Received by OCD: 12/10/2025 6:53:26 AM

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

Sundry Print Report

12/10/2025

Well Name: DR PI UNIT

Well Location: T22S / R32E / SEC 17 / SESW / 32.385294 / -103.699559

County or Parish/State: LEA / NM

Well Number: 101H

Type of Well: OIL WELL

Allottee or Tribe Name:

Lease Number: NMNM128362

Unit or CA Name:

Unit or CA Number: NMNM105825907

US Well Number: 3002554210

Operator: OXY USA INCORPORATED

Notice of Intent

Sundry ID: 2880289

Type of Submission: Notice of Intent

Type of Action: APD Change

Date Sundry Submitted: 10/27/2025

Time Sundry Submitted: 09:18

Date proposed operation will begin: 01/01/2026

Procedure Description: OXY USA Inc., respectfully requests to amend the subject AAPD to revise the TVD and Drill Plan. Old TVD: 11179' New TVD: 11105' *THERE IS NO ADDITIONAL SURFACE DISTURBANCE RELATED TO THIS SUNDRY" Attached is the updated drill plan, directional, blanket design plan and APD Change Worksheet.

NOI Attachments

Procedure Description

DrPiUnit101H_VAM_DWC_C_HT_IS_5.500in_20ppf_P110RY_20251027091829.pdf

DrPiUnit101H_BOPBreakTestingVariance2025_20251027091822.pdf

Blanket_Design_A_Pad_Review_Document_LSTTNK_T22SR32E_1703_20251027091814.pdf

Combined_Blanket_Design___A1___A2__B___OXY___3S_Slim_v8.0_and_4S_Slim_Contingency_v4.0_20251027091807.pdf

DrPiUnit101H_DirectPlan_20251027091755.pdf

DrPiUnit101H_DrillPlan_20251027091745.pdf

DrPiUnit101H_C102_20251027091737.pdf

DrPiUnit101H_APDCHGSUNDRYWORKSHEET_20251027091730.pdf

Released to Imaging: 1/6/2026 1:30:00 PM

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Unit or CA Number: NMNM105825907

US Well Number: 3002554210

Operator: OXY USA INCORPORATED

Conditions of Approval

Additional

DR_PI_UNIT_101H___COA_20251210063746.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: OCT 27, 2025 09:18 AM

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: 12/10/2025

Signature: KEITH IMMATTY

Released to Imaging: 1/6/2026 1:30:00 PM

CONFIDENTIAL

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. NMNM128362

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE *- Other instructions on page 2*

7. If Unit of CA/Agreement, Name and/or No. NMNM105825907

1. Type of Well
☑ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No. DR PI UNIT/101H

2. Name of Operator OXY USA INCORPORATED

9. API Well No. 3002554210

3a. Address 5 GREENWAY PLAZA SUITE 110, HOUSTON, T

3b. Phone No. *(include area code)* (713) 366-5716

10. Field and Pool or Exploratory Area BILBREY BASIN/BONE SPRING, SOUTH

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*
SEC 17/T22S/R32E/NMP

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			
☑ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☑ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
☐ Final Abandonment Notice	☐ Convert to Injection	☐ Plug Back	☐ 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 perfonned 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 detennined 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: 11179'
New TVD: 11105'

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

Attached is the updated drill plan, directional, blanket design plan and APD Change Worksheet.

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

Title Advisor Regulatory Sr.

Signature (Electronic Submission)

Date 10/27/2025

THE SPACE FOR FEDERAL OR STATE OFICE USE

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

Title ENGINEER

Date 12/10/2025

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.

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 ofthis form to U.S. Department ofthe Interior, Bureau ofLand 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: SESW / 346 FSL / 1785 FWL / TWSP: 22S / RANGE: 32E / SECTION: 17 / LAT: 32.385294 / LONG: -103.699559 (TVD: 0 feet, MD: 0 feet)

PPP: SWSW / 100 FSL / 810 FWL / TWSP: 22S / RANGE: 32E / SECTION: 17 / LAT: 32.384607 / LONG: -103.702716 (TVD: 11179 feet, MD: 11593 feet)

PPP: NWNW / 1319 FNL / 810 FWL / TWSP: 22S / RANGE: 32E / SECTION: 8 / LAT: 32.40973 / LONG: -103.702751 (TVD: 11179 feet, MD: 20215 feet)

PPP: SWSW / 0 FSL / 809 FWL / TWSP: 22S / RANGE: 32E / SECTION: 8 / LAT: 32.398853 / LONG: -103.702736 (TVD: 11179 feet, MD: 16257 feet)

BHL: NWNW / 20 FNL / 810 FWL / TWSP: 22S / RANGE: 32E / SECTION: 8 / LAT: 32.413299 / LONG: -103.702755 (TVD: 11179 feet, MD: 21508 feet)

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OXY USA INCORPORATED
WELL NAME & NO.:	DR PI UNIT 101H
LOCATION:	Section 17, T.22 S., R.32 E.
COUNTY:	Lea County, New Mexico

Create COAs

H_2S	Cave / Karst	Waste Prevention Rule
Present	Low	Waste Minimization Plan

Potash	R-111-Q Design
None	

Wellhead	Casing
Multibowl	3-String Well W/ 4-String Contingency ☐ Liner ☐ Fluid Filled ☐ Casing Clearance
☑ Flex Hose ☑ Break Testing	**Cementing** ☐ DV Tool ☑ Bradenhead ☑ Echometer ☑ Offline Cement ☐ Open Annulus ☐ Pilot Hole

Special Requirements

☐ Capitan Reef ☐ Water Disposal ☐ COM ☑ Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H_2S) 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 BOTH A1 AND A2 DESIGNS. PARAMETERS WITHIN BOUNDARY CONDITIONS.

DESIGN A1:

1. The **10-3/4** inch surface casing shall be set at approximately **966** 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 **966** 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.

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 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).

<u>BOPE Break Testing Variance</u>
<u>(Note: For a minimum 5M BOPE or less (Utilizing a 10M BOPE system)</u>

- 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. Function test is NOT adequate when repairs or replacement of BOPE is needed. Function test is NOT adequate in the event of repairs or replacements.
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

D. SPECIAL REQUIREMENT(S)

Unit Wells:
The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

Commercial Well Determination:
A commercial well determination shall be submitted after production has been established for at least six months. **(This is not necessary for secondary recovery unit wells)**

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**; (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 has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
    b. When the operator proposes to set surface casing with Spudder Rig
        i. Notify the BLM when moving in and removing the Spudder Rig.
        ii. Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
        iii. BOP/BOPE test to be conducted per **43 CFR 3172** as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. 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

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement

program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends 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.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-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. (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 hour 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 as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area. Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

KPI 12/10/2025

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 procldure.

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 thl-ee 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 USA Inc. - Blanket Design Pad Document

OXY - Blanket Design A

Pad Name: LSTTNK_T22SR32E_1703

SHL: 170' FSL 895' FWL, Sec 17, 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
Dr Pi Unit 101H	10400098480	966	966	11532	11105	21444	11105
Dr Pi Unit 102H	10400098483	960	960	11481	11121	21396	11121

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 3rd 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 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Geologic Formations

Formation	MD-RKB (ft)	TVD-RKB (ft)	Expected Fluids
Rustler	896	896	
Salado	1193	1193	Salt
Marker Bed 126	2000	2000	Salt
Castile	2830	2830	Salt
Delaware	4762	4762	Oil/Gas/Brine
Bell Canyon	4818	4818	Oil/Gas/Brine
Cherry Canyon	5670	5670	Oil/Gas/Brine
Brushy Canyon	6885	6868	Losses
Bone Spring	8662	8613	Oil/Gas
Bone Spring 1st	9773	9703	Oil/Gas
Bone Spring 2nd	10438	10356	Oil/Gas
Bone Spring 3rd			Oil/Gas
Wolfcamp			Oil/Gas
Penn			Oil/Gas
Strawn			Oil/Gas

4. Cementing Program

Section	Stage	Slurry:	Sacks	Yield (ft^3/ft)	Density (lb/gal)	Excess:	TOC	Placement	Description
Surface	1	Surface - Tail	1009	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.	1	Intermediate 1S - Tail	590	1.68	13.2	5%	7,135	Circulate	Class C+Ret., Disper.
Int.	2	Intermediate 2S - Tail BH	1280	1.71	13.3	25%	-	Bradenhead	Class C+Accel.
Prod.	1	Production - Tail	590	1.84	13.3	25%	11,032	Circulate	Class C+Ret.

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.

		MD		TVD					
Section	**Hole Size (in)**	**From (ft)**	**To (ft)**	**From (ft)**	**To (ft)**	**Csg. OD (in)**	**Csg Wt. (ppf)**	**Grade**	**Conn.**
Surface	17.5	0	1200	0	1200	13.375	54.5	J-55	BTC
Intermediate 1	12.25†	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

†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.

All Casing SF Values will meet or exceed those below			
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

	MD		TVD			
Section	Deepest KOP (ft)	End Build (ft)	Deepest KOP (ft)	End Build (ft)	Max. Angle	Max. Planned DLS
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^3/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 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*

<u>As Reviewed and Approved by BLM on Feb 8, 2024</u>: 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.

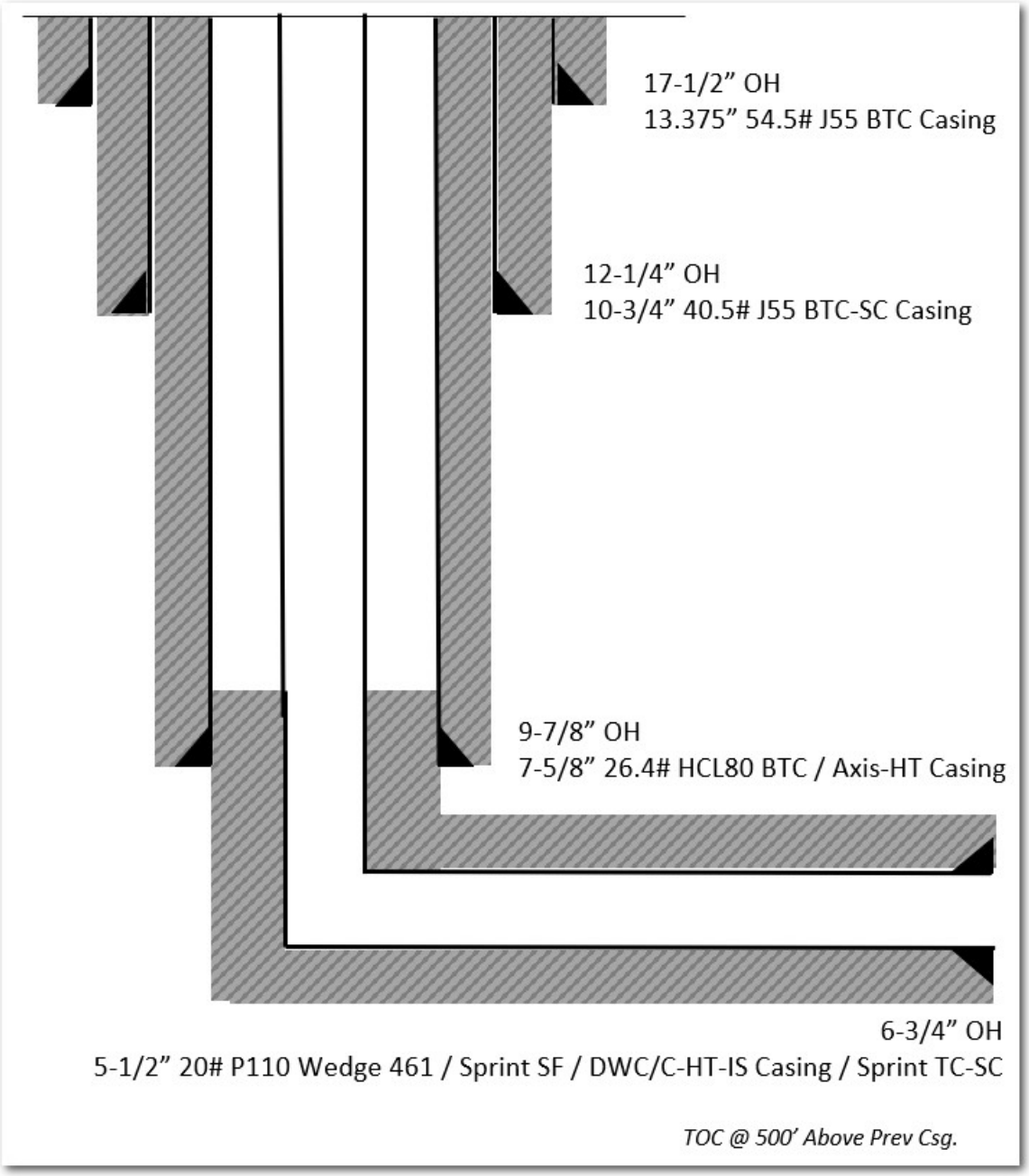
- Oxy will first attempt to cure losses before proceeding with drilling blind
- Drilling blind will only be allowed in the Castille and formations below
- While drilling blind, will monitor backside by filling-up on connections and utilizing gas monitors
- Depths at which losses occurred and attempt 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.

