hole-sections in and shallower than the Wolfcamp formation. Break testing is NOT allowed when planning to penetrate the Penn group.
  - While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle in accordance with API STD 53.
  - Any well control event while drilling require notification to the BLM Petroleum Engineer.
  - A full BOPE test is required prior to drilling the first intermediate section.
  - If a hole section tends to show more background gas than normal, please notify BLM Engineer prior to proceeding with break testing on the next well.
  - The BLM PET is to be contacted 4 hours prior to BOPE tests.
    - *Eddy County Petroleum Engineering Inspection Staff: (575) 361-2822*

- *Lea County Petroleum Engineering Inspection Staff: (575) 689-5981*
- As a minimum, a full BOPE test shall be performed at 21-day intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per 43 CFR 3172.

#### **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 43 CFR 3171 and 3172.
- 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.

##### **Offline Cementing**

Offline cementing has been approved for **all hole sections, excluding production**. Contact the BLM prior to the commencement of any offline cementing procedure.

## 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)

### Contact Lea County Petroleum Engineering Inspection Staff:

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 689-5981

### Contact Eddy County Petroleum Engineering Inspection Staff:

Email or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220;  
[BLM\\_NM\\_CFO\\_DrillingNotifications@BLM.GOV](mailto:BLM_NM_CFO_DrillingNotifications@BLM.GOV); (575) 361-2822

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 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
    - i. Notify the BLM when moving in and removing the Spudder Rig.
    - ii. 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.
    - iii. BOP/BOPE test to be conducted per **43 CFR 3172** as soon as 2<sup>nd</sup> Rig is rigged up on swell.
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 always be operational 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 doghouse or stairway area.
3. For intervals in which cement to surface is required, cement to surface should be verified with a visual check and density or pH check to differentiate cement from spacer and drilling mud. The results should be documented in the driller's log and daily reports.

### A. CASING & CEMENT

1. The current acceptable methods of cement verification are as follows:
  - i. Observing cement circulated to surface,
  - ii. Cement Bond Log (CBL),

- iii. Temperature log within 8-10 hours after completing the cement job,
  - iv. Echometer (if a second-stage bradenhead is being utilized and operator was granted approval prior to operations.)
2. 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.
3. 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 of both lead and tail cement, 2) until cement has been in place at least 8 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.
4. 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.
5. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Well specific cement details must be onsite prior to pumping the cement for each casing string.
6. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
7. 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.
8. If hard band 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.
9. Whenever a casing string is cemented in the R-111-Q 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 **43 CFR 3172**.
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:
  - i. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - ii. 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.
  - iii. Manufacturer representative shall install the test plug for the initial BOP test.
  - iv. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.
  - v. 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.
  - i. 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 cement), 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).

- ii. 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 cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (This only applies to single stage cement jobs, prior to the cement setting up.)
- iii. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR 3172** 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 8 hours or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- iv. 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 -our clock.
- v. The results of the test shall be reported to the appropriate BLM office.
- vi. 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.
- vii. 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.
- viii. 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 **43 CFR 3172**.

### **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 because 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.

KEITH IMMATTY 1/20/2026



# API BTC -Special Clearance

Coupling	Pipe Body
Grade: <b>L80-IC</b>	Grade: <b>L80-IC</b>
Body: <b>Red</b>	1st Band: <b>Red</b>
1st Band: <b>Brown</b>	2nd Band: <b>Brown</b>
2nd Band: <b>-</b>	3rd Band: <b>Pale Green</b>
3rd Band: <b>-</b>	4th Band: <b>-</b>

Outside Diameter	10.750 in.	Wall Thickness	0.400 in.	Grade	L80-IC
Min. Wall Thickness	87.50 %	Pipe Body Drift	Alternative Drift	Type	Casing
Connection OD Option	Special Clearance				

### Pipe Body Data

Geometry		Performance	
Nominal OD	10.750 in.	Drift	9.875 in.
Wall Thickness	0.400 in.	Plain End Weight	44.26 lb/ft
Nominal Weight	45.500 lb/ft	OD Tolerance	API
Nominal ID	9.950 in.		
		SMYS	80,000 psi
		Min UTS	95,000 psi
		Body Yield Strength	1040 x1000 lb
		Min. Internal Yield Pressure	5210 psi
		Collapse Pressure	2950 psi
		Max. Allowed Bending	34 °/100 ft

### Connection Data

Geometry		Performance	
Thread per In	5	Joint Strength	1041 x1000 lb
Connection OD	11.250 in.	Coupling Face Load	478 x1000 lb
Hand Tight Stand Off	1 in.	Internal Pressure Capacity	4150 psi

### Notes

For products according to API Standards 5CT & 5B; Performance calculated considering API Technical Report 5C3 (Sections 9 & 10) equations. For geometrical and steel grades combinations not considered in the API Standards 5CT and/or 5B; Performance calculations indirectly derived from API Technical Report 5C3 (Sections 9 & 10) equations. Couplings OD are shown according to current API 5CT 10th Edition.

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# Oxy USA Inc. - LION OIL 28\_33 FED COM 32H

## Drill Plan

### 1. Geologic Formations

TVD of Target (ft):	12017	Pilot Hole Depth (ft):	
Total Measured Depth (ft):	22470	Deepest Expected Fresh Water (ft):	835

### Delaware Basin

Formation	MD-RKB (ft)	TVD-RKB (ft)	Expected Fluids
Rustler	835	835	
Salado	1212	1212	Salt
Marker Bed 126	2000	2000	Salt
Castile	2823	2823	Salt
Delaware	4680	4659	Oil/Gas/Brine
Bell Canyon	4726	4703	Oil/Gas/Brine
Cherry Canyon	5644	5590	Oil/Gas/Brine
Brushy Canyon	6926	6828	Losses
Bone Spring	8698	8540	Oil/Gas
Bone Spring 1st	9877	9679	Oil/Gas
Bone Spring 2nd	10544	10323	Oil/Gas
Bone Spring 3rd	11611	11354	Oil/Gas
Wolfcamp	12037	11740	Oil/Gas
Penn			Oil/Gas
Strawn			Oil/Gas

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

### 2. Casing Program

Section	Hole Size (in)	MD		TVD		Csg. OD (in)	Csg Wt. (ppf)	Grade	Conn.
		From (ft)	To (ft)	From (ft)	To (ft)				
Surface	17.5	0	905	0	905	13.375	54.5	J-55	BTC
Salt	12.25	0	6000	0	6000	10.75	45.5	L-80 HC	BTC-SC
Intermediate	9.875	0	11500	0	11243	7.625	26.4	L-80 HC	BTC
Production	6.75	0	22470	0	12017	5.5	20	P-110	DWC/C-HT-IS

All casing strings will be tested in accordance with 43 CFR part 3170 Subpart 3172

<i>All Casing SF Values will meet or exceed those below</i>			
<b>SF Collapse</b>	<b>SF Burst</b>	<b>Body SF Tension</b>	<b>Joint SF Tension</b>
1.00	1.100	1.4	1.4

**Annular Clearance Variance Request**

As per the agreement reached in the Oxy/BLM face-to-face meeting on Feb 22, 2018, Oxy requests permission to allow deviation from the 0.422" annular clearance requirement. Please see Annular Clearance Variance attachment for further details.

	Y or N
Is casing new? If used, attach certification as required in 43 CFR 3160	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-Q?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-Q and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

### 3. Cementing Program

Section	Stage	Slurry:	Sacks	Yield (ft <sup>3</sup> /ft)	Density (lb/gal)	Excess:	TOC	Placement	Description
Surface	1	Surface - Tail	945	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.1	1	Intermediate - Tail	85	1.33	14.8	20%	5,500	Circulate	Class C+Accel.
Int.1	1	Intermediate - Lead	874	1.73	12.9	50%	-	Circulate	Class Pozz+Ret.
Int. 2	1	Intermediate 1S - Tail	580	1.68	13.2	5%	7,176	Circulate	Class C+Ret., Disper.
Int. 2	2	Intermediate 2S - Tail BH	967	1.71	13.3	25%	-	Bradenhead	Class C+Accel.
Prod.	1	Production - Tail	650	1.84	13.3	25%	11,000	Circulate	Class C+Ret.

#### Offline Cementing Request

Oxy requests a variance to cement the 9.625" and/or 7.625" intermediate casing strings offline in accordance to the approved variance, EC Tran 461365. Please see Offline Cementing Variance

#### Bradenhead CBL Request

Oxy requests permission to adjust the CBL requirement after bradenhead cement jobs, on 7-5/8" intermediate casings, as per the agreement reached in the OXY/BLM meeting on September 5, 2019. Please see Bradenhead CBL Variance attachment for further details.

**4. Pressure Control Equipment**

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:	TVD Depth (ft) per Section:
12.25" Hole	13-5/8"	5M	Annular	✓	70% of working pressure	6000
			Blind Ram	✓		
		5M	Pipe Ram		250 psi / 5000 psi	
			Double Ram	✓		
			Other*			
9.875" Hole	13-5/8"	5M	Annular	✓	70% of working pressure	11243
			Blind Ram	✓		
		5M	Pipe Ram		250 psi / 5000 psi	
			Double Ram	✓		
			Other*			
6.75" Hole	13-5/8"	5M	Annular	✓	100% of working pressure	12017
			Blind Ram	✓		
		10M	Pipe Ram		250 psi / 10000 psi	
			Double Ram	✓		
			Other*			

\*Specify if additional ram is utilized

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per 43 CFR part 3170 Subpart 3172 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

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. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke

**5M Annular BOP Request**

Per BLM’s Memorandum No. NM-2017-008: *Decision and Rationale for a Variance Allowing the Use of a 5M Annular Preventer with a 10M BOP Stack*, Oxy requests to employ a 5M annular with a 10M BOPE stack in the pilot and lateral sections of the well and will ensure that two barriers to flow are

	Formation integrity test will be performed per 43 CFR part 3170 Subpart 3172.
	On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with 43 CFR part 3170 Subpart 3172.
	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
	A multibowl or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per 43 CFR part 3170 Subpart 3172 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on October 8, 2015.  See attached schematics.

**BOP Break Testing Request**

Oxy requests permission to adjust the BOP break testing (intermediate and production) requirements as per the agreement reached in the OXY/BLM meeting on April 4th, 2025. Please see BOP Break Testing Variance attachment for further details.

**Oxy will use Cameron ADAPT wellhead system that uses an OEC top flange connection. This connection has been fully vetted and verified by API to Spec 6A and carries an API monogram.**

**5. Mud Program**

Section	Depth		Depth - TVD		Type	Weight (ppg)	Viscosity	Water Loss
	From (ft)	To (ft)	From (ft)	To (ft)				
Surface	0	905	0	905	Water-Based Mud	8.6 - 8.8	40-60	N/C
Intermediate 1	905	6000	905	6000	Saturated Brine-Based or Oil-Based Mud	8.0 - 10.0	35-45	N/C
Intermediate 2	6000	11500	6000	11243	Water-Based or Oil-Based Mud	8.0 - 10.0	38-50	N/C
Production	11500	22470	11243	12017	Water-Based or Oil-Based Mud	9.5 - 12.5	38-50	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. The following is a general list of products: Barite, Bentonite, Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Salt Water Clay, CACL2. Oxy will use a closed mud system.

What will be used to monitor the loss or gain of fluid?	PVT/MD Totco/Visual Monitoring
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**6. Logging and Testing Procedures**

Logging, Coring and Testing.	
Yes	Will run GR from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
No	Logs are planned based on well control or offset log information.
No	Drill stem test? If yes, explain
No	Coring? If yes, explain
Additional logs planned	Interval
No	Resistivity
No	Density
Yes	CBL Production string
Yes	Mud log Bone Spring – TD
No	PEX

**7. Drilling Conditions**

Condition	Specify what type and where?
BH Pressure at deepest TVD	7812 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	177°F

Pump high viscosity sweeps as needed for hole cleaning. The mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times. Appropriately weighted mud will be used to isolate potential gas, oil, and water zones until such time as casing can be cemented into place for

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of 43 CFR part 3170 Subpart 3172. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

**8. Other facets of operation**

	Yes/No
Will the well be drilled with a walking/skidding operation? If yes, describe. We plan to drill the 4 well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the rig is not over the well.	Yes
Will more than one drilling rig be used for drilling operations? If yes, describe. Oxy requests the option to contract a Surface Rig to drill, set surface casing, and cement for this well. If the timing between rigs is such that Oxy would not be able to preset surface, the Primary Rig will MIRU and drill the well in its entirety per the APD. Please see the attached document for information on the snudder rig.	Yes
<b>Total Estimated Cuttings Volume: 2019 bbls</b>	

## **Production Casing Annular Clearance Variance Request**

As per the agreement reached in the Oxy/BLM face-to-face meeting on Feb 22, 2018, Oxy requests permission to allow deviation from the 0.422" annular clearance requirement from 43 CFR part 3170 Subpart 3172 under the following conditions:

1. Annular clearance to meet or exceed 0.422" between intermediate casing ID and production casing coupling only on the first 500' overlap between both casings.
2. Annular clearance less than 0.422" is acceptable for the curve and lateral portions of the production open hole section.

## BOP Break Testing Request

Oxy requests permission to adjust the BOP break testing requirements as per the agreement reached with OXY/BLM on April 4th, 2025.

**BOPE Break Testing is ONLY permitted for 5M BOPE or less (utilizing a 10M BOPE system.)**  
**Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP.**

BOP break test for the **intermediate or production** section under the following conditions:

- After a full BOP test is conducted.
- When skidding to drill an intermediate or production section which does not penetrate the deeper than the Wolf Camp formation (<5M).
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per 3 CFR part 3170 Subpart 3172
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- In the event break testing is not utilized, then a full BOPE test would be conducted.
- If the kill line is broken prior to skid, two tests will be performed.
  - 1) Wellhead flange, co-flex hose, kill line connections and upper pipe rams
  - 2) Wellhead flange, HCR valve, check valve, upper pipe rams
- If the kill line is not broken prior to skid, only one test will be performed.
  - 1) Wellhead flange, co-flex hose, check valve, upper pipe rams

**Subject:** Request for a Variance Allowing Break Testing of a Blowout Preventer Stack

OXY USA Inc. (OXY) requests a variance to allow break testing of the Blowout Preventer (BOP) stack when skidding a drilling rig between wells on multi-well pads. This practice entails retesting only the connections of the **BOP** stack that have been disconnected during this operation and not a complete **BOP** test.

### **Background**

43 CFR part 3170 Subpart 3172 states that a **BOP** test must be performed whenever any seal subject to test pressure is broken. The current interpretation of the Bureau of Land Management (BLM) is this requires a complete **BOP** test and not just a test of the affected component. 43 CFR part 3170 Subpart 3172, Section I.D.2. states, "Some situations may exist either on a well-by-well basis or field-wide basis whereby it is commonly accepted practice to vary a particular minimum standard(s) established in this Order. This situation can be resolved by requesting a variance...". OXY feels the practice of break testing the **BOP** stack is such a situation. Therefore, as per 43 CFR part 3170 Subpart 3172, Section IV., OXY submits this request for the variance.

### **Supporting Rationale**

43 CFR part 3170 Subpart 3172 became effective on December 19, 1988, and has remained the standard for regulating BLM onshore drilling operations for almost 30 years. During this time there have been significant changes in drilling technology. **BLM** continues to use the variance request process to allow for the use of modern technology and acceptable engineering practices that have arisen since 43 CFR part 3170 Subpart 3172 was originally released. The drilling rig fleet OXY utilizes in New Mexico was built with many modern upgrades. One of which allows the rigs to skid between wells on multi-well pads. A part of this rig package is

a hydraulic winch system which safely installs and removes the BOP from the wellhead and carries it during skidding operations. This technology has made break testing a safe and reliable procedure.

American Petroleum Institute (API) standards, specifications and recommended practices are considered industry standards and are consistently utilized and referenced by the industry. 43 CFR part 3170 Subpart 3172 recognized API Recommended Practices (RP) 53 in its original development. API Standard 53, *Blowout Prevention Equipment Systems for Drilling Wells* (Fourth Edition, November 2012, Addendum 1, July 2016) recognizes break testing as an acceptable practice. Specifically, API Standard 53, Section 6.5.3.4.1.b states "Pressure tests on the well control equipment shall be conducted after the disconnection or repair of any pressure containment seal in the **BOP** stack, choke line, kill line, choke manifold, or wellhead assembly but limited to the affected component."

The Bureau of Safety and Environmental Enforcement (BSEE), Department of Interior, has also utilized the API standards, specifications and best practices in the development of its offshore oil and gas regulations and incorporates them by reference within its regulations. BSEE issued new offshore regulations under 30 CFR Part 250, *Oil and Gas and Sulphur Operations in the Outer Continental Shelf - Blowout Preventer Systems and Well Control*, which became effective on July 28, 2016. Section 250.737(d.1) states "Follow the testing requirements of API Standard 53". In addition, Section 250.737(d.8) has adopted language from **API** Standard 53 as it states "Pressure test affected **BOP** components following the disconnection or repair of any well-pressure containment seal in the wellhead or **BOP** stack assembly".

Break testing has been approved by the BLM in the past. See the Appendix for a Sundry Notice that was approved in 2015 by the Farmington Field Office. This approval granted permission for the operator to break test when skidding its Aztec 1000 rig on multi-well pads.

Oxy feels break testing and our current procedures meet the intent of 43 CFR part 3170 Subpart 3172 and often exceed it. We have not seen any evidence that break testing results in more components failing tests than seen on full BOP tests. As skidding operations take place within the 30-day full BOPE test window, the BOP shell and components such as the pipe rams and check valve get tested to the full rated working pressure more often. Therefore, there are more opportunities to ensure components are in good working order. Also, Oxy's standard requires complete BOP tests more often than that of 43 CFR part 3170 Subpart 3172. In addition to function testing the annular at least weekly and the pipe and blind rams on each trip, Oxy also performs a choke drill prior to drilling out every casing shoe. As a crew's training is a vital part of well control, this procedure to simulate step one of the Driller's Method exceeds the requirements of 43 CFR part 3170 Subpart 3172.

### Procedures

- 1) OXY would perform BOP break testing on multi-well pads where multiple intermediate or production sections can be drilled and cased within the 21-day BOP test window
- 2) After performing a complete BOP test on the first well and drilling and casing the hole section, three breaks would be made on the BOP.
  - Between the check valve and the kill line
  - Between the HCR valve and the co-flex hose or the co-flex hose and the manifold
  - Between the BOP flange and the wellhead
- 3) The BOP is then lifted and removed from the wellhead by the hydraulic winch system
- 4) After skidding to the next well, the BOP is moved to the wellhead by the hydraulic winch system and installed
- 5) The choke line and kill line are reconnected
- 6) A test plug is installed in the wellhead with a joint of drill pipe and the internal parts of the check valve are removed
- 7) A shell test is performed against the upper pipe rams testing all three breaks
- 8) The internal parts of the check valve are reinstalled and the HCR valve is closed. A second test is performed on them
- 9) These tests consist of a 250 psi low test and a high test to the value submitted in the APD or SN (e.g., 5000 psi)
- 10) Perform a function test of components not pressure tested to include the lower pipe rams, the blind rams and the annular
- 11) If this were a three well pad, the same three breaks on the BOP would be made and steps 4 through 11 would be repeated
- 12) A second break test would only be done if the third hole section could be completed within the 21-day BOP test window
- 13) If a second break test is performed, additional components that were not tested on the initial break test will be tested on this break test

### Notes:

- a. If any parts of the BOP are changed out or any additional breaks are made during the skidding operation, these affected components would also be tested as in step 9.
- b. As the choke manifold remains stationary during the skidding operation and the only break to the manifold is tested in step 8 above, no further testing of the manifold is done until the next full BOP test.

## **Summary**

OXY requests a variance to allow break testing of the BOP stack when skidding drilling rigs between wells on multi-well pads. API standards, specifications and recommended practices are considered industry standards and are consistently utilized and referenced by the industry and the BLM. API Standard 53 recognizes break testing as an acceptable practice and BSEE adopted language from this standard into its newly created 30 CFR Part 250 which also supports break testing. Due to this, OXY feels this request meets the intent of 43 CFR part 3170



# Oxy Blanket Design - Casing Design "B"



## 1. Casing Program

The designs and associated details listed in this document are the "worst case scenario" boundaries for design safety factors.

Location and lithology have NOT been accounted for in these designs; however, the designs are NOT valid for wells within KPLA Boundaries or Capitan Reef areas. The specific well details will be based on the APD/Sundry package and the information listed in the COA.

The mud program listed below will remain the same between each design variation.

Hole will be full during casing run for well control and tensile SF.

Casing will be kept at least half full during run for these designs to meet BLM collapse SF requirement.

Section	Hole Size (in)	MD		TVD		Csg. OD (in)	Csg Wt. (ppf)	Grade	Conn.
		From (ft)	To (ft)	From (ft)	To (ft)				
Surface	17.5	0	1200	0	1200	13.375	54.5	J-55	BTC
Intermediate 1	12.25 <sup>†</sup>	0	4832	0	4832	10.75	40.5	J-55	BTC-SC
Intermediate 2	9.875	0	13111*	0	12775*	7.625	26.4	L-80 HC	BTC Axis-HT
Production	6.75	0	23361	0	12775	5.5	20	P-110	Wedge 461 Sprint SF DWC/C-HT-IS Sprint-TC SC

\*Curve could be in intermediate or production section

<sup>†</sup>Oxy requests the option to set intermediate 1 casing shallower, yet still below the salts, if required due to losses or hole conditions. Cement volumes may be adjusted if casing is set shallower and a DV tool may be run incase hole conditions merit pumping a second stage cement job to comply with the permitted top of cement. If cement is circulated to surface during first stage, Oxy will drop a cancelation cone and not pump the second stage. Well specific depths for the pad will be included with the casing setting depths information submitted for review.

