Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMNM057273

6. If Indian, Allotee or Tribe Name:

1a. Type of work: ☑ DRILL ☐ REENTER

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

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.:

8. Lease Name and Well No.: JEFF SMITH MDP1 7-18 FEDERAL COM 31H

2. Name of Operator: OXY USA INCORPORATED

9. API Well No.: 3001547259

3a. Address: 5 Greenway Plaza, Suite 110, Houston, TX 77046

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

10. Field and Pool, or Exploratory: COTTON DRAW BONE SPRING/COTTO

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface: SESW / 730 FSL / 1690 FWL / LAT 32.2411228 / LONG -103.8201886

At proposed prod. zone: SWSW / 20 FSL / 840 FWL / LAT 32.2101228 / LONG -103.8229635

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 6/T24S/R31E/NMP

14. Distance in miles and direction from nearest town or post office*: 15 miles

12. County or Parish: EDDY

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 20 feet

16. No of acres in lease: 607.16

17. Spacing Unit dedicated to this well: 655.0

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 30 feet

19. Proposed Depth: 10768 feet / 21504 feet

20. BLM/BIA Bond No. in file: FED: ESB000226

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3451 feet

22. Approximate date work will start*: 12/07/2020

23. Estimated duration: 45 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature: (Electronic Submission)

Name *(Printed/Typed)*: LESLIE REEVES / Ph: (713) 366-5716

Date: 02/12/2020

Title: Advisor Regulatory

Approved by *(Signature)*: (Electronic Submission)

Name *(Printed/Typed)*: Cody Layton / Ph: (575) 234-5959

Date: 06/17/2020

Title: Assistant Field Manager Lands & Minerals

Office: Carlsbad Field Office

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

APPROVED WITH CONDITIONS

Approval Date: 06/17/2020

(Continued on page 2)

*(Instructions on page 2)

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-015 47259	13367	COTTON DRAW; BONE SPRING

[4] Property Code	[5] Property Name	[6] Well Number
328304	JEFF SMITH MDP1 7_18 FED COM	31H

[7] OGRID No.	[8] Operator Name	[9] Elevation
16696	OXY USA INC.	3451'

[10] Surface Location

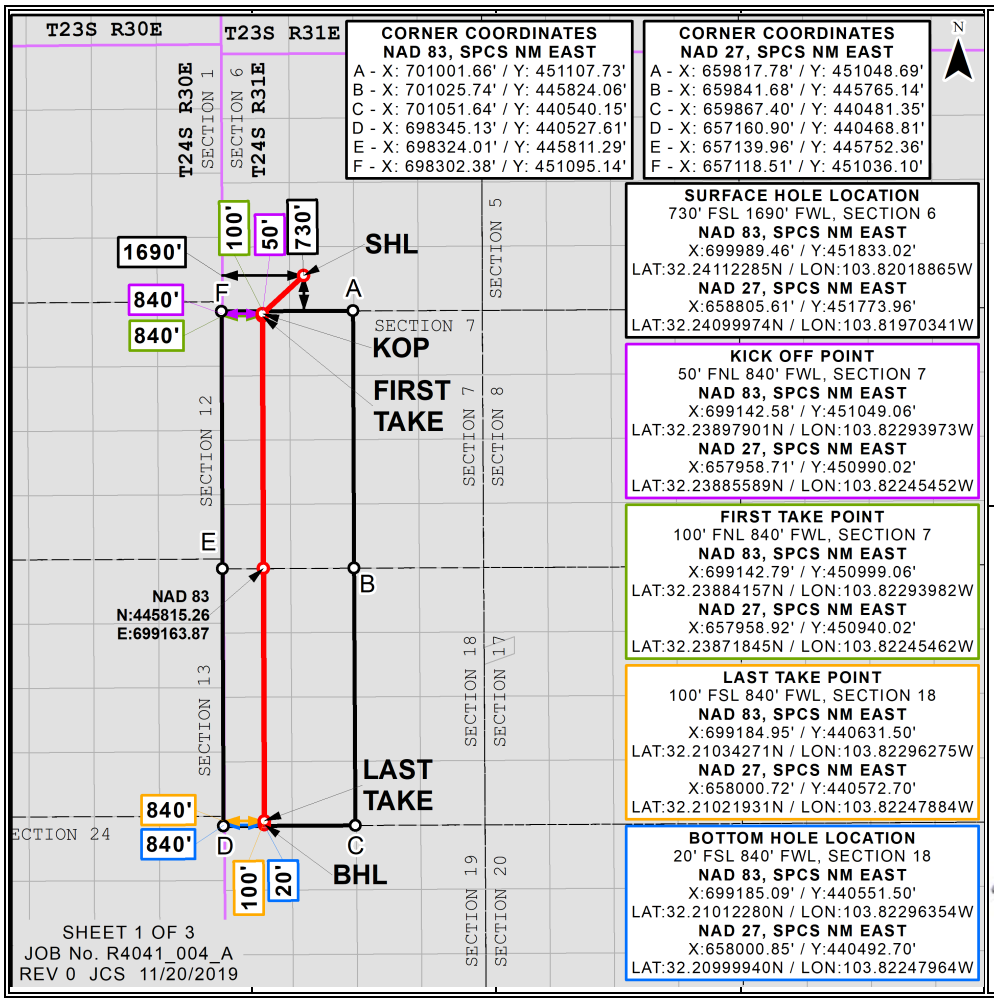
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	6	24S	31E		730	SOUTH	1690	WEST	EDDY

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L 4	18	24S	31E		20	SOUTH	840	WEST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
655.04			

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



[17] OPERATOR CERTIFICATION

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

Leslie T. Reeves 2/12/20
Signature Date

LESLIE REEVES
Printed Name

LESLIE_REEVES@OXY.COM
E-mail Address

[18] SURVEYOR CERTIFICATION

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

NOVEMBER 21, 2019
Date of Survey

Signature and Seal of Professional Surveyor:

DAVID W. MYERS NEW MEXICO 11403 PROFESSIONAL SURVEYOR

Certificate Number
DAVID W. MYERS 11403

Distances/areas relative to NAD 83 Combined Scale Factor: 0.99977704 Convergence: 00°16'56.57999"

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**OXY USA INCORPORATED**
LEASE NO.:	NMNM057273
WELL NAME & NO.:	JEFF SMITH MDP1 7-18 FEDERAL COM 31H
SURFACE HOLE FOOTAGE:	730'/S & 1690'/W
BOTTOM HOLE FOOTAGE	20'/S & 840'/W
LOCATION:	Section 6, T.24 S., R.31 E., NMP
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
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☑ Fluid Filled	☑ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☑ COM	☐ Unit

Break Testing	◉ Yes	○ No

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

Casing Design

1. The **10-3/4** inch surface casing shall be set at approximately **847** 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 **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.