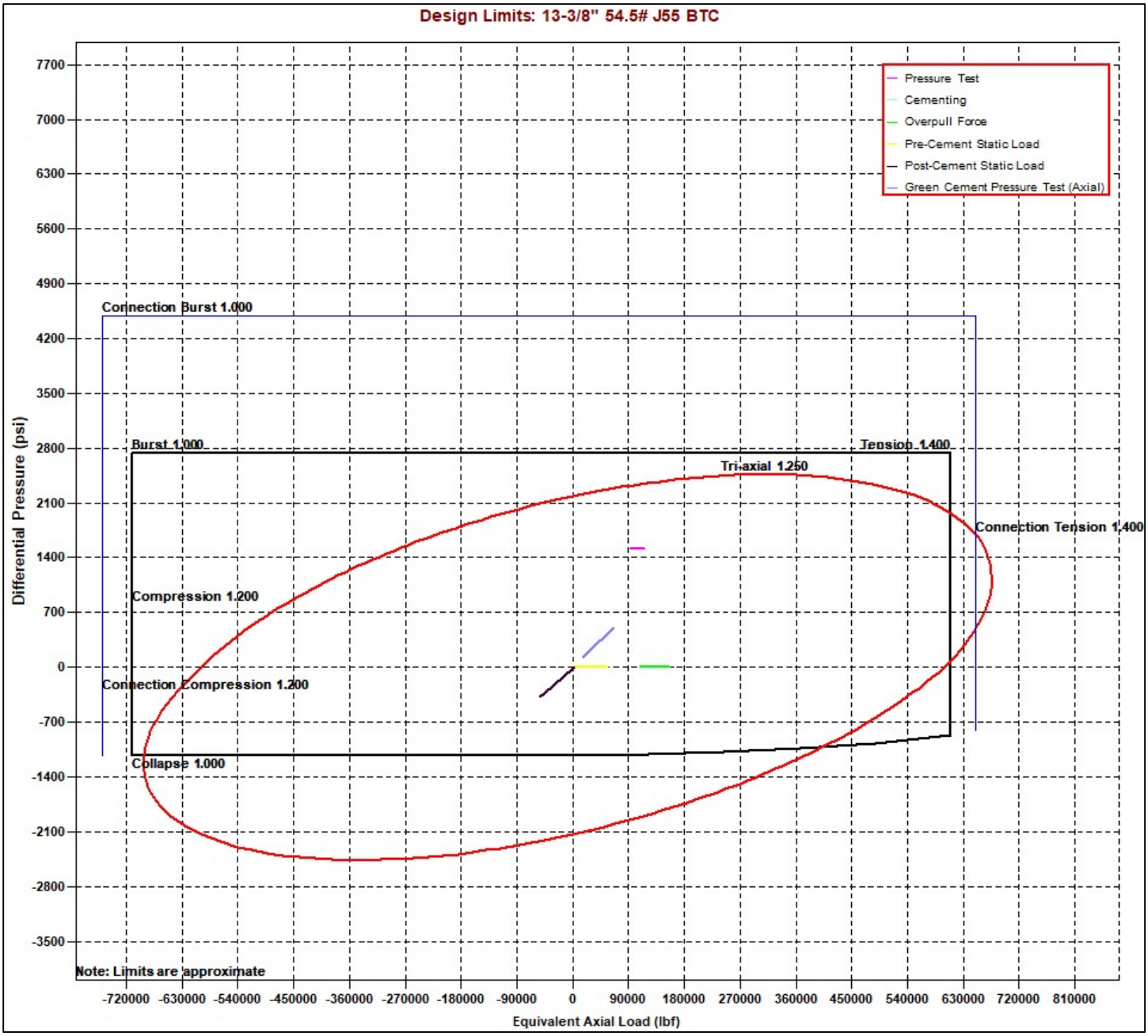
Oxy Blanket Design - Casing Design "B"

6. Wellbore Diagram

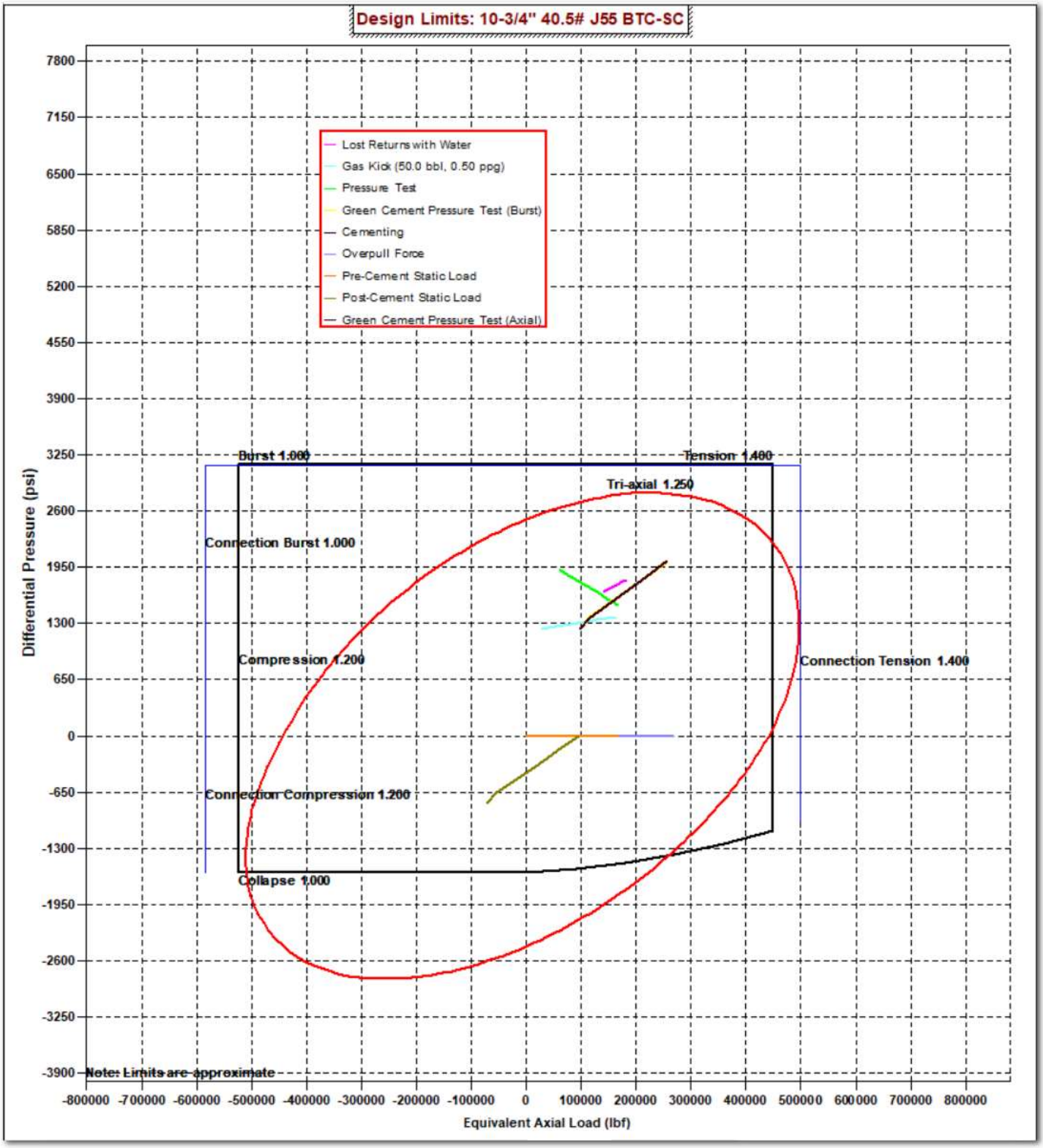


Oxy Blanket Design - Casing Design "B"

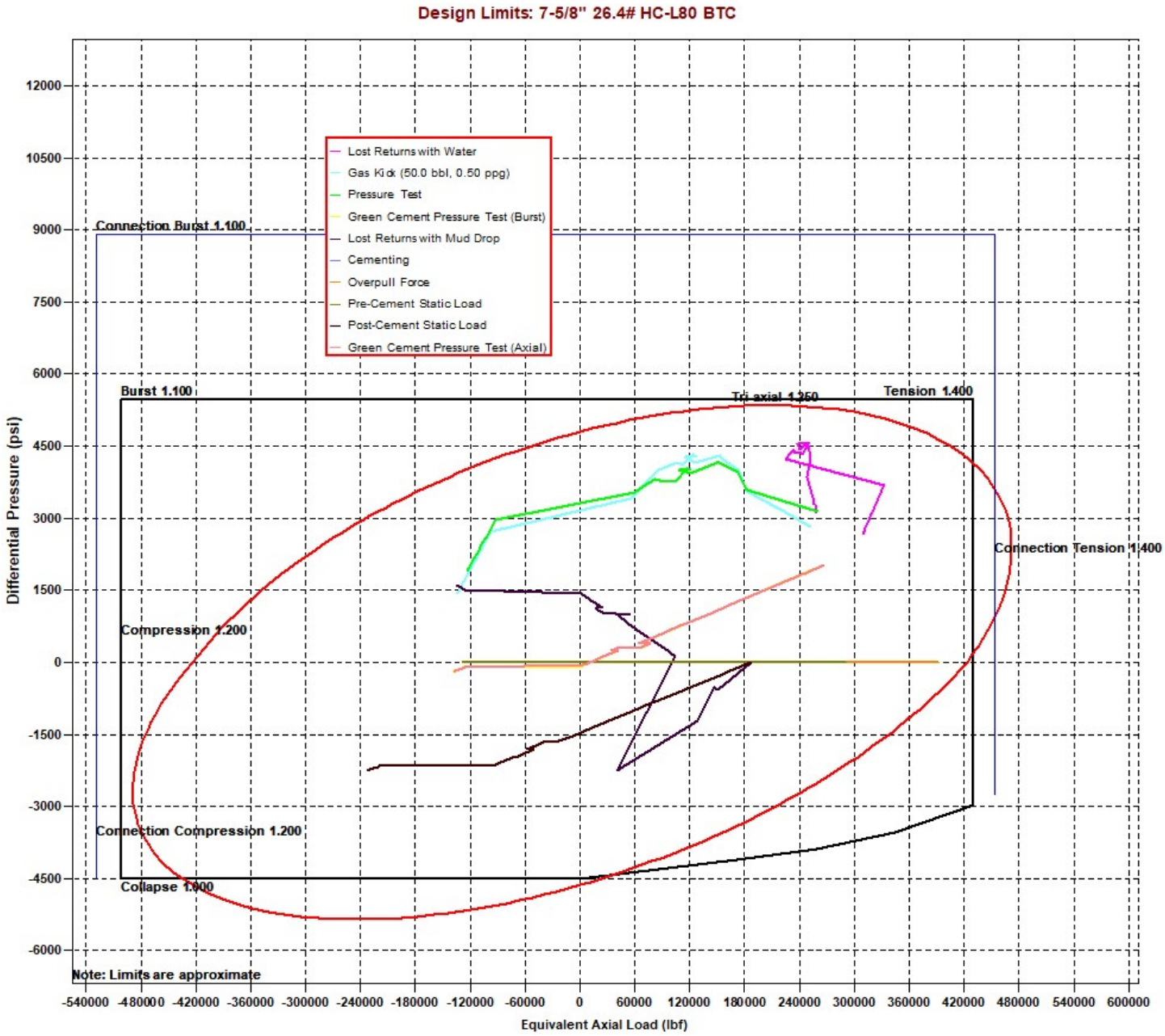
7. Landmark StressCheck Screenshots – Triaxial Output



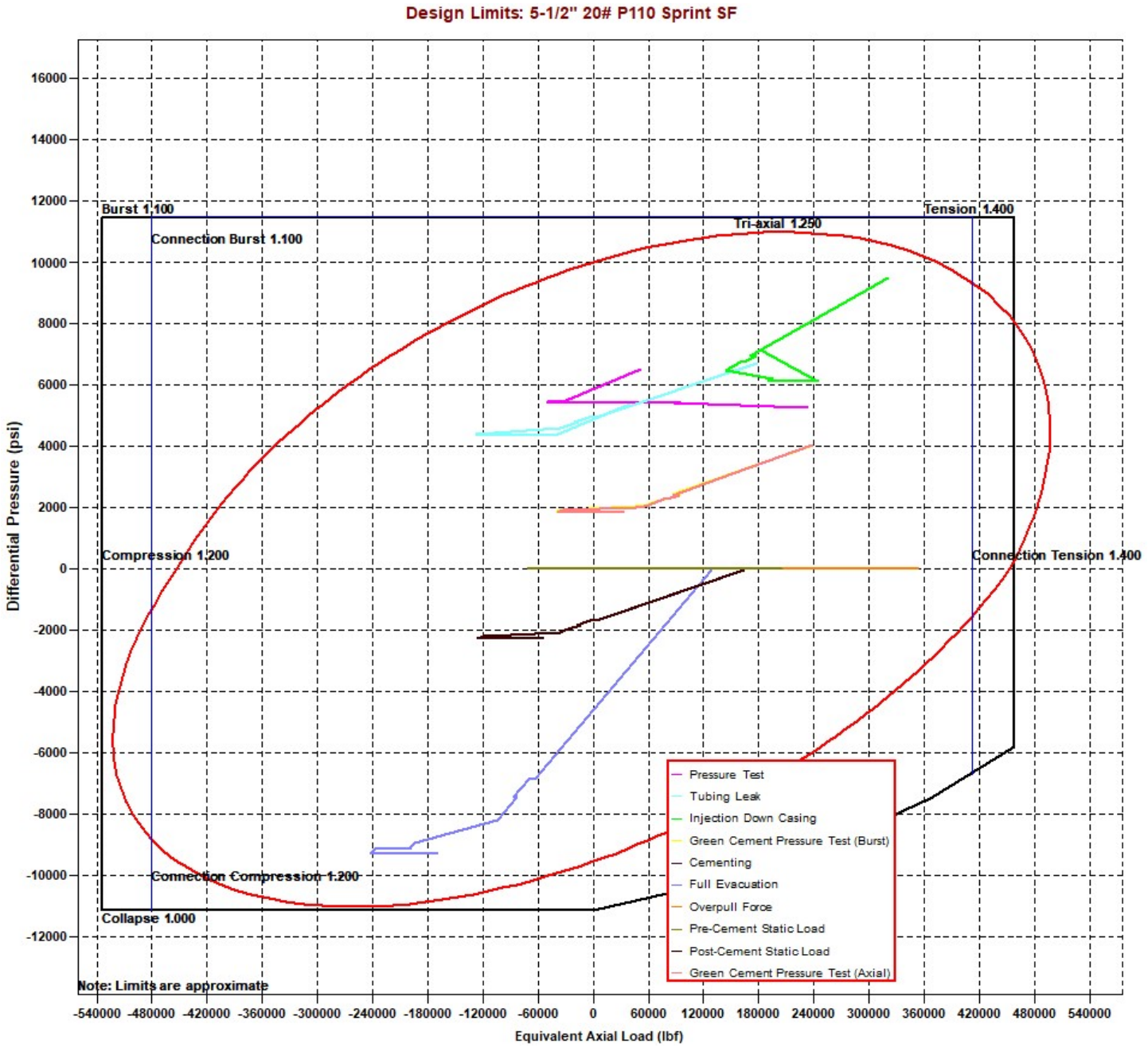
Oxy Blanket Design - Casing Design "B"



