

|                                     |                                                       |                                    |
|-------------------------------------|-------------------------------------------------------|------------------------------------|
| Well Name: RICK VAUGHN 7 WA FED COM | Well Location: T26S / R29E / SEC 7 / SESW /           | County or Parish/State:            |
| Well Number: 1H                     | Type of Well: CONVENTIONAL GAS WELL                   | Allottee or Tribe Name:            |
| Lease Number: NMNM138835            | Unit or CA Name:                                      | Unit or CA Number:                 |
| US Well Number: 3001549071          | Well Status: Approved Application for Permit to Drill | Operator: MARATHON OIL PERMIAN LLC |

Notice of Intent

Sundry ID: 2648790

|                                                |                              |
|------------------------------------------------|------------------------------|
| Type of Submission: Notice of Intent           | Type of Action: Other        |
| Date Sundry Submitted: 12/14/2021              | Time Sundry Submitted: 02:48 |
| Date proposed operation will begin: 02/01/2021 |                              |

**Procedure Description:** Marathon Oil Respectfully Requests to make changes to the following sections of the Approved APD Drill Plan for the RICK VAUGHN 7 WA FED COM 1H well: Section 3 CASING - Surface: connection and safety factors - Intermediate: bottom set depth, weight, grade, connection, safety factors - Production: weight, connection, safety factors Section 4 CEMENT - Surface: Lead and Tail - Intermediate: Lead and Tail - Production: Tail, remove Lead Section 5 MUD - Surface: Bottom Depth - Intermediate: Top and Bottom Depth, Type, Min. Weight - Production: Top and bottom Depth

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

SN\_SUB\_Rick\_Vaughn\_7\_WA\_Fed\_Com\_1H\_Drill\_Plan\_Chng\_12.14.2021\_20211214141959.pdf

|                                            |                                                              |                                           |
|--------------------------------------------|--------------------------------------------------------------|-------------------------------------------|
| <b>Well Name:</b> RICK VAUGHN 7 WA FED COM | <b>Well Location:</b> T26S / R29E / SEC 7 / SESW /           | <b>County or Parish/State:</b>            |
| <b>Well Number:</b> 1H                     | <b>Type of Well:</b> CONVENTIONAL GAS WELL                   | <b>Allottee or Tribe Name:</b>            |
| <b>Lease Number:</b> NMNM138835            | <b>Unit or CA Name:</b>                                      | <b>Unit or CA Number:</b>                 |
| <b>US Well Number:</b> 3001549071          | <b>Well Status:</b> Approved Application for Permit to Drill | <b>Operator:</b> MARATHON OIL PERMIAN LLC |

Conditions of Approval

Specialist Review

RICK\_Vaughn\_7\_WA\_Fed\_Com\_1H\_COA\_20211215094304.pdf

Operator Certification

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 submission of Form 3160-5 or a Sundry Notice.

|                                                       |                                         |
|-------------------------------------------------------|-----------------------------------------|
| <b>Operator Electronic Signature:</b> MELISSA SZUDERA | <b>Signed on:</b> DEC 14, 2021 02:20 PM |
| <b>Name:</b> MARATHON OIL PERMIAN LLC                 |                                         |
| <b>Title:</b> REGULATORY COMPLIANCE REPRESENTATIVE    |                                         |
| <b>Street Address:</b> 5555 San Felipe St.            |                                         |
| <b>City:</b> Houston                                  | <b>State:</b> TX                        |
| <b>Phone:</b> (713) 296-3179                          |                                         |
| <b>Email address:</b> mszudera@marathonoil.com        |                                         |

Field Representative

|                             |               |             |
|-----------------------------|---------------|-------------|
| <b>Representative Name:</b> |               |             |
| <b>Street Address:</b>      |               |             |
| <b>City:</b>                | <b>State:</b> | <b>Zip:</b> |
| <b>Phone:</b>               |               |             |
| <b>Email address:</b>       |               |             |

BLM Point of Contact

|                                     |                                                |
|-------------------------------------|------------------------------------------------|
| <b>BLM POC Name:</b> ZOTA M STEVENS | <b>BLM POC Title:</b> Petroleum Engineer       |
| <b>BLM POC Phone:</b> 5752345998    | <b>BLM POC Email Address:</b> ZSTEVENS@BLM.GOV |
| <b>Disposition:</b> Approved        | <b>Disposition Date:</b> 12/15/2021            |
| <b>Signature:</b> zota stevens      |                                                |

Form 3160-5  
(June 2019)UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTFORM 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.**

5. Lease Serial No. NMNM138835

6. If Indian, Allottee or Tribe Name

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

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator MARATHON OIL PERMIAN LLC

3a. Address 990 TOWN & COUNTRY BLVD, HOUSTON, TX 3b. Phone No. (include area code)  
(000) 000-00004. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
SEC 7/T26S/R29E/NMP

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

8. Well Name and No. RICK VAUGHN 7 WA FED COM/1H

9. API Well No. 3001549071

10. Field and Pool or Exploratory Area  
PURPLE SAGE WOLFCAMP/null11. Country or Parish, State  
EDDY/NM

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

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

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat 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.)