Intermediate casing must be kept fluid filled to 1/3 to meet BLM minimum collapse requirement.

2. The **7-5/8** inch intermediate casing shall be set at approximately **10094** feet. 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. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**
  Excess cement calculates to -63%, additional cement might be required.

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.
Excess cement calculates to 6.5%, additional cement might be required.

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.**

Excess cement calculates to 8.7%, additional cement might be required.

- Operator will perform bradenhead squeeze. Cement to surface. If cement does not circulate see B.1.a, c-d above.

Operator has proposed to pump down 9-5/8" X 7-5/8" annulus. <u>CBL will be required on one well per pad. If the pumped volume of cement is less than permitted in the APD, BLM will be notified and a CBL may be run. Echometer will be used after bradenhead cement job to determine TOC before pumping top-out cement.</u>

- ❖ **In <u>Secretary Potash Areas</u>** 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:

<u>Option 1 (Single Stage):</u>

Cement should tie-back at least **500 feet** into previous casing string. Operator shall provide method of verification.
Excess cement calculates to 20.13%, additional cement might be required.

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.

<u>Option 1:</u>

a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **10,000 (10M)** psi.

Option 2:

1. 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 **10,000 (10M)** psi. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**

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

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

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

Offline Cementing

- Contact the BLM prior to the commencement of any offline cementing procedure.

BOPE Break Testing Variance (Note: For 5M BOPE or less)

- BOPE Break Testing is ONLY permitted for 5M BOPE or less.
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- 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 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.
- The BLM is to be contacted **(575-361-2822 Eddy County) (575-393-3612 Lea 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.

A separate sundry will be sent prior to spud that reflects the pad based break testing plan

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 2nd 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 intergrity 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 intergrity 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.

RI05152020

AFMSS

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

Operator Certification Data Report

06/25/2020

Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: Leslie Reeves **Signed on:** 02/12/2020

Title: Advisor Regulatory

Street Address: 5 Greenway Plaza, Suite 110

City: Houston **State:** TX **Zip:** 77046

Phone: (713)497-2492

Email address: Leslie_Reeves@oxy.com

Field Representative

Representative Name: Michael Wilson

Street Address:

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

Phone: (575)631-6618

Email address: Michael_Wilson@oxy.com

APD ID: 10400054164 **Submission Date:** 02/12/2020

Operator Name: OXY USA INCORPORATED

Well Name: JEFF SMITH MDP1 7-18 FEDERAL COM **Well Number:** 31H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400054164 **Tie to previous NOS?** N **Submission Date:** 02/12/2020

BLM Office: CARLSBAD **User:** Leslie Reeves **Title:** Advisor Regulatory

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMNM057273 **Lease Acres:** 607.16

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? Y

Permitting Agent? NO **APD Operator:** OXY USA INCORPORATED

Operator letter of designation:

Operator Info

Operator Organization Name: OXY USA INCORPORATED

Operator Address: 5 Greenway Plaza, Suite 110

Zip: 77046

Operator PO Box:

Operator City: Houston **State:** TX

Operator Phone: (713)366-5716

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? EXISTING **Master Development Plan name:** Sand Dunes Area

Well in Master SUPO? **Master SUPO name:**

Well in Master Drilling Plan? **Master Drilling Plan name:**

Well Name: JEFF SMITH MDP1 7-18 FEDERAL COM **Well Number:** 31H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** COTTON DRAW BONE SPRING **Pool Name:** COTTON DRAW BONE SPRING

Is the proposed well in an area containing other mineral resources? USEABLE WATER,NATURAL GAS,OIL,POTASH

Operator Name: OXY USA INCORPORATED

Well Name: JEFF SMITH MDP1 7-18 FEDERAL COM **Well Number:** 31H

Is the proposed well in an area containing other mineral resources? USEABLE WATER,NATURAL GAS,OIL,POTASH

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** N **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** JEFF SMITH MDP1 7-18 FEDERAL COM & NUGGET 6-31 FEDERAL COM **Number:** 1H, 31H, 32H, 43H, 44H & 1H, 43H, 44H

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 15 Miles **Distance to nearest well:** 30 FT **Distance to lease line:** 20 FT

Reservoir well spacing assigned acres Measurement: 655 Acres

Well plat: JeffSmithMDP17_18FedCom31H_C102_20200212094733.pdf

JeffSmithMDP17_18FedCom31H_SitePlan_20200212094740.pdf

Well work start Date: 12/07/2020 **Duration:** 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: **Reference Datum:** GROUND LEVEL

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
SHL Leg #1	730	FSL	1690	FWL	24S	31E	6	Aliquot SESW	32.2411228	-103.8201886	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 082904	3451	0	0	N
KOP Leg #1	50	FNL	840	FWL	24S	31E	7	Aliquot NWNW	32.238979	-103.8229397	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 057273	-6673	10194	10124	N

Operator Name: OXY USA INCORPORATED

Well Name: JEFF SMITH MDP1 7-18 FEDERAL COM **Well Number:** 31H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
PPP Leg #1-1	100	FNL	840	FWL	24S	31E	7	Aliquot SWSW	32.2388415	-103.8229398	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 057273	-7207	11055	10658	Y
PPP Leg #1-2	1	FSL	839	FWL	24S	31E	18	Aliquot NWNW	32.224589	-103.822952	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 089819	-7261	16240	10712	Y
EXIT Leg #1	100	FSL	840	FWL	24S	31E	18	Aliquot SWSW	32.2103427	-103.8229627	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 089819	-7316	21424	10767	Y
BHL Leg #1	20	FSL	840	FWL	24S	31E	18	Aliquot SWSW	32.2101228	-103.8229635	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 089819	-7317	21504	10768	N