Oxy Blanket Design - Casing Design "B"



Oxy Blanket Design - Casing Design "B"



Oxy Blanket Design - Casing Design "B"

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

Burst Load Cases

7 5/8" Intermediate Casing

Burst Loads Data

Drilling Load:	**Lost Returns with Water**
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)
Drilling Load:	**Gas Kick Profile**
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)
Drilling Load:	**Pressure Test**
Test Pressure:	3120 psi
Mud Weight:	10.00 ppg
Assigned External Pressure:	Fluid Gradients (w/ Pore Pressure)
Drilling Load:	**Green Cement Pressure Test**
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
External Pressure:	**Fluid Gradients (w/ Pore Pressure)**
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

7 5/8" Intermediate Casing

Collapse Loads Data

Drilling Load:	**Cementing**
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)
Drilling Load:	**Lost Returns with Mud Drop**
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)
External Pressure:	**Fluid Gradients (w/ Pore Pressure)**
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

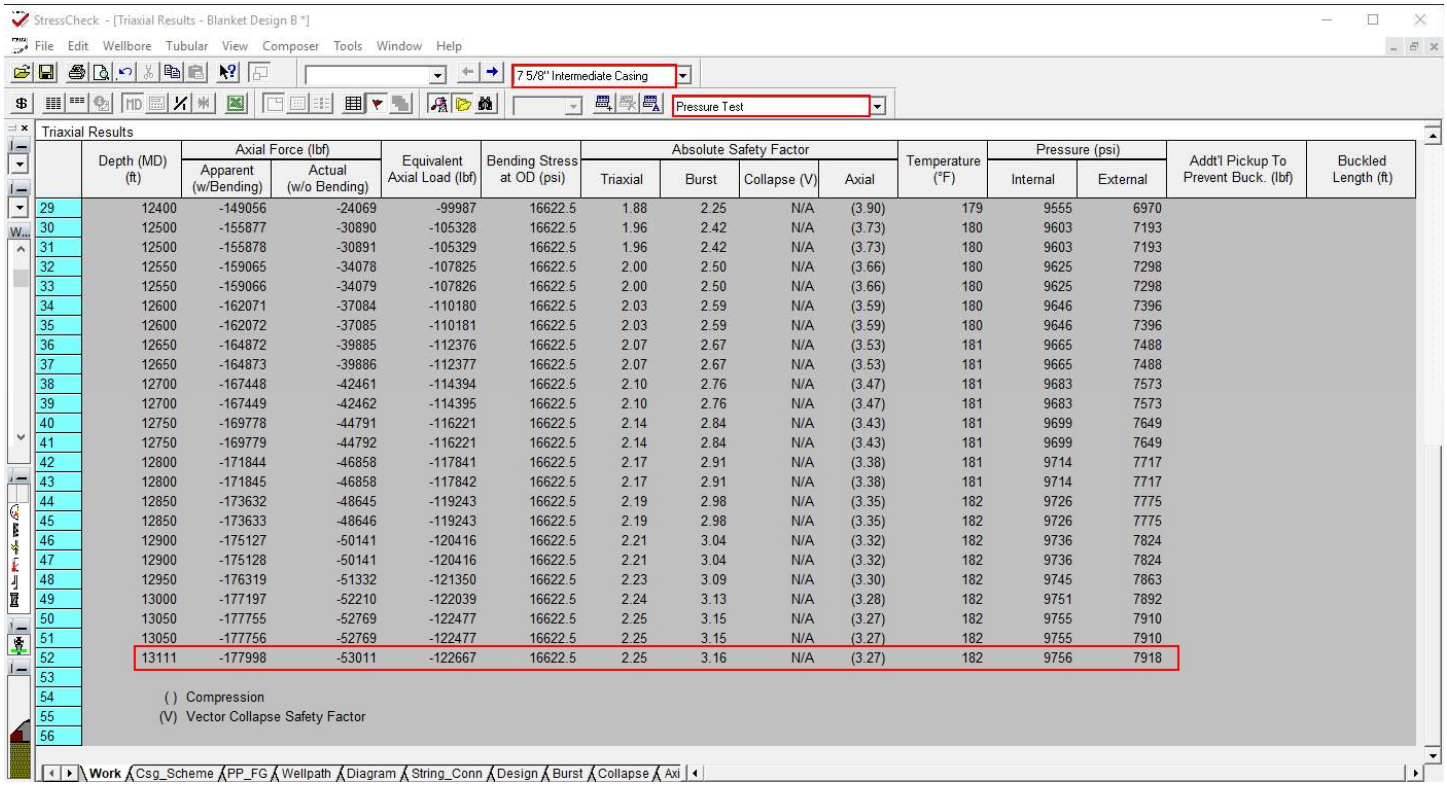
General | 7 5/8" Intermediate Casing

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 (lbf) Apparent (w/Bending)	Axial Force (lbf) Actual (w/o Bending)	Equivalent Axial Load (lbf)	Bending Stress at OD (psi)	Absolute Safety Factor Triaxial	Absolute Safety Factor Burst	Absolute Safety Factor Collapse (V)	Absolute Safety Factor Axial	Temperature (°F)	Pressure (psi) Internal	Pressure (psi) External	Addt'l Pickup To Prevent Buck. (lbf)	Buckled Length (ft)
29	12400	-149056	-24069	-99987	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	-116221	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	-119243	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	( ) Compression													
55	(V) Vector Collapse Safety Factor													
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

Tenaris

API BTC -Special Clearance

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: -

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.	SMYS	55,000 psi
Wall Thickness	0.350 in.	Plain End Weight	38.91 lb/ft	Min UTS	75,000 psi
Nominal Weight	40.500 lb/ft	OD Tolerance	API	Body Yield Strength	629 x1000 lb
Nominal ID	10.050 in.			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"

AXIS PIPE AND TUBE

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

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11. Production Non-API Casing Spec Sheets

Oxy Blanket Design - Casing Design "B"

Printed on: 11/09/2021

Tenaris

TenarisHydril Wedge 461 ® MS

Coupling	Pipe Body
Grade: P110-ICY	Grade: P110-ICY
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-ICY
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.	Body Yield Strength	729 x1000 lb
Nominal Weight	20 lb/ft	Plain End Weight	19.83 lb/ft	Min. Internal Yield Pressure	14,360 psi
Drift	4.653 in.	OD Tolerance	API	SMYS	125,000 psi
Nominal ID	4.778 in.			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 %	**Operation Limit Torques**	
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	**Buck-On**	
		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

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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.**

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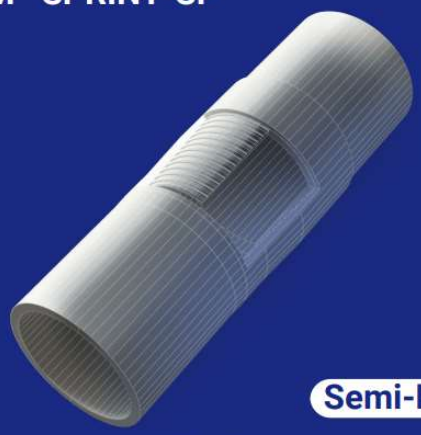

Semi-Flush

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

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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	°/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

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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VAM® USA Sales E-mail: VAMUSAsales@vam-usa.com
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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 for details on connection ratings and make-up.

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Oxy Blanket Design - Casing Design "B"

Generated on May 14, 2025

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 & Coup	
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"

		MD		TVD					
Section	Hole Size (in)	From (ft)	To (ft)	From (ft)	To (ft)	Csg. OD (in)	Csg Wt. (ppf)	Grade	Conn.
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

		MD		TVD					
Section	Hole Size (in)	From (ft)	To (ft)	From (ft)	To (ft)	Csg. OD (in)	Csg Wt. (ppf)	Grade	Conn.
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"

All Casing SF Values will meet or exceed those below			
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.

2. Trajectory / Boundary Conditions

	MD		TVD			
Section	**Deepest KOP (ft)**	**End Build (ft)**	**Deepest KOP (ft)**	**End Build (ft)**	**Max. Angle**	**Max. Planned DLS**
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^3/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^3/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.

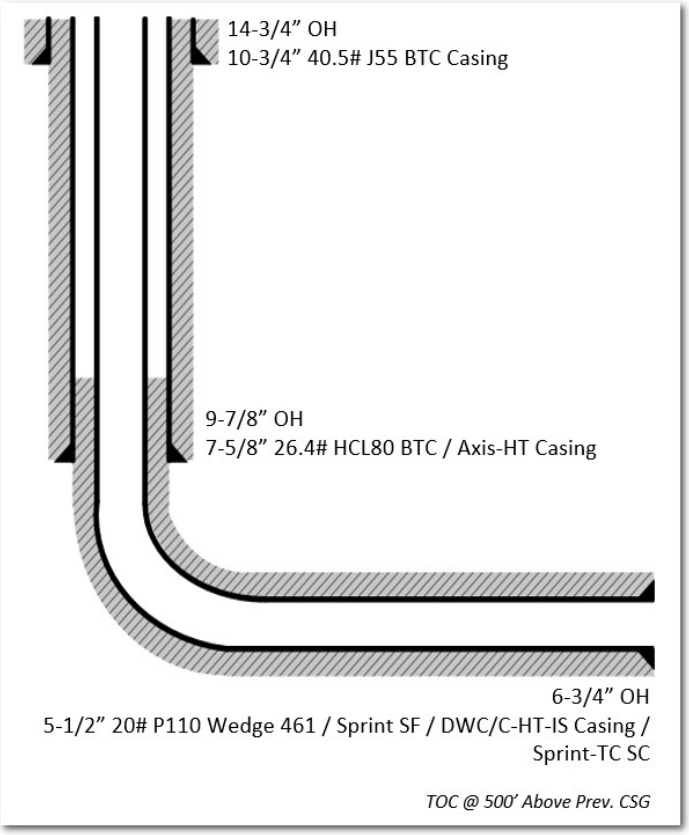
What will be used to monitor the loss or gain of fluid?	PVT/MD Totco/Visual Monitoring

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.