All casing strings will be tested in accordance with 43 CFR part 3170 Subpart 3172.

<i>All Casing SF Values will meet or exceed those below</i>			
SF Collapse	SF Burst	Body SF Tension	Joint SF Tension
1.00	1.100	1.4	1.4

### §Annular Clearance Variance Request

As per the agreement reached in the Oxy/BLM face-to-face meeting on Feb 22, 2018, Oxy requests permission to allow deviation from the 0.422" annular clearance requirement. Please see Annular Clearance Variance attachment for further details.

§Annular Clearance Variance Request may not apply to all connections used or presented.



## Oxy Blanket Design - Casing Design "B"



### 2. Trajectory / Boundary Conditions

Section	MD		TVD		Max. Angle	Max. Planned DLS
	Deepest KOP (ft)	End Build (ft)	Deepest KOP (ft)	End Build (ft)		
Surface	0	1200	0	1200	5°	1°/100 ft
Salt	0	4832	0	4832	5°	1°/100 ft
Intermediate	5000 (inside Cherry Canyon)	6500	4980	6390	20°	2°/100 ft
	12211	13111	12202	12775	92° ‡	12°/100 ft ‡
Production	12211 (~100' MD past ICP)	13111	12202	12775	92° ‡	12°/100 ft ‡

‡ Applies only when intermediate casing depth is deepened to landing point to match TVD of production in some areas where required to accommodate higher MWs in depleted areas.

Oxy has reviewed casing burst, collapse, and axial loadcases in Landmark StressCheck with the boundary conditions in the table above which satisfies Oxy and BLM minimum design criteria. Triaxial plots for each casing string is shown in Section 7 and intermediate load case inputs are shown in Section 8.

### 3. Cementing Program

NOTE: Blanket design is for technical review only. The cement volumes will be adjusted to ensure cement tops meet BLM requirements.

Section	Stage	Slurry:	Sacks	Yield (ft <sup>3</sup> /ft)	Density (lb/gal)	Excess:	TOC	Placement	Description
Surface	1	Surface - Tail	1253	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.1	1	Intermediate - Tail	85	1.33	14.8	20%	4,332	Circulate	Class C+Accel.
Int.1	1	Intermediate - Lead	676	1.73	12.9	50%	-	Circulate	Class Pozz+Ret.
Int. 2	1	Intermediate 1S - Tail	793	1.68	13.2	5%	7,206	Circulate	Class C+Ret., Disper.
Int. 2	2	Intermediate 2S - Tail BH	1002	1.71	13.3	25%	-	Bradenhead	Class C+Accel.
Prod.	1	Production - Tail	609	1.84	13.3	25%	12,611	Circulate	Class C+Ret.
Prod.	2*	Production - Tail	TBD	1.84	13.3	50%	500' inside prev cas	Circulate	Class C+Ret.

\*Only applies in scenario where planned single stage job TOC is not 500' above previous shoe as designed/programmed requiring bradenhead 2nd stage to meet requirements

As Reviewed and Approved by BLM on Feb 8, 2024: Oxy uses a Class C / Pozzolan mix on its production cement slurry, which has the same fluid properties as Class H, and has been pilot and field blend tested to have as good or better compressive strength development at our target densities.

#### Offline Cementing Request

Oxy requests a variance to cement the 9.625" and/or 7.625" intermediate casing strings offline in accordance to the approved variance, EC Tran 461365. Please see Offline Cementing Variance attachment for further details.



## Oxy Blanket Design - Casing Design "B"



### Bradenhead CBL Request

Oxy requests permission to adjust the CBL requirement after bradenhead cement jobs, on 7-5/8" intermediate casings, as per the agreement reached in the OXY/BLM meeting on September 5, 2019. Please see Bradenhead CBL Variance attachment for further details.

### 4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:	TVD Depth (ft) per Section:
12.25" Hole	13-5/8"	5M	Annular	✓	70% of working pressure	4832
		5M	Blind Ram	✓	250 psi / 5000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			
9.875" Hole	13-5/8"	5M	Annular	✓	70% of working pressure	12102
		5M	Blind Ram	✓	250 psi / 5000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			
6.75" Hole	13-5/8"	5M	Annular	✓	100% of working pressure	12775
		10M	Blind Ram	✓	250 psi / 10000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			

\*Specify if additional ram is utilized

\*\*Curve could be in intermediate or production section

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per 43 CFR part 3170 Subpart 3172 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

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

### 5M Annular BOP Request

Per BLM's Memorandum No. NM-2017-008: *Decision and Rationale for a Variance Allowing the Use of a 5M Annular Preventer with a 10M BOP Stack*, Oxy requests to employ a 5M annular with a 10M BOPE stack in the pilot and lateral sections of the well and will ensure that two barriers to flow are



## Oxy Blanket Design - Casing Design "B"



Formation integrity test will be performed per 43 CFR part 3170 Subpart 3172.

On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with 43 CFR part 3170 Subpart 3172.

A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. Coflex hoses are in compliance with API 16C and meets inspection and testing requirements. See attached for specs and hydrostatic test chart.

Y Are anchors required by manufacturer?

A multibowl or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per 43 CFR part 3170 Subpart 3172 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on October 8, 2015.

See attached Schematics.

### **BOP Break Testing Request**

Oxy requests permission to adjust the BOP break testing (intermediate and production) requirements as per the agreement reached in the OXY/BLM meeting on April 4th, 2025. Please see BOP Break Testing Variance attachment for further details.

### **Hammer Union Variance**

Oxy requests permission for hammer unions behind the choke to be routed to the gas buster. The hammer unions will not be subject to wellbore pressure in compliance with API STD 53.

Oxy will use Cameron ADAPT wellhead system that uses an OEC top flange connection. This connection has been fully vetted and verified by API to Spec 6A and carries an API monogram.



## Oxy Blanket Design - Casing Design "B"



### 5. Mud Program & Drilling Conditions

Section	Depth - MD		Depth - TVD		Type	Weight (ppg)	Viscosity	Water Loss
	From (ft)	To (ft)	From (ft)	To (ft)				
Surface	0	1200	0	1200	Water-Based Mud	8.6 - 8.8	40-60	N/C
Intermediate 1	1200	4832	1200	4832	Saturated Brine-Based or Oil-Based Mud	8.0 – 10.0	35-45	N/C
Intermediate 2	1200	13111*	1200	12775*	Saturated Brine-Based or Oil-Based Mud	8.0 - 10.0	35-45	N/C
Production	13111	23361	12775	12775	Water-Based or Oil-Based Mud	9.5 - 13.5	38-50	N/C

\*Curve could be in intermediate or production section\*

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. The following is a general list of products: Barite, Bentonite, Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Salt Water Clay, CACL2. Oxy will use a closed mud system.

#### Drilling Blind Request

In the event total losses are encountered in the intermediate section, Oxy requests permission to drill blind due to depleted formations where risk of hydrocarbon kicks are unlikely.

- Oxy will first attempt to cure losses before proceeding with drilling blind
- Drilling blind will only be allowed in the Castille and formations below
- While drilling blind, will monitor backside by filling-up on connections and utilizing gas monitors
- Depths at which losses occurred and attempt to cure losses with relevant details (LCM sweep info, etc.) will be documented in the drillers log and Subsequent Reports to the BLM.
- If a well control event (hydrocarbon kick) occurs while drilling blind, the BLM will be notified after the well is secured and returned to static.

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

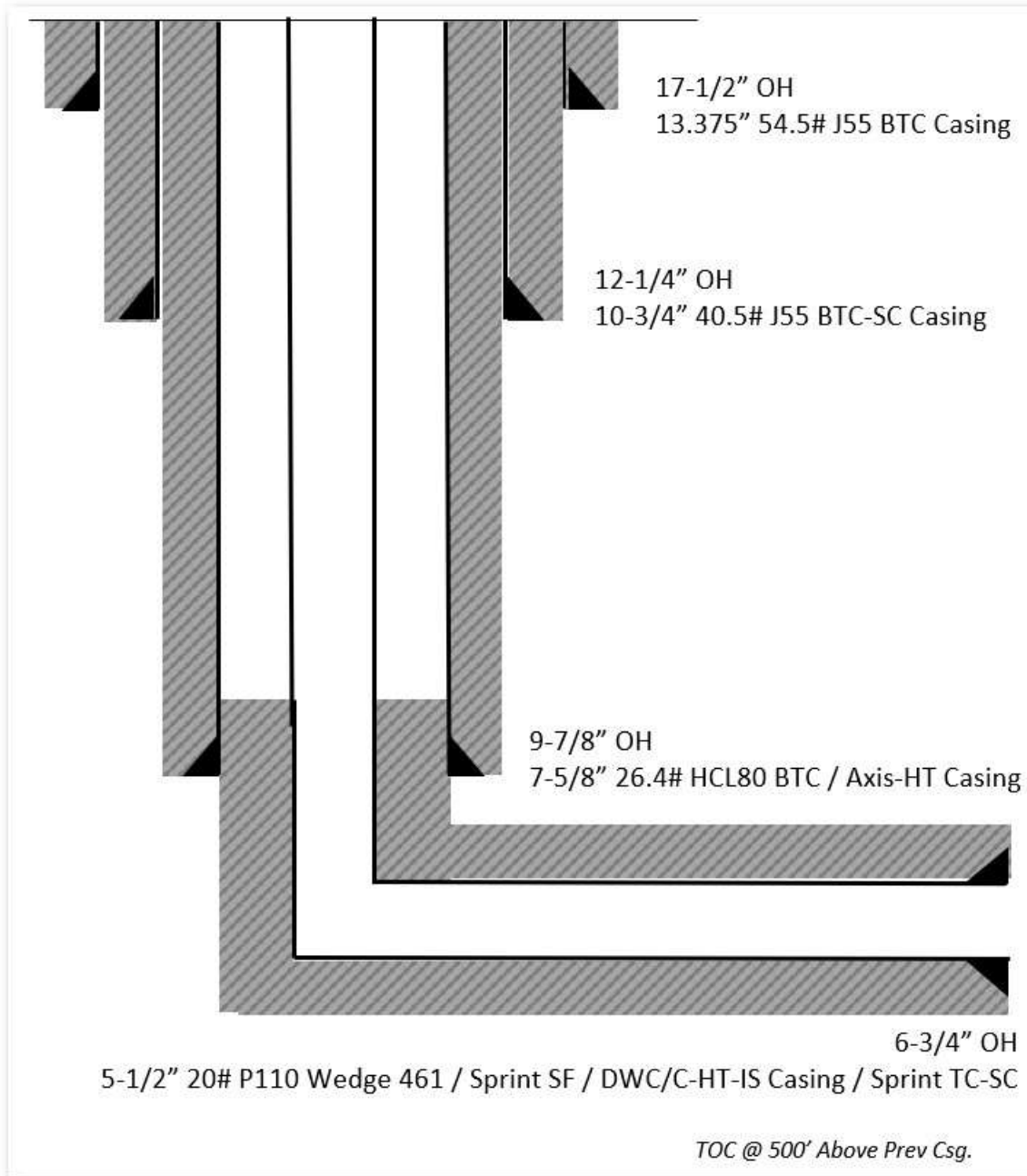
Pump high viscosity sweeps as needed for hole cleaning. The mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times. Appropriately weighted mud will be used to isolate potential gas, oil, and water zones until such time as casing can be cemented into place for zonal isolation.