APD ID: 10400054164 **Submission Date:** 02/12/2020

Operator Name: OXY USA INCORPORATED

Well Name: JEFF SMITH MDP1 7-18 FEDERAL COM **Well Number:** 31H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
658208	RUSTLER	3451	530	530	ANHYDRITE, DOLOMITE, SHALE	USEABLE WATER	N
658209	SALADO	2544	907	907	ANHYDRITE, DOLOMITE, HALITE, SHALE	OTHER : SALT	N
658206	CASTILE	695	2756	2756	ANHYDRITE	OTHER : salt	N
658210	DELAWARE	-721	4172	4172	LIMESTONE, SANDSTONE, SILTSTONE	NATURAL GAS, OIL, OTHER : BRINE	N
658211	BELL CANYON	-751	4202	4202	SANDSTONE, SILTSTONE	NATURAL GAS, OIL, OTHER, USEABLE WATER : BRINE	N
658212	CHERRY CANYON	-1641	5092	5092	SANDSTONE, SILTSTONE	NATURAL GAS, OIL, OTHER : BRINE	N
658213	BRUSHY CANYON	-2902	6353	6364	LIMESTONE, SANDSTONE, SILTSTONE	NATURAL GAS, OIL, OTHER : BRINE	N
658207	BONE SPRING	-4584	8035	8072	LIMESTONE, SANDSTONE, SILTSTONE	NATURAL GAS, OIL	N
658217	BONE SPRING 1ST	-5597	9048	9101	LIMESTONE, SANDSTONE, SILTSTONE	NATURAL GAS, OIL	N
658218	BONE SPRING 2ND	-6323	9774	9838	LIMESTONE, SILTSTONE	NATURAL GAS, OIL	N

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 10767

Equipment: 13-5/8" 5M ANNULAR, 5M UPPER PIPE RAM, 5M BLIND RAM, 5M LOWER PIPE RAM

Requesting Variance? YES

Variance request: Request for the use of a flexible choke line from the BOP to Choke Manifold.

Testing Procedure: 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 and floor safety valve (inside BOP) and choke lines and choke manifold. A multibowl wellhead 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 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 will be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. 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. A separate sundry will be sent prior to spud that reflects the pad based break testing plan. BOP break test under the following conditions: After a full BOP test is conducted When skidding to drill an intermediate section where ICP is set into the third Bone Spring or shallower. When skidding to drill a production section that does not penetrate into the third Bone Spring or deeper. If the kill line is broken prior to skid, two tests will be performed. 1. Wellhead flange, co-flex hose, kill line connections and upper pipe rams 2. Wellhead flange, HCR valve, check valve, upper pipe rams If the kill line is not broken prior to skid, only one test will be performed. 1. Wellhead flange, co-flex hose, check valve, upper pipe rams

Choke Diagram Attachment:

JeffSmithMDP17_18FedCom31H_ChokeManifold_20200212100043.pdf

BOP Diagram Attachment:

JeffSmithMDP17_18FedCom31H_BOP_20200212100050.PDF

JeffSmithMDP17_18FedCom31H_FlexHoseCert_20200212100055.pdf

JeffSmithMDP17_18FedCom31H_WellControlPlan_20200212100103.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	14.75	10.75	NEW	API	N	0	847	0	847	3451	2604	847	J-55	40.5	BUTT	1.125	1.2	BUOY	1.4	BUOY	1.4
2	INTERMEDIATE	9.875	7.625	NEW	API	N	0	10094	0	10026	3471	-6575	10094	HCL-80	26.4	BUTT	1.125	1.2	BUOY	1.4	BUOY	1.4
3	PRODUCTION	6.75	5.5	NEW	API	N	0	21504	0	10768		-7317	21504	P-110	20	OTHER - DQX	1.125	1.2	BUOY	1.4	BUOY	1.4

Casing Attachments

Operator Name: OXY USA INCORPORATED

Well Name: JEFF SMITH MDP1 7-18 FEDERAL COM **Well Number:** 31H

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

JeffSmithMDP17_18FedCom31H_CsgCriteria_20200212100152.pdf

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

JeffSmithMDP17_18FedCom31H_CsgCriteria_20200212100317.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

JeffSmithMDP17_18FedCom31H_ChokeManifold_20200212100342.pdf

JeffSmithMDP17_18FedCom31H_5.500in_x_20_20200212100346.00

JeffSmithMDP17_18FedCom31H_5.500in_x_20_20200212100351.00

Operator Name: OXY USA INCORPORATED

Well Name: JEFF SMITH MDP1 7-18 FEDERAL COM **Well Number:** 31H

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	847	695	1.33	14.8	924	100	CLASS C	ACCELERATOR
INTERMEDIATE	Lead	2	6603	10094	484	1.65	13.2	799	5	CLASS H CEMENT	RETARDER, DISPERSANT, SALT
INTERMEDIATE	Lead	2	9594	21504	812	1.92	12.9	1559	20	Class C	Accelerator
PRODUCTION	Lead		9594	21504	873	1.38	13.2	1205	20	CLASS H CEMENT	RETARDER, DISPERSANT, SALT

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements. 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.

Describe the mud monitoring system utilized: PVT/MD Totco/Visual Monitoring

Circulating Medium Table

Operator Name: OXY USA INCORPORATED

Well Name: JEFF SMITH MDP1 7-18 FEDERAL COM **Well Number:** 31H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
10094	21504	OTHER : Water-Based and/or Oil-Based Mud	9.5	12							
0	847	WATER-BASED MUD	8.6	8.8							
847	10094	OTHER : Saturated Brine Based Mud or Oil-Based Mud	8	10							

Section 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). Mud Log from intermediate shoe to TD.

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

GAMMA RAY LOG,MUD LOG/GEOLOGIC LITHOLOGY LOG,MUD LOG/GEOLOGICAL LITHOLOGY LOG,

Coring operation description for the well:

No coring is planned at this time.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 6719 **Anticipated Surface Pressure:** 4350

Anticipated Bottom Hole Temperature(F): 167

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

JeffSmithMDP17_18FedCom31H_H2S1_20200212100728.pdf
JeffSmithMDP17_18FedCom31H_H2S2_20200212100733.pdf
JeffSmithMDP17_18FedCom31H_H2SEmerCont_20200212100738.pdf

Operator Name: OXY USA INCORPORATED

Well Name: JEFF SMITH MDP1 7-18 FEDERAL COM **Well Number:** 31H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

JeffSmithMDP17_18FedCom31H_DirectPlan_20200212100755.pdf

JeffSmithMDP17_18FedCom31H_DirectPlot_20200212100801.pdf

Other proposed operations facets description:

OXY requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower and a DV tool will be run in case a contingency second stage is required for cement to reach surface. If cement circulated to surface during first stage we will drop a cancelation cone and not pump the second stage.

OXY requests the option to run production casing with DQX and/or SF TORQ connections to accommodate hole conditions or drilling operations.

OXY requests to pump a two stage cement job on the intermediate II casing string with the first stage being pumped conventionally with the calculated TOC @ the Bone Spring and the second stage performed as a bradenhead squeeze with planned cement from the Bone Spring to surface.