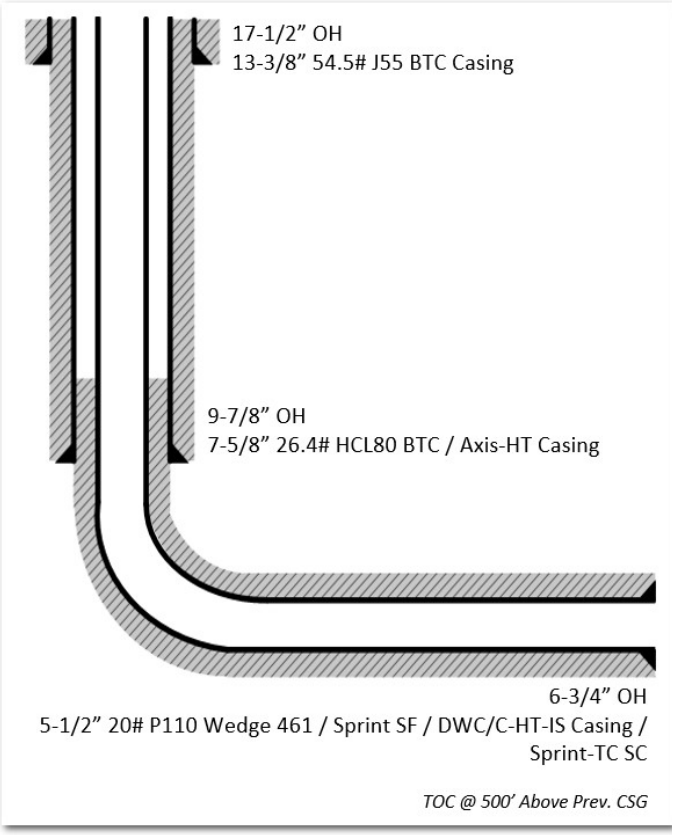
Oxy Blanket Design - Casing Design "A"

6. Wellbore Diagram(s)

Design Variation "A1"

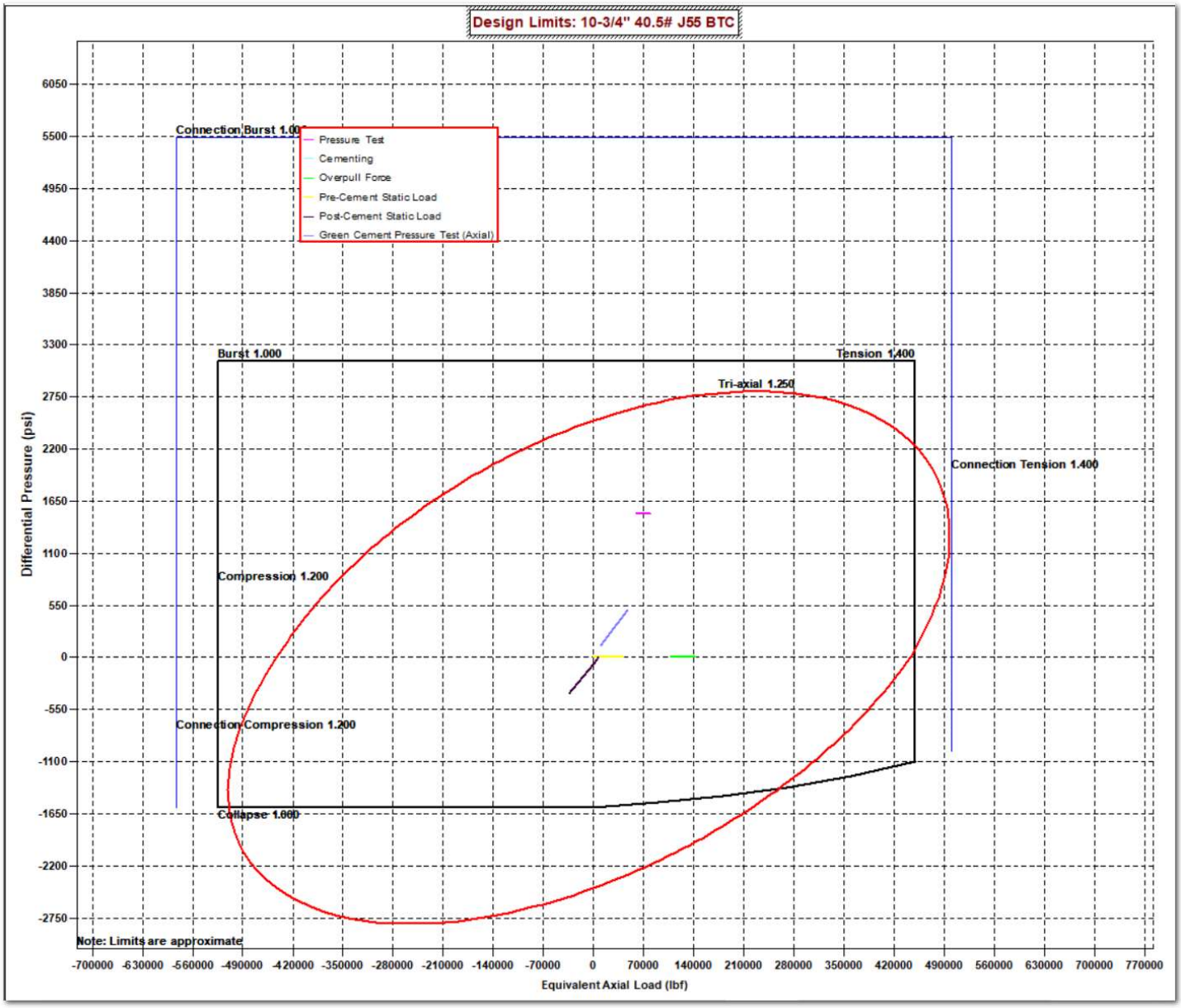


Design Variation "A2"

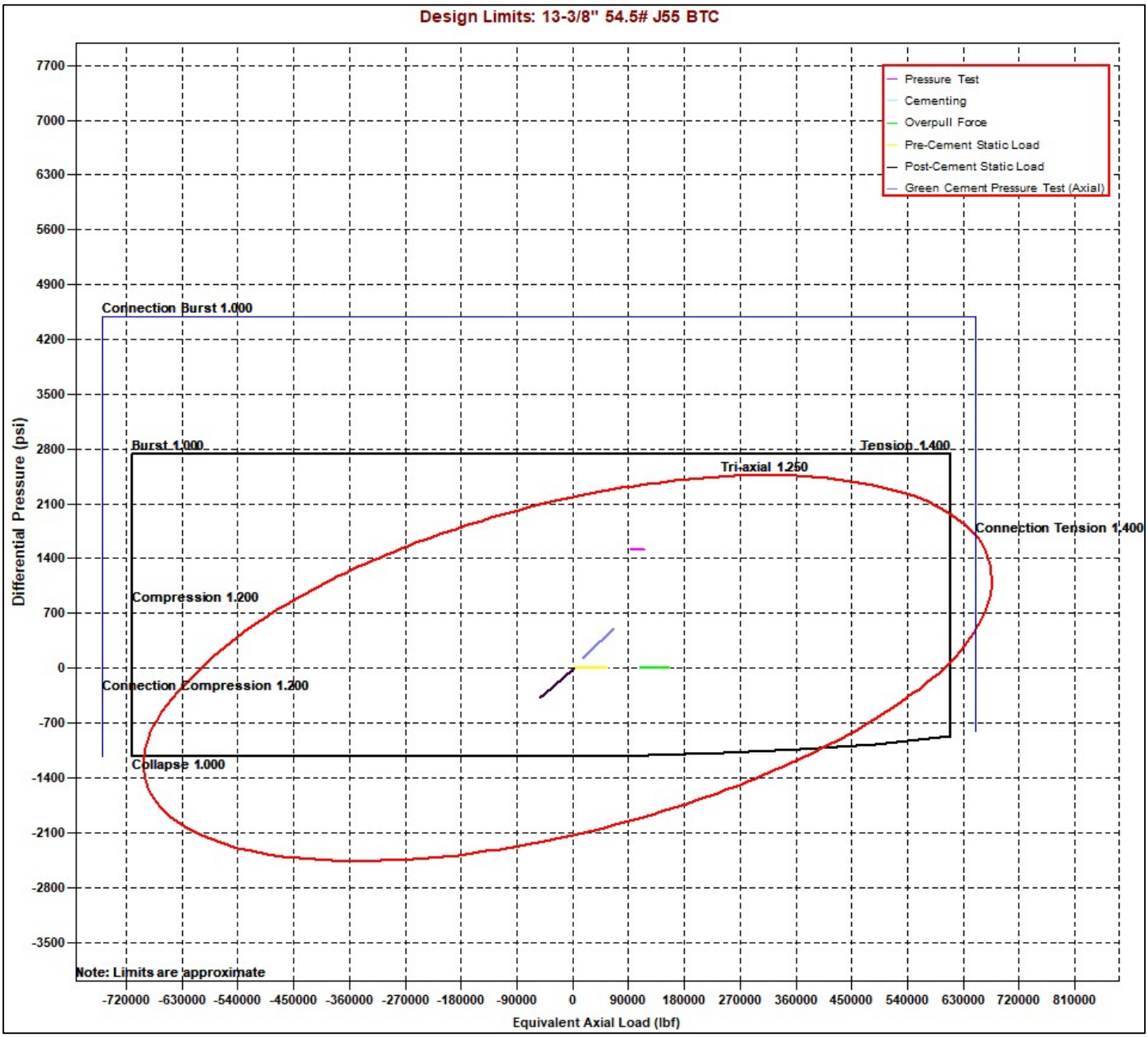


Oxy Blanket Design - Casing Design "A"

7. Landmark StressCheck Screenshots – Triaxial Output

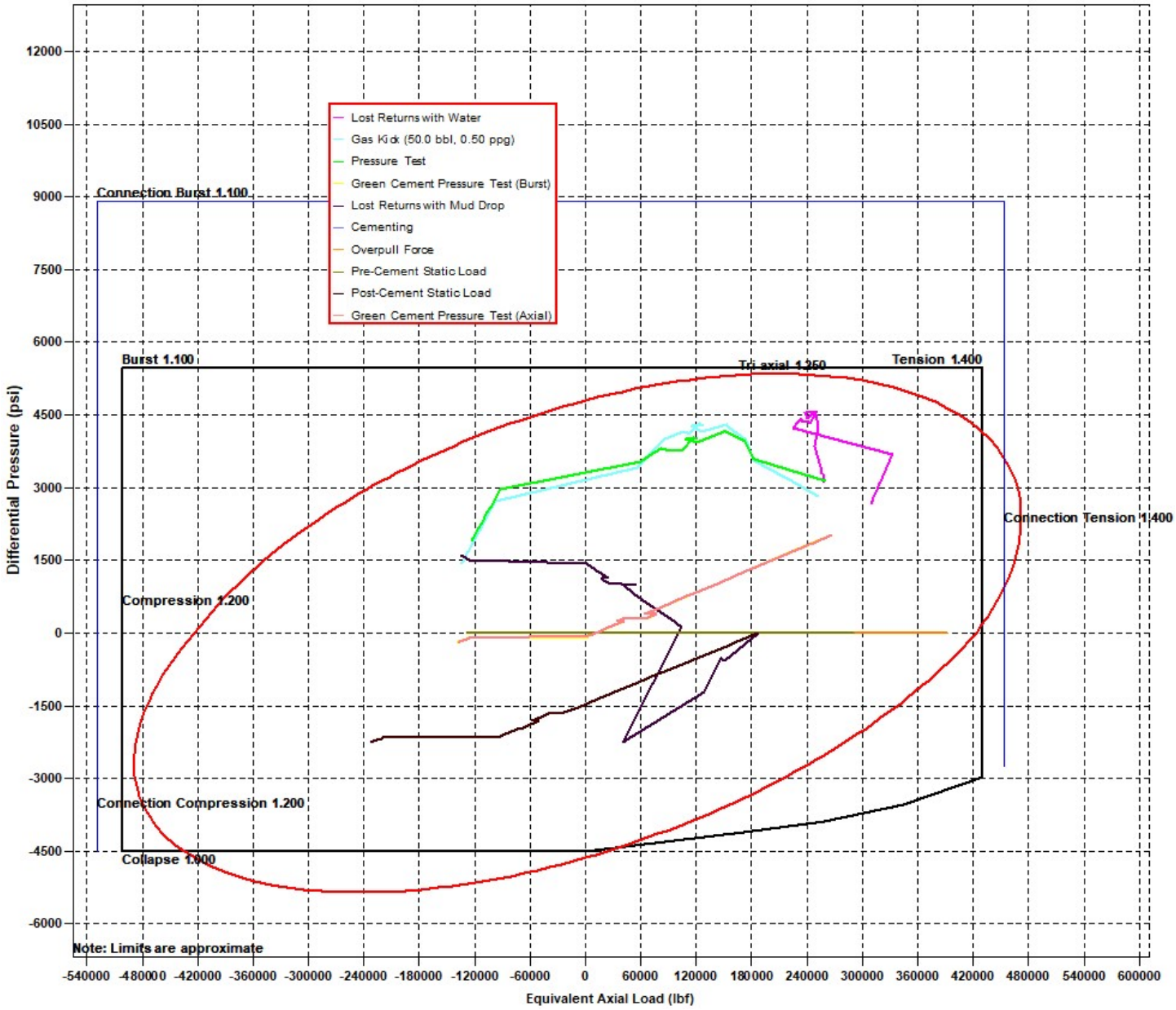


Oxy Blanket Design - Casing Design "A"



