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

Sundry Print Report

01/22/2025

Well Name: HEADS CC 9-4 FEDERAL COM

Well Location: T24S / R29E / SEC 9 / SWSW / 32.225812 / -103.997247

County or Parish/State: EDDY / NM

Well Number: 71H

Type of Well: OIL WELL

Allottee or Tribe Name:

Lease Number: NMNM99034

Unit or CA Name:

Unit or CA Number:

US Well Number:

Operator: OXY USA INCORPORATED

Notice of Intent

Sundry ID: 2825737

Type of Submission: Notice of Intent

Type of Action: APD Change

Date Sundry Submitted: 12/05/2024

Time Sundry Submitted: 08:37

Date proposed operation will begin: 03/01/2025

Procedure Description: OXY USA Inc. respectfully requests approval to amend the subject well AAPD to change the casing design to the Blanket A design. See the APD change worksheet and drilling documents attached. The SHL is not changing and there is no additional surface disturbance is related to this sundry.

NOI Attachments

Procedure Description

HEADSCC9_4FEDCOM71H_VAM_SPRINT_SF_5.5in_20ppf_P110RY_20241205083745.pdf

HeadsCC9_4FedCom71H_DirectPlan_20241205083725.pdf

Blanket_Design_A___OXY___3S_Slim_v7.1_20241205083619.pdf

Blanket_Design_A_Pad_Review_Document_CEDCAN_24S29E_9_PAD_0911_20241205083603.pdf

HEADSCC9_4FEDCOM71H_DrillPlan_20241205083536.pdf

HEADSCC9_4FEDCOM71H_APDCHANGEWORKSHEET_20241205083521.pdf

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Operator: OXY USA INCORPORATED

Conditions of Approval

Additional

HEADS_CC_9_4_FEDERAL_COM_71H___SUNDRY_COA_20250121184425.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: LESLIE REEVES

Signed on: DEC 05, 2024 08:33 AM

Name: OXY USA INCORPORATED

Title: Advisor Regulatory

Street Address: 5 GREENWAY PLAZA, SUITE 110

City: HOUSTON **State:** TX

Phone: (713) 497-2492

Email address: LESLIE_REEVES@OXY.COM

Field

Representative Name:

Street Address:

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

Phone:

Email address:

BLM Point of Contact

BLM POC Name: KEITH P IMMATTY

BLM POC Title: ENGINEER

BLM POC Phone: 5759884722

BLM POC Email Address: KIMMATTY@BLM.GOV

Disposition: Approved

Disposition Date: 01/21/2025

Signature: KEITH IMMATTY

Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021

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.

SUBMIT IN TRIPLICATE *- Other instructions on page 2*

5. Lease Serial No.

6. If Indian, Allottee or Tribe Name

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

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

8. Well Name and No.

2. Name of Operator

9. API Well No.

3a. Address

3b. Phone No. *(include area code)*

10. Field and Pool or Exploratory Area

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*

11. Country or Parish, State

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.)

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)*

Title

Signature

Date

THE SPACE FOR FEDERAL OR STATE OFICE USE

Approved by

Title

Date

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

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: SWSW / 349 FSL / 245 FWL / TWSP: 24S / RANGE: 29E / SECTION: 9 / LAT: 32.225812 / LONG: -103.997247 (TVD: 0 feet, MD: 0 feet)

PPP: SWSW / 100 FSL / 400 FWL / TWSP: 24S / RANGE: 29E / SECTION: 9 / LAT: 32.225129 / LONG: -103.996744 (TVD: 9082 feet, MD: 9479 feet)

PPP: SWSW / 100 FSL / 400 FWL / TWSP: 24S / RANGE: 29E / SECTION: 9 / LAT: 32.253802 / LONG: -103.996765 (TVD: 9082 feet, MD: 13362 feet)

BHL: LOT 4 / 20 FNL / 400 FWL / TWSP: 24S / RANGE: 29E / SECTION: 4 / LAT: 32.253853 / LONG: -103.996312 (TVD: 9082 feet, MD: 19974 feet)

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OXY USA INCORPORATED
WELL NAME & NO.:	HEADS CC 9 4 FED COM 71H
LOCATION:	Section 9, T.24 S., R.29 E.
COUNTY:	Eddy County, New Mexico

COA

H2S	(•) Yes	( ) No	
Potash	(•) None	( ) Secretary	( ) R-111-P
Cave/Karst Potential	( ) Low	(•) Medium	( ) High
Cave/Karst Potential	( ) Critical		
Variance	( ) None	(•) Flex Hose	( ) Other
Wellhead	( ) Conventional	(•) Multibowl	( ) Both
Wellhead Variance	( ) Diverter		
Other	[ ] 4 String	[ ] Capitan Reef	[ ] WIPP
Other	[ ] Fluid Filled	[ ] Pilot Hole	[ ] Open Annulus
Cementing	[ ] Contingency Cement Squeeze	[ ] EchoMeter	[x] Primary Cement Squeeze
Special Requirements	[ ] Water Disposal	[x] COM	[ ] Unit
Special Requirements	[ ] Batch Sundry		
Special Requirements Variance	[x] Break Testing	[x] Offline Cementing	[ ] Casing Clearance

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated AT SPUD. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

Primary Casing Design:

1. The **10-3/4** inch surface casing shall be set at approximately **537** feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface. Medium Cave Karst Area: Please be prepared for severe losses and have contingencies in place. Please contact BLM if interval not cemented to 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 **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The **7-5/8** inch intermediate casing shall be set at approximately **9016** feet. **KEEP CASING 1/2 FULL FOR COLLAPSE SF. PRESSURE TEST NEEDS EXTERNAL PRESSURE REVIEW AS WELL.** The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

Option 1 (Single Stage):

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

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 will perform bradenhead squeeze and top-out. Cement to surface. If cement does not reach surface, the appropriate BLM office shall be notified

❖ In Secretary Potash Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

Operator has proposed to pump down 10-3/4" X 7-5/8" annulus. 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.

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.

Bradenhead squeeze in the production interval is only as an edge case remediation measure and is NOT approved in this COA. If production cement job experiences losses and a bradenhead squeeze is needed for tie-back, BLM Engineering should be notified prior to job with volumes and planned wellbore schematic. CBL will be needed when this occurs.

3. The **5-1/2** inch production casing shall be set at approximately **19,336** feet. The minimum required fill of cement behind the **5-1/2** inch production casing is:

   Option 1 (Single Stage):

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

C. PRESSURE CONTROL

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

2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on surface casing. 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 (70% Working Pressure) psi.**

   a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
   b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
   c. Manufacturer representative shall install the test plug for the initial BOP test.
   d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
   e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated

date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.

- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in Onshore Order 1 and 2.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

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

- BOPE Break Testing is ONLY permitted for 5M BOPE or less. **(Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP)**
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- Variance only pertains to the intermediate hole-sections and no deeper than the Bone Springs formation.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer **(575-706-2779)** prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required. (200' TVD tolerance between intermediate shoes is allowable).
- The BLM is to be contacted (575-361-2822 Eddy County) 4 hours prior to BOPE tests.
- 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 Onshore Oil and Gas Order No. 2.
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

Offline Cementing
Offline cementing OK for surface and intermediate intervals. Notify 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 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

Contact Lea County Petroleum Engineering Inspection Staff:
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 689-5981

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      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.

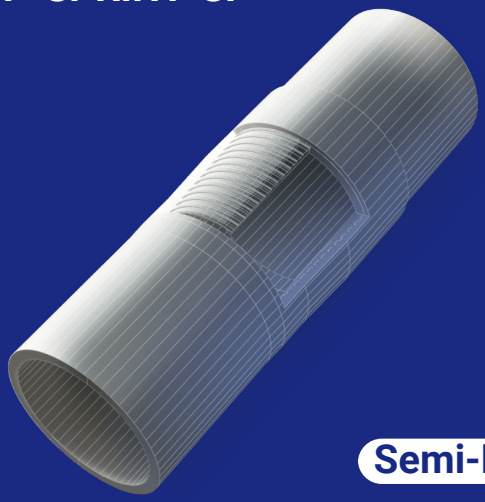
KPI 1/21/2025

Generated on April 25, 2024

CONNECTION DATA SHEET

OD: **5.500 in.** Grade: **P110 RY**
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	Controlled Yield	
Minimum Yield Strength	110	*ksi*
Maximum Yield Strength	125	*ksi*
Minimum Ultimate Tensile Strength	140	*ksi*
Pipe Body Yield Strength	641	*klb*
Internal Yield Pressure	12,640	*psi*
Collapse Pressure	11,110	*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	11,110	*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

OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)
Heads CC 9_4
Heads CC 9_4 Fed Com 71H