Marathon Oil Respectfully Requests to make changes to the following sections of the Approved APD Drill Plan for the RICK VAUGHN 7 WA FED COM  
1H well:

## Section 3 CASING

- Surface: connection and safety factors
- Intermediate: bottom set depth, weight, grade, connection, safety factors
- Production: weight, connection, safety factors

## Section 4 CEMENT

- Surface: Lead and Tail
- Intermediate: Lead and Tail
- Production: Tail, remove Lead

## Section 5 MUD

- Surface: Bottom Depth
- Intermediate: Top and Bottom Depth, Type, Min. Weight

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)  
MELISSA SZUDERA / Ph: (713) 296-3179

Title REGULATORY COMPLIANCE REPRESENTATIVE

Signature

Date

12/14/2021

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

Approved by

ZOTA M STEVENS / Ph: (575) 234-5998 / Approved

Title Petroleum Engineer

Date 12/15/2021

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 of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240

## Additional Information

### Location of Well

0. SHL: SESW / 270 FSL / 1320 FWL / TWSP: 26S / RANGE: 29E / SECTION: 7 / LAT: 32.5062918 / LONG: -104.0278748 ( TVD: 0 feet, MD: 0 feet )  
PPP: SENW / 2634 FSL / 2298 FWL / TWSP: 26S / RANGE: 29E / SECTION: 6 / LAT: 32.7163929 / LONG: -104.0246676 ( TVD: 9745 feet, MD: 17394 feet )  
PPP: NESW / 1317 FSL / 2307 FWL / TWSP: 26S / RANGE: 29E / SECTION: 6 / LAT: 32.0680183 / LONG: -104.0246694 ( TVD: 9745 feet, MD: 16076 feet )  
PPP: SESW / 0 FSL / 2316 FWL / TWSP: 26S / RANGE: 29E / SECTION: 6 / LAT: 32.0643973 / LONG: -104.0246712 ( TVD: 9745 feet, MD: 14758 feet )  
PPP: SESW / 100 FSL / 2310 FWL / TWSP: 26S / RANGE: 29E / SECTION: 7 / LAT: 32.0501529 / LONG: -104.0246783 ( TVD: 9172 feet, MD: 9250 feet )  
BHL: NENW / 100 FNL / 2310 FWL / TWSP: 26S / RANGE: 29E / SECTION: 6 / LAT: 32.0786698 / LONG: -104.0246641 ( TVD: 9745 feet, MD: 19950 feet )

CONFIDENTIAL

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

|                         |                                   |
|-------------------------|-----------------------------------|
| <b>OPERATOR'S NAME:</b> | <b>Marathon Oil</b>               |
| <b>LEASE NO.:</b>       | <b>NMNM138835</b>                 |
| <b>LOCATION:</b>        | Section 7, T.26 S., R.29 E., NMPM |
| <b>COUNTY:</b>          | Eddy County, New Mexico           |

|                              |                             |
|------------------------------|-----------------------------|
| <b>WELL NAME &amp; NO.:</b>  | Rick Vaughn 7 WA Fed Com 1H |
| <b>SURFACE HOLE FOOTAGE:</b> | 270'S & 1320'/W             |
| <b>BOTTOM HOLE FOOTAGE:</b>  | 100'/N & 2310'/W            |

COA

|                      |                                         |                                            |                                     |
|----------------------|-----------------------------------------|--------------------------------------------|-------------------------------------|
| H2S                  | <input type="radio"/> Yes               | <input checked="" type="radio"/> No        |                                     |
| Potash               | <input checked="" type="radio"/> None   | <input type="radio"/> Secretary            | <input type="radio"/> R-111-P       |
| Cave/Karst Potential | <input type="radio"/> Low               | <input checked="" type="radio"/> Medium    | <input type="radio"/> High          |
| Cave/Karst Potential | <input type="radio"/> Critical          |                                            |                                     |
| Variance             | <input type="radio"/> None              | <input checked="" type="radio"/> Flex Hose | <input type="radio"/> Other         |
| Wellhead             | <input type="radio"/> Conventional      | <input checked="" type="radio"/> Multibowl | <input type="radio"/> Both          |
| Other                | <input type="checkbox"/> 4 String Area  | <input type="checkbox"/> Capitan Reef      | <input type="checkbox"/> WIPP       |
| Other                | <input type="checkbox"/> Fluid Filled   | <input type="checkbox"/> Cement Squeeze    | <input type="checkbox"/> Pilot Hole |
| Special Requirements | <input type="checkbox"/> Water Disposal | <input checked="" type="checkbox"/> COM    | <input type="checkbox"/> Unit       |