Annular Clearance Variance Request - As per the agreement reached in the OXY/BLM meeting on Feb 22, 2018, Oxy requests permission to allow deviation from the 0.422 annular clearance requirement from Onshore Order #2 under the following conditions:
1. Annular clearance to meet or exceed 0.422 between intermediate casing ID and production casing coupling only on the first 500 overlap between both casings.
2. Annular clearance less than 0.422 is acceptable for the curve and lateral portions of the production open hole section.

Well will be drilled with a walking/skidding operation. Plan to drill the multiple 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.

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.

OXY respectfully requests a variance to cement the 9-5/8 and/or 7-5/8 intermediate casing strings offline. The summarized operational sequence will be as follows:
1. Run casing as per normal operations. While running casing, conduct negative pressure test and confirm integrity of the float equipment (float collar and shoe).
2. Land casing.
3. Fill pipe with kill weight fluid, and confirm well is static.
a. If well is not static notify BLM and kill well.
b. Once well is static notify BLM with intent to proceed with nipple down and offline cementing.
4. Set and pressure test annular packoff.
5. After confirmation of both annular barriers and internal barriers, nipple down BOP and install cap flange. If any barrier fails to test, the BOP stack will not be nippled down until after the cement job is completed.
6. Skid rig to next well on pad.
7. Confirm well is static before removing cap flange.
8. If well is not static notify BLM and kill well prior to cementing or nippling up for further remediation.
9. Install offline cement tool.
10. Rig up cement equipment.
a. Notify BLM prior to cement job.

11. Perform cement job.
12. Confirm well is static and floats are holding after cement job.
13. Remove cement equipment, offline cement tools and install night cap with pressure gauge for monitoring.

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.
Three string wells:
CBL will be required on one well per pad
If the pumped volume of cement is less than permitted in the APD, BLM will be notified and a CBL may be run
Echometer will be used after bradenhead cement job to determine TOC before pumping top-out cement

Other proposed operations facets attachment:

JeffSmithMDP17_18FedCom31H_DrillPlan_20200212100838.pdf

JeffSmithMDP17_18FedCom31H_SpudRigData_20200212100843.pdf

Other Variance attachment:

OXY USA Inc - Well Control Plan -

A. Component and Preventer Compatibility Table

The table below, which covers the drilling and casing of the >5M MASP portion of the well, outlines the tubulars and the compatible preventers in use. This table, combined with the mud program, documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

Pilot Hole and/or Lateral Sections, 10M requirement

Component	OD	Preventer	RWP
Drillpipe	4-1/2"-5"	Lower 3-1/2 - 5-1/2" VBR Upper 3-1/2 - 5-1/2" VBR	10M
HWDP	4-1/2"-5"	Lower 3-1/2 - 5-1/2" VBR Upper 3-1/2 - 5-1/2" VBR	10M
Drill collars and MWD tools	4-3/4" – 5-1/2"	Lower 3-1/2 - 5-1/2" VBR Upper 3-1/2 - 5-1/2" VBR	10M
Mud Motor	4-3/4"	Lower 3-1/2 - 5-1/2" VBR Upper 3-1/2 - 5-1/2" VBR	10M
Production casing	5-1/2"	Lower 3-1/2 - 5-1/2" VBR Upper 3-1/2 - 5-1/2" VBR	10M
ALL	0" - 13-5/8"	Annular	5M
Open-hole	6-3/4"	Blind Rams	10M

VBR = Variable Bore Ram. Compatible range listed in chart.
HWDP = Heavy Weight Drill Pipe
MWD = Measurement While Drilling

B. Well Control Procedures

Well control procedures are specific to the rig equipment and the operation at the time the kick occurs. Below are the minimal high-level tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the Bottom Hole Assembly (BHA) through the Blowout Preventers (BOP). The pressure at which control is swapped from the annular to another compatible ram will occur when the anticipated pressure is approaching or envisioned to exceed 70% of the 5M annular Rated Working Pressure (RWP) or 3500 PSI.

<u>General Procedure While Drilling</u>

1. Sound alarm (alert crew)
2. Space out drill string
3. Shut down pumps (stop pumps and rotary)
4. Shut-in Well (uppermost applicable BOP, typically annular preventer first. The Hydraulic Control Remote (HCR) valve and choke will already be in the closed position).
5. Confirm shut-in
6. Notify tool pusher/company representative
7. Read and record the following:
    a. SIDPP and SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or expected to reach 70% of the annular RWP during kill operations, crew will reconfirm spacing and swap to the upper pipe ram

General Procedure While Tripping

1. Sound alarm (alert crew)
2. Stab full opening safety valve and close
3. Space out drill string
4. Shut-in (uppermost applicable BOP, typically annular preventer first. The HCR and choke will already be in the closed position)
5. Confirm shut-in
6. Notify tool pusher/company representative
7. Read and record the following
    a. SIDPP and SICP
    b. Pit gain
    c. Time
    d. Regroup and identify forward plan
    e. If pressure has built or is anticipated during the kill to reach the RWP of the annular preventer, confirm spacing and swap to the upper pipe ram

General Procedure While Running Casing

1. Sound alarm (alert crew)
2. Stab crossover and full opening safety valve and close
3. Space out string
4. Shut-in (uppermost applicable BOP, typically annular preventer first. The HCR and choke will already be in the closed position).
5. Confirm shut-in
6. Notify tool pusher/company representative
7. Read and record the following:
    a. SIDPP and SICP
    b. Pit gain
    c. Time
    d. Regroup and identify forward plan.
    e. If pressure has built or is anticipated during the kill to reach the RWP of the annular preventer, confirm spacing and swap to compatible pipe ram.

General Procedure With No Pipe In Hole (Open Hole)

1. Sound alarm (alert crew)
2. Shut-in with blind rams or BSR. (The HCR and choke will already be in the closed position)
3. Confirm shut-in
4. Notify tool pusher/company representative
5. Read and record the following:
    a. SICP
    b. Pit gain
    c. Time
6. Regroup and identify forward plan