# Oxy Blanket Design - Casing Design "B"



## 6. Wellbore Diagram

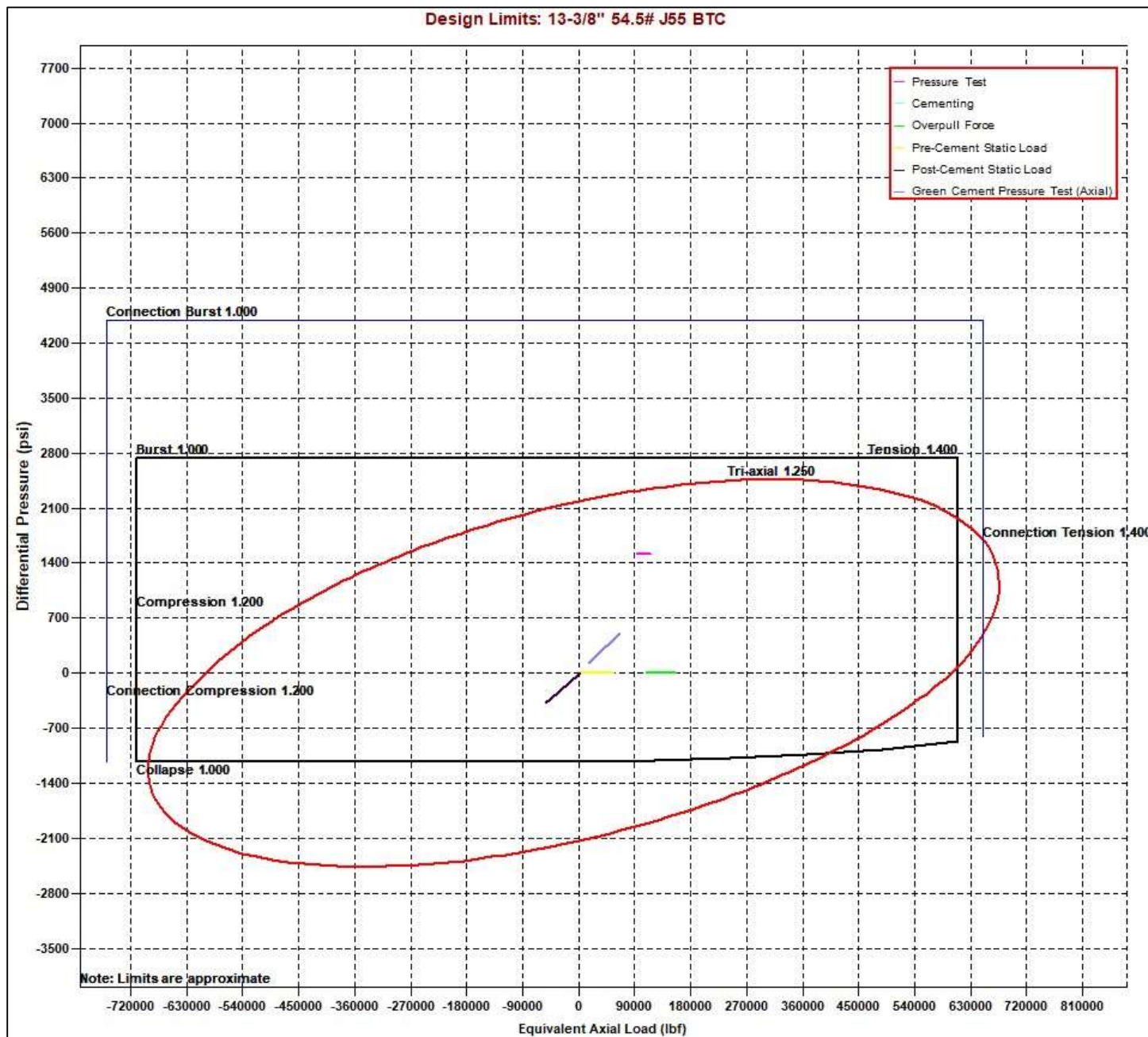




# Oxy Blanket Design - Casing Design "B"

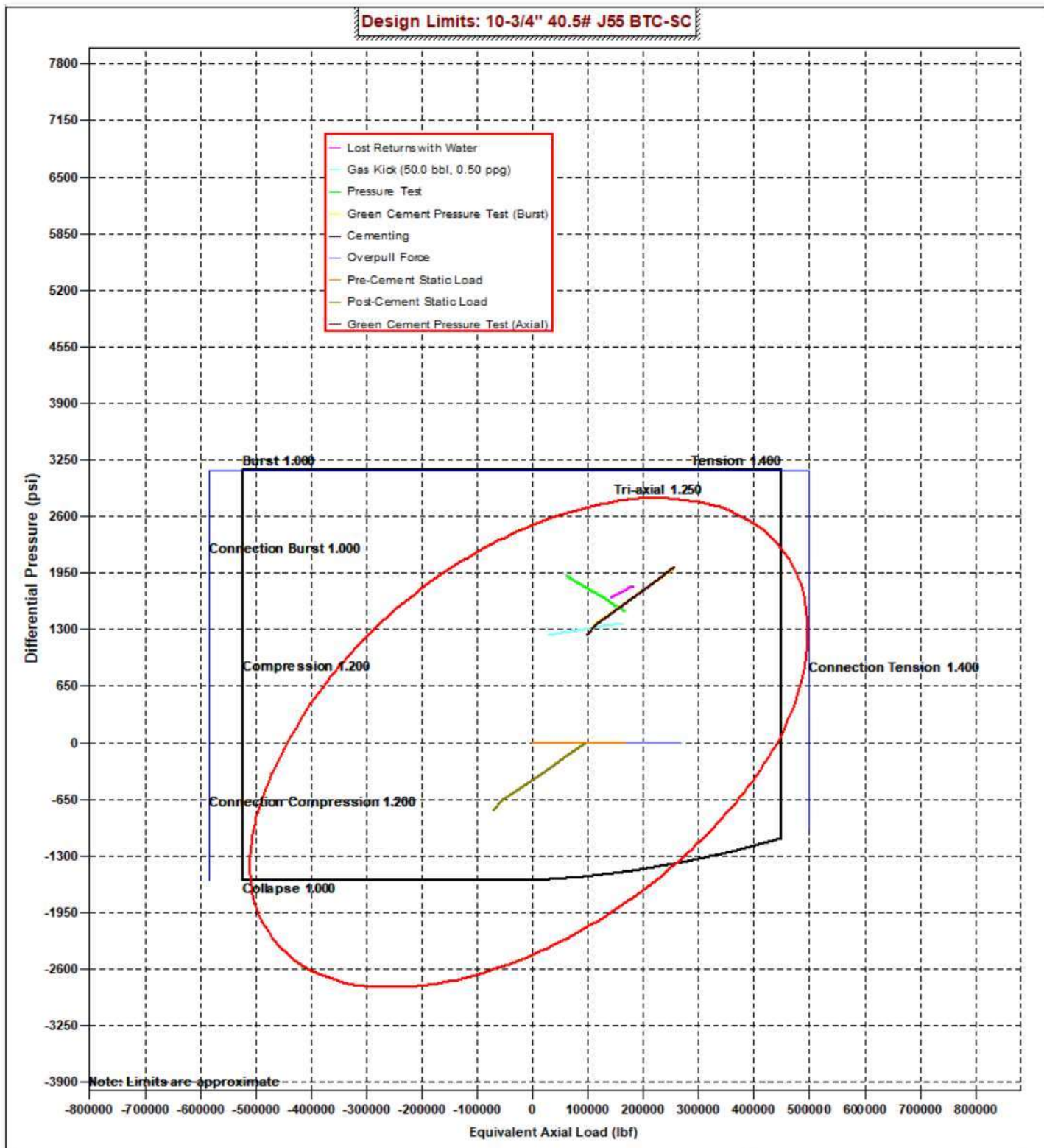


## 7. Landmark StressCheck Screenshots – Triaxial Output





# Oxy Blanket Design - Casing Design "B"

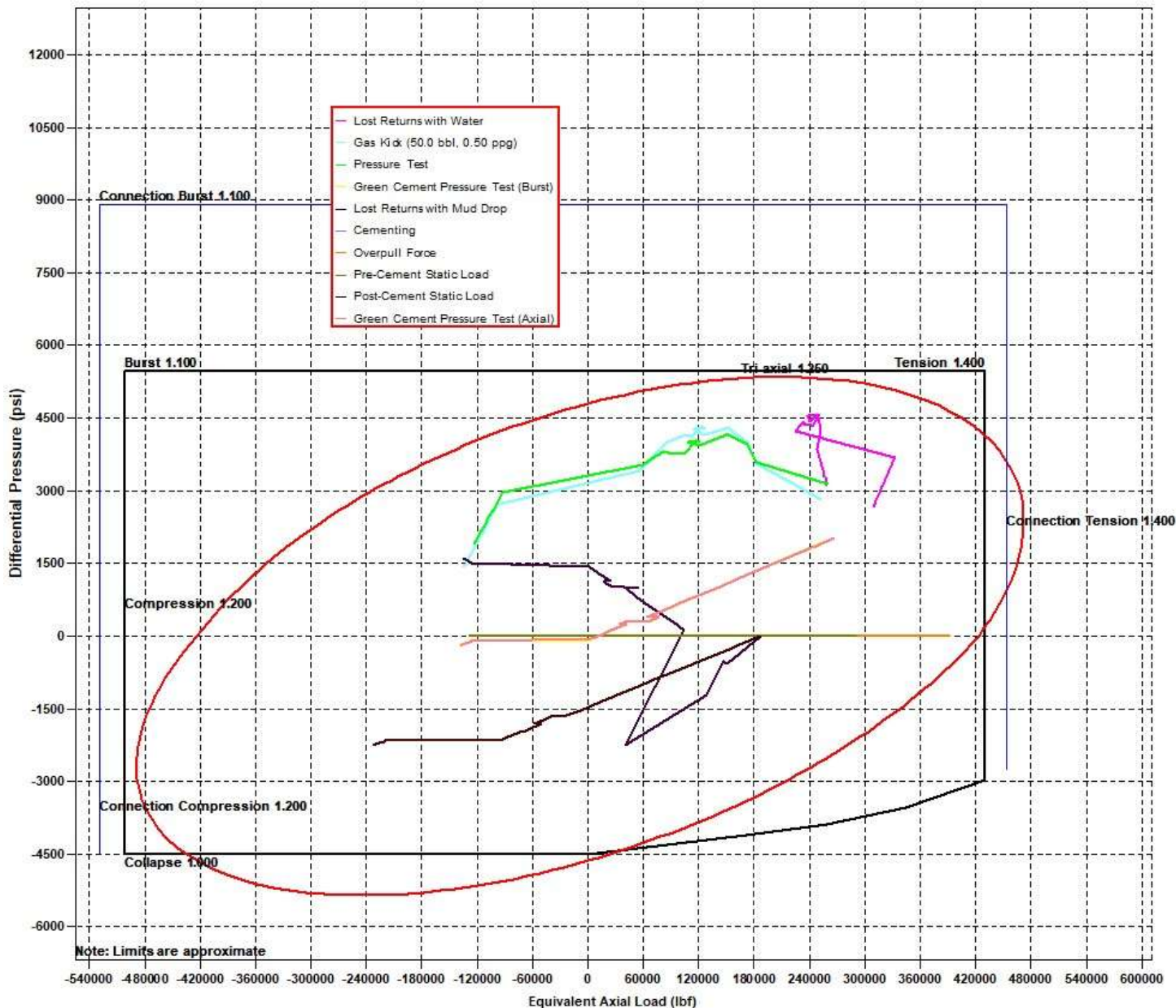




# Oxy Blanket Design - Casing Design "B"



Design Limits: 7-5/8" 26.4# HC-L80 BTC

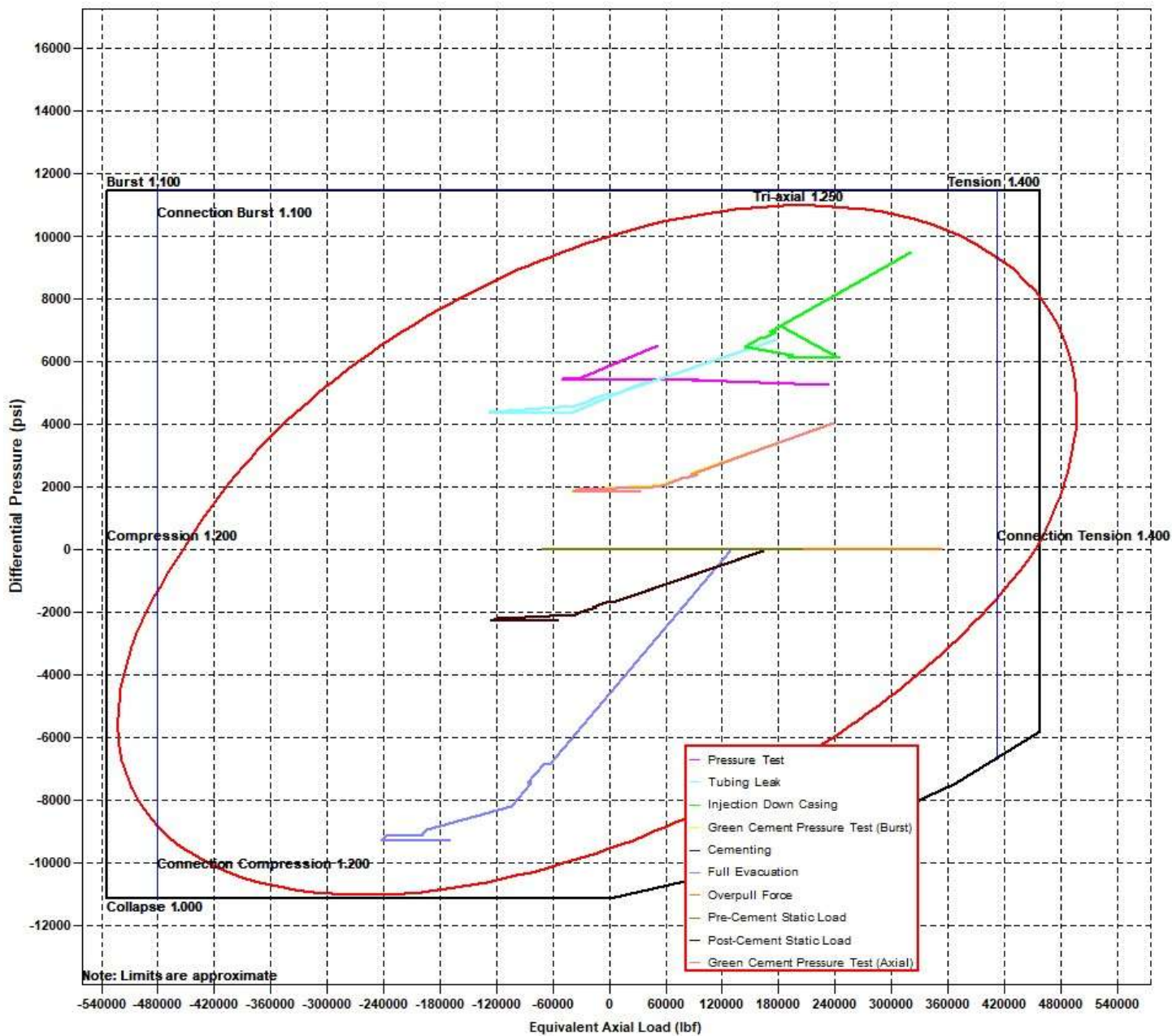




# Oxy Blanket Design - Casing Design "B"



Design Limits: 5-1/2" 20# P110 Sprint SF





## Oxy Blanket Design - Casing Design "B"



### 8. Landmark StressCheck Screenshots – Inputs for Intermediate 2 CSG Load Cases

#### Burst Load Cases

Burst Loads Data	
<b>Drilling Load:</b>	<b>Lost Returns with Water</b>
Fracture at Shoe (MD= 13111.00 ft):	10591 psi
Mud/Water Interface, MD:	0.00 ft
Mud Weight	11.28 ppg
Assigned External Pressure:	Fluid Gradients (w/ Pore Pressure)
<b>Drilling Load:</b>	<b>Gas Kick Profile</b>
Influx Depth, MD:	23361.00 ft
Kick Volume:	50.0 bbl
Kick Intensity	0.50 ppg
Maximum Mud Weight:	13.50 ppg
Kick Gas Gravity:	0.55 (0.1159 psi/ft @ 182 °F & 9291 psi)
Fracture at Shoe (MD= 13111.00 ft):	10591 psi
Drill Pipe OD:	5.000 in
Collar OD:	5.500 in
Collar Length:	200.00 ft
Assigned External Pressure:	Fluid Gradients (w/ Pore Pressure)
<b>Drilling Load:</b>	<b>Pressure Test</b>
Test Pressure:	3120 psi
Mud Weight:	10.00 ppg
Assigned External Pressure:	Fluid Gradients (w/ Pore Pressure)
<b>Drilling Load:</b>	<b>Green Cement Pressure Test</b>
Test Pressure:	4000 psi
Mud Weight at Shoe:	10.00 ppg
TOC, MD:	25.00 ft
Lead Slurry Density:	13.30 ppg
Tail Slurry Density:	13.20 ppg
Tail Slurry Length:	5909.00 ft
Displacement Fluid Density:	10.00 ppg
Float Collar Depth, MD:	13111.00 ft
<b>External Pressure:</b>	<b>Fluid Gradients (w/ Pore Pressure)</b>
TOC, MD:	25.00 ft
Prior Shoe, MD:	4832.00 ft
Mud Weight Above TOC:	10.00 ppg
Fluid Gradient Below TOC:	8.33 ppg
Wellhead Pressure:	18 psi
Pore Pressure In Open Hole:	Yes



# Oxy Blanket Design - Casing Design "B"



## Collapse Load Cases

Collapse Loads Data	
<b>Drilling Load:</b>	<b>Cementing</b>
Mud Weight at Shoe:	10.00 ppg
TOC, MD:	25.00 ft
Lead Slurry Density:	13.30 ppg
Tail Slurry Density:	13.20 ppg
Tail Slurry Length:	5909.00 ft
Displacement Fluid Density:	10.00 ppg
Float Collar Depth, MD:	13111.00 ft
Assigned External Pressure:	Fluid Gradients (w/ Pore Pressure)
<b>Drilling Load:</b>	<b>Lost Returns with Mud Drop</b>
Lost Returns Depth, MD:	13111.10 ft
Pore Pressure at Lost Returns Depth:	7918 psi
Pore Pressure Gradient at Lost Returns Depth:	11.93 ppg
Mud Weight:	13.50 ppg
Mud Drop Level, MD:	1484.14 ft
Assigned External Pressure:	Fluid Gradients (w/ Pore Pressure)
<b>External Pressure:</b>	<b>Fluid Gradients (w/ Pore Pressure)</b>
TOC, MD:	25.00 ft
Prior Shoe, MD:	4832.00 ft
Fluid Gradient Above TOC:	10.00 ppg
Fluid Gradient Below TOC:	10.00 ppg
Wellhead Pressure:	18 psi
Pore Pressure In Open Hole Below TOC:	No

## Axial Load Cases

Axial Loads Data	
Overpull Force:	100000 lbf
Pre-Cement Static Load:	Yes
Pickup Force:	0 lbf
Post-Cement Static Load:	Yes
Green Cement Pressure Test:	2000 psi
Service Loads:	Yes



# Oxy Blanket Design - Casing Design "B"



## 9. Landmark StressCheck Screenshot – Int. Casing Triaxial Results Table (Pressure Test)

Depth (MD) (ft)	Axial Force (lb)		Equivalent Axial Load (lb)	Bending Stress at OD (psi)	Absolute Safety Factor				Temperature (°F)	Pressure (psi)		Add'l Pickup To Prevent Buck. (lb)	Buckled Length (ft)
	Apparent (w/Bending)	Actual (w/o Bending)			Triaxial	Burst	Collapse (V)	Axial		Internal	External		
29	12400	-149056	-24069	-9987	16622.5	1.88	2.25	N/A	(3.90)	179	9555	6970	
30	12500	-155877	-30890	-105328	16622.5	1.96	2.42	N/A	(3.73)	180	9603	7193	
31	12500	-155878	-30891	-105329	16622.5	1.96	2.42	N/A	(3.73)	180	9603	7193	
32	12550	-159065	-34078	-107825	16622.5	2.00	2.50	N/A	(3.66)	180	9625	7298	
33	12550	-159066	-34079	-107826	16622.5	2.00	2.50	N/A	(3.66)	180	9625	7298	
34	12600	-162071	-37084	-110180	16622.5	2.03	2.59	N/A	(3.59)	180	9646	7396	
35	12600	-162072	-37085	-110181	16622.5	2.03	2.59	N/A	(3.59)	180	9646	7396	
36	12650	-164872	-39885	-112376	16622.5	2.07	2.67	N/A	(3.53)	181	9665	7488	
37	12650	-164873	-39886	-112377	16622.5	2.07	2.67	N/A	(3.53)	181	9665	7488	
38	12700	-167448	-42461	-114394	16622.5	2.10	2.76	N/A	(3.47)	181	9683	7573	
39	12700	-167449	-42462	-114395	16622.5	2.10	2.76	N/A	(3.47)	181	9683	7573	
40	12750	-169778	-44791	-116221	16622.5	2.14	2.84	N/A	(3.43)	181	9699	7649	
41	12750	-169779	-44792	-116222	16622.5	2.14	2.84	N/A	(3.43)	181	9699	7649	
42	12800	-171844	-46858	-117841	16622.5	2.17	2.91	N/A	(3.38)	181	9714	7717	
43	12800	-171845	-46858	-117842	16622.5	2.17	2.91	N/A	(3.38)	181	9714	7717	
44	12850	-173632	-48645	-119243	16622.5	2.19	2.98	N/A	(3.35)	182	9726	7775	
45	12850	-173633	-48646	-119244	16622.5	2.19	2.98	N/A	(3.35)	182	9726	7775	
46	12900	-175127	-50141	-120416	16622.5	2.21	3.04	N/A	(3.32)	182	9736	7824	
47	12900	-175128	-50141	-120416	16622.5	2.21	3.04	N/A	(3.32)	182	9736	7824	
48	12950	-176319	-51332	-121350	16622.5	2.23	3.09	N/A	(3.30)	182	9745	7863	
49	13000	-177197	-52210	-122039	16622.5	2.24	3.13	N/A	(3.28)	182	9751	7892	
50	13050	-177755	-52769	-122477	16622.5	2.25	3.15	N/A	(3.27)	182	9755	7910	
51	13050	-177756	-52769	-122477	16622.5	2.25	3.15	N/A	(3.27)	182	9755	7910	
52	13111	-177998	-53011	-122667	16622.5	2.25	3.16	N/A	(3.27)	182	9756	7918	
53													
54													
55													
56													

Internal Pressure = Surface Pressure + Hydrostatic = 9756 psi  
 External Pressure = Fluid Gradient w/ Pore Pressure = 7918 psi  
 Burst SF = 3.16

NOTE: Specific load case inputs for the pressure test can be seen in **Section 8** above. The test pressure does not exceed 70% of the minimum internal yield.




# Oxy Blanket Design - Casing Design "B"



## 10. Intermediate Non-API Casing Spec Sheet

Printed on: 06-19-2025



Coupling	Pipe Body
Grade: J55 (Casing)	Grade: J55 (Casing)
Body: Bright Green	1st Band: Bright Green
1st Band: White	2nd Band: -
2nd Band: -	3rd Band: -
3rd Band: -	4th Band: -

### API BTC -Special Clearance

Outside Diameter	10.750 in.	Wall Thickness	0.350 in.	Grade	J55 (Casing)
Min. Wall Thickness	87.50 %	Pipe Body Drift	API Standard	Type	Casing
Connection OD Option	Special Clearance				

#### Pipe Body Data

Geometry		Performance	
Nominal OD	10.750 in.	Drift	9.894 in.
Wall Thickness	0.350 in.	Plain End Weight	38.91 lb/ft
Nominal Weight	40.500 lb/ft	OD Tolerance	API
Nominal ID	10.050 in.		
		SMYS	55,000 psi
		Min UTS	75,000 psi
		Body Yield Strength	629 x1000 lb
		Min. Internal Yield Pressure	3130 psi
		Collapse Pressure	1580 psi
		Max. Allowed Bending	23 °/100 ft.

#### Connection Data

Geometry		Performance	
Thread per In	5	Joint Strength	700 x1000 lb
Connection OD	11.250 in.	Coupling Face Load	329 x1000 lb
Hand Tight Stand Off	1 in.	Internal Pressure Capacity	3130 psi

#### Notes

For products according to API Standards 5CT & 5B; Performance calculated considering API Technical Report 5C3 (Sections 9 & 10) equations.  
 For geometrical and steel grades combinations not considered in the API Standards 5CT and/or 5B; Performance calculations indirectly derived from API Technical Report 5C3 (Sections 9 & 10) equations.  
 Couplings OD are shown according to current API 5CT 10th Edition.

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## Oxy Blanket Design - Casing Design "B"



### Technical Data Sheet

7 5/8" 26.40 lbs/ft. L80HC - Axis HT

#### Mechanical Properties

Minimum Yield Strength	psi.	80,000
Maximum Yield Strength	psi.	95,000
Minimum Tensile Strength	psi.	95,000

#### Dimensions

		Pipe	AXIS HT
Outside Diameter	in.	7.625	8.500
Wall Thickness	in.	0.328	-
Inside Diameter	in.	6.969	-
Standard Drift	in.	6.844	6.844
Alternate Drift	in.	-	-
Plain End Weight	lbs/ft.	-	-
Nominal Linear Weight	lbs/ft.	26.40	-

#### Performance

		Pipe	AXIS HT
Minimum Collapse Pressure	psi.	4,320	-
Minimum Internal Yield Pressure	psi.	6,020	6,020
Minimum Pipe Body Yield Strength	lbs.	602 x 1,000	-
Joint Strength	lbs.	-	635 x 1,000

#### Make-Up Torques

		Pipe	AXIS HT
Optimum Make-Up Torque	ft/lbs.	-	8,000
Maximum Operational Torque	ft/lbs.	-	25,000

Disclaimer: The content of this Technical Data Sheet is for general information only and does not guarantee performance and/or accuracy, which can only be determined by a professional expert with the specific installation and operation parameters. Information printed or downloaded may not be current and no longer in control by Axis Pipe and Tube. Anyone using the information herein does so at his or her own risk. To verify that you have the latest technical information, please contact Axis Pipe and Tube Technical Sales +1 (979) 599-7600, [www.axispipeandtube.com](http://www.axispipeandtube.com)

## 11. Production Non-API Casing Spec Sheets



# Oxy Blanket Design - Casing Design "B"



Printed on: 11/09/2021

Tenaris

## TenarisHydril Wedge 461<sup>®</sup> MS



Coupling	Pipe Body
Grade: P110-4CY	Grade: P110-4CY
Body: White	1st Band: White
1st Band: Pale Green	2nd Band: Pale Green
2nd Band: -	3rd Band: Pale Green
3rd Band: -	4th Band: -
	5th Band: -
	6th Band: -

Outside Diameter	5.500 in.	Wall Thickness	0.361 in.	Grade	P110-4CY
Min. Wall Thickness	87.50 %	Pipe Body Drift	API Standard	Type	Casing
Connection OD Option	MS				

### Pipe Body Data

Geometry		Performance	
Nominal OD	5.500 in.	Wall Thickness	0.361 in.
Nominal Weight	20 lb/ft	Plain End Weight	19.83 lb/ft
Drift	4.653 in.	OD Tolerance	API
Nominal ID	4.778 in.	Body Yield Strength	729 x1000 lb
		Min. Internal Yield Pressure	14,360 psi
		SMYS	125,000 psi
		Collapse Pressure	12,300 psi

### Connection Data

Geometry		Performance		Make-Up Torques	
Connection OD	6.050 in.	Tension Efficiency	100 %	Minimum	17,000 ft-lb
Coupling Length	7.714 in.	Joint Yield Strength	729 x1000 lb	Optimum	18,000 ft-lb
Connection ID	4.778 in.	Internal Pressure Capacity	14,360 psi	Maximum	21,600 ft-lb
Make-up Loss	3.775 in.	Compression Efficiency	100 %	<b>Operation Limit Torques</b>	
Threads per inch	3.40	Compression Strength	729 x1000 lb	Operating Torque	43,000 ft-lb
Connection OD Option	Ms	Max. Allowable Bending	104 °/100 ft	Yield Torque	51,000 ft-lb
		External Pressure Capacity	12,300 psi	<b>Buck-On</b>	
		Coupling Face Load	273,000 lb	Minimum	21,600 ft-lb
				Maximum	23,100 ft-lb

### Notes

This connection is fully interchangeable with:  
 Wedge 441® - 5.5 in. - 0.304 / 0.361 in.  
 Wedge 461® - 5.5 in. - 0.304 / 0.415 / 0.476 in.  
 Connections with Dopeless® Technology are fully compatible with the same connection in its Standard version  
 In October 2019, TenarisHydril Wedge XP® 2.0 was renamed TenarisHydril Wedge 461™. Product dimensions and properties remain identical and both connections are fully interchangeable

For the latest performance data, always visit our website: [www.tenaris.com](http://www.tenaris.com)

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# Oxy Blanket Design - Casing Design "B"



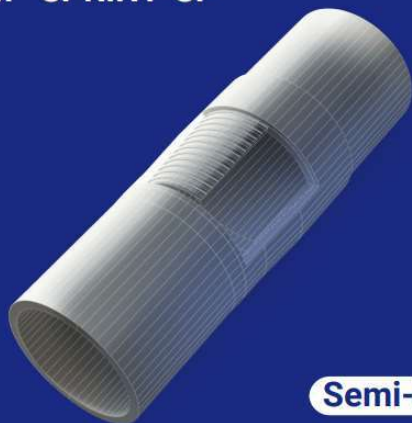
Generated on May 21, 2024



## CONNECTION DATA SHEET

OD: 5.500 in.      Grade: P110  
 Weight: 20.00 lb/ft      Drift: 4.653 in. (API)  
 Wall Th.: 0.361 in.

### VAM® SPRINT-SF



**Semi-Flush**

#### Field Torque Values

##### Make-up Torque (ft-lb)

- 20,000 MIN
- 22,500 OPTI
- 25,000 MAX

##### Torque with Sealability (ft-lb)

- 36,000 MTS

##### Locked Flank Torque (ft-lb)

- 4,500 MIN
- 15,750 MAX

(2) MTS: Maximum Torque with Sealability.