Wellbore #1

Plan: Permitting Plan

Standard Planning Report

25 November, 2024

OXY
Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Heads CC 9_4 Fed Com 71H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=25' @ 2951.30ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=25' @ 2951.30ft
Site:	Heads CC 9_4	**North Reference:**	Grid
Well:	Heads CC 9_4 Fed Com 71H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
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 Heads CC 9_4

Site Position:		**Northing:**	446,198.60 usft	**Latitude:**	32.226200
From:	Map	**Easting:**	648,677.50 usft	**Longitude:**	-103.986208
Position Uncertainty:	1.79 ft	**Slot Radius:**	13.200 in		

Well Heads CC 9_4 Fed Com 71H

Well Position	**+N/-S**	0.00 ft	**Northing:**	446,046.78 usf	**Latitude:**	32.225812
	+E/-W	0.00 ft	**Easting:**	645,264.34 usf	**Longitude:**	-103.997247
Position Uncertainty		0.89 ft	**Wellhead Elevation:**	0.00 ft	**Ground Level:**	2,926.30 ft
Grid Convergence:		0.18 °				

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	8/1/2019	6.95	59.95	47,897.90000000
	HDGM_FILE	11/20/2024	6.48	59.78	47,307.30000000

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	0.59

Plan Survey Tool Program **Date** 11/25/2024

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	19,335.59	Permitting Plan (Wellbore #1)	B001Mc_MWD+HRGM_R5	
				MWD+HRGM	

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	
3,755.00	0.00	0.00	3,755.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,754.68	10.00	168.12	4,749.62	-85.13	17.90	1.00	1.00	0.00	168.12	
8,017.11	10.00	168.12	7,962.51	-639.34	134.45	0.00	0.00	0.00	0.00	
9,016.41	90.14	359.72	8,632.47	-73.22	155.51	10.00	8.02	-16.85	-168.22	
19,336.41	90.14	359.72	8,607.26	10,246.63	105.52	0.00	0.00	0.00	0.00	PBHL (Heads CC

OXY
Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Heads CC 9_4 Fed Com 71H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=25' @ 2951.30ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=25' @ 2951.30ft
Site:	Heads CC 9_4	**North Reference:**	Grid
Well:	Heads CC 9_4 Fed Com 71H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
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
3,755.00	0.00	0.00	3,755.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.45	168.12	3,800.00	-0.17	0.04	-0.17	1.00	1.00	0.00
3,900.00	1.45	168.12	3,899.98	-1.80	0.38	-1.79	1.00	1.00	0.00
4,000.00	2.45	168.12	3,999.93	-5.13	1.08	-5.11	1.00	1.00	0.00
4,100.00	3.45	168.12	4,099.79	-10.16	2.14	-10.14	1.00	1.00	0.00
4,200.00	4.45	168.12	4,199.55	-16.90	3.55	-16.87	1.00	1.00	0.00
4,300.00	5.45	168.12	4,299.18	-25.35	5.33	-25.29	1.00	1.00	0.00
4,400.00	6.45	168.12	4,398.64	-35.49	7.46	-35.41	1.00	1.00	0.00
4,500.00	7.45	168.12	4,497.90	-47.33	9.95	-47.23	1.00	1.00	0.00
4,600.00	8.45	168.12	4,596.94	-60.87	12.80	-60.73	1.00	1.00	0.00
4,700.00	9.45	168.12	4,695.72	-76.09	16.00	-75.92	1.00	1.00	0.00
4,754.68	10.00	168.12	4,749.62	-85.13	17.90	-84.94	1.00	1.00	0.00
4,800.00	10.00	168.12	4,794.25	-92.83	19.52	-92.62	0.00	0.00	0.00
4,900.00	10.00	168.12	4,892.73	-109.81	23.09	-109.57	0.00	0.00	0.00
5,000.00	10.00	168.12	4,991.21	-126.80	26.67	-126.52	0.00	0.00	0.00
5,100.00	10.00	168.12	5,089.69	-143.79	30.24	-143.47	0.00	0.00	0.00
5,200.00	10.00	168.12	5,188.17	-160.78	33.81	-160.42	0.00	0.00	0.00

OXY

Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Heads CC 9_4 Fed Com 71H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=25' @ 2951.30ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=25' @ 2951.30ft
Site:	Heads CC 9_4	**North Reference:**	Grid
Well:	Heads CC 9_4 Fed Com 71H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
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	10.00	168.12	5,286.66	-177.77	37.38	-177.37	0.00	0.00	0.00
5,400.00	10.00	168.12	5,385.14	-194.75	40.95	-194.32	0.00	0.00	0.00
5,500.00	10.00	168.12	5,483.62	-211.74	44.53	-211.27	0.00	0.00	0.00
5,600.00	10.00	168.12	5,582.10	-228.73	48.10	-228.22	0.00	0.00	0.00
5,700.00	10.00	168.12	5,680.58	-245.72	51.67	-245.17	0.00	0.00	0.00
5,800.00	10.00	168.12	5,779.07	-262.71	55.24	-262.12	0.00	0.00	0.00
5,900.00	10.00	168.12	5,877.55	-279.69	58.82	-279.07	0.00	0.00	0.00
6,000.00	10.00	168.12	5,976.03	-296.68	62.39	-296.02	0.00	0.00	0.00
6,100.00	10.00	168.12	6,074.51	-313.67	65.96	-312.97	0.00	0.00	0.00
6,200.00	10.00	168.12	6,172.99	-330.66	69.53	-329.92	0.00	0.00	0.00
6,300.00	10.00	168.12	6,271.47	-347.64	73.11	-346.87	0.00	0.00	0.00
6,400.00	10.00	168.12	6,369.96	-364.63	76.68	-363.82	0.00	0.00	0.00
6,500.00	10.00	168.12	6,468.44	-381.62	80.25	-380.77	0.00	0.00	0.00
6,600.00	10.00	168.12	6,566.92	-398.61	83.82	-397.72	0.00	0.00	0.00
6,700.00	10.00	168.12	6,665.40	-415.60	87.39	-414.67	0.00	0.00	0.00
6,800.00	10.00	168.12	6,763.88	-432.58	90.97	-431.62	0.00	0.00	0.00
6,900.00	10.00	168.12	6,862.36	-449.57	94.54	-448.57	0.00	0.00	0.00
7,000.00	10.00	168.12	6,960.85	-466.56	98.11	-465.52	0.00	0.00	0.00
7,100.00	10.00	168.12	7,059.33	-483.55	101.68	-482.47	0.00	0.00	0.00
7,200.00	10.00	168.12	7,157.81	-500.53	105.26	-499.42	0.00	0.00	0.00
7,300.00	10.00	168.12	7,256.29	-517.52	108.83	-516.37	0.00	0.00	0.00
7,400.00	10.00	168.12	7,354.77	-534.51	112.40	-533.32	0.00	0.00	0.00
7,500.00	10.00	168.12	7,453.25	-551.50	115.97	-550.27	0.00	0.00	0.00
7,600.00	10.00	168.12	7,551.74	-568.49	119.55	-567.23	0.00	0.00	0.00
7,700.00	10.00	168.12	7,650.22	-585.47	123.12	-584.18	0.00	0.00	0.00
7,800.00	10.00	168.12	7,748.70	-602.46	126.69	-601.13	0.00	0.00	0.00
7,900.00	10.00	168.12	7,847.18	-619.45	130.26	-618.08	0.00	0.00	0.00
8,000.00	10.00	168.12	7,945.66	-636.44	133.84	-635.03	0.00	0.00	0.00
8,017.11	10.00	168.12	7,962.51	-639.34	134.45	-637.93	0.00	0.00	0.00
8,100.00	2.52	126.21	8,044.88	-647.48	137.41	-646.03	10.00	-9.01	-50.56
8,200.00	8.74	13.07	8,144.50	-641.37	140.91	-639.88	10.00	6.21	-113.15
8,300.00	18.61	5.77	8,241.56	-618.04	144.24	-616.52	10.00	9.87	-7.29
8,400.00	28.57	3.46	8,333.09	-578.20	147.29	-576.65	10.00	9.96	-2.31
8,500.00	38.54	2.28	8,416.32	-523.06	149.98	-521.49	10.00	9.98	-1.18
8,600.00	48.53	1.52	8,488.72	-454.31	152.22	-452.71	10.00	9.99	-0.76
8,700.00	58.52	0.97	8,548.09	-374.01	153.95	-372.41	10.00	9.99	-0.55
8,800.00	68.51	0.53	8,592.63	-284.63	155.10	-283.02	10.00	9.99	-0.44
8,900.00	78.51	0.14	8,620.98	-188.86	155.65	-187.25	10.00	9.99	-0.39
9,000.00	88.50	359.78	8,632.28	-89.63	155.58	-88.03	10.00	9.99	-0.36
9,016.41	90.14	359.72	8,632.47	-73.22	155.51	-71.62	10.00	9.99	-0.35
9,100.00	90.14	359.72	8,632.27	10.36	155.10	11.96	0.00	0.00	0.00
9,200.00	90.14	359.72	8,632.03	110.36	154.62	111.95	0.00	0.00	0.00
9,300.00	90.14	359.72	8,631.78	210.36	154.13	211.94	0.00	0.00	0.00
9,400.00	90.14	359.72	8,631.54	310.36	153.65	311.93	0.00	0.00	0.00
9,500.00	90.14	359.72	8,631.29	410.36	153.16	411.91	0.00	0.00	0.00
9,600.00	90.14	359.72	8,631.05	510.36	152.68	511.90	0.00	0.00	0.00
9,700.00	90.14	359.72	8,630.80	610.36	152.19	611.89	0.00	0.00	0.00
9,800.00	90.14	359.72	8,630.56	710.35	151.71	711.88	0.00	0.00	0.00
9,900.00	90.14	359.72	8,630.32	810.35	151.23	811.87	0.00	0.00	0.00
10,000.00	90.14	359.72	8,630.07	910.35	150.74	911.85	0.00	0.00	0.00
10,100.00	90.14	359.72	8,629.83	1,010.35	150.26	1,011.84	0.00	0.00	0.00
10,200.00	90.14	359.72	8,629.58	1,110.35	149.77	1,111.83	0.00	0.00	0.00
10,300.00	90.14	359.72	8,629.34	1,210.35	149.29	1,211.82	0.00	0.00	0.00
10,400.00	90.14	359.72	8,629.09	1,310.35	148.80	1,311.81	0.00	0.00	0.00
10,500.00	90.14	359.72	8,628.85	1,410.34	148.32	1,411.80	0.00	0.00	0.00