General Procedures While Pulling BHA thru Stack

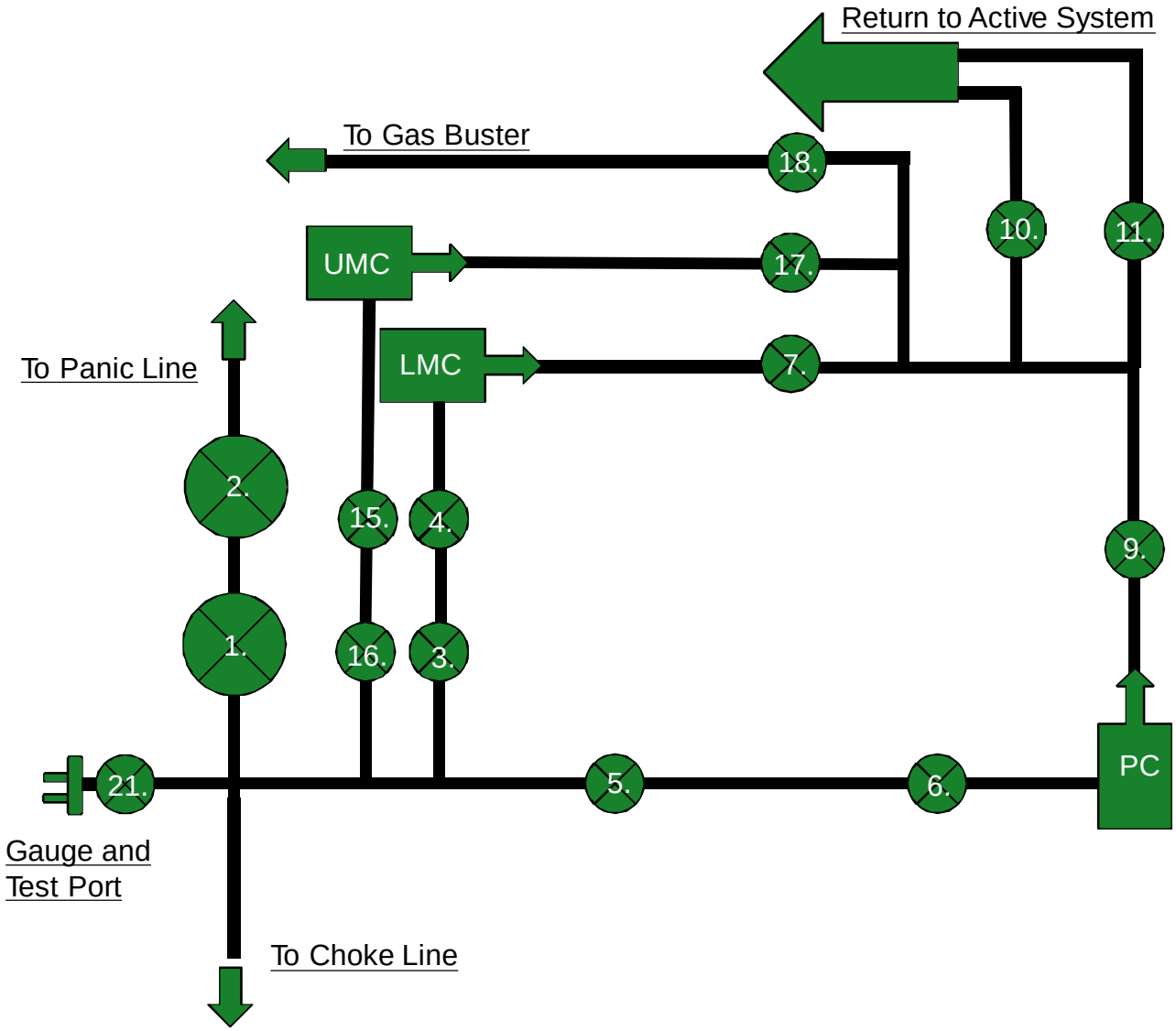
1. PRIOR to pulling last joint of drill pipe thru the stack.
    a. Perform flow check, if flowing:
    b. Sound alarm (alert crew)
    c. Stab full opening safety valve and close
    d. Space out drill string with tool joint just beneath the upper pipe ram
    e. Shut-in using upper pipe ram. (The HCR and choke will already be in the closed position)
    f. Confirm shut-in
    g. Notify tool pusher/company representative
    h. Read and record the following:
        i. SIDPP and SICP
        ii. Pit gain
        iii. Time
        iv. Regroup and identify forward plan

2. With BHA in the stack and compatible ram preventer and pipe combo immediately available.
    a. Sound alarm (alert crew)
    b. Stab crossover and full opening safety valve and close
    c. Space out drill string with upset just beneath the compatible pipe ram
    d. Shut-in using compatible pipe ram. (The HCR and choke will already be in the closed position.)
    e. Confirm shut-in
    f. Notify tool pusher/company representative
    g. Read and record the following:
        i. SIDPP and SICP
        ii. Pit gain
        iii. Time
        iv. Regroup and identify forward plan

3. With BHA in the stack and NO compatible ram preventer and pipe combo immediately available.
    a. Sound alarm (alert crew)
    b. If possible to pick up high enough, pull string clear of the stack and follow “Open Hole” scenario
    c. If impossible to pick up high enough to pull the string clear of the stack
    d. Stab crossover, make up one joint/stand of drill pipe, and full opening safety valve and close
    e. Space out drill string with tool joint just beneath the upper pipe ram
    f. Shut-in using upper pipe ram. (The HCR and choke will already be in the closed position)
    g. Confirm shut-in
    h. Notify tool pusher/company representative
    i. Read and record the following:
        i. SIDPP and SICP
        ii. Pit gain
        iii. Time

j. Regroup and identify forward plan

10M Choke Panel



1. Choke Manifold Valve
2. Choke Manifold Valve
3. Choke Manifold Valve
4. Choke Manifold Valve
5. Choke Manifold Valve
6. Choke Manifold Valve
7. Choke Manifold Valve
8. PC – Power Choke
9. Choke Manifold Valve
10. Choke Manifold Valve
11. Choke Manifold Valve
12. LMC – Lower Manual Choke
13. UMC – Upper manual choke