#### PIPE BODY PROPERTIES

Nominal OD	5.500	in.
Nominal ID	4.778	in.
Nominal Wall Thickness	0.361	in.
Minimum Wall Thickness	87.5	%
Nominal Weight (API)	20.00	lb/ft
Plain End Weight	19.83	lb/ft
Drift	4.653	in.
Grade Type	API 5CT	
Minimum Yield Strength	110	ksi
Maximum Yield Strength	140	ksi
Minimum Ultimate Tensile Strength	125	ksi
Pipe Body Yield Strength	641	klb
Internal Yield Pressure	12,640	psi
Collapse Pressure	11,100	psi

#### CONNECTION PROPERTIES

Connection Type	Semi-Premium Integral	Semi-Flu
Nominal Connection OD	5.783	in.
Nominal Connection ID	4.718	in.
Make-up Loss	5.965	in.
Tension Efficiency	90	% Pipe Body
Compression Efficiency	90	% Pipe Body
Internal Pressure Efficiency	100	% Pipe Body
External Pressure Efficiency	100	% Pipe Body

#### JOINT PERFORMANCES

Tension Strength	577	klb
Compression Strength	577	klb
Internal Pressure Resistance	12,640	psi
External Pressure Resistance	11,100	psi
Maximum Bending, Structural	78	°/100 ft
Maximum Bending, with Sealability(1)	30	°/100 ft

(1) Sealability rating demonstrated as per API RP-5C5 / ISO 13679



**BOOST YOUR EFFICIENCY, REDUCE COSTS  
 AND ENSURE 100% WELL INTEGRITY WITH  
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# Oxy Blanket Design - Casing Design "B"



**DWC/C-HT-IS**

## Connection Data Sheet

OD (in.)	WEIGHT (lbs./ft.)	WALL (in.)	GRADE	API DRIFT (in.)	RBW%	CONNECTION
5.500	Nominal: 20.00 Plain End: 19.83	0.361	‡VST P110MY	4.653	87.5	DWC/C-HT-IS

PIPE PROPERTIES		
Nominal OD	5.500	in.
Nominal ID	4.778	in.
Nominal Area	5.828	sq.in.
Grade Type	API 5CT	
Min. Yield Strength	125	ksi
Max. Yield Strength	140	ksi
Min. Tensile Strength	135	ksi
Yield Strength	729	klb
Ultimate Strength	787	klb
Min. Internal Yield Pressure	14,360	psi
Collapse Pressure	12,090	psi

CONNECTION PROPERTIES		
Connection Type	Semi-Premium T&C	
Connection OD (nom)	6.050	in.
Connection ID (nom)	4.778	in.
Make-Up Loss	4.125	in.
Coupling Length	9.250	in.
Critical Cross Section	5.828	sq.in.
Tension Efficiency	89.1%	of pipe
Compression Efficiency	88.0%	of pipe
Internal Pressure Efficiency	86.1%	of pipe
External Pressure Efficiency	100.0%	of pipe

CONNECTION PERFORMANCES		
Yield Strength	649	klb
Parting Load	729	klb
Compression Rating	641	klb
Min. Internal Yield Pressure	12,360	psi
External Pressure Resistance	12,090	psi
Maximum Uniaxial Bend Rating	91.7	<sup>o</sup> /100 ft
Reference String Length w 1.4 Design Factor	22,890	ft.

FIELD TORQUE VALUES		
Min. Make-up torque	16,600	ft.lb
Opti. Make-up torque	17,950	ft.lb
Max. Make-up torque	19,300	ft.lb
Min. Shoulder Torque	1,660	ft.lb
Max. Shoulder Torque	13,280	ft.lb
Max. Delta Turn	0.200	Turns
‡Maximum Operational Torque	23,800	ft.lb
‡Maximum Torsional Value (MTV)	26,180	ft.lb

‡ Maximum Operational Torque and Maximum Torsional Value only valid with Vallourec P110MY Material.  
 ‡ P110MY - Coupling Min Yield Strength is 110ksi and Coupling Max Yield is 125ksi.

"VST = Vallourec Star as the mill source for the pipe, "P110EC" is the grade name"

Need Help? Contact: [tech.support@vam-usa.com](mailto:tech.support@vam-usa.com)

For detailed information on performance properties, refer to DWC Connection Data Notes on following page(s).

Connection specifications within the control of VAM USA were correct as of the date printed. Specifications are subject to change without notice. Certain connection specifications are dependent on the mechanical properties of the pipe. Mechanical properties of mill proprietary pipe grades were obtained from mill publications and are subject to change. Properties of mill proprietary grades should be confirmed with the mill. Users are advised to obtain current connection specifications and verify pipe mechanical properties for each application.

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# Oxy Blanket Design - Casing Design "B"



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**DWC Connection Data Sheet Notes:**

1. DWC connections are available with a seal ring (SR) option.
2. All standard DWC/C connections are interchangeable for a given pipe OD. DWC connections are interchangeable with DWC/C-SR connections of the same OD and wall.
3. Connection performance properties are based on nominal pipe body and connection dimensions.
4. DWC connection internal and external pressure resistance is calculated using the API rating for buttress connections. API Internal pressure resistance is calculated from formulas 31, 32, and 35 in the API Bulletin 5C3.
5. DWC joint strength is the minimum pipe body yield strength multiplied by the connection critical area.
6. API joint strength is for reference only. It is calculated from formulas 42 and 43 in the API Bulletin 5C3.
7. Bending efficiency is equal to the compression efficiency.
8. The torque values listed are recommended. The actual torque required may be affected by field conditions such as temperature, thread compound, speed of make-up, weather conditions, etc.
9. Connection yield torque is not to be exceeded.
10. Reference string length is calculated by dividing the joint strength by both the nominal weight in air and a design factor (DF) of 1.4. These values are offered for reference only and do not include load factors such as bending, buoyancy, temperature, load dynamics, etc.
11. DWC connections will accommodate API standard drift diameters.
12. DWC/C family of connections are compatible with API Buttress BTC connections. Please contact [tech.support@vam-usa.com](mailto:tech.support@vam-usa.com) for details on connection ratings and make-up.

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# Oxy Blanket Design - Casing Design "B"



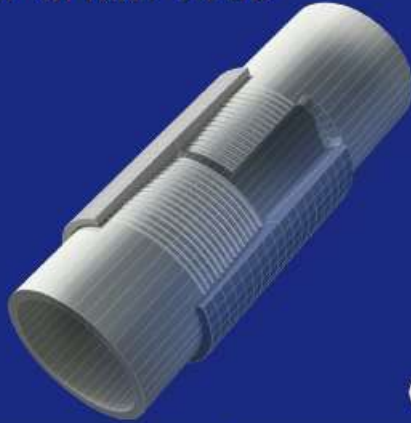
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## CONNECTION DATA SHEET

OD: 5.500 in. Grade: P110 EC  
 Weight: 20.00 lb/ft Drift: 4.653 in. (API)  
 Wall Th.: 0.361 in.

### VAM® SPRINT-TC SC



T&C

#### Field Torque Values

##### Make-up Torque (ft-lb)

- 23,000 MIN
- 24,000 OPTI
- 25,000 MAX

##### Torque with Sealability (ft-lb)

- 39,200 MTS

##### Locked Flank Torque (ft-lb)

- 1,200 MIN
- 16,800 MAX

(1) MTS: Maximum Torque with Sealability.  
 (2) Note: Thread compound must be applied as a thin even layer

#### PIPE BODY PROPERTIES

Nominal OD	5.500	in.
Nominal ID	4.778	in.
Nominal Wall Thickness	0.361	in.
Minimum Wall Thickness	87.5	%
Nominal Weight (API)	20.00	lb/ft
Plain End Weight	19.83	lb/ft
Drift	4.653	in.
Grade Type	High Yield	
Minimum Yield Strength	125	ksi
Maximum Yield Strength	140	ksi
Minimum Ultimate Tensile Strength	135	ksi
Pipe Body Yield Strength	729	klb
Internal Yield Pressure	14,360	psi
Collapse Pressure	12,090	psi

#### CONNECTION PROPERTIES

Connection Type	Semi-Premium Threaded & Coupled	
Nominal Connection OD	5.900	in.
Nominal Connection ID	4.830	in.
Make-up Loss	3.973	in.
Coupling Length	8.296	in.
Tension Efficiency	100	% Pipe Body
Compression Efficiency	100	% Pipe Body
Internal Pressure Efficiency	100	% Pipe Body
External Pressure Efficiency	100	% Pipe Body

#### JOINT PERFORMANCES

Tension Strength	729	klb
Compression Strength	729	klb
Internal Pressure Resistance	14,360	psi
External Pressure Resistance	12,090	psi
Maximum Bending, Structural	104	°/100 ft
Maximum Bending, with Sealability	30	°/100 ft
Maximum Load on Coupling Face	227	klb

(4) Sealability rating demonstrated as per API RP 5C5 / ISO 13679



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# Oxy Blanket Design - Casing Design "A"



## 1. Casing Program

The designs and associated details listed in this document are the "worst case scenario" boundaries for design safety factors.

Location and lithology have NOT been accounted for in these designs; however, the designs are NOT valid for wells within KPLA Boundaries or Capitan Reef areas. The specific well details will be based on the APD/Sundry package and the information listed in the COA.

The mud program listed below will remain the same between each design variation.

Hole will be full during casing run for well control and tensile SF.

Casing will be kept at least half full during run for these designs to meet BLM collapse SF requirement.

### Design Variation "A1"

Section	Hole Size (in)	MD		TVD		Csg. OD (in)	Csg Wt. (ppf)	Grade	Conn.
		From (ft)	To (ft)	From (ft)	To (ft)				
Surface	14.75	0	1200	0	1200	10.75	40.5	J-55	BTC
Intermediate	9.875	0	13111*	0	12775*	7.625	26.4	L-80 HC	BTC Axis HT GBCD
Production	6.75	0	23361	0	12775	5.5	20	P-110	Wedge 461 Sprint SF DWC/C-HT-IS Sprint-TC SC

\*Curve could be in intermediate or production section

### Design Variation "A2" - Option to Pivot to Design "B" for Contingency 4S

Section	Hole Size (in)	MD		TVD		Csg. OD (in)	Csg Wt. (ppf)	Grade	Conn.
		From (ft)	To (ft)	From (ft)	To (ft)				
Surface	17.5	0	1200	0	1200	13.375	54.5	J-55	BTC
Intermediate	12.25+	0	13111*	0	12775*	7.625	26.4	L-80 HC	BTC Axis HT GBCD
Production	6.75	0	23361	0	12775	5.5	20	P-110	Wedge 461 Sprint SF DWC/C-HT-IS Sprint-TC SC

\*Curve could be in intermediate or production section

†If 4S Contingency is not required, Oxy requests permission to transition from 12.25" to 9.875" Intermediate at some point during the hole section. Cement volumes will be updated on C103 submission.

All casing strings will be tested in accordance with 43 CFR part 3170 Subpart 3172



## Oxy Blanket Design - Casing Design "A"



<i>All Casing SF Values will meet or exceed those below</i>			
<b>SF</b>	<b>SF</b>	<b>Body SF</b>	<b>Joint SF</b>
<b>Collapse</b>	<b>Burst</b>	<b>Tension</b>	<b>Tension</b>
1.00	1.100	1.4	1.4

### §Annular Clearance Variance Request

As per the agreement reached in the Oxy/BLM face-to-face meeting on Feb 22, 2018, Oxy requests permission to allow deviation from the 0.422" annular clearance requirement. Please see Annular Clearance Variance attachment for further details.

§Annular Clearance Variance Request may not apply to all connections used or presented.

## 2. Trajectory / Boundary Conditions

Section	MD		TVD		Max. Angle	Max. Planned DLS
	Deepest KOP (ft)	End Build (ft)	Deepest KOP (ft)	End Build (ft)		
Surface	0	1200	0	1200	5°	1°/100 ft
Intermediate	5000 (inside Cherry Canyon)	6500	4980	6390	20°	2°/100 ft
	12211	13111	12202	12775	92° ‡	12°/100 ft ‡
Production	12211 (~100' MD past ICP)	13111	12202	12775	92° ‡	12°/100 ft ‡

‡ Applies only when intermediate casing depth is deepened to landing point to match TVD of production in some areas where required to accommodate higher MWs in depleted areas.

Oxy has reviewed casing burst, collapse, and axial loadcases in Landmark StressCheck with the boundary conditions in the table above which satisfies Oxy and BLM minimum design criteria. Triaxial plots for each casing string is shown in Section 7 and intermediate load case inputs are shown in Section 8.



## Oxy Blanket Design - Casing Design "A"



### 3. Cementing Program

NOTE: Blanket design is for technical review only. The cement volumes will be adjusted to ensure cement tops meet BLM requirements.

#### Design Variation "A1"

Section	Stage	Slurry:	Sacks	Yield (ft <sup>3</sup> /ft)	Density (lb/gal)	Excess:	TOC	Placement	Description
Surface	1	Surface - Tail	819	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.	1	Intermediate 1S - Tail	658	1.68	13.2	5%	7,206	Circulate	Class C+Ret., Disper.
Int.	2	Intermediate 2S - Tail BH	1111	1.71	13.3	25%	-	Bradenhead	Class C+Accel.
Prod.	1	Production - Tail	665	1.84	13.3	25%	11,611	Circulate	Class C+Ret.
Prod.	2*	Production - Tail BH*	TBD	1.84	13.3	50%	500' inside prev csg	Circulate	Class C+Ret.

\*Only applies in scenario where planned single stage job TOC is not 500' above previous shoe as designed/programmed requiring bradenhead 2nd stage to meet requirements

#### Design Variation "A2"

Section	Stage	Slurry:	Sacks	Yield (ft <sup>3</sup> /ft)	Density (lb/gal)	Excess:	TOC	Placement	Description
Surface	1	Surface - Tail	1023	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.	1	Intermediate 1S - Tail	658	1.68	13.2	5%	7,206	Circulate	Class C+Ret., Disper.
Int.	2	Intermediate 2S - Tail BH	1293	1.71	13.3	25%	-	Bradenhead	Class C+Accel.
Prod.	1	Production - Tail	665	1.84	13.3	25%	11,611	Circulate	Class C+Ret.
Prod.	2*	Production - Tail BH*	TBD	1.84	13.3	50%	500' inside prev csg	Circulate	Class C+Ret.

\*Only applies in scenario where planned single stage job TOC is not 500' above previous shoe as designed/programmed requiring bradenhead 2nd stage to meet requirements

As Reviewed and Approved by BLM on Feb 8, 2024: Oxy uses a Class C / Pozzolan mix on its production cement slurry, which has the same fluid properties as Class H, and has been pilot and field blend tested to have as good or better compressive strength development at our target densities.

#### Offline Cementing Request

Oxy requests a variance to cement the 9.625" and/or 7.625" intermediate casing strings offline in accordance to the approved variance, EC Tran 461365. Please see Offline Cementing Variance attachment for further details.

#### Bradenhead CBL Request

Oxy requests permission to adjust the CBL requirement after bradenhead cement jobs, on 7-5/8" intermediate casings, as per the agreement reached in the OXY/BLM meeting on September 5, 2019. Please see Bradenhead CBL Variance attachment for further details.



## Oxy Blanket Design - Casing Design "A"



### 4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:	Deepest TVD Depth (ft) per Section:
9.875" Hole	13-5/8"	5M	Annular	✓	70% of working pressure	12775**
		5M	Blind Ram	✓	250 psi / 5000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			
6.75" Hole	13-5/8"	5M	Annular	✓	100% of working pressure	12775
		10M	Blind Ram	✓	250 psi / 10000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			

\*Specify if additional ram is utilized

\*\*Curve could be in intermediate or production section

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per 43 CFR part 3170 Subpart 3172 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

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

#### 5M Annular BOP Request

Per BLM's Memorandum No. NM-2017-008: *Decision and Rationale for a Variance Allowing the Use of a 5M Annular Preventer with a 10M BOP Stack*, Oxy requests to employ a 5M annular with a 10M BOPE stack in the pilot and lateral sections of the well and will ensure that two barriers to flow are



## Oxy Blanket Design - Casing Design "A"



Formation integrity test will be performed per 43 CFR part 3170 Subpart 3172.

On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with 43 CFR part 3170 Subpart 3172.

A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. Coflex hoses are in compliance with API 16C and meets inspection and testing requirements. See attached for specs and hydrostatic test chart.

Y	Are anchors required by manufacturer?
---	---------------------------------------

A multibowl or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per 43 CFR part 3170 Subpart 3172 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on October 8, 2015.

See attached Schematics.

### BOP Break Testing Request

Oxy requests permission to adjust the BOP break testing (intermediate and production) requirements as per the agreement reached in the OXY/BLM meeting on April 4th, 2025. Please see BOP Break Testing Variance attachment for further details.

### Hammer Union Variance

Oxy requests permission for hammer unions behind the choke to be routed to the gas buster. The hammer unions will not be subject to wellbore pressure in compliance with API STD 53.

Oxy will use Cameron ADAPT wellhead system that uses an OEC top flange connection. This connection has been fully vetted and verified by API to Spec 6A and carries an API monogram.



## Oxy Blanket Design - Casing Design "A"



### 5. Mud Program & Drilling Conditions

Section	Depth - MD		Depth - TVD		Type	Weight (ppg)	Viscosity	Water Loss
	From (ft)	To (ft)	From (ft)	To (ft)				
Surface	0	1200	0	1200	Water-Based Mud	8.6 - 8.8	40-60	N/C
Intermediate	1200	13111*	1200	12775*	Saturated Brine-Based or Oil-Based Mud	8.0 - 10.0	35-45	N/C
Production	13111	23361	12775	12775	Water-Based or Oil-Based Mud	9.5 - 13.5	38-50	N/C

\*Curve could be in intermediate or production section\*

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. The following is a general list of products: Barite, Bentonite, Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Salt Water Clay, CACL2. Oxy will use a closed mud system.

#### Drilling Blind Request

In the event total losses are encountered in the intermediate section, Oxy requests permission to drill blind due to depleted formations where risk of hydrocarbon kicks are unlikely.

- Oxy will first attempt to cure losses before proceeding with drilling blind
- Drilling blind will only be allowed in the Castille and formations below
- While drilling blind, will monitor backside by filling-up on connections and utilize gas monitors
- Depths at which losses occurred and attempt to cure losses with relevant details (LCM sweep info, etc.) will be documented in the drillers log and Subsequent Reports to the BLM.
- If a well control event (hydrocarbon kick) occurs while drilling blind, the BLM will be notified after the well is secured and returned to static.

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

Pump high viscosity sweeps as needed for hole cleaning. The mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times. Appropriately weighted mud will be used to isolate potential gas, oil, and water zones until such time as casing can be cemented into place for zonal isolation.