### A. HYDROGEN SULFIDE

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

### B. CASING

1. The 13-3/8 inch surface casing shall be set at approximately **350** feet (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8**

**hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

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

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

**Option 1 (Single Stage):**

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

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

**Option 2:**

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

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

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

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

3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
  - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

### C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).
2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
  - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

### D. SPECIAL REQUIREMENT (S)

#### Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

## GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)  
393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. **In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).**
  - b. **When the operator proposes to set surface casing with Spudder Rig**
    - **Notify the BLM when moving in and removing the Spudder Rig.**
    - **Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.**
    - **BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.**
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a

digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
  - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after

installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore

Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**ZS 62421**

**MARATHON OIL PERMIAN LLC**  
**DRILLING AND OPERATIONS PLAN**

WELL NAME / NUMBER: **RICK VAUGHN 7 WA FED COM 1H**  
COUNTY / STATE: **EDDY COUNTY, NEW MEXICO**

**1. GEOLOGIC FORMATIONS**

| Formation at Surface        | Elevation | KB Height |
|-----------------------------|-----------|-----------|
| Permian/Quaternary Alluvium | 2911      | 30        |

| Formation                 | TVD   | MD / KBTVD | Elevation | Lithology                  | Mineral Resource | Producing Formation |
|---------------------------|-------|------------|-----------|----------------------------|------------------|---------------------|
| Rustler                   | 242   | 272        | 2669      | Anhydrite                  | Brine            | No                  |
| Salado                    | 511   | 541        | 2400      | Salt/Anhydrite             | Brine            | No                  |
| Castile                   | 967   | 997        | 1944      | Salt/Anhydrite             | Brine            | No                  |
| Base of Salt (BX)         | 2507  | 2537       | 404       | Anhydrite                  | Brine            | No                  |
| Lamar                     | 2699  | 2729       | 212       | Sandstone/Shale            | None             | No                  |
| Bell Canyon               | 2725  | 2755       | 186       | Sandstone                  | Oil              | No                  |
| Cherry Canyon             | 3564  | 3594       | -653      | Sandstone                  | Oil              | No                  |
| Brushy Canyon             | 4814  | 4844       | -1903     | Sandstone                  | Oil              | No                  |
| Bone Spring Lime          | 6357  | 6387       | -3446     | Limestone                  | None             | No                  |
| Upper Avalon Shale        | 6392  | 6422       | -3481     | Shale                      | Oil              | Yes                 |
| 1st Bone Spring Sand      | 7363  | 7393       | -4452     | Sandstone                  | Oil              | Yes                 |
| 2nd Bone Spring Carbonate | 7620  | 7650       | -4709     | Limestone/Shale            | None             | No                  |
| 2nd Bone Spring Sand      | 8170  | 8200       | -5259     | Sandstone                  | Oil              | Yes                 |
| 3rd Bone Spring Carbonate | 8517  | 8547       | -5606     | Limestone                  | Oil              | No                  |
| 3rd Bone Spring Sand      | 9188  | 9218       | -6277     | Sandstone                  | Oil              | Yes                 |
| Wolfcamp                  | 9551  | 9581       | -6640     | Sandstone/Shale/Carbonates | Natural Gas/Oil  | Yes                 |
| Wolfcamp A                | 9655  | 9685       | -6744     | Sandstone/Shale/Carbonates | Natural Gas/Oil  | Yes                 |
| Wolfcamp B                | 9949  | 9979       | -7038     | Sandstone/Shale/Carbonates | Natural Gas/Oil  | Possible            |
| Wolfcamp C                | 10246 | 10276      | -7335     | Sandstone/Shale/Carbonates | Natural Gas/Oil  | Yes                 |
| Wolfcamp D                | 10840 | 10870      | -7929     | Sandstone/Shale/Carbonates | Natural Gas/Oil  | Yes                 |
| Strawn                    | 12208 | 12238      | -9297     | Carbonates/Sands/Clays     | Natural Gas      | Possible            |

**2. BLOWOUT PREVENTION**

| BOP installed and tested before drilling which hole? | Size?  | Min. Required WP | Type      | ✓ | Tested to:              |
|------------------------------------------------------|--------|------------------|-----------|---|-------------------------|
| 12 ¼"                                                | 13 5/8 | 5000             | Annular   | x | 50% of working pressure |
|                                                      |        |                  | BOP Stack | x | 5000                    |
| 8 ¾"                                                 | 13 5/8 | 5000             | Annular   | x | 50% of working pressure |
|                                                      |        |                  | BOP Stack | x | 5000                    |