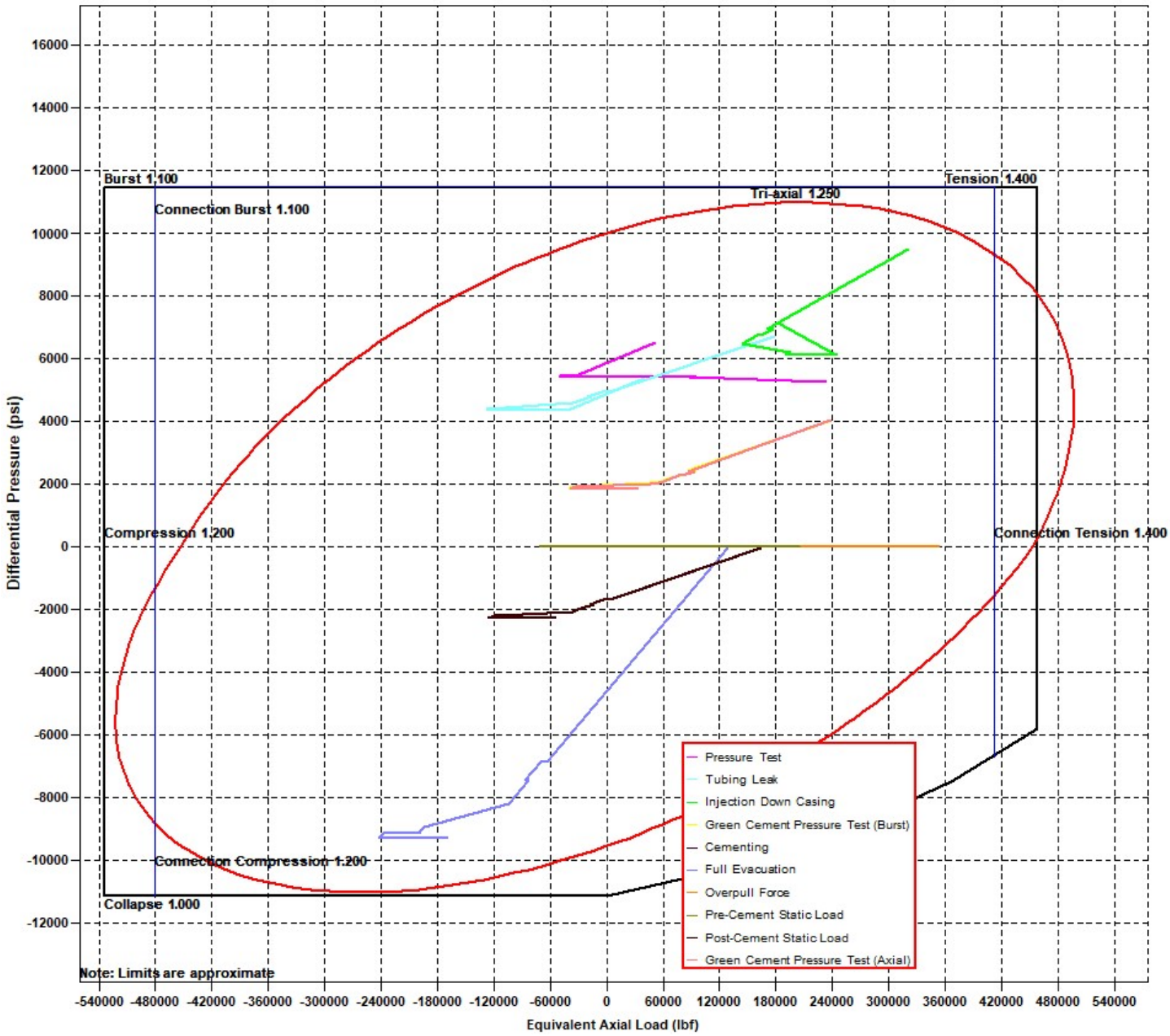
Oxy Blanket Design - Casing Design "A"

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

General | 7 5/8" Intermediate Casing

Burst Loads Data

Drilling Load:	**Lost Returns with Water**
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)
Drilling Load:	**Gas Kick Profile**
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)
Drilling Load:	**Pressure Test**
Test Pressure:	3120 psi
Mud Weight:	10.00 ppg
Assigned External Pressure:	Fluid Gradients (w/ Pore Pressure)
Drilling Load:	**Green Cement Pressure Test**
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
External Pressure:	**Fluid Gradients (w/ Pore Pressure)**
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

General | 7 5/8" Intermediate Casing

Collapse Loads Data

Drilling Load:	**Cementing**
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)
Drilling Load:	**Lost Returns with Mud Drop**
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)
External Pressure:	**Fluid Gradients (w/ Pore Pressure)**
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

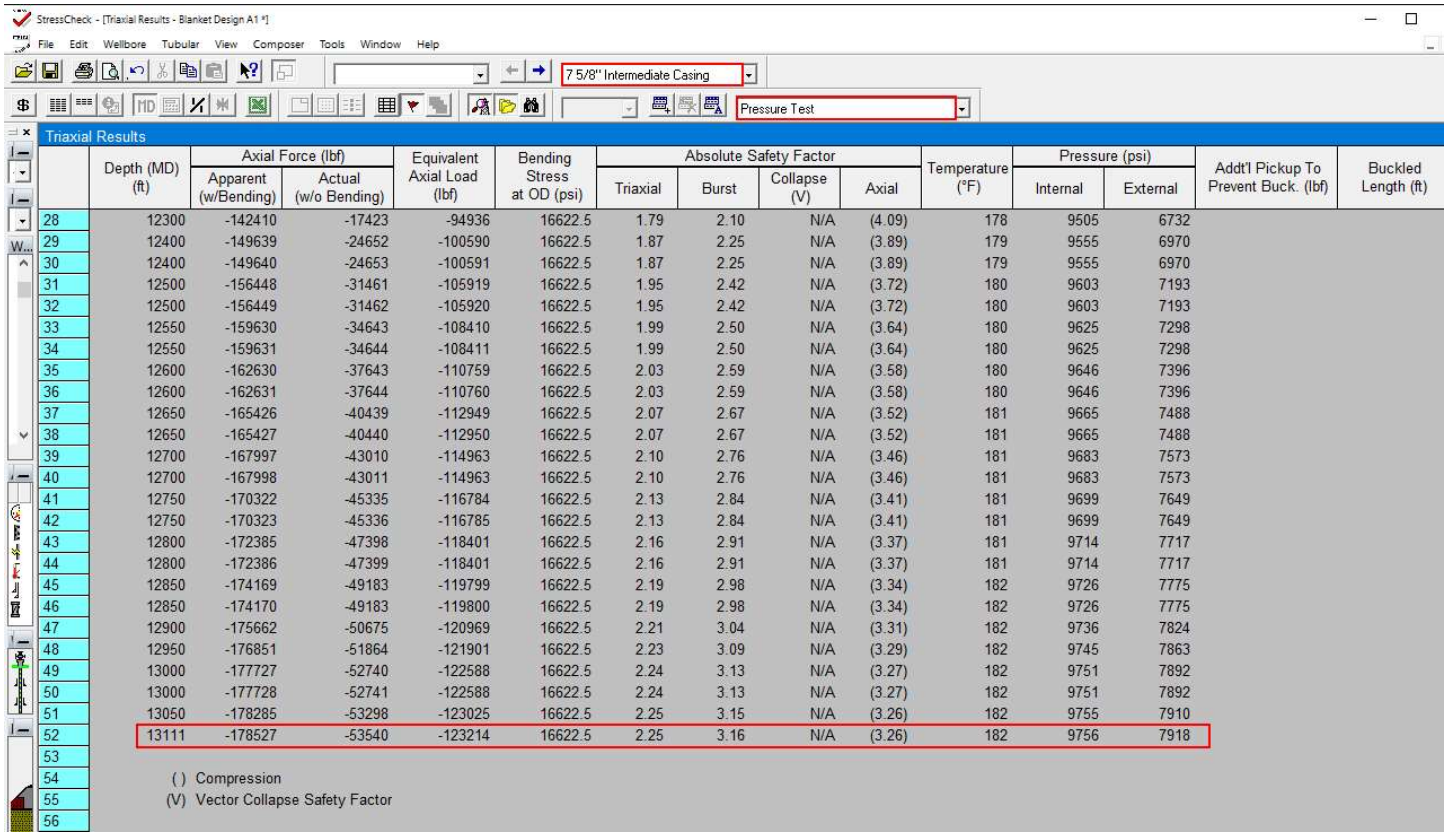
General | 7 5/8" Intermediate Casing

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 (lbf) Apparent (w/Bending)	Axial Force (lbf) Actual (w/o Bending)	Equivalent Axial Load (lbf)	Bending Stress at OD (psi)	Absolute Safety Factor Triaxial	Absolute Safety Factor Burst	Absolute Safety Factor Collapse (V)	Absolute Safety Factor Axial	Temperature (°F)	Pressure (psi) Internal	Pressure (psi) External	Addt'l Pickup To Prevent Buck. (lbf)	Buckled Length (ft)
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	( ) Compression													
55	(V) Vector Collapse Safety Factor													
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 "A"

10. Intermediate Non-API Casing Spec Sheet

AXIS PIPE AND TUBE

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

Oxy Blanket Design - Casing Design "A"

11. Production Non-API Casing Spec Sheets

Printed on: 11/09/2021

Tenaris

TenarisHydril Wedge 461 ® MS

Coupling	Pipe Body
Grade: P110-ICY	Grade: P110-ICY
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-ICY
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.	Body Yield Strength	729 x1000 lb
Nominal Weight	20 lb/ft	Plain End Weight	19.83 lb/ft	Min. Internal Yield Pressure	14,360 psi
Drift	4.653 in.	OD Tolerance	API	SMYS	125,000 psi
Nominal ID	4.778 in.			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 %	**Operation Limit Torques**	
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	**Buck-On**	
		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 lastest performance data, always visit our website: www.tenaris.com

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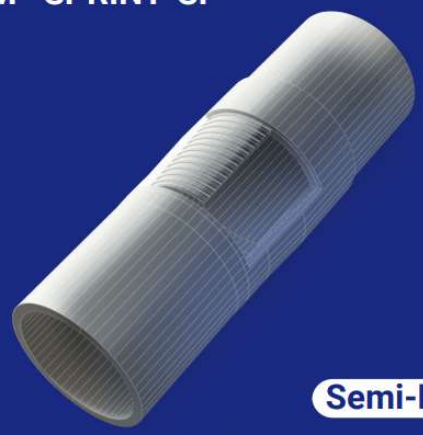
Oxy Blanket Design - Casing Design "A"

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

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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	°/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

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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VAM® USA Sales E-mail: VAMUSAsales@vam-usa.com
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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 for details on connection ratings and make-up.

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"

Generated on May 14, 2025

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 & Cou	
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

PRD NM DIRECTIONAL PLANS (NAD 1983)
Dr Awkward 17_8 Federal Com
Dr Pi Unit 101H

ORIG HOLE

Plan: Permitting Plan

Standard Planning Report

20 October, 2025

OXY
Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Dr Pi Unit 101H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=25' @ 3713.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=25' @ 3713.10ft
Site:	Dr Awkward 17_8 Federal Com	**North Reference:**	Grid
Well:	Dr Pi Unit 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIG HOLE		
Design:	Permitting Plan		

Project PRD NM DIRECTIONAL PLANS (NAD 1983)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site Dr Awkward 17_8 Federal Com

Site Position:		**Northing:**	504,334.74 usft	**Latitude:**	32.384846
From:	Map	**Easting:**	739,795.94 usft	**Longitude:**	-103.690426
Position Uncertainty:	44.72 ft	**Slot Radius:**	13.200 in		

Well Dr Pi Unit 101H

Well Position	**+N/-S**	0.00 ft	**Northing:**	504,481.09 usf	**Latitude:**	32.385294
	+E/-W	0.00 ft	**Easting:**	736,975.81 usf	**Longitude:**	-103.699559
Position Uncertainty		6.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	3,688.10 ft
Grid Convergence:		0.34 °				

Wellbore ORIG HOLE

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	4/2/2024	6.32	59.97	47,542.30000000

Design Permitting Plan

Audit Notes:

Version:	**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	354.13

Plan Survey Tool Program **Date** 10/20/2025

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	21,442.75	Permitting Plan (ORIG HOLE)	B005Mc_MWD+HRGM+SA MWD+HRGM+Sag+MSA	

Plan Sections

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	
5,250.00	0.00	0.00	5,250.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,349.67	11.00	250.56	6,342.93	-35.02	-99.20	1.00	1.00	0.00	250.56	
10,591.09	11.00	250.56	10,506.47	-304.35	-862.12	0.00	0.00	0.00	0.00	
11,531.66	90.50	359.60	11,104.87	271.60	-977.09	10.00	8.45	11.59	108.62	
21,443.66	90.50	359.60	11,018.77	10,182.98	-1,046.98	0.00	0.00	0.00	0.00	PBHL (Dr Pi Unit

OXY

Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Dr Pi Unit 101H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=25' @ 3713.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=25' @ 3713.10ft
Site:	Dr Awkward 17_8 Federal Com	**North Reference:**	Grid
Well:	Dr Pi Unit 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIG HOLE		
Design:	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
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,250.00	0.00	0.00	5,250.00	0.00	0.00	0.00	0.00	0.00	0.00
Build 1°/100'									