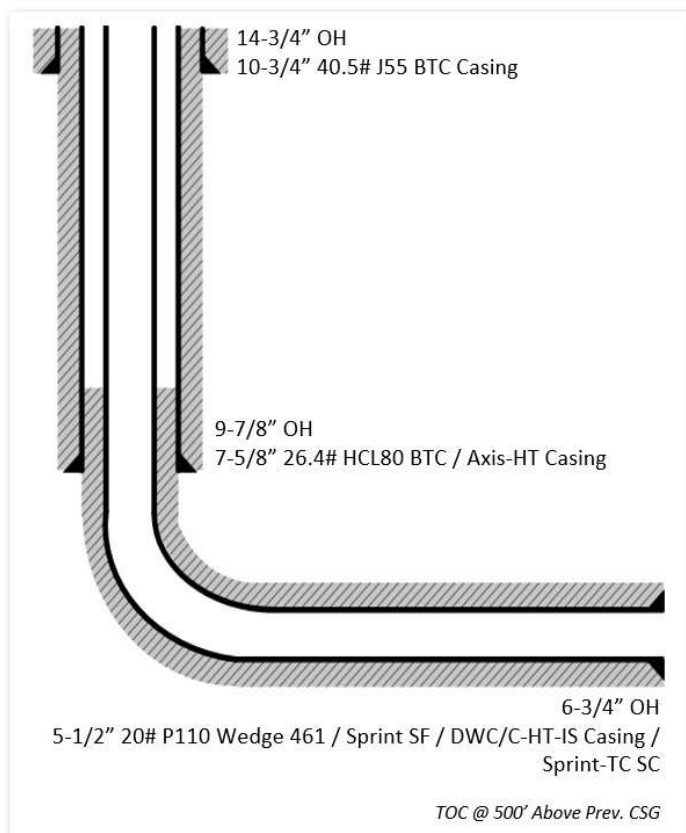


# Oxy Blanket Design - Casing Design "A"

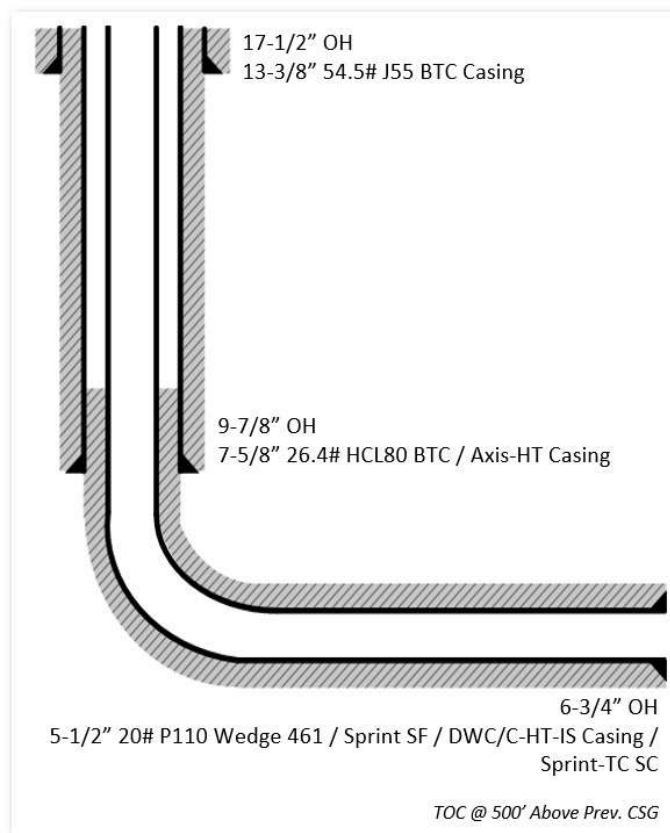


## 6. Wellbore Diagram(s)

### Design Variation "A1"



### Design Variation "A2"

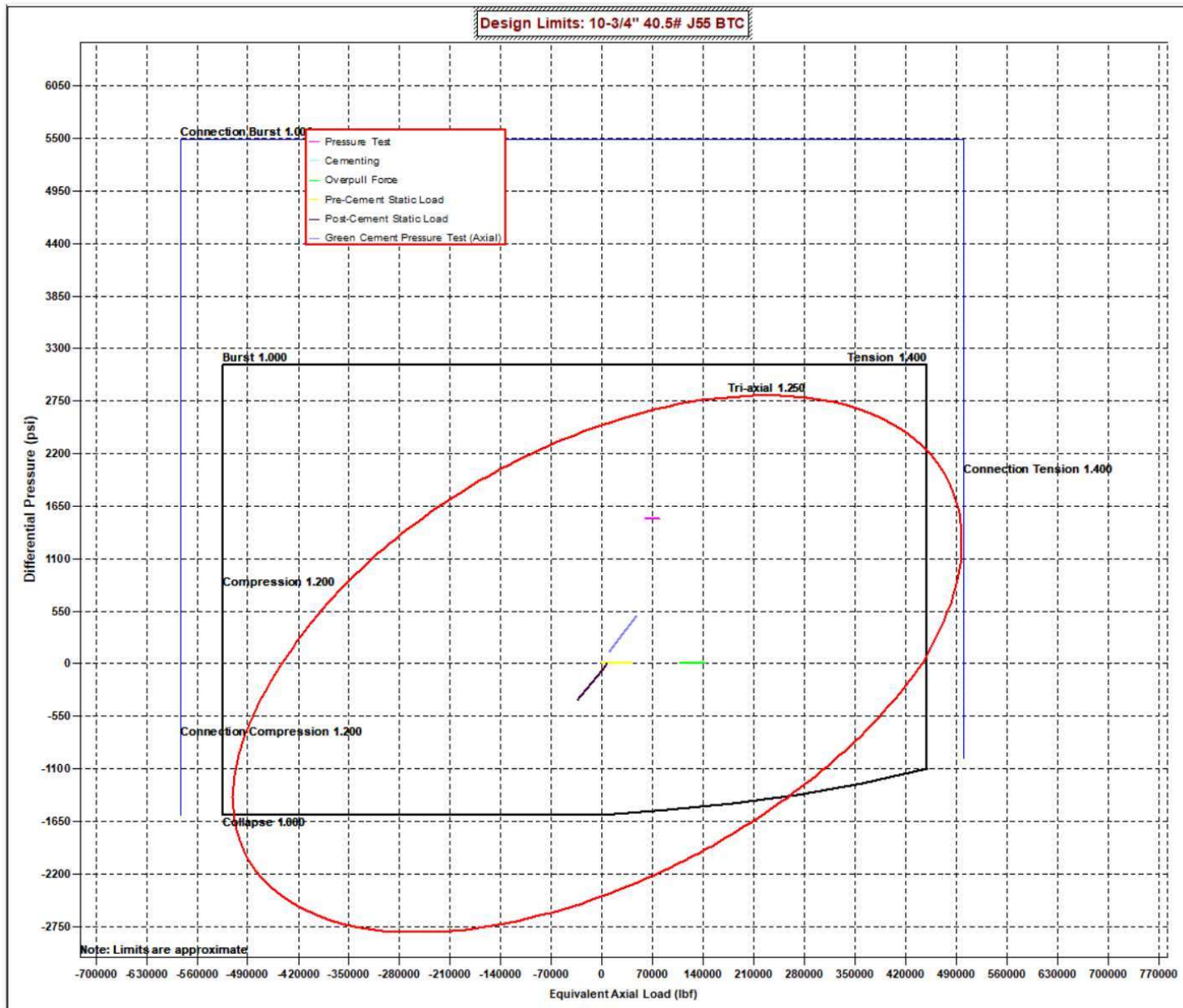




# Oxy Blanket Design - Casing Design "A"

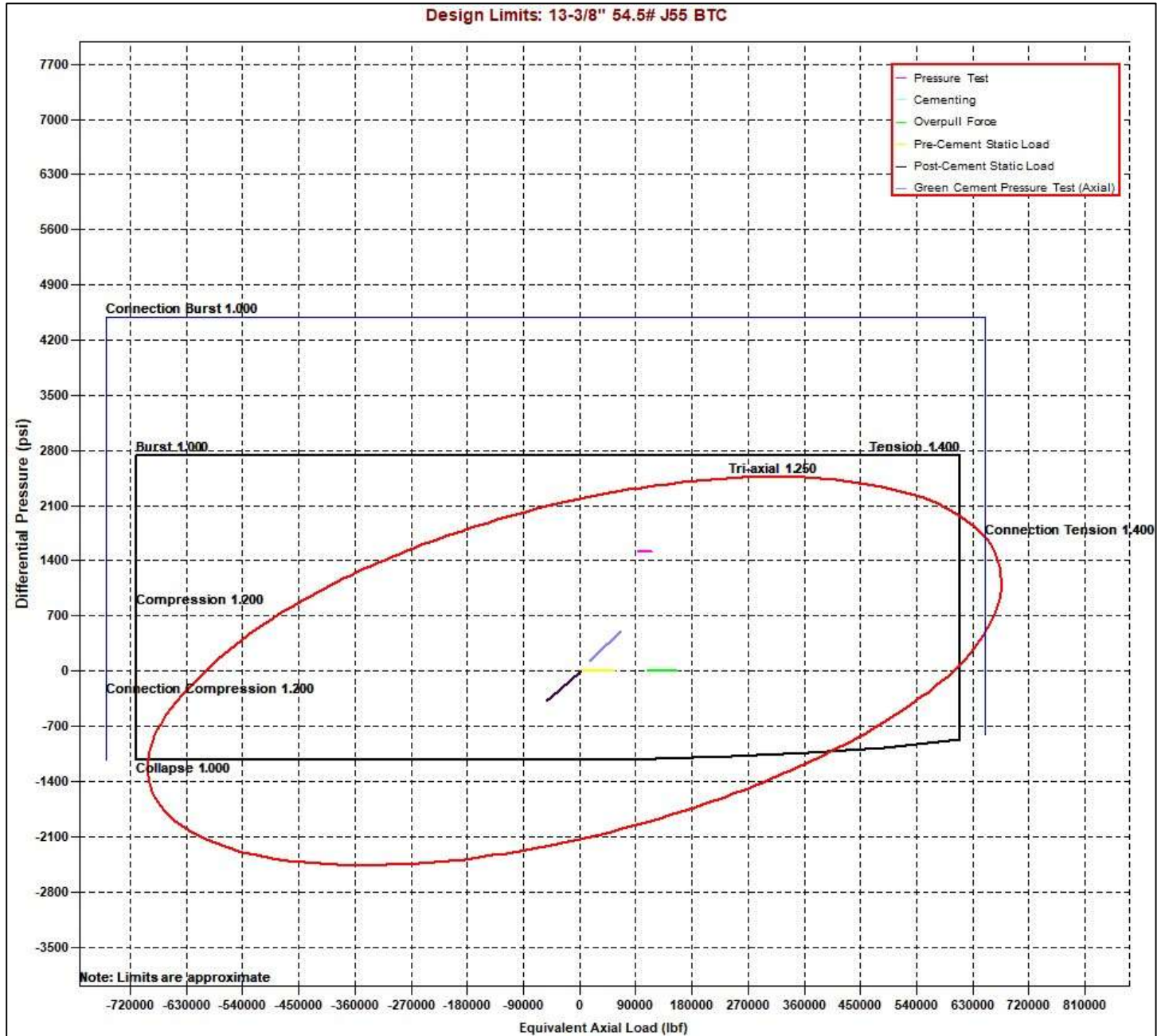


## 7. Landmark StressCheck Screenshots – Triaxial Output





# Oxy Blanket Design - Casing Design "A"

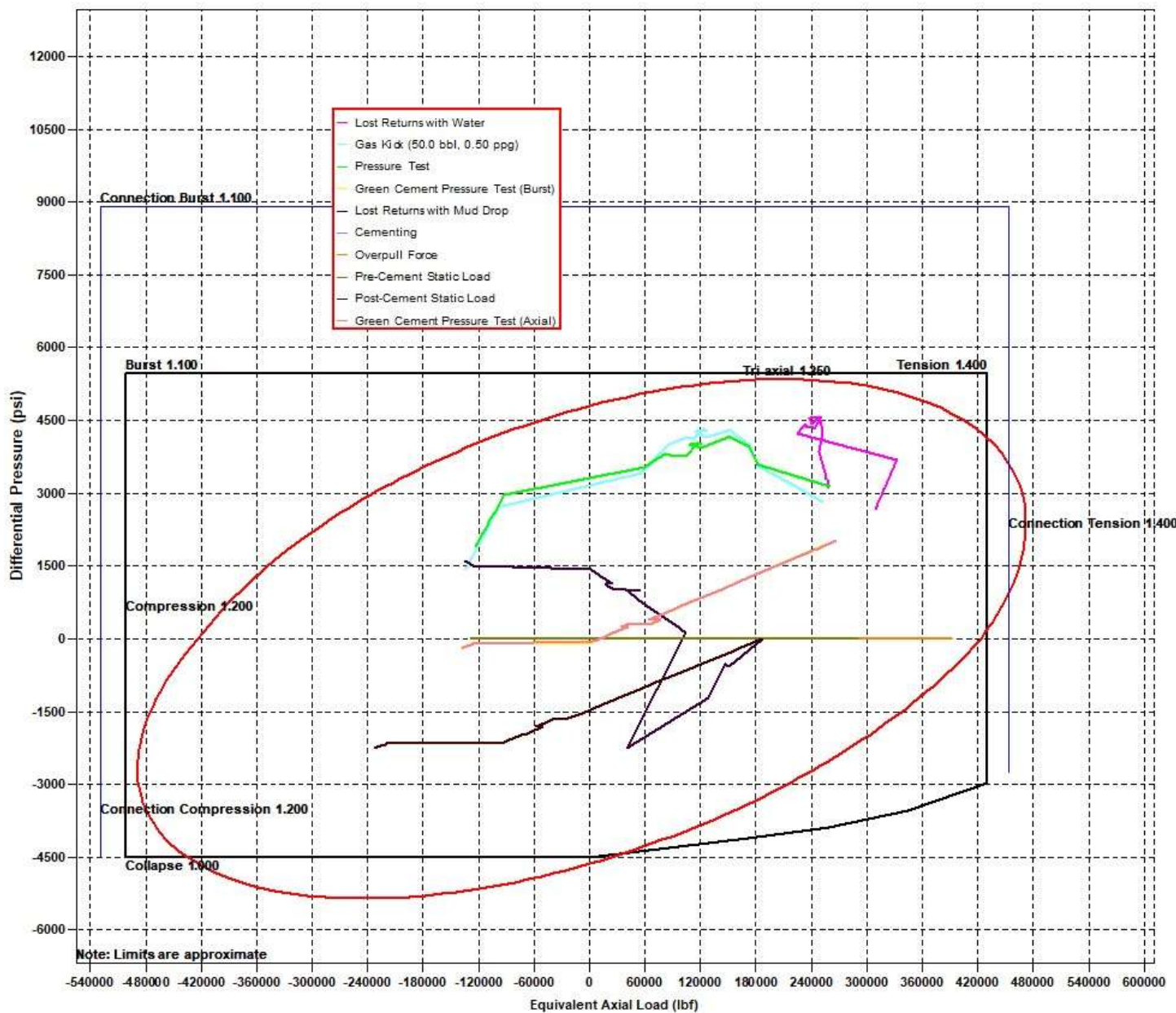




# Oxy Blanket Design - Casing Design "A"



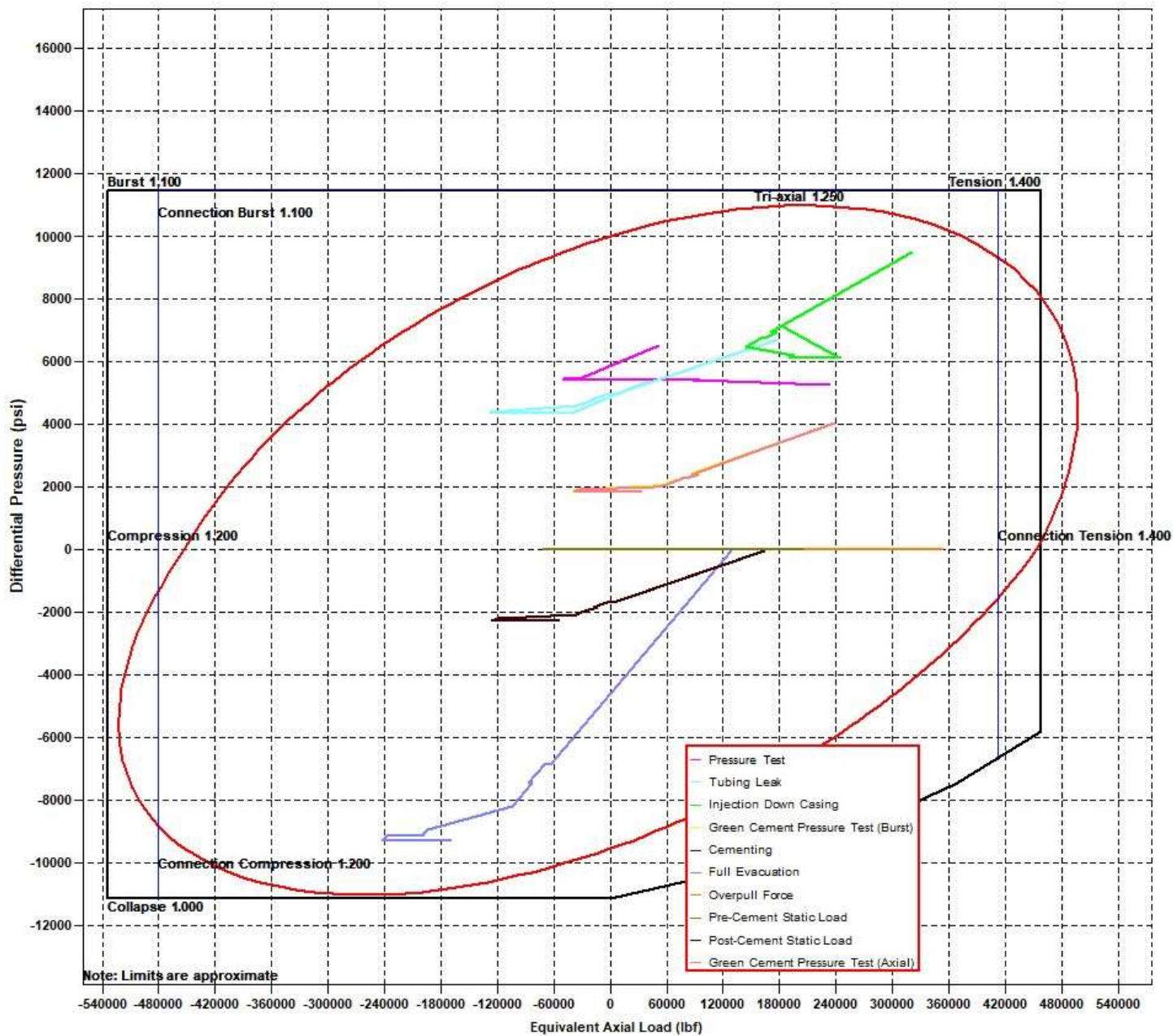
Design Limits: 7-5/8" 26.4# HC-L80 BTC





# Oxy Blanket Design - Casing Design "A"

Design Limits: 5-1/2" 20# P110 Sprint SF





## Oxy Blanket Design - Casing Design "A"



### 8. Landmark StressCheck Screenshots – Inputs for Intermediate CSG Load Cases

#### Burst Load Cases

Burst Loads Data	
<b>Drilling Load:</b>	<b>Lost Returns with Water</b>
Fracture at Shoe (MD= 13111.00 ft):	10591 psi
Mud/Water Interface, MD:	0.00 ft
Mud Weight	11.28 ppg
Assigned External Pressure:	Fluid Gradients (w/ Pore Pressure)
<b>Drilling Load:</b>	<b>Gas Kick Profile</b>
Influx Depth, MD:	23361.00 ft
Kick Volume:	50.0 bbl
Kick Intensity	0.50 ppg
Maximum Mud Weight:	13.50 ppg
Kick Gas Gravity:	0.55 (0.1159 psi/ft @ 182 °F & 9291 psi)
Fracture at Shoe (MD= 13111.00 ft):	10591 psi
Drill Pipe OD:	5.000 in
Collar OD:	5.500 in
Collar Length:	200.00 ft
Assigned External Pressure:	Fluid Gradients (w/ Pore Pressure)
<b>Drilling Load:</b>	<b>Pressure Test</b>
Test Pressure:	3120 psi
Mud Weight:	10.00 ppg
Assigned External Pressure:	Fluid Gradients (w/ Pore Pressure)
<b>Drilling Load:</b>	<b>Green Cement Pressure Test</b>
Test Pressure:	2000 psi
Mud Weight at Shoe:	10.00 ppg
TOC, MD:	25.00 ft
Lead Slurry Density:	13.30 ppg
Tail Slurry Density:	13.30 ppg
Tail Slurry Length:	5906.00 ft
Displacement Fluid Density:	10.00 ppg
Float Collar Depth, MD:	12800.00 ft
<b>External Pressure:</b>	<b>Fluid Gradients (w/ Pore Pressure)</b>
TOC, MD:	25.00 ft
Prior Shoe, MD:	1200.00 ft
Mud Weight Above TOC:	10.00 ppg
Fluid Gradient Below TOC:	8.33 ppg
Wellhead Pressure:	13 psi
Pore Pressure In Open Hole:	Yes



## Oxy Blanket Design - Casing Design "A"



### Collapse Load Cases

Collapse Loads Data	
<b>Drilling Load:</b>	
Mud Weight at Shoe:	10.00 ppg
TOC, MD:	25.00 ft
Lead Slurry Density:	13.30 ppg
Tail Slurry Density:	13.30 ppg
Tail Slurry Length:	5906.00 ft
Displacement Fluid Density:	10.00 ppg
Float Collar Depth, MD:	12800.00 ft
Assigned External Pressure:	Fluid Gradients (w/ Pore Pressure)
<b>Drilling Load:</b>	
Lost Returns Depth, MD:	13110.89 ft
Pore Pressure at Lost Returns Depth:	8183 psi
Pore Pressure Gradient at Lost Returns Depth:	12.33 ppg
Mud Weight:	13.50 ppg
Mud Drop Level, MD:	1106.39 ft
Assigned External Pressure:	Fluid Gradients (w/ Pore Pressure)
<b>External Pressure:</b>	
TOC, MD:	25.00 ft
Prior Shoe, MD:	1200.00 ft
Fluid Gradient Above TOC:	10.00 ppg
Fluid Gradient Below TOC:	10.00 ppg
Wellhead Pressure:	13 psi
Pore Pressure In Open Hole Below TOC:	No

### Axial Load Cases

Axial Loads Data	
Overpull Force:	100000 lbf
Pre-Cement Static Load:	Yes
Pickup Force:	0 lbf
Post-Cement Static Load:	Yes
Green Cement Pressure Test:	2000 psi
Service Loads:	Yes



# Oxy Blanket Design - Casing Design "A"



## 9. Landmark StressCheck Screenshot – Int. Casing Triaxial Results Table (Pressure Test)

Depth (MD) (ft)	Axial Force (lb)			Equivalent Axial Load (lb)	Bending Stress at OD (psi)	Absolute Safety Factor				Temperature (°F)	Pressure (psi)		Add'l Pickup To Prevent Buck. (lb)	Buckled Length (ft)
	Apparent (w/Bending)	Actual (w/o Bending)				Triaxial	Burst	Collapse (V)	Axial		Internal	External		
28	12300	-142410	-17423	-94936	16622.5	1.79	2.10	N/A	(4.09)	178	9505	6732		
29	12400	-149639	-24652	-100590	16622.5	1.87	2.25	N/A	(3.89)	179	9555	6970		
30	12400	-149640	-24653	-100591	16622.5	1.87	2.25	N/A	(3.89)	179	9555	6970		
31	12500	-156448	-31461	-105919	16622.5	1.95	2.42	N/A	(3.72)	180	9603	7193		
32	12500	-156449	-31462	-105920	16622.5	1.95	2.42	N/A	(3.72)	180	9603	7193		
33	12550	-159630	-34643	-108410	16622.5	1.99	2.50	N/A	(3.64)	180	9625	7298		
34	12550	-159631	-34644	-108411	16622.5	1.99	2.50	N/A	(3.64)	180	9625	7298		
35	12600	-162630	-37643	-110759	16622.5	2.03	2.59	N/A	(3.58)	180	9646	7396		
36	12600	-162631	-37644	-110760	16622.5	2.03	2.59	N/A	(3.58)	180	9646	7396		
37	12650	-165426	-40439	-112949	16622.5	2.07	2.67	N/A	(3.52)	181	9665	7488		
38	12650	-165427	-40440	-112950	16622.5	2.07	2.67	N/A	(3.52)	181	9665	7488		
39	12700	-167997	-43010	-114963	16622.5	2.10	2.76	N/A	(3.46)	181	9683	7573		
40	12700	-167998	-43011	-114963	16622.5	2.10	2.76	N/A	(3.46)	181	9683	7573		
41	12750	-170322	-45335	-116784	16622.5	2.13	2.84	N/A	(3.41)	181	9699	7649		
42	12750	-170323	-45336	-116785	16622.5	2.13	2.84	N/A	(3.41)	181	9699	7649		
43	12800	-172385	-47398	-118401	16622.5	2.16	2.91	N/A	(3.37)	181	9714	7717		
44	12800	-172386	-47399	-118401	16622.5	2.16	2.91	N/A	(3.37)	181	9714	7717		
45	12850	-174169	-49183	-119799	16622.5	2.19	2.98	N/A	(3.34)	182	9726	7775		
46	12850	-174170	-49183	-119800	16622.5	2.19	2.98	N/A	(3.34)	182	9726	7775		
47	12900	-175662	-50675	-120969	16622.5	2.21	3.04	N/A	(3.31)	182	9736	7824		
48	12950	-176851	-51864	-121901	16622.5	2.23	3.09	N/A	(3.29)	182	9745	7863		
49	13000	-177727	-52740	-122588	16622.5	2.24	3.13	N/A	(3.27)	182	9751	7892		
50	13000	-177728	-52741	-122588	16622.5	2.24	3.13	N/A	(3.27)	182	9751	7892		
51	13050	-178285	-53298	-123025	16622.5	2.25	3.15	N/A	(3.26)	182	9755	7910		
52	13111	-178527	-53540	-123214	16622.5	2.25	3.16	N/A	(3.26)	182	9756	7918		
53														
54														
55														
56														

( ) Compression  
(V) Vector Collapse Safety Factor

Internal Pressure = Surface Pressure + Hydrostatic = 9756 psi  
 External Pressure = Fluid Gradient w/ Pore Pressure = 7918 psi  
 Burst SF = 3.16

NOTE: Specific load case inputs for the pressure test can be seen in **Section 8** above. The test pressure does not exceed 70% of the minimum internal yield.