OXY

Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Heads CC 9_4 Fed Com 71H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=25' @ 2951.30ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=25' @ 2951.30ft
Site:	Heads CC 9_4	**North Reference:**	Grid
Well:	Heads CC 9_4 Fed Com 71H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
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)
10,600.00	90.14	359.72	8,628.60	1,510.34	147.84	1,511.78	0.00	0.00	0.00
10,700.00	90.14	359.72	8,628.36	1,610.34	147.35	1,611.77	0.00	0.00	0.00
10,800.00	90.14	359.72	8,628.12	1,710.34	146.87	1,711.76	0.00	0.00	0.00
10,900.00	90.14	359.72	8,627.87	1,810.34	146.38	1,811.75	0.00	0.00	0.00
11,000.00	90.14	359.72	8,627.63	1,910.34	145.90	1,911.74	0.00	0.00	0.00
11,100.00	90.14	359.72	8,627.38	2,010.33	145.41	2,011.73	0.00	0.00	0.00
11,200.00	90.14	359.72	8,627.14	2,110.33	144.93	2,111.71	0.00	0.00	0.00
11,300.00	90.14	359.72	8,626.89	2,210.33	144.44	2,211.70	0.00	0.00	0.00
11,400.00	90.14	359.72	8,626.65	2,310.33	143.96	2,311.69	0.00	0.00	0.00
11,500.00	90.14	359.72	8,626.41	2,410.33	143.48	2,411.68	0.00	0.00	0.00
11,600.00	90.14	359.72	8,626.16	2,510.33	142.99	2,511.67	0.00	0.00	0.00
11,700.00	90.14	359.72	8,625.92	2,610.33	142.51	2,611.66	0.00	0.00	0.00
11,800.00	90.14	359.72	8,625.67	2,710.32	142.02	2,711.64	0.00	0.00	0.00
11,900.00	90.14	359.72	8,625.43	2,810.32	141.54	2,811.63	0.00	0.00	0.00
12,000.00	90.14	359.72	8,625.18	2,910.32	141.05	2,911.62	0.00	0.00	0.00
12,100.00	90.14	359.72	8,624.94	3,010.32	140.57	3,011.61	0.00	0.00	0.00
12,200.00	90.14	359.72	8,624.70	3,110.32	140.09	3,111.60	0.00	0.00	0.00
12,300.00	90.14	359.72	8,624.45	3,210.32	139.60	3,211.58	0.00	0.00	0.00
12,400.00	90.14	359.72	8,624.21	3,310.32	139.12	3,311.57	0.00	0.00	0.00
12,500.00	90.14	359.72	8,623.96	3,410.31	138.63	3,411.56	0.00	0.00	0.00
12,600.00	90.14	359.72	8,623.72	3,510.31	138.15	3,511.55	0.00	0.00	0.00
12,700.00	90.14	359.72	8,623.47	3,610.31	137.66	3,611.54	0.00	0.00	0.00
12,800.00	90.14	359.72	8,623.23	3,710.31	137.18	3,711.53	0.00	0.00	0.00
12,900.00	90.14	359.72	8,622.99	3,810.31	136.69	3,811.51	0.00	0.00	0.00
13,000.00	90.14	359.72	8,622.74	3,910.31	136.21	3,911.50	0.00	0.00	0.00
13,100.00	90.14	359.72	8,622.50	4,010.31	135.73	4,011.49	0.00	0.00	0.00
13,200.00	90.14	359.72	8,622.25	4,110.30	135.24	4,111.48	0.00	0.00	0.00
13,300.00	90.14	359.72	8,622.01	4,210.30	134.76	4,211.47	0.00	0.00	0.00
13,400.00	90.14	359.72	8,621.76	4,310.30	134.27	4,311.46	0.00	0.00	0.00
13,500.00	90.14	359.72	8,621.52	4,410.30	133.79	4,411.44	0.00	0.00	0.00
13,600.00	90.14	359.72	8,621.28	4,510.30	133.30	4,511.43	0.00	0.00	0.00
13,700.00	90.14	359.72	8,621.03	4,610.30	132.82	4,611.42	0.00	0.00	0.00
13,800.00	90.14	359.72	8,620.79	4,710.30	132.34	4,711.41	0.00	0.00	0.00
13,900.00	90.14	359.72	8,620.54	4,810.29	131.85	4,811.40	0.00	0.00	0.00
14,000.00	90.14	359.72	8,620.30	4,910.29	131.37	4,911.38	0.00	0.00	0.00
14,100.00	90.14	359.72	8,620.05	5,010.29	130.88	5,011.37	0.00	0.00	0.00
14,200.00	90.14	359.72	8,619.81	5,110.29	130.40	5,111.36	0.00	0.00	0.00
14,300.00	90.14	359.72	8,619.57	5,210.29	129.91	5,211.35	0.00	0.00	0.00
14,400.00	90.14	359.72	8,619.32	5,310.29	129.43	5,311.34	0.00	0.00	0.00
14,500.00	90.14	359.72	8,619.08	5,410.28	128.94	5,411.33	0.00	0.00	0.00
14,600.00	90.14	359.72	8,618.83	5,510.28	128.46	5,511.31	0.00	0.00	0.00
14,700.00	90.14	359.72	8,618.59	5,610.28	127.98	5,611.30	0.00	0.00	0.00
14,800.00	90.14	359.72	8,618.34	5,710.28	127.49	5,711.29	0.00	0.00	0.00
14,900.00	90.14	359.72	8,618.10	5,810.28	127.01	5,811.28	0.00	0.00	0.00
15,000.00	90.14	359.72	8,617.85	5,910.28	126.52	5,911.27	0.00	0.00	0.00
15,100.00	90.14	359.72	8,617.61	6,010.28	126.04	6,011.26	0.00	0.00	0.00
15,200.00	90.14	359.72	8,617.37	6,110.27	125.55	6,111.24	0.00	0.00	0.00
15,300.00	90.14	359.72	8,617.12	6,210.27	125.07	6,211.23	0.00	0.00	0.00
15,400.00	90.14	359.72	8,616.88	6,310.27	124.59	6,311.22	0.00	0.00	0.00
15,500.00	90.14	359.72	8,616.63	6,410.27	124.10	6,411.21	0.00	0.00	0.00
15,600.00	90.14	359.72	8,616.39	6,510.27	123.62	6,511.20	0.00	0.00	0.00
15,700.00	90.14	359.72	8,616.14	6,610.27	123.13	6,611.18	0.00	0.00	0.00
15,800.00	90.14	359.72	8,615.90	6,710.27	122.65	6,711.17	0.00	0.00	0.00
15,900.00	90.14	359.72	8,615.66	6,810.26	122.16	6,811.16	0.00	0.00	0.00
16,000.00	90.14	359.72	8,615.41	6,910.26	121.68	6,911.15	0.00	0.00	0.00