OXY

Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Dr Pi Unit 101H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=25' @ 3713.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=25' @ 3713.10ft
Site:	Dr Awkward 17_8 Federal Com	**North Reference:**	Grid
Well:	Dr Pi Unit 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIG HOLE		
Design:	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)
5,300.00	0.50	250.56	5,300.00	-0.07	-0.21	-0.05	1.00	1.00	0.00
5,400.00	1.50	250.56	5,399.98	-0.65	-1.85	-0.46	1.00	1.00	0.00
5,500.00	2.50	250.56	5,499.92	-1.82	-5.14	-1.28	1.00	1.00	0.00
5,600.00	3.50	250.56	5,599.78	-3.56	-10.08	-2.51	1.00	1.00	0.00
5,700.00	4.50	250.56	5,699.54	-5.88	-16.66	-4.15	1.00	1.00	0.00
5,800.00	5.50	250.56	5,799.16	-8.78	-24.87	-6.19	1.00	1.00	0.00
5,900.00	6.50	250.56	5,898.61	-12.26	-34.73	-8.64	1.00	1.00	0.00
6,000.00	7.50	250.56	5,997.86	-16.32	-46.22	-11.50	1.00	1.00	0.00
6,100.00	8.50	250.56	6,096.89	-20.95	-59.35	-14.77	1.00	1.00	0.00
6,200.00	9.50	250.56	6,195.65	-26.16	-74.10	-18.44	1.00	1.00	0.00
6,300.00	10.50	250.56	6,294.13	-31.94	-90.47	-22.52	1.00	1.00	0.00
6,349.67	11.00	250.56	6,342.93	-35.02	-99.20	-24.69	1.00	1.00	0.00
Hold 11° Tangent									
6,400.00	11.00	250.56	6,392.34	-38.22	-108.26	-26.94	0.00	0.00	0.00
6,500.00	11.00	250.56	6,490.50	-44.57	-126.25	-31.42	0.00	0.00	0.00
6,600.00	11.00	250.56	6,588.66	-50.92	-144.23	-35.90	0.00	0.00	0.00
6,700.00	11.00	250.56	6,686.83	-57.27	-162.22	-40.38	0.00	0.00	0.00
6,800.00	11.00	250.56	6,784.99	-63.62	-180.21	-44.85	0.00	0.00	0.00
6,900.00	11.00	250.56	6,883.16	-69.97	-198.19	-49.33	0.00	0.00	0.00
7,000.00	11.00	250.56	6,981.32	-76.32	-216.18	-53.81	0.00	0.00	0.00
7,100.00	11.00	250.56	7,079.48	-82.67	-234.17	-58.28	0.00	0.00	0.00
7,200.00	11.00	250.56	7,177.65	-89.02	-252.16	-62.76	0.00	0.00	0.00
7,300.00	11.00	250.56	7,275.81	-95.37	-270.14	-67.24	0.00	0.00	0.00
7,400.00	11.00	250.56	7,373.98	-101.72	-288.13	-71.71	0.00	0.00	0.00
7,500.00	11.00	250.56	7,472.14	-108.07	-306.12	-76.19	0.00	0.00	0.00
7,600.00	11.00	250.56	7,570.30	-114.42	-324.11	-80.67	0.00	0.00	0.00
7,700.00	11.00	250.56	7,668.47	-120.77	-342.09	-85.14	0.00	0.00	0.00
7,800.00	11.00	250.56	7,766.63	-127.12	-360.08	-89.62	0.00	0.00	0.00
7,900.00	11.00	250.56	7,864.79	-133.47	-378.07	-94.10	0.00	0.00	0.00
8,000.00	11.00	250.56	7,962.96	-139.82	-396.05	-98.57	0.00	0.00	0.00
8,100.00	11.00	250.56	8,061.12	-146.16	-414.04	-103.05	0.00	0.00	0.00
8,200.00	11.00	250.56	8,159.29	-152.51	-432.03	-107.53	0.00	0.00	0.00
8,300.00	11.00	250.56	8,257.45	-158.86	-450.02	-112.00	0.00	0.00	0.00
8,400.00	11.00	250.56	8,355.61	-165.21	-468.00	-116.48	0.00	0.00	0.00
8,500.00	11.00	250.56	8,453.78	-171.56	-485.99	-120.96	0.00	0.00	0.00
8,600.00	11.00	250.56	8,551.94	-177.91	-503.98	-125.44	0.00	0.00	0.00
8,700.00	11.00	250.56	8,650.11	-184.26	-521.97	-129.91	0.00	0.00	0.00
8,800.00	11.00	250.56	8,748.27	-190.61	-539.95	-134.39	0.00	0.00	0.00
8,900.00	11.00	250.56	8,846.43	-196.96	-557.94	-138.87	0.00	0.00	0.00
9,000.00	11.00	250.56	8,944.60	-203.31	-575.93	-143.34	0.00	0.00	0.00
9,100.00	11.00	250.56	9,042.76	-209.66	-593.91	-147.82	0.00	0.00	0.00
9,200.00	11.00	250.56	9,140.92	-216.01	-611.90	-152.30	0.00	0.00	0.00
9,300.00	11.00	250.56	9,239.09	-222.36	-629.89	-156.77	0.00	0.00	0.00
9,400.00	11.00	250.56	9,337.25	-228.71	-647.88	-161.25	0.00	0.00	0.00
9,500.00	11.00	250.56	9,435.42	-235.06	-665.86	-165.73	0.00	0.00	0.00
9,600.00	11.00	250.56	9,533.58	-241.41	-683.85	-170.20	0.00	0.00	0.00
9,700.00	11.00	250.56	9,631.74	-247.76	-701.84	-174.68	0.00	0.00	0.00
9,800.00	11.00	250.56	9,729.91	-254.11	-719.83	-179.16	0.00	0.00	0.00
9,900.00	11.00	250.56	9,828.07	-260.46	-737.81	-183.63	0.00	0.00	0.00
10,000.00	11.00	250.56	9,926.24	-266.81	-755.80	-188.11	0.00	0.00	0.00
10,100.00	11.00	250.56	10,024.40	-273.16	-773.79	-192.59	0.00	0.00	0.00
10,200.00	11.00	250.56	10,122.56	-279.51	-791.77	-197.07	0.00	0.00	0.00
10,300.00	11.00	250.56	10,220.73	-285.86	-809.76	-201.54	0.00	0.00	0.00
10,400.00	11.00	250.56	10,318.89	-292.21	-827.75	-206.02	0.00	0.00	0.00
10,500.00	11.00	250.56	10,417.05	-298.56	-845.74	-210.50	0.00	0.00	0.00

OXY

Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Dr Pi Unit 101H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=25' @ 3713.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=25' @ 3713.10ft
Site:	Dr Awkward 17_8 Federal Com	**North Reference:**	Grid
Well:	Dr Pi Unit 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIG HOLE		
Design:	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)
10,591.09	11.00	250.56	10,506.47	-304.35	-862.12	-214.57	0.00	0.00	0.00
KOP, Build & Turn 10°/100'									
10,600.00	10.74	255.09	10,515.22	-304.84	-863.73	-214.90	10.00	-2.83	50.88
10,700.00	12.72	304.98	10,613.37	-300.92	-881.80	-209.15	10.00	1.97	49.89
10,800.00	20.14	329.44	10,709.33	-279.73	-899.62	-186.25	10.00	7.43	24.46
10,900.00	29.11	340.23	10,800.18	-241.91	-916.64	-146.89	10.00	8.97	10.80
11,000.00	38.56	346.17	10,883.17	-188.62	-932.36	-92.27	10.00	9.45	5.94
11,100.00	48.20	350.05	10,955.78	-121.47	-946.28	-24.05	10.00	9.64	3.87
11,200.00	57.94	352.90	11,015.79	-42.50	-958.00	55.70	10.00	9.74	2.85
11,300.00	67.73	355.19	11,061.39	45.88	-967.14	144.56	10.00	9.79	2.29
11,400.00	77.55	357.18	11,091.19	141.00	-973.44	239.82	10.00	9.82	1.99
11,500.00	87.38	359.02	11,104.29	239.95	-976.70	338.59	10.00	9.83	1.84
11,531.66	90.50	359.60	11,104.87	271.60	-977.09	370.11	10.00	9.84	1.81
Landing Point									
11,600.00	90.50	359.60	11,104.28	339.94	-977.57	438.14	0.00	0.00	0.00
11,700.00	90.50	359.60	11,103.41	439.93	-978.27	537.68	0.00	0.00	0.00
11,800.00	90.50	359.60	11,102.54	539.92	-978.98	637.22	0.00	0.00	0.00
11,900.00	90.50	359.60	11,101.67	639.92	-979.68	736.76	0.00	0.00	0.00
12,000.00	90.50	359.60	11,100.80	739.91	-980.39	836.30	0.00	0.00	0.00
12,100.00	90.50	359.60	11,099.93	839.91	-981.09	935.84	0.00	0.00	0.00
12,200.00	90.50	359.60	11,099.06	939.90	-981.80	1,035.39	0.00	0.00	0.00
12,300.00	90.50	359.60	11,098.20	1,039.89	-982.50	1,134.93	0.00	0.00	0.00
12,400.00	90.50	359.60	11,097.33	1,139.89	-983.21	1,234.47	0.00	0.00	0.00
12,500.00	90.50	359.60	11,096.46	1,239.88	-983.91	1,334.01	0.00	0.00	0.00
12,600.00	90.50	359.60	11,095.59	1,339.87	-984.62	1,433.55	0.00	0.00	0.00
12,700.00	90.50	359.60	11,094.72	1,439.87	-985.32	1,533.09	0.00	0.00	0.00
12,800.00	90.50	359.60	11,093.85	1,539.86	-986.03	1,632.64	0.00	0.00	0.00
12,900.00	90.50	359.60	11,092.98	1,639.86	-986.73	1,732.18	0.00	0.00	0.00
13,000.00	90.50	359.60	11,092.12	1,739.85	-987.44	1,831.72	0.00	0.00	0.00
13,100.00	90.50	359.60	11,091.25	1,839.84	-988.15	1,931.26	0.00	0.00	0.00
13,200.00	90.50	359.60	11,090.38	1,939.84	-988.85	2,030.80	0.00	0.00	0.00
13,300.00	90.50	359.60	11,089.51	2,039.83	-989.56	2,130.34	0.00	0.00	0.00
13,400.00	90.50	359.60	11,088.64	2,139.82	-990.26	2,229.88	0.00	0.00	0.00
13,500.00	90.50	359.60	11,087.77	2,239.82	-990.97	2,329.43	0.00	0.00	0.00
13,600.00	90.50	359.60	11,086.90	2,339.81	-991.67	2,428.97	0.00	0.00	0.00
13,700.00	90.50	359.60	11,086.03	2,439.81	-992.38	2,528.51	0.00	0.00	0.00
13,800.00	90.50	359.60	11,085.17	2,539.80	-993.08	2,628.05	0.00	0.00	0.00
13,900.00	90.50	359.60	11,084.30	2,639.79	-993.79	2,727.59	0.00	0.00	0.00
14,000.00	90.50	359.60	11,083.43	2,739.79	-994.49	2,827.13	0.00	0.00	0.00
14,100.00	90.50	359.60	11,082.56	2,839.78	-995.20	2,926.67	0.00	0.00	0.00
14,200.00	90.50	359.60	11,081.69	2,939.77	-995.90	3,026.22	0.00	0.00	0.00
14,300.00	90.50	359.60	11,080.82	3,039.77	-996.61	3,125.76	0.00	0.00	0.00
14,400.00	90.50	359.60	11,079.95	3,139.76	-997.31	3,225.30	0.00	0.00	0.00
14,500.00	90.50	359.60	11,079.08	3,239.76	-998.02	3,324.84	0.00	0.00	0.00
14,600.00	90.50	359.60	11,078.22	3,339.75	-998.72	3,424.38	0.00	0.00	0.00
14,700.00	90.50	359.60	11,077.35	3,439.74	-999.43	3,523.92	0.00	0.00	0.00
14,800.00	90.50	359.60	11,076.48	3,539.74	-1,000.13	3,623.46	0.00	0.00	0.00
14,900.00	90.50	359.60	11,075.61	3,639.73	-1,000.84	3,723.01	0.00	0.00	0.00
15,000.00	90.50	359.60	11,074.74	3,739.72	-1,001.54	3,822.55	0.00	0.00	0.00
15,100.00	90.50	359.60	11,073.87	3,839.72	-1,002.25	3,922.09	0.00	0.00	0.00
15,200.00	90.50	359.60	11,073.00	3,939.71	-1,002.95	4,021.63	0.00	0.00	0.00
15,300.00	90.50	359.60	11,072.14	4,039.71	-1,003.66	4,121.17	0.00	0.00	0.00
15,400.00	90.50	359.60	11,071.27	4,139.70	-1,004.36	4,220.71	0.00	0.00	0.00
15,500.00	90.50	359.60	11,070.40	4,239.69	-1,005.07	4,320.26	0.00	0.00	0.00
15,600.00	90.50	359.60	11,069.53	4,339.69	-1,005.77	4,419.80	0.00	0.00	0.00