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 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, full opening safety valve / inside BOP and choke lines and choke manifold. See attached schematics.

|   |                                                                                                                                                                                                                                                                                                               |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Y | Formation integrity test will be performed per Onshore Order #2.<br>On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i. |
| Y | A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.                                                                                                                                                               |
| N | Are anchors required by manufacturer?                                                                                                                                                                                                                                                                         |
| Y | A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.<br>See attached schematic.                 |

### 3. CASING PROGRAM

| String Type  | Hole Size | Csg Size | Top Set MD | Bottom Set MD | Top Set TVD | Bottom Set TVD | Top Set MSL | Bottom Set MSL | Weight (lbs/ft) | Grade | Conn. | SF Collapse | SF Burst | SF Tension |
|--------------|-----------|----------|------------|---------------|-------------|----------------|-------------|----------------|-----------------|-------|-------|-------------|----------|------------|
| Surface      | 17 1/2    | 13 3/8   | 0          | 680           | 0           | 680            | 2910        | 2230           | 54.5            | J55   | BTC   | 5.22        | 1.81     | 4.52       |
| Intermediate | 12 1/4    | 9 5/8    | 0          | 9264          | 0           | 9184           | 2910        | -6274          | 40              | P110  | BTC   | 1.20        | 1.42     | 2.44       |
| Production   | 8 3/4     | 5 1/2    | 0          | 19950         | 0           | 9745           | 2910        | -6835          | 23              | P110  | TLW   | 2.53        | 1.26     | 2.22       |

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

|                                                                                                                                                  | Y or N |
|--------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Is casing new? If used, attach certification as required in Onshore Order #1                                                                     | Y      |
| Does casing meet API specifications? If no, attach casing specification sheet.                                                                   | Y      |
| Is premium or uncommon casing planned? If yes attach casing specification sheet.                                                                 | N      |
| 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 3 <sup>rd</sup> 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 2 <sup>nd</sup> string set 100' to 600' below the base of salt?                                                                               |        |

|                                                                                        |   |
|----------------------------------------------------------------------------------------|---|
| Is well located in high Cave/Karst?                                                    | N |
| If yes, are there two strings cemented to surface?                                     |   |
| (For 2 string wells) If yes, is there a contingency casing if lost circulation occurs? |   |
|                                                                                        |   |
| Is well located in critical Cave/Karst?                                                | N |
| If yes, are there three strings cemented to surface?                                   |   |

#### 4. CEMENT

| String Type  | Lead/Tail | Top MD | Bottom MD | Quantity (sks) | Yield (ft3/sks) | Density (ppg) | Slurry Volume (ft3) | Excess (%) | Cement Type | Additives                                        |
|--------------|-----------|--------|-----------|----------------|-----------------|---------------|---------------------|------------|-------------|--------------------------------------------------|
| Surface      | Lead      | 0      | 389       | 182            | 2.12            | 12.5          | 386                 | 25         | Class C     | Extender, Accelerator, LCM                       |
| Surface      | Tail      | 389    | 689       | 197            | 1.32            | 14.8          | 260                 | 25         | Class C     | Accelerator                                      |
| Intermediate | Lead      | 0      | 8764      | 1593           | 2.18            | 12.4          | 3474                | 25         | Class C     | Extender, Accelerator, LCM                       |
| Intermediate | Tail      | 8764   | 9264      | 147            | 1.33            | 14.8          | 196                 | 25         | Class C     | Retarder                                         |
| Production   | Tail      | 8964   | 19950     | 2105           | 1.68            | 13.0          | 3537                | 25         | Class H     | Retarder, Extender, Fluid Loss, Suspension Agent |

Stage tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. Stage tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Pilot hole depth: N/A TVD/MD

KOP: N/A TVD/MD

| Plug top | Plug Bottom | Excess (%) | Quantity (sx) | Density (ppg) | Yield (ft3/sx) | Water gal/sk | Slurry Description and Cement Type |
|----------|-------------|------------|---------------|---------------|----------------|--------------|------------------------------------|
|          |             |            |               |               |                |              |                                    |
|          |             |            |               |               |                |              |                                    |

Attach plugging procedure for pilot hole: N/A

**5. CIRCULATING MEDIUM**

| Top Depth | Bottom Depth | Mud Type           | Min. Weight (ppg) | Max. Weight (ppg) |
|-----------|--------------|--------------------|-------------------|-------------------|
| 0         | 689          | Water Based Mud    | 8.4               | 8.8               |
| 689       | 9264         | Brine or Oil Based | 9.9               | 10.2              |
| 9264      | 19950        | Oil Based mud      | 10.5              | 12.5              |

Losses or gains in 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.