OXY
Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Heads CC 9_4 Fed Com 71H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=25' @ 2951.30ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=25' @ 2951.30ft
Site:	Heads CC 9_4	**North Reference:**	Grid
Well:	Heads CC 9_4 Fed Com 71H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
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)
16,100.00	90.14	359.72	8,615.17	7,010.26	121.19	7,011.14	0.00	0.00	0.00
16,200.00	90.14	359.72	8,614.92	7,110.26	120.71	7,111.13	0.00	0.00	0.00
16,300.00	90.14	359.72	8,614.68	7,210.26	120.23	7,211.11	0.00	0.00	0.00
16,400.00	90.14	359.72	8,614.43	7,310.26	119.74	7,311.10	0.00	0.00	0.00
16,500.00	90.14	359.72	8,614.19	7,410.26	119.26	7,411.09	0.00	0.00	0.00
16,600.00	90.14	359.72	8,613.95	7,510.25	118.77	7,511.08	0.00	0.00	0.00
16,700.00	90.14	359.72	8,613.70	7,610.25	118.29	7,611.07	0.00	0.00	0.00
16,800.00	90.14	359.72	8,613.46	7,710.25	117.80	7,711.06	0.00	0.00	0.00
16,900.00	90.14	359.72	8,613.21	7,810.25	117.32	7,811.04	0.00	0.00	0.00
17,000.00	90.14	359.72	8,612.97	7,910.25	116.84	7,911.03	0.00	0.00	0.00
17,100.00	90.14	359.72	8,612.72	8,010.25	116.35	8,011.02	0.00	0.00	0.00
17,200.00	90.14	359.72	8,612.48	8,110.25	115.87	8,111.01	0.00	0.00	0.00
17,300.00	90.14	359.72	8,612.24	8,210.24	115.38	8,211.00	0.00	0.00	0.00
17,400.00	90.14	359.72	8,611.99	8,310.24	114.90	8,310.98	0.00	0.00	0.00
17,500.00	90.14	359.72	8,611.75	8,410.24	114.41	8,410.97	0.00	0.00	0.00
17,600.00	90.14	359.72	8,611.50	8,510.24	113.93	8,510.96	0.00	0.00	0.00
17,700.00	90.14	359.72	8,611.26	8,610.24	113.44	8,610.95	0.00	0.00	0.00
17,800.00	90.14	359.72	8,611.01	8,710.24	112.96	8,710.94	0.00	0.00	0.00
17,900.00	90.14	359.72	8,610.77	8,810.23	112.48	8,810.93	0.00	0.00	0.00
18,000.00	90.14	359.72	8,610.53	8,910.23	111.99	8,910.91	0.00	0.00	0.00
18,100.00	90.14	359.72	8,610.28	9,010.23	111.51	9,010.90	0.00	0.00	0.00
18,200.00	90.14	359.72	8,610.04	9,110.23	111.02	9,110.89	0.00	0.00	0.00
18,300.00	90.14	359.72	8,609.79	9,210.23	110.54	9,210.88	0.00	0.00	0.00
18,400.00	90.14	359.72	8,609.55	9,310.23	110.05	9,310.87	0.00	0.00	0.00
18,500.00	90.14	359.72	8,609.30	9,410.23	109.57	9,410.86	0.00	0.00	0.00
18,600.00	90.14	359.72	8,609.06	9,510.22	109.09	9,510.84	0.00	0.00	0.00
18,700.00	90.14	359.72	8,608.82	9,610.22	108.60	9,610.83	0.00	0.00	0.00
18,800.00	90.14	359.72	8,608.57	9,710.22	108.12	9,710.82	0.00	0.00	0.00
18,900.00	90.14	359.72	8,608.33	9,810.22	107.63	9,810.81	0.00	0.00	0.00
19,000.00	90.14	359.72	8,608.08	9,910.22	107.15	9,910.80	0.00	0.00	0.00
19,100.00	90.14	359.72	8,607.84	10,010.22	106.66	10,010.78	0.00	0.00	0.00
19,200.00	90.14	359.72	8,607.59	10,110.22	106.18	10,110.77	0.00	0.00	0.00
19,300.00	90.14	359.72	8,607.35	10,210.21	105.69	10,210.76	0.00	0.00	0.00
19,336.41	90.14	359.72	8,607.26	10,246.63	105.52	10,247.17	0.00	0.00	0.00

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 (Heads CC 9_4	0.00	0.00	0.00	-647.95	157.21	445,398.88	645,421.54	32.224030	-103.996746
- plan misses target center by 666.75ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
PBHL (Heads CC 9_4	0.00	0.00	8,607.26	10,246.63	105.52	456,292.58	645,369.85	32.253975	-103.996802
- plan hits target center									
- Point									
FTP (Heads CC 9_4	0.00	0.00	8,632.90	-248.00	156.35	445,798.80	645,420.68	32.225129	-103.996744
- plan misses target center by 26.07ft at 8846.62ft MD (8607.92 TVD, -240.61 N, 155.43 E)									
- Point									

OXY
Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Heads CC 9_4 Fed Com 71H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=25' @ 2951.30ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=25' @ 2951.30ft
Site:	Heads CC 9_4	**North Reference:**	Grid
Well:	Heads CC 9_4 Fed Com 71H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
134.30	134.30	RUSTLER			
597.30	597.30	SALADO			
1,281.30	1,281.30	CASTILE			
2,847.30	2,847.30	LAMAR			
2,912.30	2,912.30	BELL CANYON			
3,761.30	3,761.30	CHERRY CANYON			
5,018.37	5,009.30	BRUSHY CANYON			
6,617.65	6,584.30	BONE SPRING			
7,640.17	7,591.30	BONE SPRING 1ST			
8,481.04	8,401.30	BONE SPRING 2ND			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
3,755.00	3,755.00	0.00	0.00	Build 1°/100'
4,754.68	4,749.62	-85.13	17.90	Hold 10° Tangent
8,017.11	7,962.51	-639.34	134.45	KOP, Build & Turn 10°/100'
9,016.41	8,632.47	-73.22	155.51	Landing Point
19,336.41	8,607.26	10,246.62	105.52	TD at 19336.41' MD

Oxy Bulk 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	45.5	J-55	BTC
Intermediate	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

*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
Production	6.75	0	23361	0	12775	5.5	20	P-110	Wedge 461 Sprint SF DWC/C-HT-IS

*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

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

Oxy Bulk Design - Casing Design "A"

§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 Bulk 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*

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 Bulk 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 Bulk 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 requirements as per the agreement reached in the OXY/BLM meeting on September 5, 2019. 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 Bulk 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.

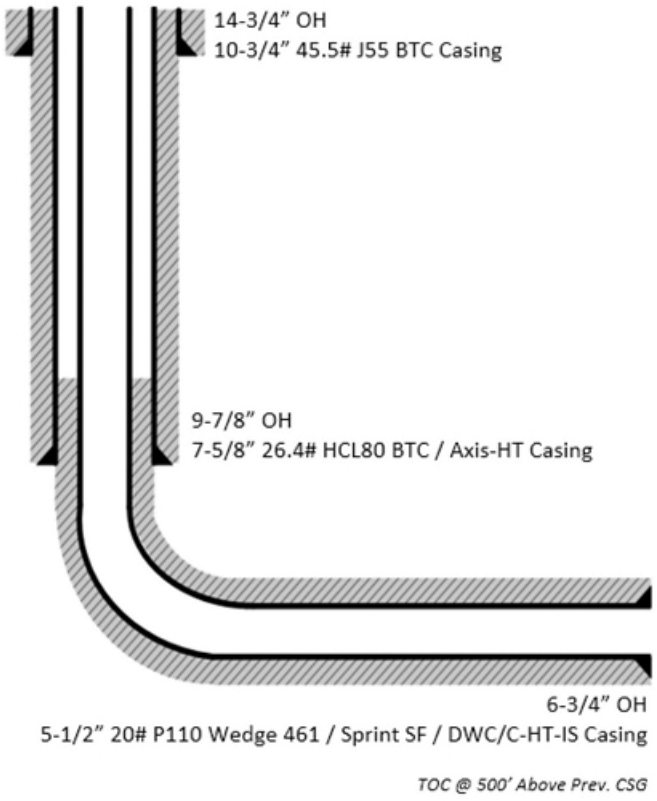
What will be used to monitor the loss or gain of fluid?	PVT/MD Totco/Visual Monitoring

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.