# Oxy Blanket Design - Casing Design "A"



## 10. Intermediate Non-API Casing Spec Sheet



### Technical Data Sheet

7 5/8" 26.40 lbs/ft. L80HC - Axis HT

#### Mechanical Properties

Minimum Yield Strength	psi.	80,000
Maximum Yield Strength	psi.	95,000
Minimum Tensile Strength	psi.	95,000

#### Dimensions

		Pipe	AXIS HT
Outside Diameter	in.	7.625	8.500
Wall Thickness	in.	0.328	-
Inside Diameter	in.	6.969	-
Standard Drift	in.	6.844	6.844
Alternate Drift	in.	-	-
Plain End Weight	lbs/ft.	-	-
Nominal Linear Weight	lbs/ft.	26.40	-

#### Performance

		Pipe	AXIS HT
Minimum Collapse Pressure	psi.	4,320	-
Minimum Internal Yield Pressure	psi.	6,020	6,020
Minimum Pipe Body Yield Strength	lbs.	602 x 1,000	-
Joint Strength	lbs.	-	635 x 1,000

#### Make-Up Torques

		Pipe	AXIS HT
Optimum Make-Up Torque	ft/lbs.	-	8,000
Maximum Operational Torque	ft/lbs.	-	25,000

Disclaimer: The content of this Technical Data Sheet is for general information only and does not guarantee performance and/or accuracy, which can only be determined by a professional expert with the specific installation and operation parameters. Information printed or downloaded may not be current and no longer in control by Axis Pipe and Tube. Anyone using the information herein does so at his or her own risk. To verify that you have the latest technical information, please contact Axis Pipe and Tube Technical Sales +1 (979) 599-7600. [www.axispipeandtube.com](http://www.axispipeandtube.com)



# Oxy Blanket Design - Casing Design "A"



## 11. Production Non-API Casing Spec Sheets

Printed on: 11/09/2021



**TenarisHydril Wedge  
461<sup>®</sup> MS**



Coupling	Pipe Body
Grade: P110-4CY	Grade: P110-4CY
Body: White	1st Band: White
1st Band: Pale Green	2nd Band: Pale Green
2nd Band: -	3rd Band: Pale Green
3rd Band: -	4th Band: -
	5th Band: -
	6th Band: -

Outside Diameter	5.500 in.	Wall Thickness	0.361 in.	Grade	P110-4CY
Min. Wall Thickness	87.50 %	Pipe Body Drift	API Standard	Type	Casing
Connection OD Option	MS				

### Pipe Body Data

Geometry		Performance	
Nominal OD	5.500 in.	Wall Thickness	0.361 in.
Nominal Weight	20 lb/ft	Plain End Weight	19.83 lb/ft
Drift	4.653 in.	OD Tolerance	API
Nominal ID	4.778 in.	Body Yield Strength	729 x1000 lb
		Min. Internal Yield Pressure	14,360 psi
		SMYS	125,000 psi
		Collapse Pressure	12,300 psi

### Connection Data

Geometry		Performance		Make-Up Torques	
Connection OD	6.050 in.	Tension Efficiency	100 %	Minimum	17,000 ft-lb
Coupling Length	7.714 in.	Joint Yield Strength	729 x1000 lb	Optimum	18,000 ft-lb
Connection ID	4.778 in.	Internal Pressure Capacity	14,360 psi	Maximum	21,600 ft-lb
Make-up Loss	3.775 in.	Compression Efficiency	100 %		
Threads per inch	3.40	Compression Strength	729 x1000 lb	Operation Limit Torques	
Connection OD Option	Ms	Max. Allowable Bending	104 °/100 ft	Operating Torque	43,000 ft-lb
		External Pressure Capacity	12,300 psi	Yield Torque	51,000 ft-lb
		Coupling Face Load	273,000 lb	Buck-On	
				Minimum	21,600 ft-lb
				Maximum	23,100 ft-lb

### Notes

This connection is fully interchangeable with:  
 Wedge 441® - 5.5 in. - 0.304 / 0.361 in.  
 Wedge 461® - 5.5 in. - 0.304 / 0.415 / 0.476 in.  
 Connections with Dopeless® Technology are fully compatible with the same connection in its Standard version.  
 In October 2019, TenarisHydril Wedge XP® 2.0 was renamed TenarisHydril Wedge 461™. Product dimensions and properties remain identical and both connections are fully interchangeable.

For the latest performance data, always visit our website: [www.tenaris.com](http://www.tenaris.com)

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# Oxy Blanket Design - Casing Design "A"



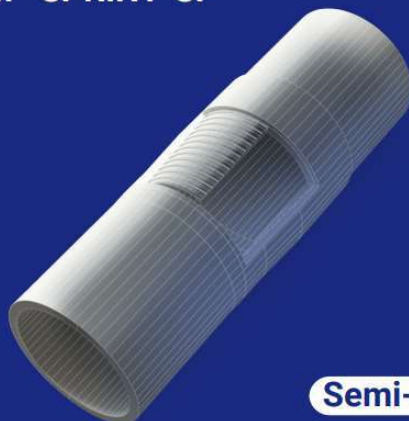
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## CONNECTION DATA SHEET

OD: 5.500 in.      Grade: P110  
 Weight: 20.00 lb/ft      Drift: 4.653 in. (API)  
 Wall Th.: 0.361 in.

### VAM® SPRINT-SF



**Semi-Flush**

#### Field Torque Values

##### Make-up Torque (ft-lb)

- 20,000 MIN
- 22,500 OPTI
- 25,000 MAX

##### Torque with Sealability (ft-lb)

- 36,000 MTS

##### Locked Flank Torque (ft-lb)

- 4,500 MIN
- 15,750 MAX

(2) MTS: Maximum Torque with Sealability.

#### PIPE BODY PROPERTIES

Nominal OD	5.500	in.
Nominal ID	4.778	in.
Nominal Wall Thickness	0.361	in.
Minimum Wall Thickness	87.5	%
Nominal Weight (API)	20.00	lb/ft
Plain End Weight	19.83	lb/ft
Drift	4.653	in.
Grade Type	API 5CT	
Minimum Yield Strength	110	ksi
Maximum Yield Strength	140	ksi
Minimum Ultimate Tensile Strength	125	ksi
Pipe Body Yield Strength	641	klb
Internal Yield Pressure	12,640	psi
Collapse Pressure	11,100	psi

#### CONNECTION PROPERTIES

Connection Type	Semi-Premium Integral	Semi-Flu
Nominal Connection OD	5.783	in.
Nominal Connection ID	4.718	in.
Make-up Loss	5.965	in.
Tension Efficiency	90	% Pipe Body
Compression Efficiency	90	% Pipe Body
Internal Pressure Efficiency	100	% Pipe Body
External Pressure Efficiency	100	% Pipe Body

#### JOINT PERFORMANCES

Tension Strength	577	klb
Compression Strength	577	klb
Internal Pressure Resistance	12,640	psi
External Pressure Resistance	11,100	psi
Maximum Bending, Structural	78	°/100 ft
Maximum Bending, with Sealability(1)	30	°/100 ft

(1) Sealability rating demonstrated as per API RP-5C5 / ISO 13679



**BOOST YOUR EFFICIENCY, REDUCE COSTS  
 AND ENSURE 100% WELL INTEGRITY WITH  
 VAM® FIELD SERVICE**

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# Oxy Blanket Design - Casing Design "A"



**DWC/C-HT-IS**

## Connection Data Sheet

OD (in.)	WEIGHT (lbs./ft.)	WALL (in.)	GRADE	API DRIFT (in.)	RBW%	CONNECTION
5.500	Nominal: 20.00 Plain End: 19.83	0.361	‡VST P110MY	4.653	87.5	DWC/C-HT-IS

PIPE PROPERTIES		
Nominal OD	5.500	in.
Nominal ID	4.778	in.
Nominal Area	5.828	sq.in.
Grade Type	API 5CT	
Min. Yield Strength	125	ksi
Max. Yield Strength	140	ksi
Min. Tensile Strength	135	ksi
Yield Strength	729	klb
Ultimate Strength	787	klb
Min. Internal Yield Pressure	14,360	psi
Collapse Pressure	12,090	psi

CONNECTION PROPERTIES		
Connection Type	Semi-Premium T&C	
Connection OD (nom)	6.050	in.
Connection ID (nom)	4.778	in.
Make-Up Loss	4.125	in.
Coupling Length	9.250	in.
Critical Cross Section	5.828	sq.in.
Tension Efficiency	89.1%	of pipe
Compression Efficiency	88.0%	of pipe
Internal Pressure Efficiency	86.1%	of pipe
External Pressure Efficiency	100.0%	of pipe

CONNECTION PERFORMANCES		
Yield Strength	649	klb
Parting Load	729	klb
Compression Rating	641	klb
Min. Internal Yield Pressure	12,360	psi
External Pressure Resistance	12,090	psi
Maximum Uniaxial Bend Rating	91.7	<sup>o</sup> /100 ft
Reference String Length w 1.4 Design Factor	22,890	ft.

FIELD TORQUE VALUES		
Min. Make-up torque	16,600	ft.lb
Opti. Make-up torque	17,950	ft.lb
Max. Make-up torque	19,300	ft.lb
Min. Shoulder Torque	1,660	ft.lb
Max. Shoulder Torque	13,280	ft.lb
Max. Delta Turn	0.200	Turns
‡Maximum Operational Torque	23,800	ft.lb
‡Maximum Torsional Value (MTV)	26,180	ft.lb

‡ Maximum Operational Torque and Maximum Torsional Value only valid with Vallourec P110MY Material.  
 ‡ P110MY - Coupling Min Yield Strength is 110ksi and Coupling Max Yield is 125ksi.

"VST = Vallourec Star as the mill source for the pipe, "P110EC" is the grade name"

Need Help? Contact: [tech.support@vam-usa.com](mailto:tech.support@vam-usa.com)

For detailed information on performance properties, refer to DWC Connection Data Notes on following page(s).

Connection specifications within the control of VAM USA were correct as of the date printed. Specifications are subject to change without notice. Certain connection specifications are dependent on the mechanical properties of the pipe. Mechanical properties of mill proprietary pipe grades were obtained from mill publications and are subject to change. Properties of mill proprietary grades should be confirmed with the mill. Users are advised to obtain current connection specifications and verify pipe mechanical properties for each application.

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# Oxy Blanket Design - Casing Design "A"



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 Tech Support Email: [tech.support@vam-usa.com](mailto:tech.support@vam-usa.com)

**DWC Connection Data Sheet Notes:**

1. DWC connections are available with a seal ring (SR) option.
2. All standard DWC/C connections are interchangeable for a given pipe OD. DWC connections are interchangeable with DWC/C-SR connections of the same OD and wall.
3. Connection performance properties are based on nominal pipe body and connection dimensions.
4. DWC connection internal and external pressure resistance is calculated using the API rating for buttress connections. API Internal pressure resistance is calculated from formulas 31, 32, and 35 in the API Bulletin 5C3.
5. DWC joint strength is the minimum pipe body yield strength multiplied by the connection critical area.
6. API joint strength is for reference only. It is calculated from formulas 42 and 43 in the API Bulletin 5C3.
7. Bending efficiency is equal to the compression efficiency.
8. The torque values listed are recommended. The actual torque required may be affected by field conditions such as temperature, thread compound, speed of make-up, weather conditions, etc.
9. Connection yield torque is not to be exceeded.
10. Reference string length is calculated by dividing the joint strength by both the nominal weight in air and a design factor (DF) of 1.4. These values are offered for reference only and do not include load factors such as bending, buoyancy, temperature, load dynamics, etc.
11. DWC connections will accommodate API standard drift diameters.
12. DWC/C family of connections are compatible with API Buttress BTC connections. Please contact [tech.support@vam-usa.com](mailto:tech.support@vam-usa.com) for details on connection ratings and make-up.

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# Oxy Blanket Design - Casing Design "A"



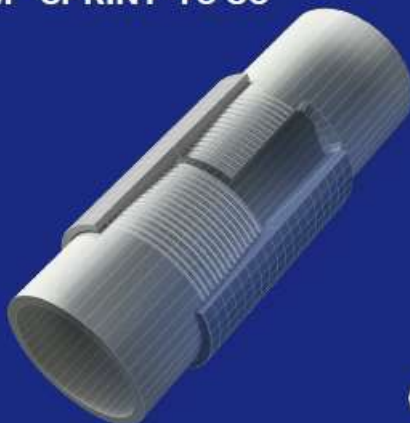
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## CONNECTION DATA SHEET

OD: 5.500 in.      Grade: P110 EC  
 Weight: 20.00 lb/ft      Drift: 4.653 in. (API)  
 Wall Th.: 0.361 in.

### VAM® SPRINT-TC SC



T&C

#### Field Torque Values

##### Make-up Torque (ft-lb)

- 23,000 MIN
- 24,000 OPTI
- 25,000 MAX

##### Torque with Sealability (ft-lb)

- 39,200 MTS

##### Locked Flank Torque (ft-lb)

- 1,200 MIN
- 16,800 MAX

(1) MTS: Maximum Torque with Sealability  
 (2) Note: Thread compound must be applied as a thin even layer

#### PIPE BODY PROPERTIES

Nominal OD	5.500	in.
Nominal ID	4.778	in.
Nominal Wall Thickness	0.361	in.
Minimum Wall Thickness	87.5	%
Nominal Weight (API)	20.00	lb/ft
Plain End Weight	19.83	lb/ft
Drift	4.653	in.
Grade Type	High Yield	
Minimum Yield Strength	125	ksi
Maximum Yield Strength	140	ksi
Minimum Ultimate Tensile Strength	135	ksi
Pipe Body Yield Strength	729	klb
Internal Yield Pressure	14,360	psi
Collapse Pressure	12,090	psi

#### CONNECTION PROPERTIES

Connection Type	Semi-Premium Threaded & Coupled	
Nominal Connection OD	5.900	in.
Nominal Connection ID	4.830	in.
Make-up Loss	3.973	in.
Coupling Length	8.296	in.
Tension Efficiency	100	% Pipe Body
Compression Efficiency	100	% Pipe Body
Internal Pressure Efficiency	100	% Pipe Body
External Pressure Efficiency	100	% Pipe Body

#### JOINT PERFORMANCES

Tension Strength	729	klb
Compression Strength	729	klb
Internal Pressure Resistance	14,360	psi
External Pressure Resistance	12,090	psi
Maximum Bending, Structural	104	"/100 ft
Maximum Bending, with Sealability	30	"/100 ft
Maximum Load on Coupling Face	227	klb

(4) Sealability rating demonstrated as per API RP 5C5 / ISO 13679



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# Oxy USA Inc. - Blanket Design Pad Document

## OXY - Blanket Design A

Pad Name: REDTNK\_T22SR32E\_28\_04

SHL: 791' FNL 2286' FEL, Sec 28, T22S-R32E

Oxy requests for the bellow wells to be approved for the two designs listed in the Blanket Design document (**Blanket Design A –OXY –3S Slim v8.0.**) The MDs and TVDs for all intervals are within the boundary conditions. The max inclination and DLS are also within the boundary conditions (directional plans attached separately for review.)

### 1. Blanket Design - Wells

Well Name	APD #	Surface		Intermediate		Production	
		MD	TVD	MD	TVD	MD	TVD
LION OIL 28_33 FED COM 31H	10400103844	908	908	11811	11417	22782	12173
LION OIL 28_33 FED COM 32H	10400103920	905	905	11500	11243	22470	12017
LION OIL 28_33 FED COM 33H	10400103922	901	901	11536	11391	22504	12168
LION OIL 28_33 FED COM 34H	10400103200	898	898	11293	11208	22281	12012

### 2. Review Criteria Table

	Y or N
Is casing new? If used, attach certification as required in 43 CFR 3160	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-Q?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-Q and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

### 3. Geologic Formations

Formation	MD-RKB (ft)	TVD-RKB (ft)	Expected Fluids
Rustler	838	838	
Salado	1207	1207	Salt
Marker Bed 126	2000	2000	Salt
Castile	2834	2834	Salt
Delaware	4712	4670	Oil/Gas/Brine
Bell Canyon	4760	4716	Oil/Gas/Brine
Cherry Canyon	5680	5591	Oil/Gas/Brine
Brushy Canyon	6983	6830	Losses
Bone Spring	8784	8543	Oil/Gas
Bone Spring 1st	9980	9680	Oil/Gas
Bone Spring 2nd	10654	10321	Oil/Gas
Bone Spring 3rd	11734	11348	Oil/Gas
Wolfcamp	12143	11735	Oil/Gas
Penn			Oil/Gas
Strawn			Oil/Gas

### 4. Cementing Program

Section	Stage	Slurry:	Sacks	Yield (ft <sup>3</sup> /ft)	Density (lb/gal)	Excess:	TOC	Placement	Description
Surface	1	Surface - Tail	948	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.	1	Intermediate 1S - Tail	614	1.68	13.2	5%	7,233	Circulate	Class C+Ret., Disper.
Int.	2	Intermediate 2S - Tail BH	1285	1.71	13.3	25%	-	Bradenhead	Class C+Accel.
Prod.	1	Production - Tail	650	1.84	13.3	25%	11,311	Circulate	Class C+Ret.