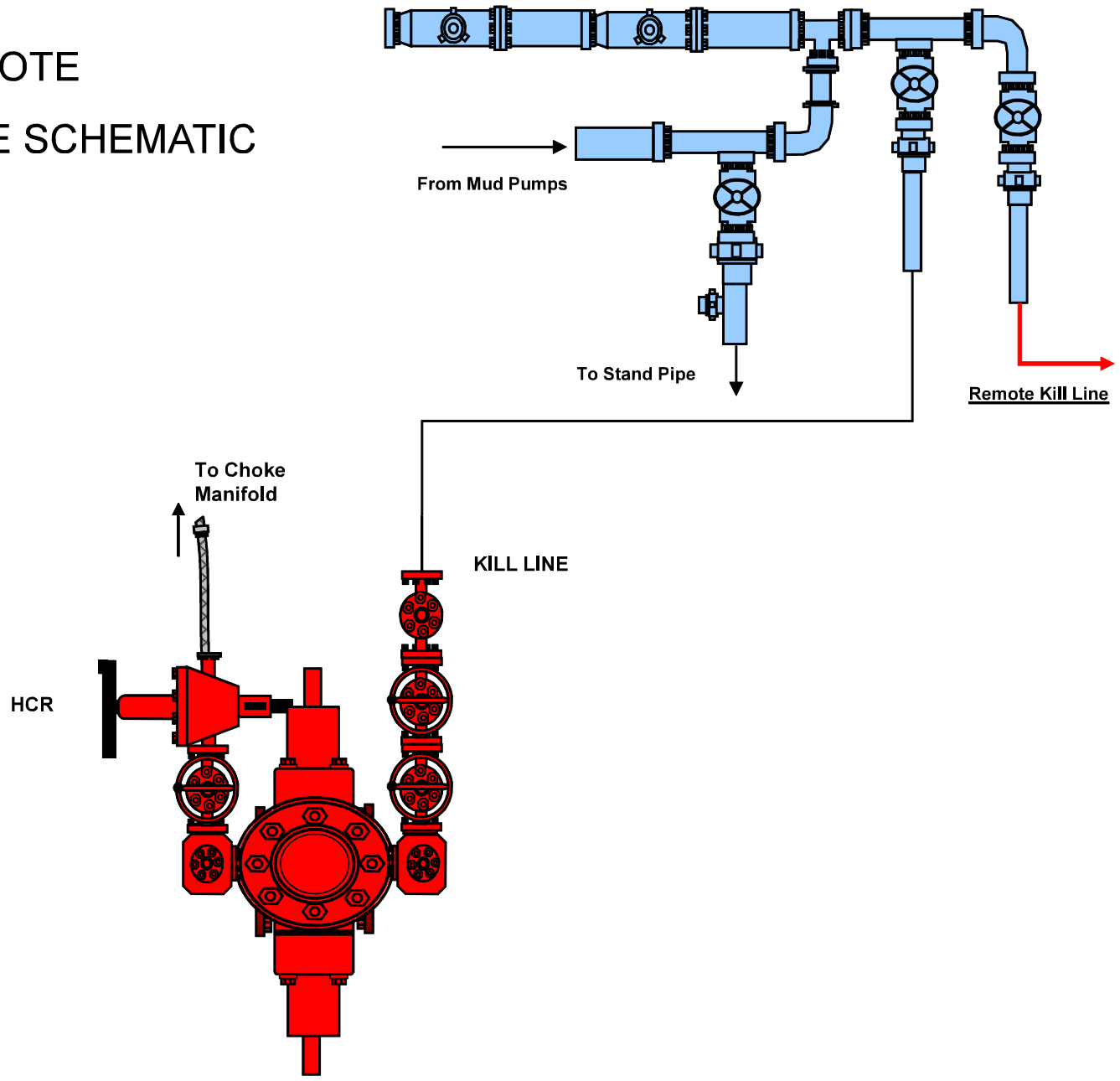
15. Choke Manifold Valve
16. Choke Manifold Valve
17. Choke Manifold Valve
18. Choke Manifold Valve