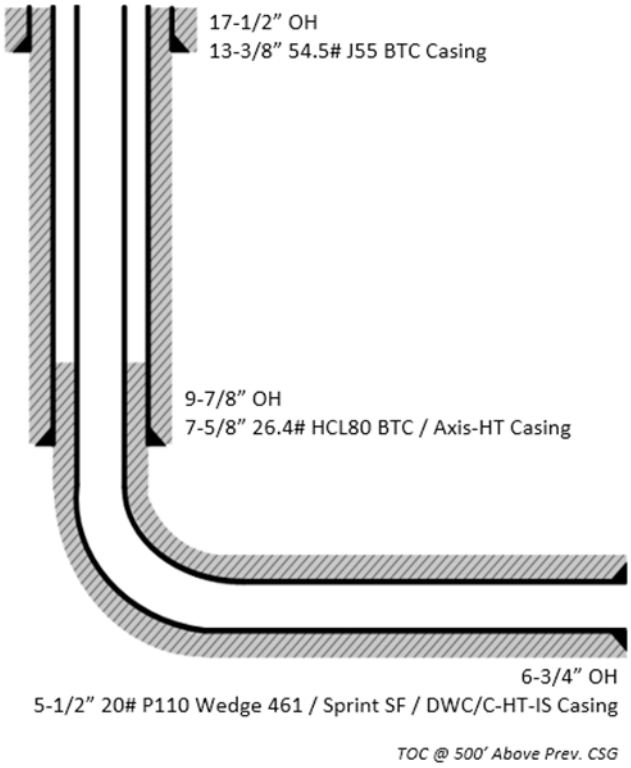
Oxy Bulk Design - Casing Design “A”

6. Wellbore Diagram(s)

Design Variation “A1”

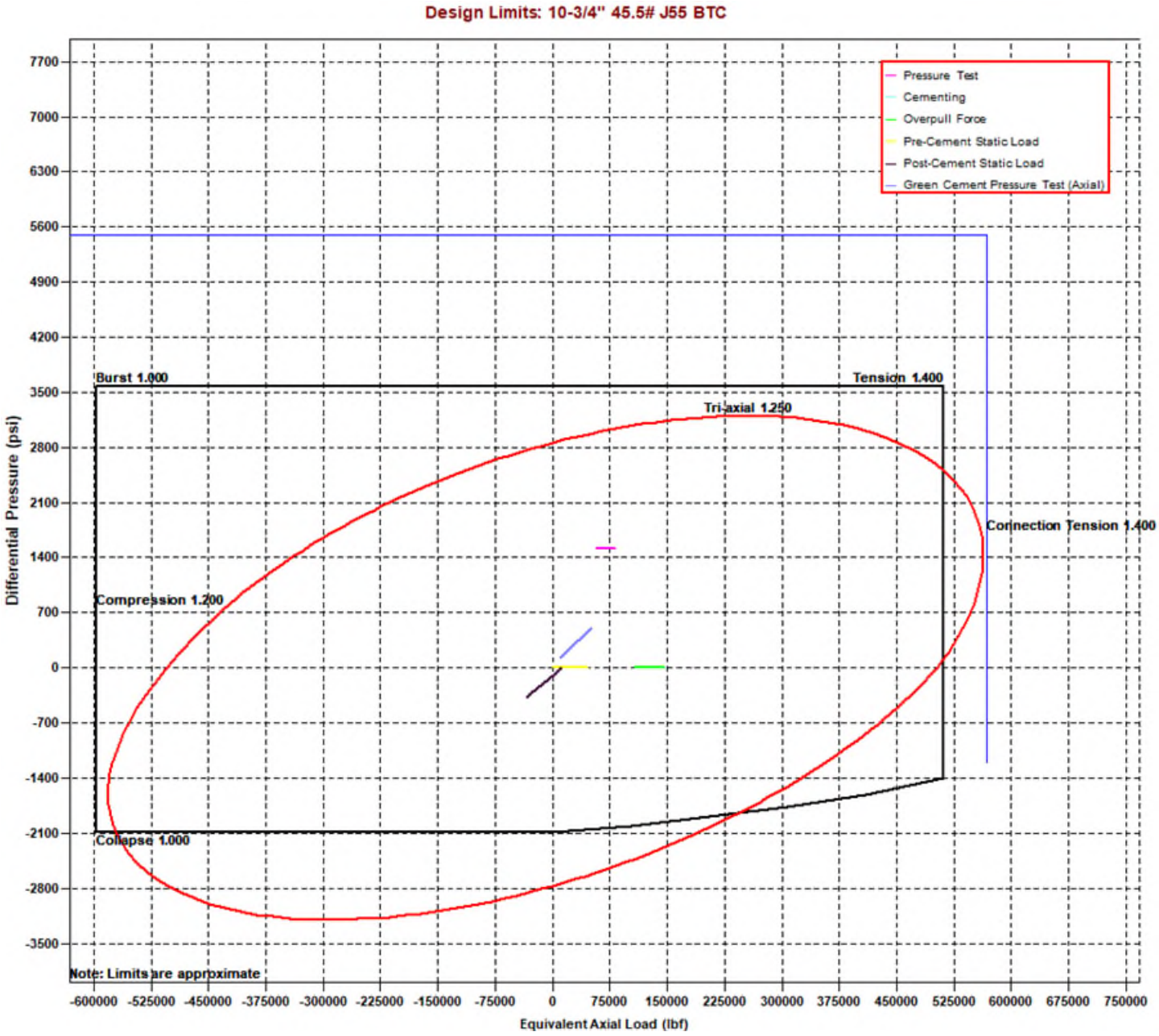


Design Variation “A2”

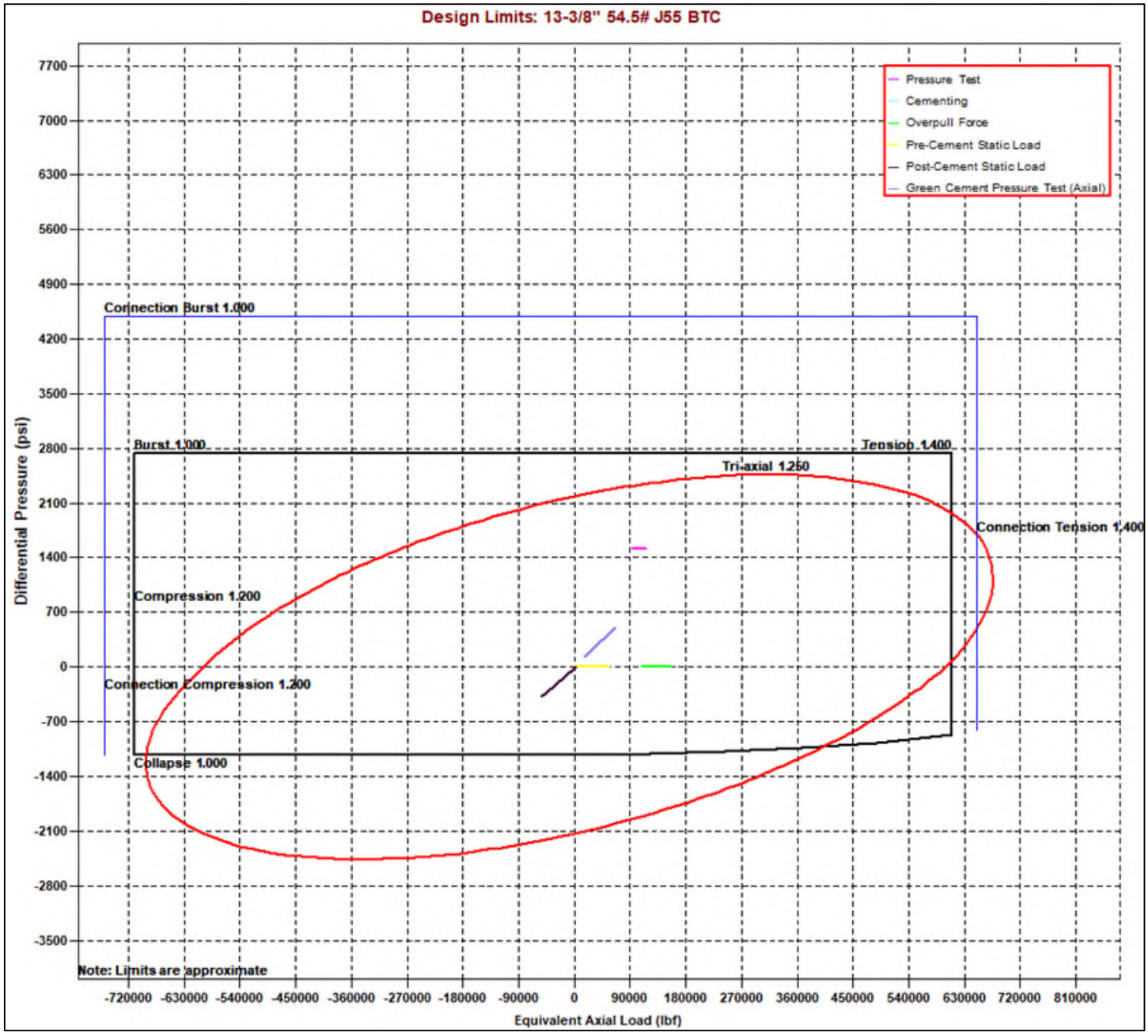


Oxy Bulk Design - Casing Design "A"