**6. TEST, LOGGING, CORING****List of production tests including testing procedures, equipment and safety measures:**

GR from TD to surface (horizontal well - vertical portion of hole)

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

GR while drilling from Intermediate casing shoe to TD.

**Coring operation description for the well:**

No coring is planned at this time.

Mud Logger: None.

DST's: None.

Open Hole Logs: GR while drilling from Intermediate casing shoe to TD.

**7. PRESSURE**

ANTICIPATED BOTTOM HOLE PRESSURE: **6,334 psi**

ANTICIPATED BOTTOM HOLE TEMPERATURE: **195°F**

ANTICIPATED ABNORMAL PRESSURE: **N**

ANTICIPATED ABNORMAL TEMPERATURE: **N**

**POTENTIAL HAZARDS:**

- A. H2S detection equipment will be in operation after drilling out the surface casing shoe until the production casing has been cemented. Breathing equipment will be on location from drilling out the surface shoe until production casing is cemented. If H2S is encountered the operator will comply with Onshore Order #6.
- B. No abnormal temperatures or pressures are anticipated. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.
- C. No losses are anticipated at this time.
- D. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well.
- E. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.

## 8. OTHER

### A. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT

- a. A Kelly cock will be in the drill string at all times.
- b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor unobstructed and readily accessible at all times.
- c. Hydrogen Sulfide detection equipment will be in operation after drilling out the surface casing shoe until the production casing is cemented. Breathing equipment will be on location upon drilling the surface casing shoe until total depth is reached. **If Hydrogen Sulfide is encountered , measured amounts and formations will be reported to the BLM**

### B. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS

- a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.



# TEC-LOCK WEDGE

5.500" 23 LB/FT (.415"Wall)

BENTELER P110 CY

## Pipe Body Data

|                         |          |       |
|-------------------------|----------|-------|
| Nominal OD:             | 5.500    | in    |
| Nominal Wall:           | .415     | in    |
| Nominal Weight:         | 23.00    | lb/ft |
| Plain End Weight:       | 22.56    | lb/ft |
| Material Grade:         | P110 CY  |       |
| Mill/Specification:     | BENTELER |       |
| Yield Strength:         | 125,000  | psi   |
| Tensile Strength:       | 130,000  | psi   |
| Nominal ID:             | 4.670    | in    |
| API Drift Diameter:     | 4.545    | in    |
| Special Drift Diameter: | None     | in    |
| RBW:                    | 87.5 %   |       |
| Body Yield:             | 829,000  | lbf   |
| Burst:                  | 16,510   | psi   |
| Collapse:               | 16,910   | psi   |

## Connection Data

|                              |         |                 |
|------------------------------|---------|-----------------|
| Standard OD:                 | 5.950   | in              |
| Pin Bored ID:                | 4.670   | in              |
| Critical Section Area:       | 6.457   | in <sup>2</sup> |
| Tensile Efficiency:          | 97.4 %  |                 |
| Compressive Efficiency:      | 100 %   |                 |
| Longitudinal Yield Strength: | 807,000 | lbf             |
| Compressive Limit:           | 829,000 | lbf             |
| Internal Pressure Rating:    | 16,510  | psi             |
| External Pressure Rating:    | 16,910  | psi             |
| Maximum Bend:                | 101.5   | °/100ft         |

## Operational Data

|                        |        |        |
|------------------------|--------|--------|
| Minimum Makeup Torque: | 16,400 | ft*lbf |
| Optimum Makeup Torque: | 20,500 | ft*lbf |
| Maximum Makeup Torque: | 44,300 | ft*lbf |
| Minimum Yield:         | 49,200 | ft*lbf |
| Makeup Loss:           | 5.97   | in     |

**Notes** Operational Torque is equivalent to the Maximum Make-Up Torque

Generated on Mar 12, 2019





## Technical Data Sheet

9 5/8" 40.00 lbs/ft. P110HC - BTC

### Mechanical Properties

|                          |      |         |
|--------------------------|------|---------|
| Minimum Yield Strength   | psi. | 110,000 |
| Maximum Yield Strength   | psi. | 140,000 |
| Minimum Tensile Strength | psi. | 125,000 |

### Dimensions

|                       |         | Pipe  | BTC    | LTC | STC |
|-----------------------|---------|-------|--------|-----|-----|
| Outside Diameter      | in.     | 9.625 | 10.625 | -   | -   |
| Wall Thickness        | in.     | 0.395 | -      | -   | -   |
| Inside Diameter       | in.     | 8.835 | -      | -   | -   |
| Standard Drift        | in.     | -     | -      | -   | -   |
| Alternate Drift       | in.     | 8.750 | -      | -   | -   |
| Plain End Weight      | lbs/ft. | -     | -      | -   | -   |
| Nominal Linear Weight | lbs/ft. | 40.00 | -      | -   | -   |