21. Vertical Choke Manifold Valve

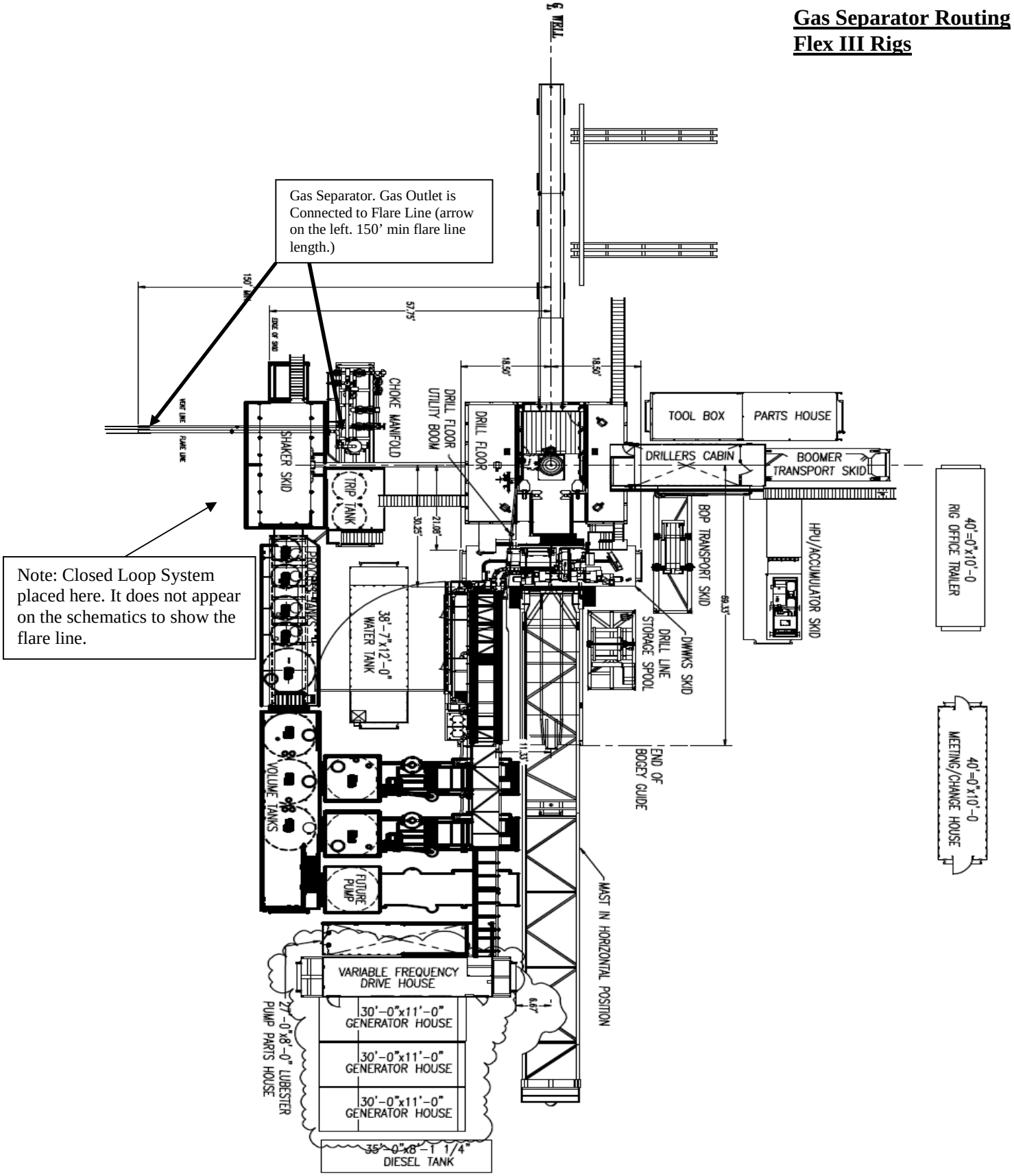
***All Valves 3" minimum**

10M REMOTE

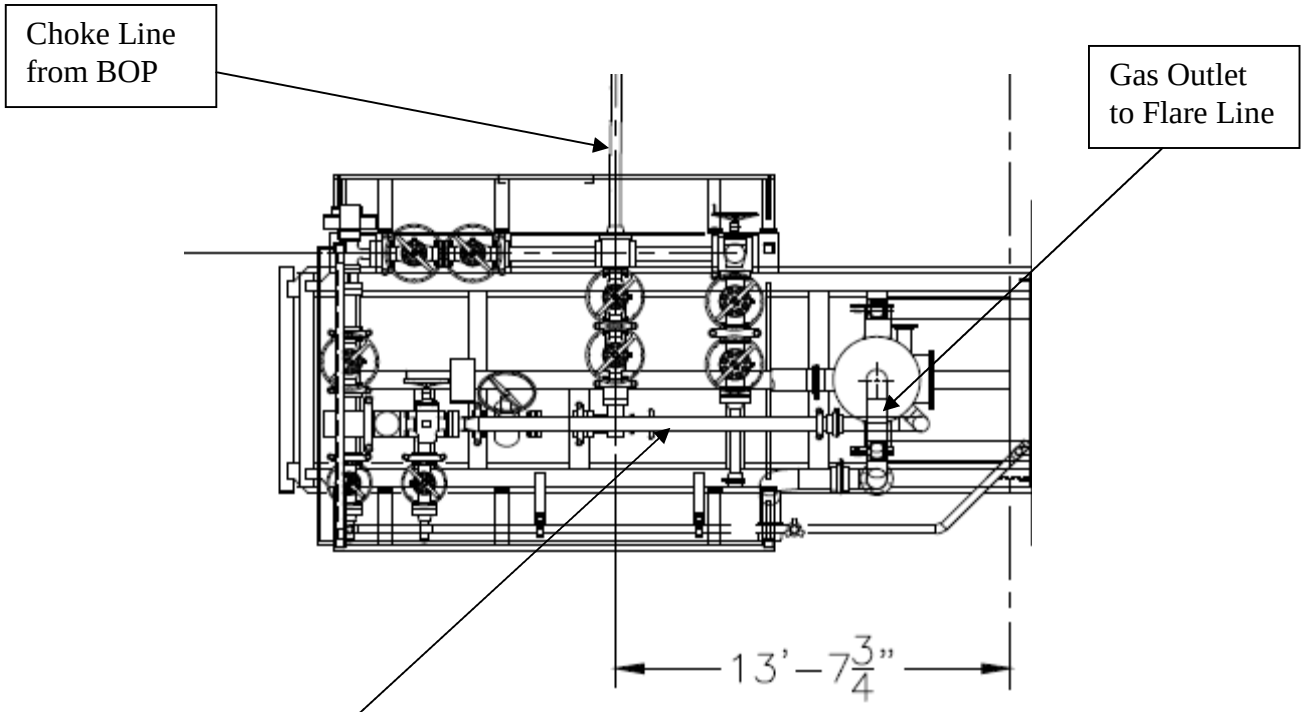
KILL LINE SCHEMATIC



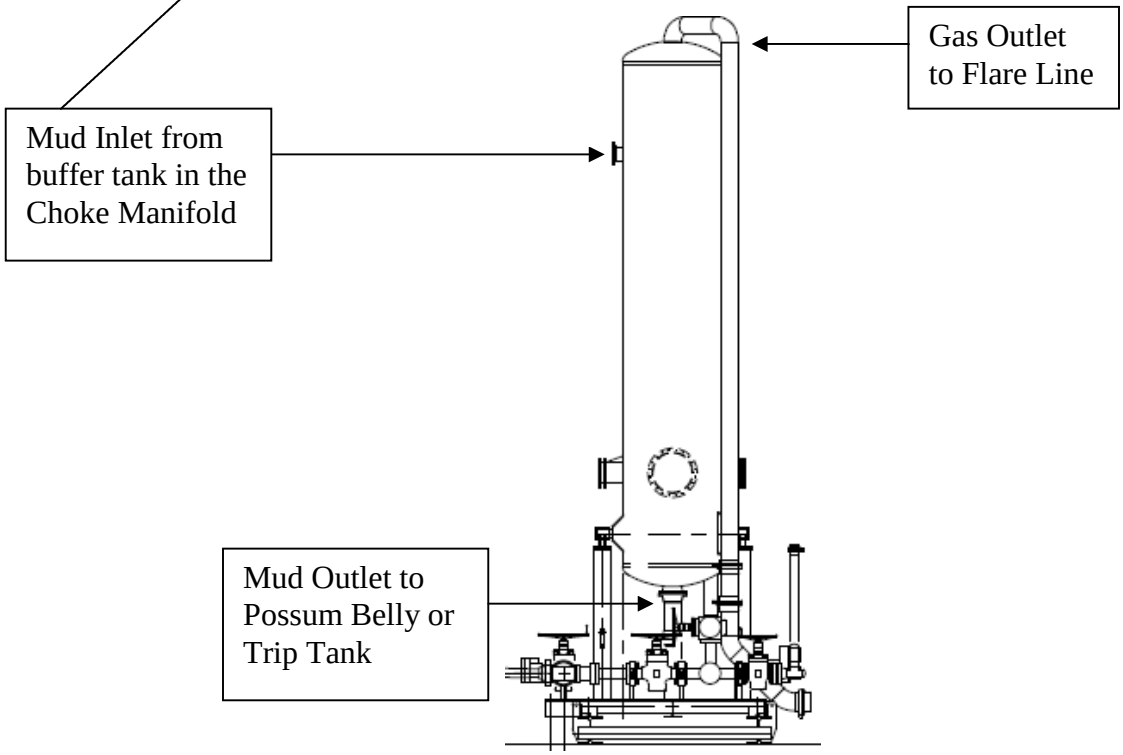
Gas Separator Routing
Flex III Rigs



Choke Manifold – Gas Separator (Top View)



Choke Manifold – Gas Separator (Side View)



Permian Drilling
Hydrogen Sulfide Drilling Operations Plan
JEFF SMITH MDP1 7_18 FED COM 31H

Open drill site. No homes or buildings are near the proposed location.