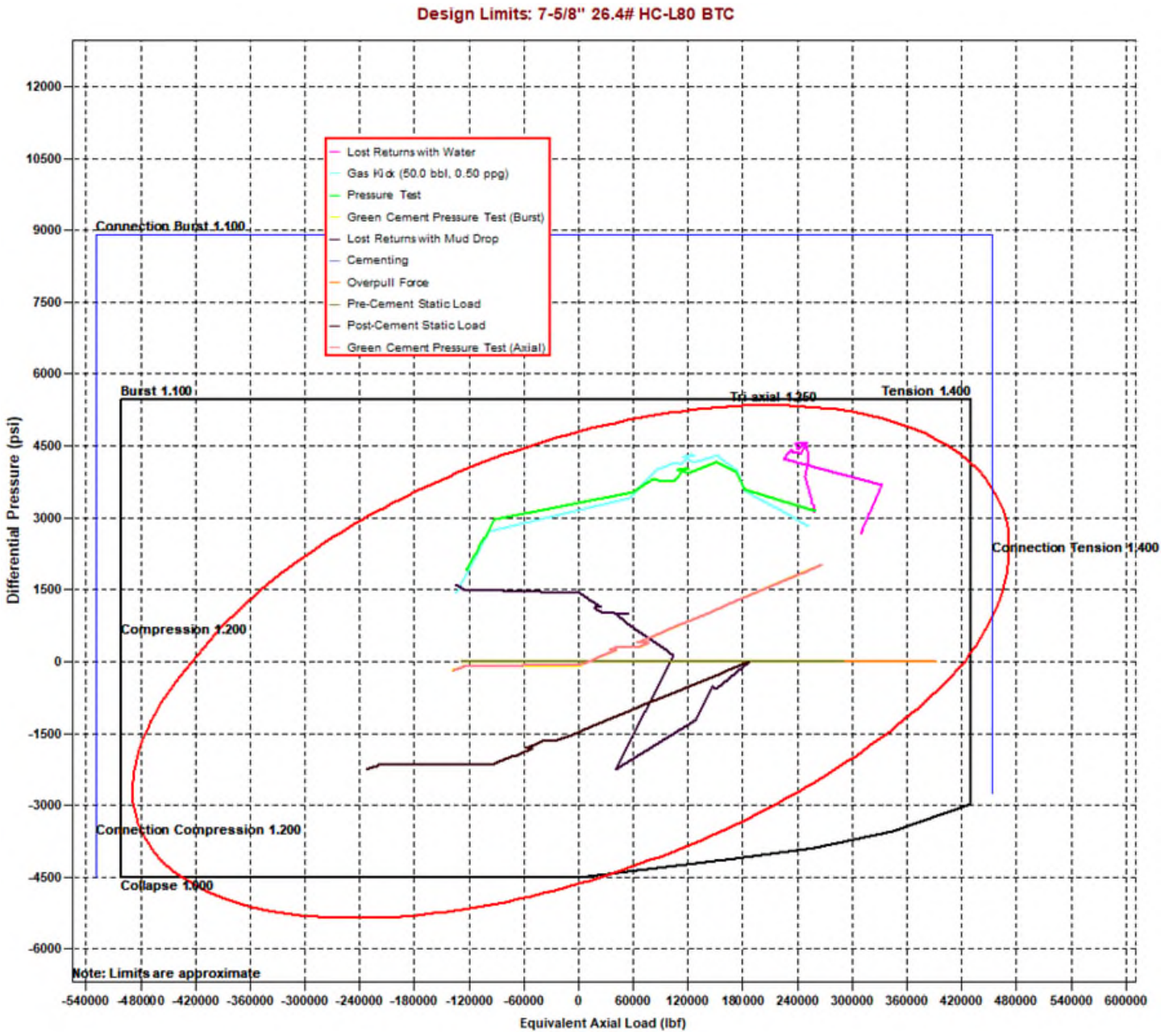
7. Landmark StressCheck Screenshots – Triaxial Output



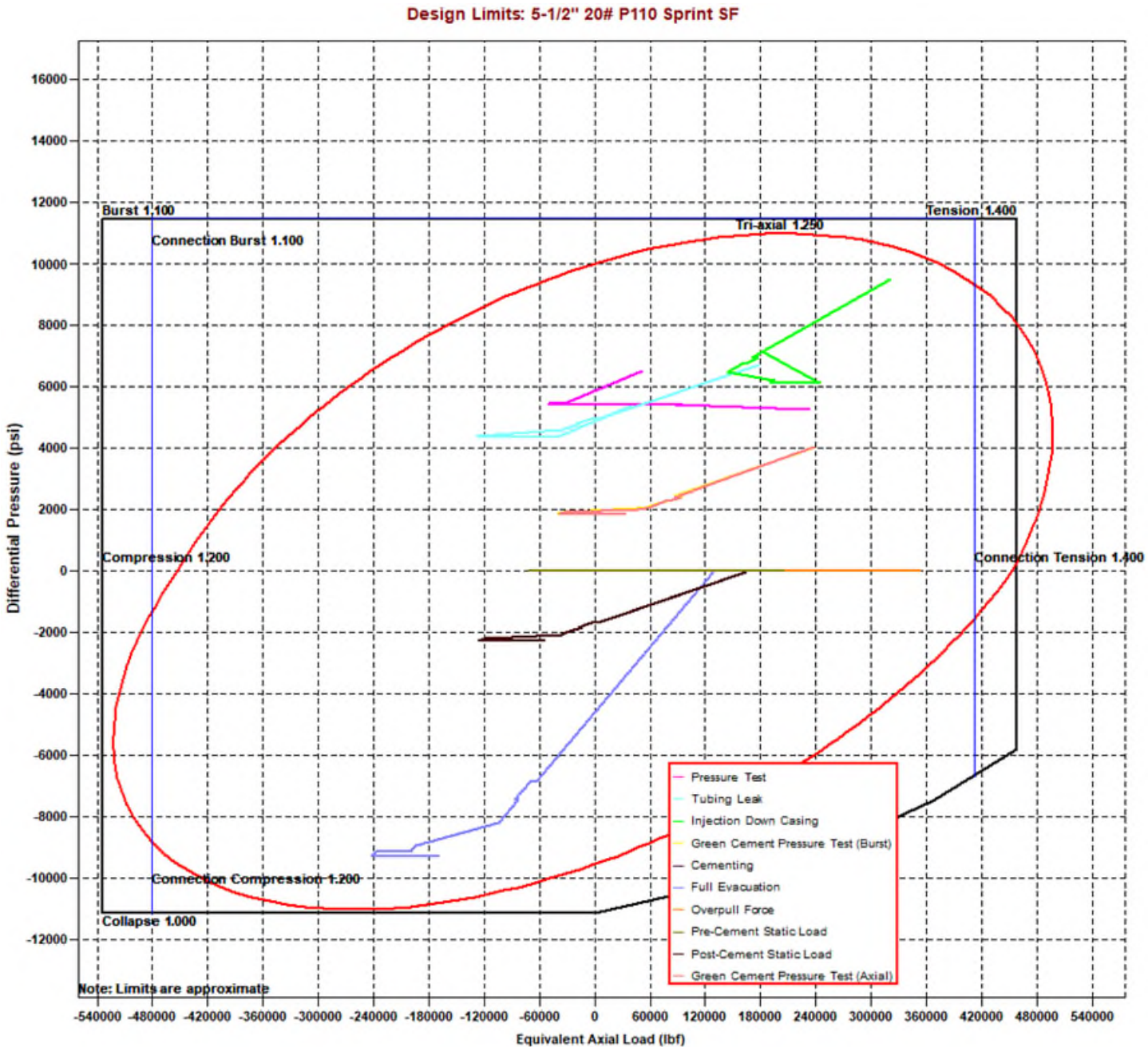
Oxy Bulk Design - Casing Design "A"



Oxy Bulk Design - Casing Design "A"