OXY
Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Dr Pi Unit 101H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=25' @ 3713.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=25' @ 3713.10ft
Site:	Dr Awkward 17_8 Federal Com	**North Reference:**	Grid
Well:	Dr Pi Unit 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIG HOLE		
Design:	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)
15,700.00	90.50	359.60	11,068.66	4,439.68	-1,006.48	4,519.34	0.00	0.00	0.00
15,800.00	90.50	359.60	11,067.79	4,539.67	-1,007.18	4,618.88	0.00	0.00	0.00
15,900.00	90.50	359.60	11,066.92	4,639.67	-1,007.89	4,718.42	0.00	0.00	0.00
16,000.00	90.50	359.60	11,066.05	4,739.66	-1,008.59	4,817.96	0.00	0.00	0.00
16,100.00	90.50	359.60	11,065.19	4,839.66	-1,009.30	4,917.50	0.00	0.00	0.00
16,192.35	90.50	359.60	11,064.38	4,932.00	-1,009.95	5,009.43	0.00	0.00	0.00
Lease Crossing 1									
16,200.00	90.50	359.60	11,064.32	4,939.65	-1,010.01	5,017.05	0.00	0.00	0.00
16,300.00	90.50	359.60	11,063.45	5,039.64	-1,010.71	5,116.59	0.00	0.00	0.00
16,400.00	90.50	359.60	11,062.58	5,139.64	-1,011.42	5,216.13	0.00	0.00	0.00
16,500.00	90.50	359.60	11,061.71	5,239.63	-1,012.12	5,315.67	0.00	0.00	0.00
16,600.00	90.50	359.60	11,060.84	5,339.62	-1,012.83	5,415.21	0.00	0.00	0.00
16,700.00	90.50	359.60	11,059.97	5,439.62	-1,013.53	5,514.75	0.00	0.00	0.00
16,800.00	90.50	359.60	11,059.11	5,539.61	-1,014.24	5,614.29	0.00	0.00	0.00
16,900.00	90.50	359.60	11,058.24	5,639.60	-1,014.94	5,713.84	0.00	0.00	0.00
17,000.00	90.50	359.60	11,057.37	5,739.60	-1,015.65	5,813.38	0.00	0.00	0.00
17,100.00	90.50	359.60	11,056.50	5,839.59	-1,016.35	5,912.92	0.00	0.00	0.00
17,200.00	90.50	359.60	11,055.63	5,939.59	-1,017.06	6,012.46	0.00	0.00	0.00
17,300.00	90.50	359.60	11,054.76	6,039.58	-1,017.76	6,112.00	0.00	0.00	0.00
17,400.00	90.50	359.60	11,053.89	6,139.57	-1,018.47	6,211.54	0.00	0.00	0.00
17,500.00	90.50	359.60	11,053.02	6,239.57	-1,019.17	6,311.08	0.00	0.00	0.00
17,600.00	90.50	359.60	11,052.16	6,339.56	-1,019.88	6,410.63	0.00	0.00	0.00
17,700.00	90.50	359.60	11,051.29	6,439.55	-1,020.58	6,510.17	0.00	0.00	0.00
17,800.00	90.50	359.60	11,050.42	6,539.55	-1,021.29	6,609.71	0.00	0.00	0.00
17,900.00	90.50	359.60	11,049.55	6,639.54	-1,021.99	6,709.25	0.00	0.00	0.00
18,000.00	90.50	359.60	11,048.68	6,739.54	-1,022.70	6,808.79	0.00	0.00	0.00
18,100.00	90.50	359.60	11,047.81	6,839.53	-1,023.40	6,908.33	0.00	0.00	0.00
18,200.00	90.50	359.60	11,046.94	6,939.52	-1,024.11	7,007.88	0.00	0.00	0.00
18,300.00	90.50	359.60	11,046.07	7,039.52	-1,024.81	7,107.42	0.00	0.00	0.00
18,400.00	90.50	359.60	11,045.21	7,139.51	-1,025.52	7,206.96	0.00	0.00	0.00
18,500.00	90.50	359.60	11,044.34	7,239.50	-1,026.22	7,306.50	0.00	0.00	0.00
18,600.00	90.50	359.60	11,043.47	7,339.50	-1,026.93	7,406.04	0.00	0.00	0.00
18,700.00	90.50	359.60	11,042.60	7,439.49	-1,027.63	7,505.58	0.00	0.00	0.00
18,800.00	90.50	359.60	11,041.73	7,539.49	-1,028.34	7,605.12	0.00	0.00	0.00
18,900.00	90.50	359.60	11,040.86	7,639.48	-1,029.04	7,704.67	0.00	0.00	0.00
19,000.00	90.50	359.60	11,039.99	7,739.47	-1,029.75	7,804.21	0.00	0.00	0.00
19,100.00	90.50	359.60	11,039.13	7,839.47	-1,030.45	7,903.75	0.00	0.00	0.00
19,200.00	90.50	359.60	11,038.26	7,939.46	-1,031.16	8,003.29	0.00	0.00	0.00
19,300.00	90.50	359.60	11,037.39	8,039.45	-1,031.87	8,102.83	0.00	0.00	0.00
19,400.00	90.50	359.60	11,036.52	8,139.45	-1,032.57	8,202.37	0.00	0.00	0.00
19,500.00	90.50	359.60	11,035.65	8,239.44	-1,033.28	8,301.91	0.00	0.00	0.00
19,600.00	90.50	359.60	11,034.78	8,339.44	-1,033.98	8,401.46	0.00	0.00	0.00
19,700.00	90.50	359.60	11,033.91	8,439.43	-1,034.69	8,501.00	0.00	0.00	0.00
19,800.00	90.50	359.60	11,033.04	8,539.42	-1,035.39	8,600.54	0.00	0.00	0.00
19,900.00	90.50	359.60	11,032.18	8,639.42	-1,036.10	8,700.08	0.00	0.00	0.00
20,000.00	90.50	359.60	11,031.31	8,739.41	-1,036.80	8,799.62	0.00	0.00	0.00
20,100.00	90.50	359.60	11,030.44	8,839.40	-1,037.51	8,899.16	0.00	0.00	0.00
20,150.60	90.50	359.60	11,030.00	8,890.00	-1,037.86	8,949.53	0.00	0.00	0.00
Lease Crossing 2									
20,200.00	90.50	359.60	11,029.57	8,939.40	-1,038.21	8,998.71	0.00	0.00	0.00
20,300.00	90.50	359.60	11,028.70	9,039.39	-1,038.92	9,098.25	0.00	0.00	0.00
20,400.00	90.50	359.60	11,027.83	9,139.39	-1,039.62	9,197.79	0.00	0.00	0.00
20,500.00	90.50	359.60	11,026.96	9,239.38	-1,040.33	9,297.33	0.00	0.00	0.00
20,600.00	90.50	359.60	11,026.09	9,339.37	-1,041.03	9,396.87	0.00	0.00	0.00
20,700.00	90.50	359.60	11,025.23	9,439.37	-1,041.74	9,496.41	0.00	0.00	0.00

OXY
Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Dr Pi Unit 101H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=25' @ 3713.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=25' @ 3713.10ft
Site:	Dr Awkward 17_8 Federal Com	**North Reference:**	Grid
Well:	Dr Pi Unit 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIG HOLE		
Design:	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	90.50	359.60	11,024.36	9,539.36	-1,042.44	9,595.95	0.00	0.00	0.00
20,900.00	90.50	359.60	11,023.49	9,639.35	-1,043.15	9,695.50	0.00	0.00	0.00
21,000.00	90.50	359.60	11,022.62	9,739.35	-1,043.85	9,795.04	0.00	0.00	0.00
21,100.00	90.50	359.60	11,021.75	9,839.34	-1,044.56	9,894.58	0.00	0.00	0.00
21,200.00	90.50	359.60	11,020.88	9,939.34	-1,045.26	9,994.12	0.00	0.00	0.00
21,300.00	90.50	359.60	11,020.01	10,039.33	-1,045.97	10,093.66	0.00	0.00	0.00
21,400.00	90.50	359.60	11,019.15	10,139.32	-1,046.67	10,193.20	0.00	0.00	0.00
21,443.66	90.50	359.60	11,018.77	10,182.98	-1,046.98	10,236.66	0.00	0.00	0.00
TD at 21443.66' MD									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP (Dr Pi Unit 101H) - plan misses target center by 1019.90ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	-305.65	-973.03	504,175.46	736,002.83	32.384470	-103.702717
PBHL (Dr Pi Unit - plan hits target center - Point	0.00	0.00	11,018.77	10,182.98	-1,046.98	514,663.57	735,928.88	32.413300	-103.702756
FTP (Dr Pi Unit 101H) - plan misses target center by 205.80ft at 11100.00ft MD (10955.78 TVD, -121.47 N, -946.28 E) - Point	0.00	0.00	11,109.45	-255.65	-973.37	504,225.45	736,002.49	32.384607	-103.702717

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
896.10	896.10	RUSTLER			
1,193.10	1,193.10	SALADO			
2,000.00	2,000.00	MARKER BED 126			
2,830.10	2,830.10	CASTILE			
4,762.10	4,762.10	DELAWARE			
4,818.10	4,818.10	BELL CANYON			
5,670.48	5,670.10	CHERRY CANYON			
6,884.66	6,868.10	BRUSHY CANYON			
8,662.30	8,613.10	BONE SPRING			
9,772.69	9,703.10	BONE SPRING 1ST			
10,017.18	9,943.10	Second Bone Spring Limestone			
10,437.91	10,356.10	BONE SPRING 2ND			

OXY

Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Dr Pi Unit 101H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=25' @ 3713.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=25' @ 3713.10ft
Site:	Dr Awkward 17_8 Federal Com	**North Reference:**	Grid
Well:	Dr Pi Unit 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIG HOLE		
Design:	Permitting Plan		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
5,250.00	5,250.00	0.00	0.00	Build 1°/100'
6,349.67	6,342.93	-35.02	-99.20	Hold 11° Tangent
10,591.09	10,506.47	-304.35	-862.12	KOP, Build & Turn 10°/100'
11,531.66	11,104.87	271.60	-977.09	Landing Point
16,192.35	11,064.38	4,932.00	-1,009.95	Lease Crossing 1
20,150.60	11,030.00	8,890.00	-1,037.86	Lease Crossing 2
21,443.66	11,018.77	10,182.98	-1,046.98	TD at 21443.66' MD

Oxy USA Inc. - Dr Pi Unit 101H

Drill Plan

1. Geologic Formations

TVD of Target (ft):	11105	Pilot Hole Depth (ft):	
Total Measured Depth (ft):	21444	Deepest Expected Fresh Water (ft):	896

Delaware Basin

Formation	MD-RKB (ft)	TVD-RKB (ft)	Expected Fluids
Rustler	896	896	
Salado	1193	1193	Salt
Marker Bed 126	2000	2000	Salt
Castile	2830	2830	Salt
Delaware	4762	4762	Oil/Gas/Brine
Bell Canyon	4818	4818	Oil/Gas/Brine
Cherry Canyon	5670	5670	Oil/Gas/Brine
Brushy Canyon	6885	6868	Losses
Bone Spring	8662	8613	Oil/Gas
Bone Spring 1st	9773	9703	Oil/Gas
Bone Spring 2nd	10438	10356	Oil/Gas
Bone Spring 3rd			Oil/Gas
Wolfcamp			Oil/Gas
Penn			Oil/Gas
Strawn			Oil/Gas

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

2. Casing Program

		MD		TVD					
Section	Hole Size (in)	From (ft)	To (ft)	From (ft)	To (ft)	Csg. OD (in)	Csg Wt. (ppf)	Grade	Conn.
Surface	17.5	0	966	0	966	13.375	54.5	J-55	BTC
Intermediate	9.875	0	11532	0	11105	7.625	26.4	L-80 HC	BTC
Production	6.75	0	21444	0	11105	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.

All Casing SF Values will meet or exceed those below			
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.

	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 3rd 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 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Section	Stage	Slurry:	Sacks	Yield (ft^3/ft)	Density (lb/gal)	Excess:	TOC	Placement	Description
Surface	1	Surface - Tail	1009	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.	1	Intermediate 1S - Tail	590	1.68	13.2	5%	7,135	Circulate	Class C+Ret., Disper.
Int.	2	Intermediate 2S - Tail BH	1280	1.71	13.3	25%	-	Bradenhead	Class C+Accel.
Prod.	1	Production - Tail	590	1.84	13.3	25%	11,032	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	11105
		5M	Blind Ram	✓	250 psi / 5000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			
6.75" Hole	13-5/8"	5M	Annular	✓	70% of working pressure	11105
		5M	Blind Ram	✓	250 psi / 5000 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

	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.

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	966	0	966	Water-Based Mud	8.6 - 8.8	40-60	N/C
Intermediate	966	11532	966	11105	Saturated Brine-Based or Oil-Based Mud	8.0 - 10.0	35-45	N/C
Production	11532	21444	11105	11105	Water-Based or Oil-Based Mud	9.5 - 11.5	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

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	6641 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	169°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 2 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 spudder rig.	Yes

Total Estimated Cuttings Volume: 1728 bbls

C-102 Submit Electronically Via OCD Permitting	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION	Revised July 9, 2024 Submittal Type: ☑ Initial Submittal ☐ Amended Report ☐ As Drilled

WELL LOCATION INFORMATION

API Number	Pool Code	Pool Name
30-025-54210	97366	BILBREY BASIN; BONE SPRING, SOUTH

Property Code	Property Name	Well Number
336643	DR PI UNIT	101H

OGRID No.	Operator Name	Ground Level Elevation
16696	OXY USA INC.	3688.1'

Surface Owner: ☐ State ☐ Fee ☐ Tribal ☑ Federal | Mineral Owner: ☐ State ☐ Fee ☐ Tribal ☑ Federal

Surface Location

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
N	17	22S	32E		346' FSL	1785' FWL	32.385294	-103.699559	LEA

Bottom Hole Location

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
D	8	22S	32E		20' FNL	810' FWL	32.413299	-103.702755	LEA

Dedicated Acres	Infill or Defining Well	Defining Well API	Overlapping Spacing Unit (Y/N)	Consolidation Code
640	INFILL	21H - 30-025-48282	N	

Order Numbers. | Well setbacks are under Common Ownership: ☐Yes ☐No

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
M	17	22S	32E		50' FSL	810' FWL	32.384470	-103.702716	LEA

First Take Point (FTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
M	17	22S	32E		100' FSL	810' FWL	32.384607	-103.702716	LEA

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
D	8	22S	32E		100' FNL	810' FWL	32.412957	-103.702755	LEA

Unitized Area or Area of Uniform Interest	Spacing Unit Type ☑ Horizontal ☐ Vertical	Ground Floor Elevation: 3688.1'

OPERATOR CERTIFICATIONS

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

If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.