### Performance

|                                  |      | Pipe          | BTC           | LTC | STC |
|----------------------------------|------|---------------|---------------|-----|-----|
| Minimum Collapse Pressure        | psi. | 4,230         | -             | -   | -   |
| Minimum Internal Yield Pressure  | psi. | 7,910         | 7,910         | -   | -   |
| Minimum Pipe Body Yield Strength | lbs. | 1,260 x 1,000 | -             | -   | -   |
| Joint Strength                   | lbs. | -             | 1,266 x 1,000 | -   | -   |

### Make-Up Torques

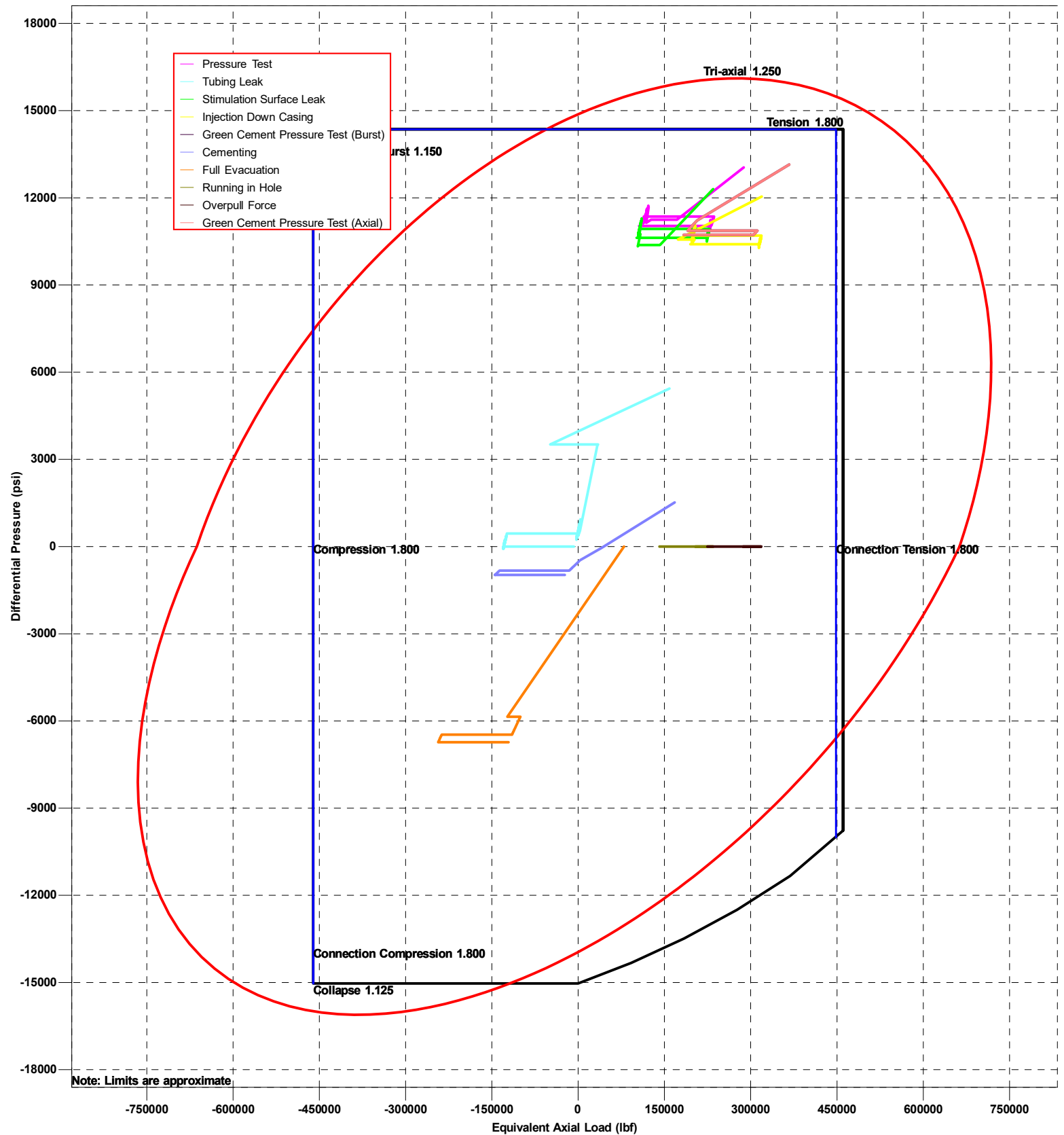
|                                    |         | Pipe | BTC  | LTC | STC |
|------------------------------------|---------|------|------|-----|-----|
| Make-Up Loss                       | in.     | -    | 4.81 | -   | -   |
| Optimum Make-Up Torque             | ft/lbs. | -    | -    | -   | -   |
| Maximum Operational Make-Up Torque | ft/lbs. | -    | -    | -   | -   |