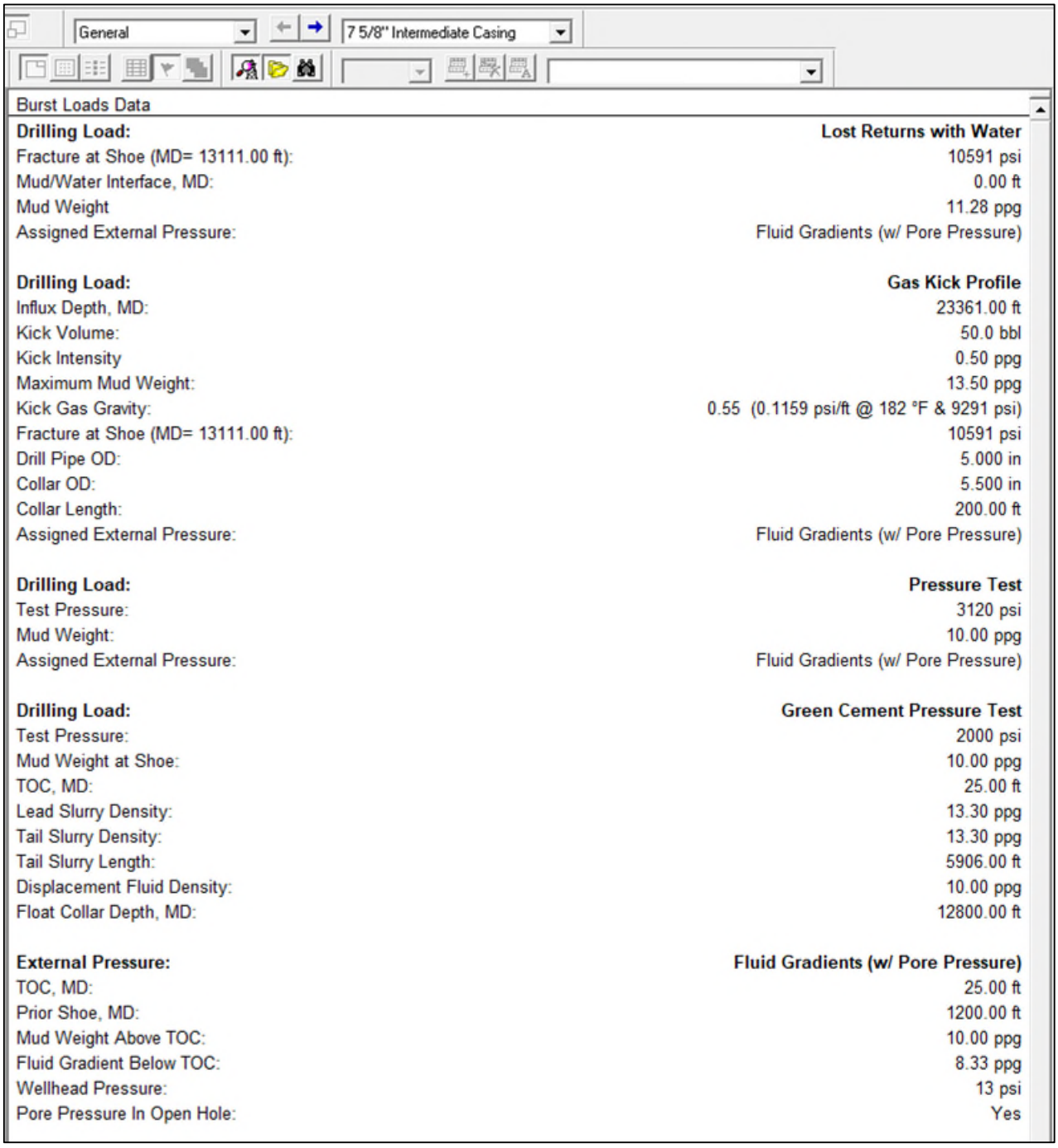
Oxy Bulk Design - Casing Design “A”



Oxy Bulk Design - Casing Design "A"

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

Burst Load Cases

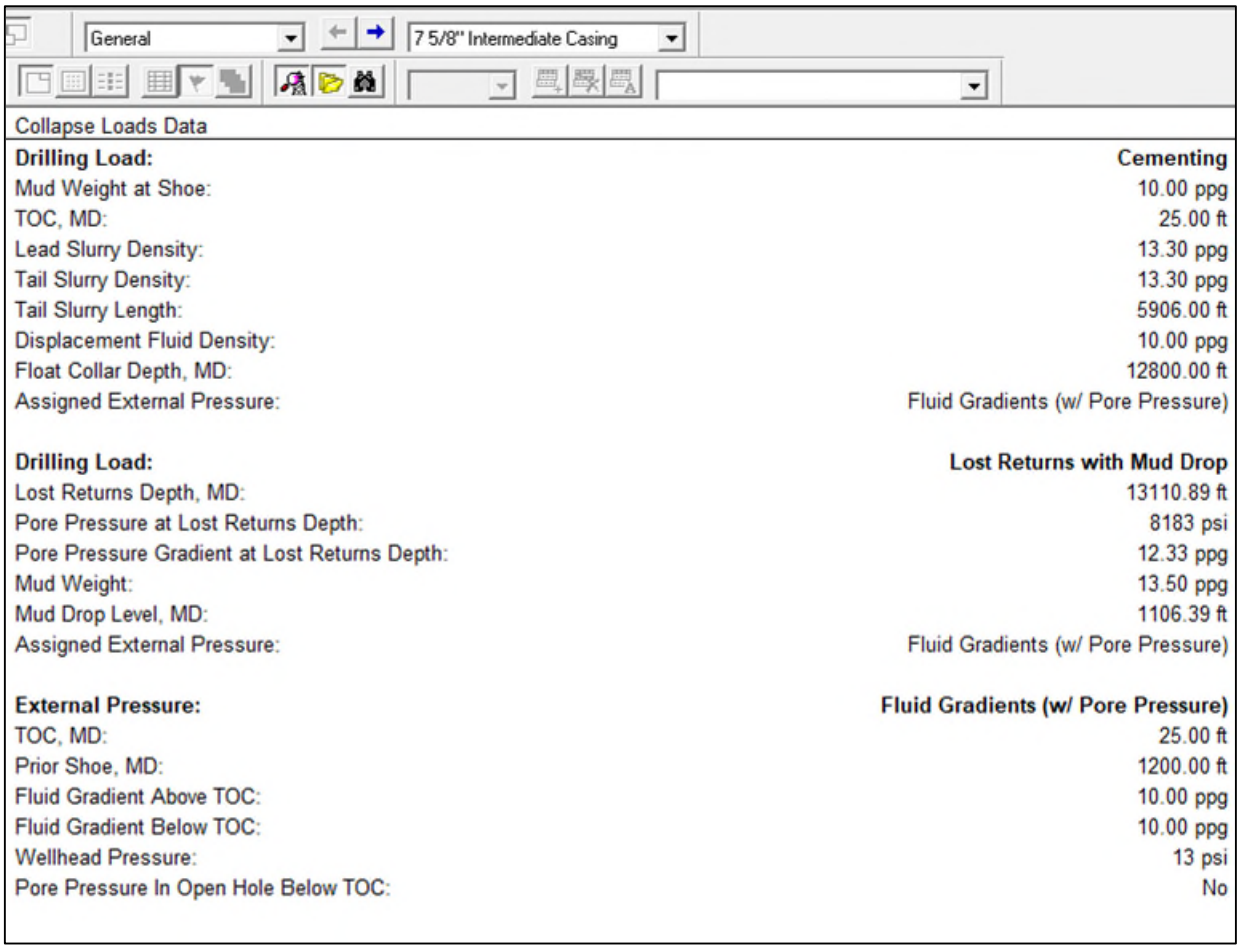


Burst Loads Data

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 Bulk Design - Casing Design "A"

Collapse Load Cases

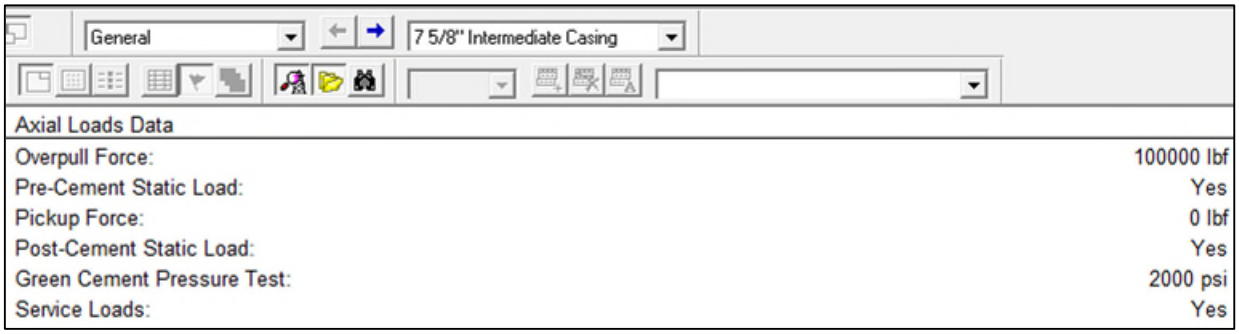


General | 7 5/8" Intermediate Casing

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 Bulk Design - Casing Design "A"

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

StressCheck - [Triaxial Results - Blanket Design A1 *]

File Edit Wellbore Tubular View Composer Tools Window Help

7 5/8" Intermediate Casing

Pressure Test

Triaxial Results

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

Oxy Bulk 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 %		
Threads per inch	3.40	Compression Strength	729 x1000 lb	Operation Limit Torques	
Connection OD Option	Ms	Max. Allowable Bending	104 °/100 ft	Operating Torque	43,000 ft-lb
		External Pressure Capacity	12,300 psi	Yield Torque	51,000 ft-lb
		Coupling Face Load	273,000 lb	Buck-On	
				Minimum	21,600 ft-lb
				Maximum	23,100 ft-lb

Notes

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

For the lastest performance data, always visit our website: www.tenaris.com

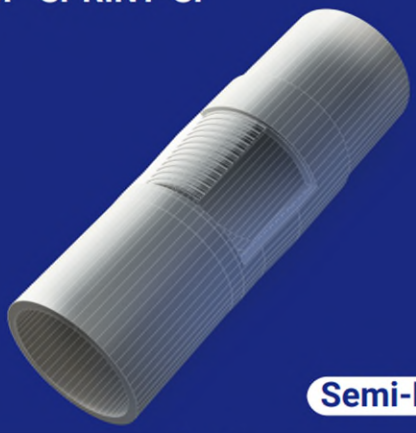
Oxy Bulk Design - Casing Design "A"

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

Oxy Bulk 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).