# **OXY**

**PRD NM DIRECTIONAL PLANS (NAD 1983)**

**LION OIL 28\_33 FED COM**

**Lion Oil 28\_33 Fed Com 32H**

**ORIG HOLE**

**Plan: Permitting Plan**

## **Standard Planning Report**

**12 September, 2025**

# OXY Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well Lion Oil 28_33 Fed Com 32H
<b>Company:</b>	ENGINEERING DESIGNS	<b>TVD Reference:</b>	RKB=25' @ 3636.00ft
<b>Project:</b>	PRD NM DIRECTIONAL PLANS (NAD 1983)	<b>MD Reference:</b>	RKB=25' @ 3636.00ft
<b>Site:</b>	LION OIL 28_33 FED COM	<b>North Reference:</b>	Grid
<b>Well:</b>	Lion Oil 28_33 Fed Com 32H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIG HOLE		
<b>Design:</b>	Permitting Plan		

<b>Project</b> PRD NM DIRECTIONAL PLANS (NAD 1983)			
<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		Using geodetic scale factor

<b>Site</b> LION OIL 28_33 FED COM			
<b>Site Position:</b>		<b>Northing:</b>	498,014.35 usft
<b>From:</b>	Map	<b>Easting:</b>	744,642.56 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in
		<b>Latitude:</b>	32.367392
		<b>Longitude:</b>	-103.674853

<b>Well</b> Lion Oil 28_33 Fed Com 32H			
<b>Well Position</b>	+N/-S	0.00 ft	<b>Northing:</b> 498,122.51 usf
	+E/-W	0.00 ft	<b>Easting:</b> 743,540.45 usf
<b>Position Uncertainty</b>		2.00 ft	<b>Longitude:</b> -103.678420
<b>Grid Convergence:</b>		0.35 °	<b>Wellhead Elevation:</b> 0.00 ft
			<b>Ground Level:</b> 3,611.00 ft

<b>Wellbore</b> ORIG HOLE					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	11/19/2018	6.77	60.12	48,114.00000000

<b>Design</b> Permitting Plan					
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00	
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	191.38	

<b>Plan Survey Tool Program</b>		<b>Date</b> 9/12/2025			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	22,469.92 Permitting Plan (ORIG HOLE)	B001Mc_MWD+HRGM_R5 MWD+HRGM		

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,055.00	0.00	0.00	3,055.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,554.82	15.00	290.82	4,537.75	69.38	-182.44	1.00	1.00	0.00	290.82	
11,600.24	15.00	290.82	11,343.16	717.43	-1,886.65	0.00	0.00	0.00	0.00	
12,550.26	89.62	179.62	11,951.31	149.68	-2,033.71	10.00	7.85	-11.71	-110.64	
22,470.26	89.62	179.62	12,017.10	-9,769.88	-1,967.07	0.00	0.00	0.00	0.00	PBHL (Lion Oil)

# OXY

## Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well Lion Oil 28_33 Fed Com 32H
<b>Company:</b>	ENGINEERING DESIGNS	<b>TVD Reference:</b>	RKB=25' @ 3636.00ft
<b>Project:</b>	PRD NM DIRECTIONAL PLANS (NAD 1983)	<b>MD Reference:</b>	RKB=25' @ 3636.00ft
<b>Site:</b>	LION OIL 28_33 FED COM	<b>North Reference:</b>	Grid
<b>Well:</b>	Lion Oil 28_33 Fed Com 32H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIG HOLE		
<b>Design:</b>	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,055.00	0.00	0.00	3,055.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Build 1°/100'</b>									
3,100.00	0.45	290.82	3,100.00	0.06	-0.17	-0.03	1.00	1.00	0.00
3,200.00	1.45	290.82	3,199.98	0.65	-1.71	-0.30	1.00	1.00	0.00
3,300.00	2.45	290.82	3,299.93	1.86	-4.90	-0.86	1.00	1.00	0.00
3,400.00	3.45	290.82	3,399.79	3.69	-9.71	-1.70	1.00	1.00	0.00
3,500.00	4.45	290.82	3,499.55	6.14	-16.14	-2.83	1.00	1.00	0.00
3,600.00	5.45	290.82	3,599.18	9.21	-24.21	-4.25	1.00	1.00	0.00
3,700.00	6.45	290.82	3,698.64	12.89	-33.90	-5.95	1.00	1.00	0.00
3,800.00	7.45	290.82	3,797.90	17.19	-45.21	-7.93	1.00	1.00	0.00
3,900.00	8.45	290.82	3,896.94	22.11	-58.14	-10.20	1.00	1.00	0.00
4,000.00	9.45	290.82	3,995.72	27.64	-72.68	-12.75	1.00	1.00	0.00
4,100.00	10.45	290.82	4,094.22	33.78	-88.83	-15.58	1.00	1.00	0.00
4,200.00	11.45	290.82	4,192.39	40.53	-106.58	-18.70	1.00	1.00	0.00
4,300.00	12.45	290.82	4,290.23	47.89	-125.94	-22.09	1.00	1.00	0.00
4,400.00	13.45	290.82	4,387.68	55.85	-146.88	-25.76	1.00	1.00	0.00
4,500.00	14.45	290.82	4,484.73	64.42	-169.42	-29.72	1.00	1.00	0.00
4,554.82	15.00	290.82	4,537.75	69.38	-182.44	-32.00	1.00	1.00	0.00
<b>Hold 15° Tangent</b>									
4,600.00	15.00	290.82	4,581.39	73.53	-193.37	-33.92	0.00	0.00	0.00
4,700.00	15.00	290.82	4,677.98	82.73	-217.56	-38.16	0.00	0.00	0.00
4,800.00	15.00	290.82	4,774.58	91.93	-241.75	-42.40	0.00	0.00	0.00
4,900.00	15.00	290.82	4,871.17	101.13	-265.93	-46.65	0.00	0.00	0.00
5,000.00	15.00	290.82	4,967.76	110.32	-290.12	-50.89	0.00	0.00	0.00

## OXY Planning Report

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<b>Well:</b>	Lion Oil 28_33 Fed Com 32H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIG HOLE		
<b>Design:</b>	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,100.00	15.00	290.82	5,064.36	119.52	-314.31	-55.13	0.00	0.00	0.00
5,200.00	15.00	290.82	5,160.95	128.72	-338.50	-59.38	0.00	0.00	0.00
5,300.00	15.00	290.82	5,257.54	137.92	-362.69	-63.62	0.00	0.00	0.00
5,400.00	15.00	290.82	5,354.14	147.12	-386.88	-67.86	0.00	0.00	0.00
5,500.00	15.00	290.82	5,450.73	156.32	-411.07	-72.10	0.00	0.00	0.00
5,600.00	15.00	290.82	5,547.33	165.51	-435.26	-76.35	0.00	0.00	0.00
5,700.00	15.00	290.82	5,643.92	174.71	-459.45	-80.59	0.00	0.00	0.00
5,800.00	15.00	290.82	5,740.51	183.91	-483.63	-84.83	0.00	0.00	0.00
5,900.00	15.00	290.82	5,837.11	193.11	-507.82	-89.08	0.00	0.00	0.00
6,000.00	15.00	290.82	5,933.70	202.31	-532.01	-93.32	0.00	0.00	0.00
6,100.00	15.00	290.82	6,030.29	211.51	-556.20	-97.56	0.00	0.00	0.00
6,200.00	15.00	290.82	6,126.89	220.70	-580.39	-101.80	0.00	0.00	0.00
6,300.00	15.00	290.82	6,223.48	229.90	-604.58	-106.05	0.00	0.00	0.00
6,400.00	15.00	290.82	6,320.07	239.10	-628.77	-110.29	0.00	0.00	0.00
6,500.00	15.00	290.82	6,416.67	248.30	-652.96	-114.53	0.00	0.00	0.00
6,600.00	15.00	290.82	6,513.26	257.50	-677.15	-118.78	0.00	0.00	0.00
6,700.00	15.00	290.82	6,609.85	266.70	-701.34	-123.02	0.00	0.00	0.00
6,800.00	15.00	290.82	6,706.45	275.89	-725.52	-127.26	0.00	0.00	0.00
6,900.00	15.00	290.82	6,803.04	285.09	-749.71	-131.51	0.00	0.00	0.00
7,000.00	15.00	290.82	6,899.63	294.29	-773.90	-135.75	0.00	0.00	0.00
7,100.00	15.00	290.82	6,996.23	303.49	-798.09	-139.99	0.00	0.00	0.00
7,200.00	15.00	290.82	7,092.82	312.69	-822.28	-144.23	0.00	0.00	0.00
7,300.00	15.00	290.82	7,189.41	321.88	-846.47	-148.48	0.00	0.00	0.00
7,400.00	15.00	290.82	7,286.01	331.08	-870.66	-152.72	0.00	0.00	0.00
7,500.00	15.00	290.82	7,382.60	340.28	-894.85	-156.96	0.00	0.00	0.00
7,600.00	15.00	290.82	7,479.19	349.48	-919.04	-161.21	0.00	0.00	0.00
7,700.00	15.00	290.82	7,575.79	358.68	-943.23	-165.45	0.00	0.00	0.00
7,800.00	15.00	290.82	7,672.38	367.88	-967.41	-169.69	0.00	0.00	0.00
7,900.00	15.00	290.82	7,768.97	377.07	-991.60	-173.93	0.00	0.00	0.00
8,000.00	15.00	290.82	7,865.57	386.27	-1,015.79	-178.18	0.00	0.00	0.00
8,100.00	15.00	290.82	7,962.16	395.47	-1,039.98	-182.42	0.00	0.00	0.00
8,200.00	15.00	290.82	8,058.75	404.67	-1,064.17	-186.66	0.00	0.00	0.00
8,300.00	15.00	290.82	8,155.35	413.87	-1,088.36	-190.91	0.00	0.00	0.00
8,400.00	15.00	290.82	8,251.94	423.07	-1,112.55	-195.15	0.00	0.00	0.00
8,500.00	15.00	290.82	8,348.53	432.26	-1,136.74	-199.39	0.00	0.00	0.00
8,600.00	15.00	290.82	8,445.13	441.46	-1,160.93	-203.63	0.00	0.00	0.00
8,700.00	15.00	290.82	8,541.72	450.66	-1,185.11	-207.88	0.00	0.00	0.00
8,800.00	15.00	290.82	8,638.31	459.86	-1,209.30	-212.12	0.00	0.00	0.00
8,900.00	15.00	290.82	8,734.91	469.06	-1,233.49	-216.36	0.00	0.00	0.00
9,000.00	15.00	290.82	8,831.50	478.26	-1,257.68	-220.61	0.00	0.00	0.00
9,100.00	15.00	290.82	8,928.09	487.45	-1,281.87	-224.85	0.00	0.00	0.00
9,200.00	15.00	290.82	9,024.69	496.65	-1,306.06	-229.09	0.00	0.00	0.00
9,300.00	15.00	290.82	9,121.28	505.85	-1,330.25	-233.34	0.00	0.00	0.00
9,400.00	15.00	290.82	9,217.87	515.05	-1,354.44	-237.58	0.00	0.00	0.00
9,500.00	15.00	290.82	9,314.47	524.25	-1,378.63	-241.82	0.00	0.00	0.00
9,600.00	15.00	290.82	9,411.06	533.45	-1,402.82	-246.06	0.00	0.00	0.00
9,700.00	15.00	290.82	9,507.65	542.64	-1,427.00	-250.31	0.00	0.00	0.00
9,800.00	15.00	290.82	9,604.25	551.84	-1,451.19	-254.55	0.00	0.00	0.00
9,900.00	15.00	290.82	9,700.84	561.04	-1,475.38	-258.79	0.00	0.00	0.00
10,000.00	15.00	290.82	9,797.43	570.24	-1,499.57	-263.04	0.00	0.00	0.00
10,100.00	15.00	290.82	9,894.03	579.44	-1,523.76	-267.28	0.00	0.00	0.00
10,200.00	15.00	290.82	9,990.62	588.64	-1,547.95	-271.52	0.00	0.00	0.00
10,300.00	15.00	290.82	10,087.22	597.83	-1,572.14	-275.76	0.00	0.00	0.00
10,400.00	15.00	290.82	10,183.81	607.03	-1,596.33	-280.01	0.00	0.00	0.00
10,500.00	15.00	290.82	10,280.40	616.23	-1,620.52	-284.25	0.00	0.00	0.00

# OXY

## Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well Lion Oil 28_33 Fed Com 32H
<b>Company:</b>	ENGINEERING DESIGNS	<b>TVD Reference:</b>	RKB=25' @ 3636.00ft
<b>Project:</b>	PRD NM DIRECTIONAL PLANS (NAD 1983)	<b>MD Reference:</b>	RKB=25' @ 3636.00ft
<b>Site:</b>	LION OIL 28_33 FED COM	<b>North Reference:</b>	Grid
<b>Well:</b>	Lion Oil 28_33 Fed Com 32H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIG HOLE		
<b>Design:</b>	Permitting Plan		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
10,600.00	15.00	290.82	10,377.00	625.43	-1,644.71	-288.49	0.00	0.00	0.00	
10,700.00	15.00	290.82	10,473.59	634.63	-1,668.89	-292.74	0.00	0.00	0.00	
10,800.00	15.00	290.82	10,570.18	643.82	-1,693.08	-296.98	0.00	0.00	0.00	
10,900.00	15.00	290.82	10,666.78	653.02	-1,717.27	-301.22	0.00	0.00	0.00	
11,000.00	15.00	290.82	10,763.37	662.22	-1,741.46	-305.47	0.00	0.00	0.00	
11,100.00	15.00	290.82	10,859.96	671.42	-1,765.65	-309.71	0.00	0.00	0.00	
11,200.00	15.00	290.82	10,956.56	680.62	-1,789.84	-313.95	0.00	0.00	0.00	
11,300.00	15.00	290.82	11,053.15	689.82	-1,814.03	-318.19	0.00	0.00	0.00	
11,400.00	15.00	290.82	11,149.74	699.01	-1,838.22	-322.44	0.00	0.00	0.00	
11,500.00	15.00	290.82	11,246.34	708.21	-1,862.41	-326.68	0.00	0.00	0.00	
11,600.00	15.00	290.82	11,342.93	717.41	-1,886.59	-330.92	0.00	0.00	0.00	
11,600.24	15.00	290.82	11,343.16	717.43	-1,886.65	-330.93	0.00	0.00	0.00	
<b>KOP, Build &amp; Turn 10°/100'</b>										
11,700.00	14.73	251.21	11,439.83	717.94	-1,910.79	-326.66	10.00	-0.27	-39.71	
11,800.00	20.12	222.47	11,535.37	701.11	-1,934.50	-305.49	10.00	5.39	-28.74	
11,900.00	28.08	207.42	11,626.67	667.45	-1,957.00	-268.05	10.00	7.96	-15.05	
12,000.00	36.98	198.88	11,710.94	617.97	-1,977.63	-215.47	10.00	8.90	-8.54	
12,100.00	46.29	193.33	11,785.62	554.18	-1,995.73	-149.36	10.00	9.30	-5.55	
12,200.00	55.79	189.29	11,848.45	478.02	-2,010.78	-71.72	10.00	9.50	-4.03	
12,300.00	65.39	186.09	11,897.51	391.79	-2,022.30	15.08	10.00	9.60	-3.21	
12,400.00	75.05	183.34	11,931.31	298.12	-2,029.96	108.41	10.00	9.66	-2.74	
12,500.00	84.74	180.84	11,948.84	199.86	-2,033.51	205.44	10.00	9.69	-2.51	
12,550.26	89.62	179.62	11,951.31	149.68	-2,033.71	254.68	10.00	9.70	-2.43	
<b>Landing Point</b>										
12,600.00	89.62	179.62	11,951.64	99.94	-2,033.37	303.37	0.00	0.00	0.00	
12,700.00	89.62	179.62	11,952.30	-0.05	-2,032.70	401.26	0.00	0.00	0.00	
12,800.00	89.62	179.62	11,952.96	-100.05	-2,032.03	499.16	0.00	0.00	0.00	
12,900.00	89.62	179.62	11,953.63	-200.04	-2,031.36	597.06	0.00	0.00	0.00	
13,000.00	89.62	179.62	11,954.29	-300.04	-2,030.68	694.95	0.00	0.00	0.00	
13,100.00	89.62	179.62	11,954.95	-400.03	-2,030.01	792.85	0.00	0.00	0.00	
13,200.00	89.62	179.62	11,955.62	-500.03	-2,029.34	890.74	0.00	0.00	0.00	
13,300.00	89.62	179.62	11,956.28	-600.03	-2,028.67	988.64	0.00	0.00	0.00	
13,400.00	89.62	179.62	11,956.94	-700.02	-2,028.00	1,086.53	0.00	0.00	0.00	
13,500.00	89.62	179.62	11,957.61	-800.02	-2,027.33	1,184.43	0.00	0.00	0.00	
13,600.00	89.62	179.62	11,958.27	-900.01	-2,026.65	1,282.33	0.00	0.00	0.00	
13,700.00	89.62	179.62	11,958.93	-1,000.01	-2,025.98	1,380.22	0.00	0.00	0.00	
13,800.00	89.62	179.62	11,959.59	-1,100.00	-2,025.31	1,478.12	0.00	0.00	0.00	
13,900.00	89.62	179.62	11,960.26	-1,200.00	-2,024.64	1,576.01	0.00	0.00	0.00	
14,000.00	89.62	179.62	11,960.92	-1,299.99	-2,023.97	1,673.91	0.00	0.00	0.00	
14,100.00	89.62	179.62	11,961.58	-1,399.99	-2,023.30	1,771.80	0.00	0.00	0.00	
14,200.00	89.62	179.62	11,962.25	-1,499.99	-2,022.62	1,869.70	0.00	0.00	0.00	
14,300.00	89.62	179.62	11,962.91	-1,599.98	-2,021.95	1,967.60	0.00	0.00	0.00	
14,400.00	89.62	179.62	11,963.57	-1,699.98	-2,021.28	2,065.49	0.00	0.00	0.00	
14,500.00	89.62	179.62	11,964.24	-1,799.97	-2,020.61	2,163.39	0.00	0.00	0.00	
14,567.03	89.62	179.62	11,964.68	-1,867.00	-2,020.16	2,229.01	0.00	0.00	0.00	
<b>PPP-1 Cross</b>										
14,600.00	89.62	179.62	11,964.90	-1,899.97	-2,019.94	2,261.28	0.00	0.00	0.00	
14,700.00	89.62	179.62	11,965.56	-1,999.96	-2,019.27	2,359.18	0.00	0.00	0.00	
14,800.00	89.62	179.62	11,966.23	-2,099.96	-2,018.59	2,457.08	0.00	0.00	0.00	
14,900.00	89.62	179.62	11,966.89	-2,199.95	-2,017.92	2,554.97	0.00	0.00	0.00	
15,000.00	89.62	179.62	11,967.55	-2,299.95	-2,017.25	2,652.87	0.00	0.00	0.00	
15,100.00	89.62	179.62	11,968.22	-2,399.95	-2,016.58	2,750.76	0.00	0.00	0.00	
15,200.00	89.62	179.62	11,968.88	-2,499.94	-2,015.91	2,848.66	0.00	0.00	0.00	
15,300.00	89.62	179.62	11,969.54	-2,599.94	-2,015.24	2,946.55	0.00	0.00	0.00	
15,400.00	89.62	179.62	11,970.21	-2,699.93	-2,014.56	3,044.45	0.00	0.00	0.00	