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

File: Basis of Design Malaga WA -New Design \*

Date: December 07, 2021 Page: 1

Design Limits (5 1/2" Production Casing - Section 1)



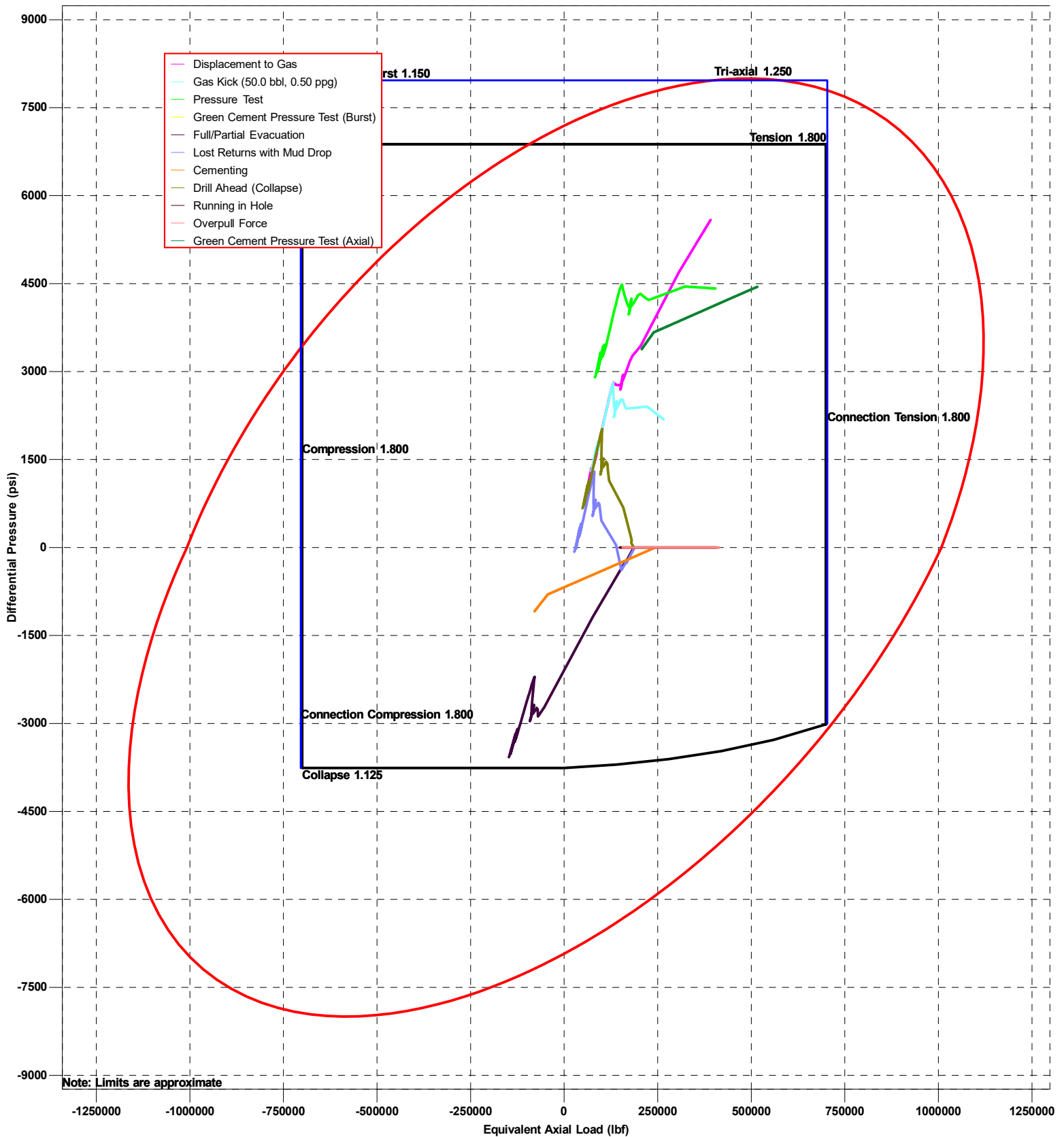
MALAGA TB & WA - New Design

StressCheck 5000.16.1.02 Build 14

File: Basis of Design Malaga WA -New Design \*

Date: December 07, 2021 Page: 1

## Design Limits (9 5/8" Intermediate Casing - Section 1)



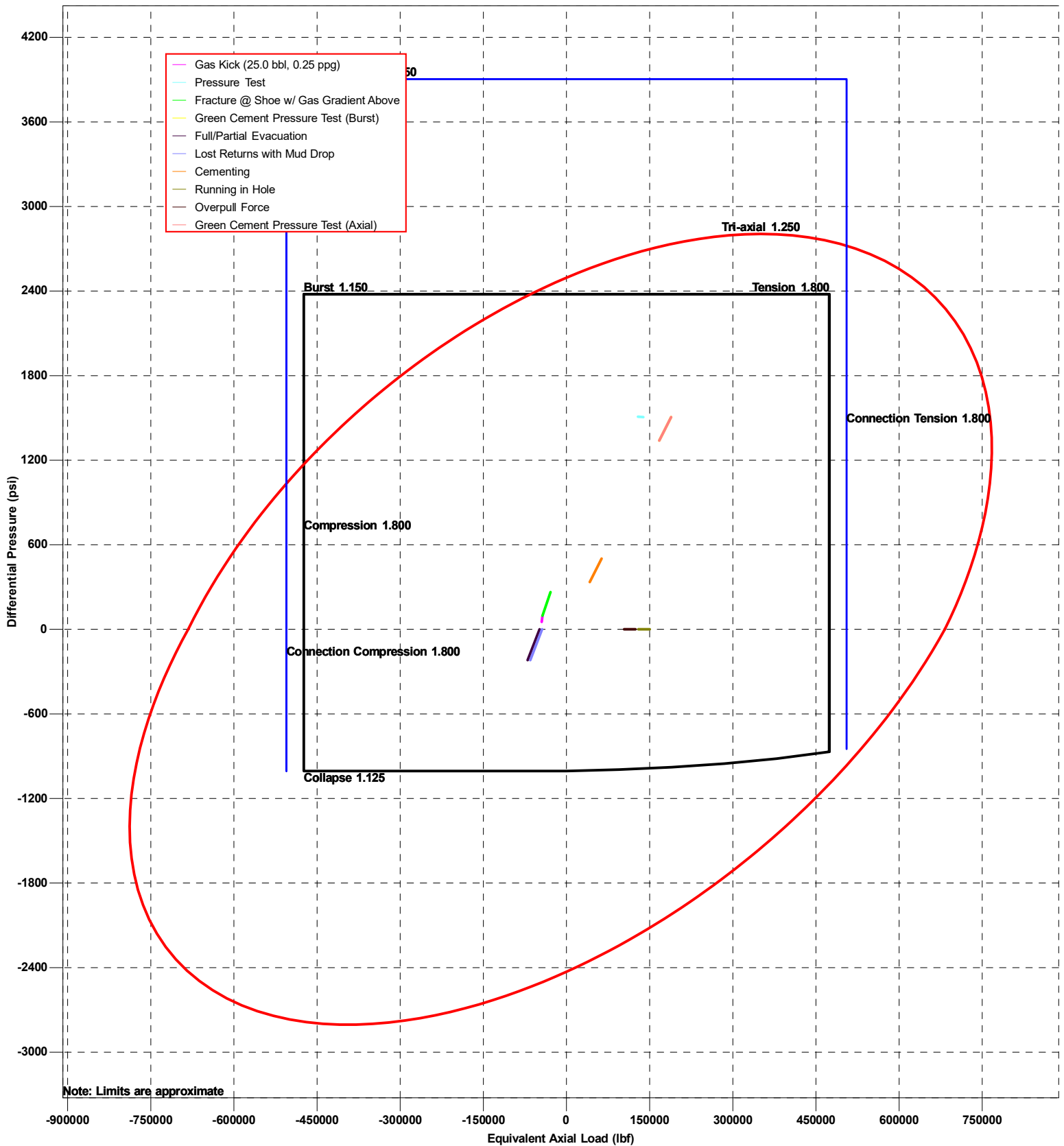
MALAGA TB &amp; WA - New Design

StressCheck 5000.16.1.02 Build 14

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Date: December 07, 2021 Page: 1

## Design Limits (13 3/8" Surface Casing - Section 1)



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**District II**  
811 S. First St., Artesia, NM 88210  
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**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS  
  
Action 255056

CONDITIONS

|                                                                                        |                                                      |
|----------------------------------------------------------------------------------------|------------------------------------------------------|
| Operator:<br>MARATHON OIL PERMIAN LLC<br>990 Town & Country Blvd.<br>Houston, TX 77024 | OGRID:<br>372098                                     |
|                                                                                        | Action Number:<br>255056                             |
|                                                                                        | Action Type:<br>[C-103] NOI Change of Plans (C-103A) |

CONDITIONS

| Created By  | Condition | Condition Date |
|-------------|-----------|----------------|
| ward.rikala | None      | 9/27/2024      |