Melissa Guidry 01/06/25

Signature | Date

Melissa Guidry

Printed Name

melissa_guidry@oxy.com

Email Address

SURVEYOR CERTIFICATIONS

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

"SURVEYOR CERTIFICATION
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.
March 20, 2023
Date of Survey
Signature and Seal of Professional Surveyor:
PAUL BUCHELE NEW MEXICO 23782 03-24-23 PROFESSIONAL SURVEYOR
Certificate Number:

Signature and Seal of Professional Surveyor

Certificate Number

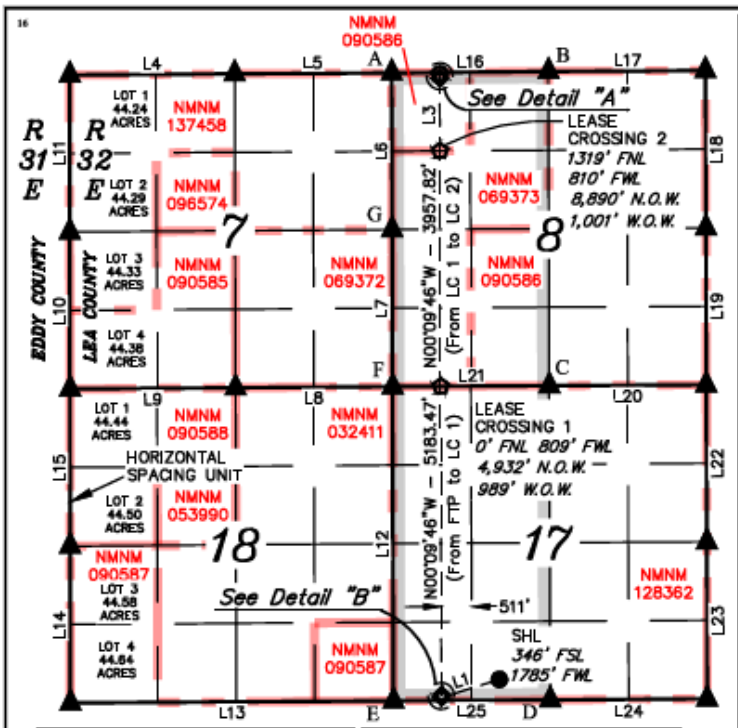
Date of Survey
March 20, 2023

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

ACREAGE DEDICATION PLATS

This grid represents a standard section. You may superimpose a non-standard section, or larger area, over this grid. Operators must outline the dedicated acreage in a red box, clearly show the well surface location and bottom hole location, if it is directionally drilled, with the dimensions from the section lines in the cardinal directions. If this is a horizontal wellbore show on this plat the location of the First Take Point and Last Take Point, and the point within the Completed interval (other than the First Take Point or Last Take Point) that is closest to any outer boundary of the tract.

Surveyors shall use the latest United States government survey or dependent resurvey. Well locations will be in reference to the New Mexico Principal Meridian. If the land is not surveyed, contact the OCD Engineering Bureau. Independent subdivision surveys will not be acceptable.



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S72°48'08"W	1020.04'
L2	N00°09'21"W	50.00'
L3	N00°09'46"W	1219.01'
L4	S89°32'39"W	2778.17'
L5	S89°41'25"W	2640.32'
L6	N00°10'50"W	2635.88'
L7	N00°09'34"W	2638.30'
L8	S89°33'52"W	2640.81'
L9	S89°32'13"W	2788.14'
L10	N00°04'00"W	2641.40'
L11	N00°02'49"W	2638.99'
L12	N00°09'21"W	5284.30'
L13	S89°36'19"W	5436.77'
L14	N00°04'43"W	2638.22'
L15	N00°03'46"W	2640.91'
L16	S89°30'51"W	2641.06'
L17	S89°37'22"W	2642.53'
L18	N00°10'37"W	2644.80'
L19	N00°10'34"W	2639.05'
L20	S89°38'44"W	2643.24'
L22	N00°10'15"W	2640.53'
L23	N00°09'25"W	2641.42'
L24	S89°39'10"W	2641.57'
L25	S89°38'35"W	2643.34'
L26	N00°10'50"W	80.00'

17 OPERATOR CERTIFICATION

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

Melissa Guidry 05/09/24
Signature Date

Melissa Guidry
Printed Name

melissa_guidry@oxy.com
E-mail Address

18 SURVEYOR CERTIFICATION

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

March 20, 2023
Date of Survey

Signature and Seal of Professional Surveyor:

PAUL BUCHELE NEW MEXICO 23192 03-24-23 PROFESSIONAL SURVEYOR

Certificate Number:

NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°23'07.06" (32.385294°)
LONGITUDE = -103°41'58.41" (-103.699559°)
NAD 27 (SURFACE HOLE LOCATION)
LATITUDE = 32°23'06.62" (32.385171°)
LONGITUDE = -103°41'56.65" (-103.699071°)
STATE PLANE NAD 83 (N.M. EAST)
N: 504481.09' E: 736975.81'
STATE PLANE NAD 27 (N.M. EAST)
N: 504420.65' E: 695793.40'

NAD 83 (KICK OFF POINT)
LATITUDE = 32°23'04.09" (32.384470°)
LONGITUDE = -103°42'09.78" (-103.702716°)
NAD 27 (KICK OFF POINT)
LATITUDE = 32°23'03.65" (32.384347°)
LONGITUDE = -103°42'08.02" (-103.702228°)
STATE PLANE NAD 83 (N.M. EAST)
N: 504175.46' E: 736002.83'
STATE PLANE NAD 27 (N.M. EAST)
N: 504115.03' E: 694820.42'

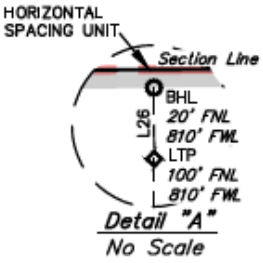
NAD 83 (FIRST TAKE POINT)
LATITUDE = 32°23'04.59" (32.384607°)
LONGITUDE = -103°42'09.78" (-103.702716°)
NAD 27 (FIRST TAKE POINT)
LATITUDE = 32°23'04.14" (32.384485°)
LONGITUDE = -103°42'08.02" (-103.702228°)
STATE PLANE NAD 83 (N.M. EAST)
N: 504225.45' E: 736002.49'
STATE PLANE NAD 27 (N.M. EAST)
N: 504165.02' E: 694820.08'

NAD 83 (LEASE CROSSING 1)
LATITUDE = 32°23'55.87" (32.398853°)
LONGITUDE = -103°42'09.85" (-103.702736°)
NAD 27 (LEASE CROSSING 1)
LATITUDE = 32°23'55.43" (32.398730°)
LONGITUDE = -103°42'08.09" (-103.702247°)
STATE PLANE NAD 83 (N.M. EAST)
N: 509407.84' E: 735965.96'
STATE PLANE NAD 27 (N.M. EAST)
N: 509347.27' E: 694783.69'

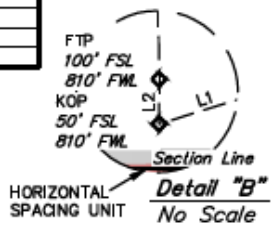
NAD 83 (LEASE CROSSING 2)
LATITUDE = 32°24'35.03" (32.409730°)
LONGITUDE = -103°42'09.90" (-103.702751°)
NAD 27 (LEASE CROSSING 2)
LATITUDE = 32°24'34.58" (32.409607°)
LONGITUDE = -103°42'08.14" (-103.702262°)
STATE PLANE NAD 83 (N.M. EAST)
N: 513364.84' E: 735938.06'
STATE PLANE NAD 27 (N.M. EAST)
N: 513304.16' E: 694755.91'

NAD 83 (LAST TAKE POINT)
LATITUDE = 32°24'47.09" (32.413080°)
LONGITUDE = -103°42'09.92" (-103.702755°)
NAD 27 (LAST TAKE POINT)
LATITUDE = 32°24'46.64" (32.412957°)
LONGITUDE = -103°42'08.16" (-103.702266°)
STATE PLANE NAD 83 (N.M. EAST)
N: 514583.59' E: 735929.47'
STATE PLANE NAD 27 (N.M. EAST)
N: 514522.88' E: 694747.35'

NAD 83 (BOTTOM HOLE LOCATION)
LATITUDE = 32°24'47.88" (32.413299°)
LONGITUDE = -103°42'09.92" (-103.702755°)
NAD 27 (BOTTOM HOLE LOCATION)
LATITUDE = 32°24'47.44" (32.413177°)
LONGITUDE = -103°42'08.16" (-103.702266°)
STATE PLANE NAD 83 (N.M. EAST)
N: 514663.57' E: 735928.88'
STATE PLANE NAD 27 (N.M. EAST)
N: 514602.86' E: 694746.76'



SCALE
DRAWN BY: Z.L. 03-24-23



HSU COORDINATES				
	NAD 27 N.M. STATE PLANE, EAST ZONE		NAD 83 N.M. STATE PLANE, EAST ZONE	
POINT	NORTHING	EASTING	NORTHING	EASTING
A	514612.58'	693936.82'	514673.29'	735118.93'
B	514646.08'	696577.17'	514706.80'	737759.30'
C	509364.52'	696614.81'	509425.09'	737797.09'
D	504084.17'	696653.66'	504144.60'	737836.08'
E	504056.59'	694010.96'	504117.02'	735193.37'
F	509339.65'	693974.52'	509400.22'	735156.78'
G	511977.33'	693956.15'	512037.97'	735138.33'

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

● = SURFACE HOLE LOCATION
◇ = KICK OFF POINT/TAKE POINTS
⬠ = LEASE CROSSING
○ = BOTTOM HOLE LOCATION
▲ = SECTION CORNER LOCATED
▬ = LEASE LINE.
N.O.W.= NORTH OF WELL
W.O.W.= WEST OF WELL

OXY APD CHANGE SUNDRY LIST FORM

DATE SUNDRY WORKSHEET CREATED	10/27/2025
WELL NAME_NUMBER	DR PI UNIT 101H
API NUMBER	30-025-54210
ESTIMATED SPUD DATE	

	ITEM	APD BASE LINE (For Regulatory to Complete)	SUNDRY PLAN (Groups to complete the latest plan)
		Date APD/BASE LINE APPROVED: 12/27/24	DATE Sundry Worksheet : 10/27/25
Surface Planning	NAME	DR PI UNIT 101H	DR PI UNIT 101H
	NSL	NO	NO
	SHL	346' FSL 1785' FWL	346' FSL 1785' FWL
	PAD	LSTTNK_T22SR32E_1703	LSTTNK_T22SR32E_1703
	BHL	20' FNL 810' FWL	20' FNL 810' FWL
	HSU SIZE, ACRES	640	640
	POOL	BILBREY BASIN	BILBREY BASIN
	TVD	11179	11105
	TARGET FORMATION	BONE SPRING SOUTH	BONE SPRING SOUTH

Drilling — CASING PROGRAM

APD BASE LINE								
Section	Hole Size (in.)	MD	TVD	Csg OD (in)	Csg WT	Grade	Conn.	
Surface	17.5	956	956	13.375	54.5	J-55	BTC	
Int	9.875	10561	10483	7.625	26.4	L-80 HC	BTC	
Int2								
Prod	6.75	21508	11179	5.5	20	P-110	WEDGE 461	
Liner								

SUNDRY PLAN								
Section	Hole Size (in.)	MD	TVD	Csg OD (in)	Csg WT (ppf)	Grade	Conn.	
Surface	17.5	966	966	13.375	54.5	J-55	BTC	
Int	9.875	11532	11105	7.625	26.4	L-80 HC	BTC	
Int2								
Prod	6.75	21444	11105	5.5	20	P-110	DWC/C-HT-IS	
Liner								

Drilling — CEMENT PROGRAM

APD BASE LINE									
Section/Stage	Slurry	Sacks	Yield (ft^3/ft)	Density (lb/gal)	Excess	TOC	Placement	Description	
Surf	SURFACE - TAIL	999	1.33	14.8	100%		CIRCULATE	CLASS C+ACCEL	
Int/1	INTERMEDIATE 1S - TAIL	468	1.65	13.2	5%	7139	CIRCULATE	CLASS H+ACCEL, DISP, SALT	
Int/2	INTERMEDIATE 2S - TAIL BH	1279	1.71	13.3	25%		BRADENHEAD	CLASS C+ACCEL	
Int2									
Int2									
Prod	PRODUCTION - TAIL	648	1.84	13.3	25%	10061	CIRCULATE	CLASS C+RET	

SUNDRY PLAN									
Section/Stage	Slurry	Sacks	Yield (ft^3/ft)	Density (lb/gal)	Excess	TOC	Placement	Description	
Surf	SURFACE - TAIL	1009	1.33	14.8	100%		CIRCULATE	CLASS C+ACCEL	
Int	INTERMEDIATE 1S - TAIL	590	1.68	13.2	5%	7135	CIRCULATE	CLASS C+RET., Disper	
Int	INTERMEDIATE 2S - TAIL BH	1280	1.71	13.3	25%		BRADENHEAD	CLASS C+ACCEL	
Int2									
Int2									
Prod	PRODUCTION - TAIL	590	1.84	13.3	25%	11032	CIRCULATE	CLASS C+RET	

Drilling — VARIANCES

APD BASE LINE	
BOP Break Tesing Variance	X
5M Annular BOP Variance	X
Bradenhead CBL Variance	X
Offline Cementing Variance	X
Production Annular Clearance Variance	X
Flexible Choke Line Variance	
(Pilot Hole, Logs etc.)	

SUNDRY PLAN	
BOP Break Tesing Variance	X
5M Annular BOP Variance	
Bradenhead CBL Variance	X
Offline Cementing Variance	X
Production Annular Clearance Variance	X
Flexible Choke Line Variance	
(Pilot Hole, Logs etc.)	

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

CONDITIONS

Action 533630

CONDITIONS

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID: 16696
	Action Number: 533630
	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.	1/6/2026
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 a CBL is unable to indicate sufficient cement coverage due to a lighter cement, a USI log may also be required. If strata isolation is not achieved, remediation will be required before further operations may commence.	1/6/2026
matthew.gomez	All conducted logs must be submitted to the OCD.	1/6/2026
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.	1/6/2026
matthew.gomez	Notify the OCD 24 hours prior to casing & cement.	1/6/2026
matthew.gomez	Administrative order required for non-standard spacing unit prior to production.	1/6/2026
matthew.gomez	All previous COA's still apply.	1/6/2026