# OXY

## Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well Lion Oil 28_33 Fed Com 32H
<b>Company:</b>	ENGINEERING DESIGNS	<b>TVD Reference:</b>	RKB=25' @ 3636.00ft
<b>Project:</b>	PRD NM DIRECTIONAL PLANS (NAD 1983)	<b>MD Reference:</b>	RKB=25' @ 3636.00ft
<b>Site:</b>	LION OIL 28_33 FED COM	<b>North Reference:</b>	Grid
<b>Well:</b>	Lion Oil 28_33 Fed Com 32H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIG HOLE		
<b>Design:</b>	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,500.00	89.62	179.62	11,970.87	-2,799.93	-2,013.89	3,142.35	0.00	0.00	0.00
15,600.00	89.62	179.62	11,971.53	-2,899.92	-2,013.22	3,240.24	0.00	0.00	0.00
15,700.00	89.62	179.62	11,972.20	-2,999.92	-2,012.55	3,338.14	0.00	0.00	0.00
15,800.00	89.62	179.62	11,972.86	-3,099.91	-2,011.88	3,436.03	0.00	0.00	0.00
15,900.00	89.62	179.62	11,973.52	-3,199.91	-2,011.20	3,533.93	0.00	0.00	0.00
16,000.00	89.62	179.62	11,974.19	-3,299.91	-2,010.53	3,631.82	0.00	0.00	0.00
16,100.00	89.62	179.62	11,974.85	-3,399.90	-2,009.86	3,729.72	0.00	0.00	0.00
16,200.00	89.62	179.62	11,975.51	-3,499.90	-2,009.19	3,827.62	0.00	0.00	0.00
16,300.00	89.62	179.62	11,976.18	-3,599.89	-2,008.52	3,925.51	0.00	0.00	0.00
16,400.00	89.62	179.62	11,976.84	-3,699.89	-2,007.85	4,023.41	0.00	0.00	0.00
16,500.00	89.62	179.62	11,977.50	-3,799.88	-2,007.17	4,121.30	0.00	0.00	0.00
16,600.00	89.62	179.62	11,978.17	-3,899.88	-2,006.50	4,219.20	0.00	0.00	0.00
16,700.00	89.62	179.62	11,978.83	-3,999.87	-2,005.83	4,317.09	0.00	0.00	0.00
16,800.00	89.62	179.62	11,979.49	-4,099.87	-2,005.16	4,414.99	0.00	0.00	0.00
16,900.00	89.62	179.62	11,980.15	-4,199.87	-2,004.49	4,512.89	0.00	0.00	0.00
17,000.00	89.62	179.62	11,980.82	-4,299.86	-2,003.82	4,610.78	0.00	0.00	0.00
17,100.00	89.62	179.62	11,981.48	-4,399.86	-2,003.14	4,708.68	0.00	0.00	0.00
17,200.00	89.62	179.62	11,982.14	-4,499.85	-2,002.47	4,806.57	0.00	0.00	0.00
17,300.00	89.62	179.62	11,982.81	-4,599.85	-2,001.80	4,904.47	0.00	0.00	0.00
17,400.00	89.62	179.62	11,983.47	-4,699.84	-2,001.13	5,002.37	0.00	0.00	0.00
17,500.00	89.62	179.62	11,984.13	-4,799.84	-2,000.46	5,100.26	0.00	0.00	0.00
17,600.00	89.62	179.62	11,984.80	-4,899.83	-1,999.79	5,198.16	0.00	0.00	0.00
17,700.00	89.62	179.62	11,985.46	-4,999.83	-1,999.11	5,296.05	0.00	0.00	0.00
17,800.00	89.62	179.62	11,986.12	-5,099.82	-1,998.44	5,393.95	0.00	0.00	0.00
17,900.00	89.62	179.62	11,986.79	-5,199.82	-1,997.77	5,491.84	0.00	0.00	0.00
18,000.00	89.62	179.62	11,987.45	-5,299.82	-1,997.10	5,589.74	0.00	0.00	0.00
18,100.00	89.62	179.62	11,988.11	-5,399.81	-1,996.43	5,687.64	0.00	0.00	0.00
18,200.00	89.62	179.62	11,988.78	-5,499.81	-1,995.76	5,785.53	0.00	0.00	0.00
18,300.00	89.62	179.62	11,989.44	-5,599.80	-1,995.08	5,883.43	0.00	0.00	0.00
18,400.00	89.62	179.62	11,990.10	-5,699.80	-1,994.41	5,981.32	0.00	0.00	0.00
18,500.00	89.62	179.62	11,990.77	-5,799.79	-1,993.74	6,079.22	0.00	0.00	0.00
18,528.21	89.62	179.62	11,990.95	-5,828.00	-1,993.55	6,106.84	0.00	0.00	0.00
<b>PPP-2 Cross</b>									
18,600.00	89.62	179.62	11,991.43	-5,899.79	-1,993.07	6,177.11	0.00	0.00	0.00
18,700.00	89.62	179.62	11,992.09	-5,999.78	-1,992.40	6,275.01	0.00	0.00	0.00
18,800.00	89.62	179.62	11,992.76	-6,099.78	-1,991.72	6,372.91	0.00	0.00	0.00
18,900.00	89.62	179.62	11,993.42	-6,199.78	-1,991.05	6,470.80	0.00	0.00	0.00
19,000.00	89.62	179.62	11,994.08	-6,299.77	-1,990.38	6,568.70	0.00	0.00	0.00
19,100.00	89.62	179.62	11,994.75	-6,399.77	-1,989.71	6,666.59	0.00	0.00	0.00
19,200.00	89.62	179.62	11,995.41	-6,499.76	-1,989.04	6,764.49	0.00	0.00	0.00
19,300.00	89.62	179.62	11,996.07	-6,599.76	-1,988.37	6,862.38	0.00	0.00	0.00
19,400.00	89.62	179.62	11,996.74	-6,699.75	-1,987.69	6,960.28	0.00	0.00	0.00
19,500.00	89.62	179.62	11,997.40	-6,799.75	-1,987.02	7,058.18	0.00	0.00	0.00
19,600.00	89.62	179.62	11,998.06	-6,899.74	-1,986.35	7,156.07	0.00	0.00	0.00
19,700.00	89.62	179.62	11,998.72	-6,999.74	-1,985.68	7,253.97	0.00	0.00	0.00
19,800.00	89.62	179.62	11,999.39	-7,099.74	-1,985.01	7,351.86	0.00	0.00	0.00
19,900.00	89.62	179.62	12,000.05	-7,199.73	-1,984.34	7,449.76	0.00	0.00	0.00
20,000.00	89.62	179.62	12,000.71	-7,299.73	-1,983.66	7,547.66	0.00	0.00	0.00
20,100.00	89.62	179.62	12,001.38	-7,399.72	-1,982.99	7,645.55	0.00	0.00	0.00
20,200.00	89.62	179.62	12,002.04	-7,499.72	-1,982.32	7,743.45	0.00	0.00	0.00
20,300.00	89.62	179.62	12,002.70	-7,599.71	-1,981.65	7,841.34	0.00	0.00	0.00
20,400.00	89.62	179.62	12,003.37	-7,699.71	-1,980.98	7,939.24	0.00	0.00	0.00
20,500.00	89.62	179.62	12,004.03	-7,799.70	-1,980.31	8,037.13	0.00	0.00	0.00
20,600.00	89.62	179.62	12,004.69	-7,899.70	-1,979.63	8,135.03	0.00	0.00	0.00
20,700.00	89.62	179.62	12,005.36	-7,999.70	-1,978.96	8,232.93	0.00	0.00	0.00

## OXY Planning Report

<b>Database:</b>	HOSPSP	<b>Local Co-ordinate Reference:</b>	Well Lion Oil 28_33 Fed Com 32H
<b>Company:</b>	ENGINEERING DESIGNS	<b>TVD Reference:</b>	RKB=25' @ 3636.00ft
<b>Project:</b>	PRD NM DIRECTIONAL PLANS (NAD 1983)	<b>MD Reference:</b>	RKB=25' @ 3636.00ft
<b>Site:</b>	LION OIL 28_33 FED COM	<b>North Reference:</b>	Grid
<b>Well:</b>	Lion Oil 28_33 Fed Com 32H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIG HOLE		
<b>Design:</b>	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
20,800.00	89.62	179.62	12,006.02	-8,099.69	-1,978.29	8,330.82	0.00	0.00	0.00
20,900.00	89.62	179.62	12,006.68	-8,199.69	-1,977.62	8,428.72	0.00	0.00	0.00
21,000.00	89.62	179.62	12,007.35	-8,299.68	-1,976.95	8,526.61	0.00	0.00	0.00
21,100.00	89.62	179.62	12,008.01	-8,399.68	-1,976.28	8,624.51	0.00	0.00	0.00
21,200.00	89.62	179.62	12,008.67	-8,499.67	-1,975.60	8,722.40	0.00	0.00	0.00
21,300.00	89.62	179.62	12,009.34	-8,599.67	-1,974.93	8,820.30	0.00	0.00	0.00
21,400.00	89.62	179.62	12,010.00	-8,699.66	-1,974.26	8,918.20	0.00	0.00	0.00
21,500.00	89.62	179.62	12,010.66	-8,799.66	-1,973.59	9,016.09	0.00	0.00	0.00
21,600.00	89.62	179.62	12,011.33	-8,899.66	-1,972.92	9,113.99	0.00	0.00	0.00
21,700.00	89.62	179.62	12,011.99	-8,999.65	-1,972.24	9,211.88	0.00	0.00	0.00
21,800.00	89.62	179.62	12,012.65	-9,099.65	-1,971.57	9,309.78	0.00	0.00	0.00
21,900.00	89.62	179.62	12,013.32	-9,199.64	-1,970.90	9,407.67	0.00	0.00	0.00
22,000.00	89.62	179.62	12,013.98	-9,299.64	-1,970.23	9,505.57	0.00	0.00	0.00
22,100.00	89.62	179.62	12,014.64	-9,399.63	-1,969.56	9,603.47	0.00	0.00	0.00
22,200.00	89.62	179.62	12,015.31	-9,499.63	-1,968.89	9,701.36	0.00	0.00	0.00
22,300.00	89.62	179.62	12,015.97	-9,599.62	-1,968.21	9,799.26	0.00	0.00	0.00
22,400.00	89.62	179.62	12,016.63	-9,699.62	-1,967.54	9,897.15	0.00	0.00	0.00
22,470.26	89.62	179.62	12,017.10	-9,769.88	-1,967.07	9,965.94	0.00	0.00	0.00
<b>TD at 22470.26' MD</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP (Lion Oil 28_33 - hit/miss target - Shape - Point	0.00	0.00	0.00	724.88	-2,037.57	498,847.36	741,502.97	32.369734	-103.685004
- plan misses target center by 2162.68ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
FTP (Lion Oil 28_33 - plan misses target center by 201.20ft at 12113.22ft MD (11794.65 TVD, 544.77 N, -1997.91 E) - Point	0.00	0.01	11,943.00	674.88	-2,037.23	498,797.36	741,503.31	32.369597	-103.685004
PBHL (Lion Oil 28_33 - plan hits target center - Point	0.00	0.00	12,017.10	-9,769.88	-1,967.07	488,353.08	741,573.47	32.340888	-103.684982

**OXY**  
Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well Lion Oil 28_33 Fed Com 32H
<b>Company:</b>	ENGINEERING DESIGNS	<b>TVD Reference:</b>	RKB=25' @ 3636.00ft
<b>Project:</b>	PRD NM DIRECTIONAL PLANS (NAD 1983)	<b>MD Reference:</b>	RKB=25' @ 3636.00ft
<b>Site:</b>	LION OIL 28_33 FED COM	<b>North Reference:</b>	Grid
<b>Well:</b>	Lion Oil 28_33 Fed Com 32H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIG HOLE		
<b>Design:</b>	Permitting Plan		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
835.00	835.00	RUSTLER				
1,212.00	1,212.00	SALADO				
2,000.00	2,000.00	MARKER BED 126		0.00		
2,823.00	2,823.00	CASTILE				
4,680.35	4,659.00	DELAWARE				
4,725.90	4,703.00	BELL CANYON				
5,644.18	5,590.00	CHERRY CANYON				
6,925.84	6,828.00	BRUSHY CANYON				
8,698.22	8,540.00	BONE SPRING				
9,877.39	9,679.00	BONE SPRING 1ST				
10,544.10	10,323.00	BONE SPRING 2ND				
11,611.45	11,354.00	BONE SPRING 3RD				
12,037.24	11,740.00	WOLFCAMP				
12,077.81	11,770.00	WOLFCAMP				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
3,055.00	3,055.00	0.00	0.00	Build 1°/100'	
4,554.82	4,537.75	69.38	-182.44	Hold 15° Tangent	
11,600.24	11,343.16	717.43	-1,886.65	KOP, Build & Turn 10°/100'	
12,550.26	11,951.31	149.68	-2,033.71	Landing Point	
14,567.03	11,964.68	-1,867.00	-2,020.16	PPP-1 Cross	
18,528.21	11,990.95	-5,828.00	-1,993.55	PPP-2 Cross	
22,470.26	12,017.10	-9,769.88	-1,967.07	TD at 22470.26' MD	

# Oxy USA Inc. - LION OIL 28\_33 FED COM 32H Drill Plan

## 1. Geologic Formations

TVD of Target (ft):	12017	Pilot Hole Depth (ft):	
Total Measured Depth (ft):	22470	Deepest Expected Fresh Water (ft):	835

### Delaware Basin

Formation	MD-RKB (ft)	TVD-RKB (ft)	Expected Fluids
Rustler	835	835	
Salado	1212	1212	Salt
Marker Bed 126	2000	2000	Salt
Castile	2823	2823	Salt
Delaware	4680	4659	Oil/Gas/Brine
Bell Canyon	4726	4703	Oil/Gas/Brine
Cherry Canyon	5644	5590	Oil/Gas/Brine
Brushy Canyon	6926	6828	Losses
Bone Spring	8698	8540	Oil/Gas
Bone Spring 1st	9877	9679	Oil/Gas
Bone Spring 2nd	10544	10323	Oil/Gas
Bone Spring 3rd	11611	11354	Oil/Gas
Wolfcamp	12037	11740	Oil/Gas
Penn			Oil/Gas
Strawn			Oil/Gas

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

## 2. Casing Program

Section	Hole Size (in)	MD		TVD		Csg. OD (in)	Csg Wt. (ppf)	Grade	Conn.
		From (ft)	To (ft)	From (ft)	To (ft)				
Surface	17.5	0	905	0	905	13.375	54.5	J-55	BTC
Intermediate	9.875	0	11500	0	11243	7.625	26.4	L-80 HC	BTC
Production	6.75	0	22470	0	12017	5.5	20	P-110	DWC/C-HT-IS

All casing strings will be tested in accordance with 43 CFR part 3170 Subpart 3172

\*Oxy requests the option to run the 10.75" Intermediate I as a contingency string to be run only if severe hole conditions dictate an additional casing string necessary. This would make the planned 7.625" / 7.827" Casing the Intermediate II.

\*\*If 4S Contingency is not required, Oxy requests permission to transition from 12.25" to 9.875" Intermediate I at 1st trip point below Brushy top (estimated top in formation table above). Cement volumes will be updated on C103 submission.

<i>All Casing SF Values will meet or exceed those below</i>			
<b>SF Collapse</b>	<b>SF Burst</b>	<b>Body SF Tension</b>	<b>Joint SF Tension</b>
1.00	1.100	1.4	1.4

**Annular Clearance Variance Request**  
 As per the agreement reached in the Oxy/BLM face-to-face meeting on Feb 22, 2018, Oxy requests permission to allow deviation from the 0.422" annular clearance requirement. Please see Annular Clearance Variance attachment for further details.

	Y or N
Is casing new? If used, attach certification as required in 43 CFR 3160	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef? If yes, does production casing cement tie back a minimum of 50' above the Reef? Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-Q? If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	N
Is well located in R-111-Q and SOPA? If yes, are the first three strings cemented to surface? Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	N
Is well located in high Cave/Karst? If yes, are there two strings cemented to surface? (For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	N
Is well located in critical Cave/Karst? If yes, are there three strings cemented to surface?	N

### 3. Cementing Program

Section	Stage	Slurry:	Sacks	Yield (ft <sup>3</sup> /ft)	Density (lb/gal)	Excess:	TOC	Placement	Description
Surface	1	Surface - Tail	945	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.	1	Intermediate 1S - Tail	580	1.68	13.2	5%	7,176	Circulate	Class C+Ret., Disper.
Int.	2	Intermediate 2S - Tail BH	1276	1.71	13.3	25%	-	Bradenhead	Class C+Accel.
Prod.	1	Production - Tail	650	1.84	13.3	25%	11,000	Circulate	Class C+Ret.

#### Offline Cementing Request

Oxy requests a variance to cement the 9.625" and/or 7.625" intermediate casing strings offline in accordance to the approved variance, EC Tran 461365. Please see Offline Cementing Variance

#### Bradenhead CBL Request

Oxy requests permission to adjust the CBL requirement after bradenhead cement jobs, on 7-5/8" intermediate casings, as per the agreement reached in the OXY/BLM meeting on September 5, 2019. Please see Bradenhead CBL Variance attachment for further details.

**4. Pressure Control Equipment**

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:	Deepest TVD Depth (ft) per Section:
9.875" Hole	13-5/8"	5M	Annular	✓	70% of working pressure	11243
		5M	Blind Ram	✓	250 psi / 5000 psi	
			Pipe Ram			
			Double Ram	✓		
Other*						
6.75" Hole	13-5/8"	5M	Annular	✓	100% of working pressure	12017
		10M	Blind Ram	✓	250 psi / 10000 psi	
			Pipe Ram			
			Double Ram	✓		
Other*						

\*Specify if additional ram is utilized

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per 43 CFR part 3170 Subpart 3172 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

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. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke

**5M Annular BOP Request**

Per BLM’s Memorandum No. NM-2017-008: *Decision and Rationale for a Variance Allowing the Use of a 5M Annular Preventer with a 10M BOP Stack*, Oxy requests to employ a 5M annular with a 10M BOPE stack in the pilot and lateral sections of the well and will ensure that two barriers to flow are

	Formation integrity test will be performed per 43 CFR part 3170 Subpart 3172.
	On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with 43 CFR part 3170 Subpart 3172.
	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
	A multibowl or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per 43 CFR part 3170 Subpart 3172 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on October 8, 2015.  See attached schematics.

**BOP Break Testing Request**

Oxy requests permission to adjust the BOP break testing (intermediate and production) requirements as per the agreement reached in the OXY/BLM meeting on April 4th, 2025. Please see BOP Break Testing Variance attachment for further details.

**Oxy will use Cameron ADAPT wellhead system that uses an OEC top flange connection. This connection has been fully vetted and verified by API to Spec 6A and carries an API monogram.**

**5. Mud Program**

Section	Depth - MD		Depth - TVD		Type	Weight (ppg)	Viscosity	Water Loss
	From (ft)	To (ft)	From (ft)	To (ft)				
Surface	0	905	0	905	Water-Based Mud	8.6 - 8.8	40-60	N/C
Intermediate	905	11500	905	11243	Saturated Brine-Based or Oil-Based Mud	8.0 - 10.0	35-45	N/C
Production	11500	22470	11243	12017	Water-Based or Oil-Based Mud	9.5 - 12.5	38-50	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. The following is a general list of products: Barite, Bentonite, Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Salt Water Clay, CACL2. Oxy will use a closed mud system.

What will be used to monitor the loss or gain of fluid?	PVT/MD Totco/Visual Monitoring
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**6. Logging and Testing Procedures**

Logging, Coring and Testing.	
Yes	Will run GR from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
No	Logs are planned based on well control or offset log information.
No	Drill stem test? If yes, explain
No	Coring? If yes, explain
Additional logs planned	Interval
No	Resistivity
No	Density
Yes	CBL Production string
Yes	Mud log Bone Spring – TD
No	PEX

**7. Drilling Conditions**

Condition	Specify what type and where?
BH Pressure at deepest TVD	7812 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	177°F

Pump high viscosity sweeps as needed for hole cleaning. The mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times. Appropriately weighted mud will be used to isolate potential gas, oil, and water zones until such time as casing can be cemented into place for

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of 43 CFR part 3170 Subpart 3172. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

**8. Other facets of operation**

	Yes/No
Will the well be drilled with a walking/skidding operation? If yes, describe. We plan to drill the 4 well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the rig is not over the well.	Yes
Will more than one drilling rig be used for drilling operations? If yes, describe. Oxy requests the option to contract a Surface Rig to drill, set surface casing, and cement for this well. If the timing between rigs is such that Oxy would not be able to preset surface, the Primary Rig will MIRU and drill the well in its entirety per the APD. Please see the attached document for information on the snudder rig.	Yes
<b>Total Estimated Cuttings Volume: 1759 bbls</b>	

OXY APD CHANGE SUNDRY LIST FORM

DATE SUNDRY WORKSHEET CREATED	9/22/2025
WELL NAME NUMBER	LION OIL 28_33 FEDERAL COM 31H
AP NUMBER	30-025-59946
ESTIMATED SPUD DATE	

ITEM	APD BASE LINE (For Regulatory to Complete)										SUNDRY PLAN (Groups to complete the latest plan)									
	DATE APD/BASE LINE APPROVED: 09/09/25	LION OIL 28_33 FEDERAL COM 32H	NO	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	DATE SUNDRY WORKSHEET CREATED: 09/22/25	LION OIL 28_33 FEDERAL COM 31H	NO	NSL	NSL	NSL	NSL	NSL	NSL
Surface Planting	UPPER WOLF CAMP																			
	W.C-025 G-08 S232327D																			
	1:1943																			
	12017																			
	207 FSL 8907 A/WL																			
	28 FAD 04																			
	6577 NK 225623E																			
	423 FSL 25627 E/L																			
	207 FSL 8907 A/WL																			
	28 FAD 04																			
Drilling	UPPER WOLF CAMP																			
	W.C-025 G-08 S232327D																			
	1:1943																			
	12017																			
	207 FSL 8907 A/WL																			
	28 FAD 04																			
	6577 NK 225623E																			
	423 FSL 25627 E/L																			
	207 FSL 8907 A/WL																			
	28 FAD 04																			
CASING PROGRAM	UPPER WOLF CAMP																			
	W.C-025 G-08 S232327D																			
	1:1943																			
	12017																			
	207 FSL 8907 A/WL																			
	28 FAD 04																			
	6577 NK 225623E																			
	423 FSL 25627 E/L																			
	207 FSL 8907 A/WL																			
	28 FAD 04																			
CEMENT PROGRAM	UPPER WOLF CAMP																			
	W.C-025 G-08 S232327D																			
	1:1943																			
	12017																			
	207 FSL 8907 A/WL																			
	28 FAD 04																			
	6577 NK 225623E																			
	423 FSL 25627 E/L																			
	207 FSL 8907 A/WL																			
	28 FAD 04																			
VARIANCES	UPPER WOLF CAMP																			
	W.C-025 G-08 S232327D																			
	1:1943																			
	12017																			
	207 FSL 8907 A/WL																			
	28 FAD 04																			
	6577 NK 225623E																			
	423 FSL 25627 E/L																			
	207 FSL 8907 A/WL																			
	28 FAD 04																			

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

CONDITIONS

Action 544713

**CONDITIONS**

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID: 16696
	Action Number: 544713
	Action Type: [C-103] NOI Change of Plans (C-103A)

**CONDITIONS**

Created By	Condition	Condition Date
matthew.gomez	No additives containing PFAS chemicals will be added to the drilling fluids or completion fluids used during drilling, completions, or recompletions operations.	3/3/2026
matthew.gomez	If cement does not circulate to surface on any string, a Cement Bond Log (CBL) is required for that string of casing. If strata isolation is not achieved, remediation will be required before further operations may commence.	3/3/2026
matthew.gomez	All conducted logs must be submitted to the OCD.	3/3/2026
matthew.gomez	Cement must be in place for at least eight hours and achieve a minimum compressive strength of 500 PSI before performing any further operations on the well.	3/3/2026
matthew.gomez	All previous COA's still apply.	3/3/2026