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VAM USA

Oxy Bulk Design - Casing Design “A”

VAM USA
2107 CityWest Boulevard Suite 1300
Houston, TX 77042
Phone: 713-479-3200
Fax: 713-479-3234
VAM® USA Sales E-mail: VAMUSAsales@vam-usa.com
Tech Support Email: tech.support@vam-usa.com

DWC Connection Data Sheet Notes:

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

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Oxy USA Inc. - Blanket Design Pad Document

OXY - Blanket Design A

Pad Name: CEDCAN_24S29E_9_PAD 0911

SHL: 349' FSL 245' FWL, Sec 9, T24S-R29E

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 v7.)** 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
HEADS CC 9_4 FED COM 71H	10400094622	537	537	9016	8632	19336	8632
HEADS CC 9_4 FED COM 72H	10400094638	562	562	9240	8657	19557	8657

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-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Geologic Formations

Formation	MD-RKB (ft)	TVD-RKB (ft)	Expected Fluids
Rustler	134	134	
Salado	597	597	Salt
Castile	1281	1281	Salt
Delaware			Oil/Gas/Brine
Bell Canyon	2912	2912	Oil/Gas/Brine
Cherry Canyon	3761	3761	Oil/Gas/Brine
Brushy Canyon	5018	5009	Losses
Bone Spring	6618	6584	Oil/Gas
Bone Spring 1st	7640	7591	Oil/Gas
Bone Spring 2nd	8481	8401	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	449	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.	1	Intermediate 1S - Tail	503	1.68	13.2	5%	5,268	Circulate	Class C+Ret., Disper.
Int.	2	Intermediate 2S - Tail BH	816	1.71	13.3	25%	-	Bradenhead	Class C+Accel.
Prod.	1	Production - Tail	613	1.84	13.3	25%	8,516	Circulate	Class C+Ret.

Oxy USA Inc. - HEADS CC 9_4 FED COM 71H
Drill Plan

1. Geologic Formations

TVD of Target (ft):	8632	Pilot Hole Depth (ft):	
Total Measured Depth (ft):	19336	Deepest Expected Fresh Water (ft):	134

Delaware Basin

Formation	MD-RKB (ft)	TVD-RKB (ft)	Expected Fluids
Rustler	134	134	
Salado	597	597	Salt
Castile	1281	1281	Salt
Delaware			Oil/Gas/Brine
Bell Canyon	2912	2912	Oil/Gas/Brine
Cherry Canyon	3761	3761	Oil/Gas/Brine
Brushy Canyon	5018	5009	Losses
Bone Spring	6618	6584	Oil/Gas
Bone Spring 1st	7640	7591	Oil/Gas
Bone Spring 2nd	8481	8401	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	14.75	0	537	0	537	10.75	45.5	J-55	BTC
Intermediate	9.875	0	9016	0	8632	7.625	26.4	L-80 HC	BTC
Production	6.75	0	19336	0	8632	5.5	20	P-110	Sprint-SF

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

	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-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Section	Stage	Slurry:	Sacks	Yield (ft^3/ft)	Density (lb/gal)	Excess:	TOC	Placement	Description
Surface	1	Surface - Tail	449	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.	1	Intermediate 1S - Tail	503	1.68	13.2	5%	5,268	Circulate	Class C+Ret., Disper.
Int.	2	Intermediate 2S - Tail BH	816	1.71	13.3	25%	-	Bradenhead	Class C+Accel.
Prod.	1	Production - Tail	613	1.84	13.3	25%	8,516	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 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.

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	8632
		5M	Blind Ram	✓	250 psi / 5000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			
6.75" Hole	13-5/8”	5M	Annular	✓	70% of working pressure	8632
		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 requirements as per the agreement reached in the OXY/BLM meeting on September 5, 2019. Please see BOP Break Testing Variance attachment for further details.

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

5. Mud Program

Section	Depth - MD		Depth - TVD		Type	Weight (ppg)	Viscosity	Water Loss
	From (ft)	To (ft)	From (ft)	To (ft)				
Surface	0	537	0	537	Water-Based Mud	8.6 - 8.8	40-60	N/C
Intermediate	537	9016	537	8632	Saturated Brine-Based or Oil-Based Mud	8.0 - 10.0	35-45	N/C
Production	9016	19336	8632	8632	Water-Based or Oil-Based Mud	8.0 - 9.6	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,

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	4310 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	150°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: 1374 bbls

OXY APD CHANGE SUNDRY LIST FORM

DATE SUNDRY WORKSHEET CREATED	12/5/2024
WELL NAME_NUMBER	HEADS CC 9-4 FED COM 71H
API NUMBER	30-015-54802
ESTIMATED SPUD DATE	3/1/2025

AFMSS Blurb

PLEASE SEE ATTACHED OXY APD CHANGE SUNDRY LIST THAT HIGHLIGHTS CHANGES AND ATTACHMENTS. GENERAL CHANGE DOCUMENTS ARE COMBINED INTO 1 PDF FILE AND WELL SPECIFIC DOCUMENTS ARE INDIVIDUAL ATTACHMENTS.

	ITEM	APD BASE LINE (For Regulatory to Complete)	SUNDRY PLAN (Groups to complete the latest plan)
		Date APD/BASE LINE APPROVED:	DATE Sundry Worksheet : 12/5/2024
Surface Planning	NAME	HEADS CC 9-4 FEDERAL COM 71H	
	NSL	NO	
	SHL	349' FSL 245' FWLM-9-24S-29E	
	PAD	CED CAN_T24SR29E_0911	
	BHL	20' FNL 400' FWL LOT4-4-24S-29E	
	HSU SIZE, ACRES	1280 ACRES - NSHSU R-21776	
	POOL	PIERCE CROSSING; BONE SPRING, EAST (96473)	
	TVD	9082'TVD	
	TARGET FORMATION	2ND BS	

CASING PROGRAM

APD BASE LINE							
Section	Hole Size (in.)	MD	TVD	Csg OD	Csg WT	Grade	Conn.
Surface	14.75	546	546	10.75	45.5	J-55	BTC
Int	9.875	8381	8311	7.827	39.3	P110S	WDG 463
Int2							
Prod							
Liner	6.75	19974	9082	5.5	20	P-110	WDG 461

SUNDRY PLAN							
Section	Hole Size (in.)	MD	TVD	Csg OD (in)	Csg WT (ppf)	Grade	Conn.
Surface	14.75	537	537	10.75	45.5	J-55	BTC
Int	9.875	9016	8632	7.625	26.4	HCL-80	BTC
Int2							
Prod	6.75	19336	8682	5.5	20	P-110	SPRINT SF
Liner							

CEMENT PROGRAM

APD BASE LINE								
Section/Stage	Slurry	Sacks	Yield (ft^3	Density (lb	Excess	TOC	Placement	Description
Surf		457	1.33	14.8	100%	0	CIRC	CL C + ACCEL
Int/1		391	1.65	13.2	5%	5276	CIRC	CL H + ACC+DIS+ SALT
Int/2		753	1.71	13.3	25%	0	BH	CL C + ACCEL
Int2								
Int2								
Prod		890	1.38	13.2	25%	8181	CIRC	CL H+ RET+DIS+SALT

SUNDRY PLAN								
Section/Stage	Slurry	Sacks	Yield (ft^3/ft)	Density (lb/gal)	Excess	TOC	Placement	Description
Surf		449	1.33	14.8	100%	0	CIRC	CL C+ACCEL
Int		503	1.68	13.2	5%	5268	CIRC	CL C +RET+DIS
Int		816	1.71	13.3	25%	0	BH	CL C+ACCEL
Int2								
Int2								
Prod		613	1.84	13.3	25%	8516	CIRC	CL C+RET

VARIANCES

APD BASE LINE	
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	X
(Pilot Hole, Logs etc.)	

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

Note- Only fill out what item is changing. The other cells can be left blank.

VERSION DATE 8/30/2024

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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 423669

CONDITIONS

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID: 16696
	Action Number: 423669
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Any previous COA's not addressed within the updated COA's still apply.	2/4/2025