1. Escape

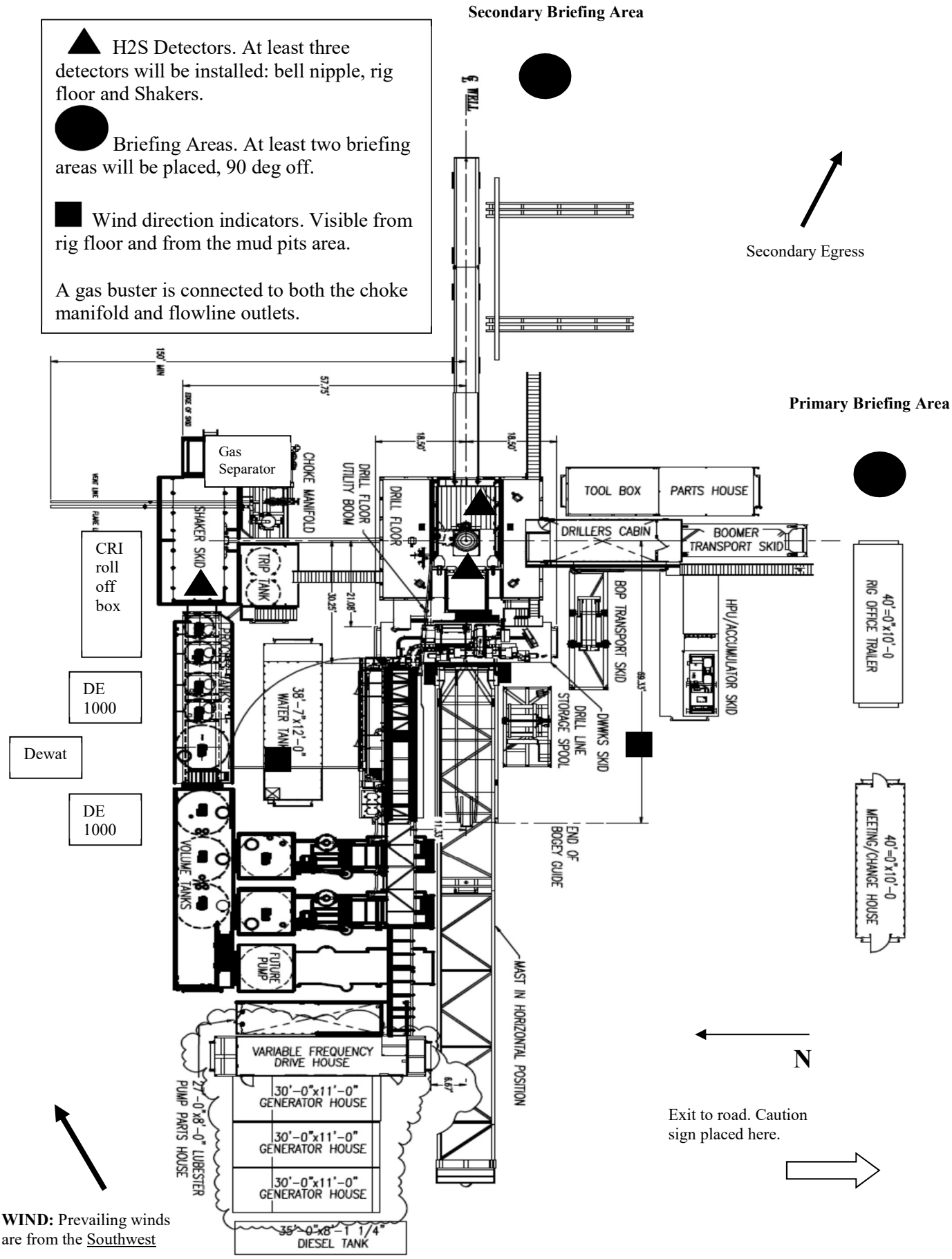
   Personnel shall escape upwind of wellbore in the event of an emergency gas release. Escape can take place through the lease road on the Southeast side of the location. Personnel need to move to a safe distance and block the entrance to location. If the primary route is not an option due to the wind direction, then a secondary egress route should be taken.

▲ H2S Detectors. At least three detectors will be installed: bell nipple, rig floor and Shakers.

● Briefing Areas. At least two briefing areas will be placed, 90 deg off.

■ Wind direction indicators. Visible from rig floor and from the mud pits area.

A gas buster is connected to both the choke manifold and flowline outlets.



WIND: Prevailing winds are from the Southwest

Permian Drilling
Hydrogen Sulfide Drilling Operations Plan
New Mexico

Scope

This contingency plan establishes guidelines for the public, all company employees, and contract employees who's work activities may involve exposure to hydrogen sulfide (H2S) gas.
While drilling this well, it is possible to encounter H2S bearing formations. At all times, the first barrier to control H2S emissions will be the drilling fluid, which will have a density high enough to control influx.

Objective

1. Provide an immediate and predetermined response plan to any condition when H2S is detected. All H2S detections in excess of 10 parts per million (ppm) concentration are considered an Emergency.

2. Prevent any and all accidents, and prevent the uncontrolled release of hydrogen sulfide into the atmosphere.

3. Provide proper evacuation procedures to cope with emergencies.

4. Provide immediate and adequate medical attention should an injury occur.

Discussion

Implementation:	This plan with all details is to be fully implemented before drilling to commence.
Emergency response Procedure:	This section outlines the conditions and denotes steps to be taken in the event of an emergency.
Emergency equipment Procedure:	This section outlines the safety and emergency equipment that will be required for the drilling of this well.
Training provisions:	This section outlines the training provisions that must be adhered to prior to drilling.
Drilling emergency call lists:	Included are the telephone numbers of all persons to be contacted should an emergency exist.
Briefing:	This section deals with the briefing of all people involved in the drilling operation.
Public safety:	Public safety personnel will be made aware of any potential evacuation and any additional support needed.
Check lists:	Status check lists and procedural check lists have been included to insure adherence to the plan.
General information:	A general information section has been included to supply support information.

Hydrogen Sulfide Training

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on the well:

1. The hazards and characteristics of H2S.
2. Proper use and maintenance of personal protective equipment and life support systems.
3. H2S detection.
4. Proper use of H2S detectors, alarms, warning systems, briefing areas, evacuation procedures and prevailing winds.
5. Proper techniques for first aid and rescue procedures.
6. Physical effects of hydrogen sulfide on the human body.
7. Toxicity of hydrogen sulfide and sulfur dioxide.
8. Use of SCBA and supplied air equipment.
9. First aid and artificial respiration.
10. Emergency rescue.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H2S on metal components. If high tensile strength tubular is to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling a well, blowout prevention and well control procedures.
3. The contents and requirements of the H2S Drilling Operations Plan.

H2S training refresher must have been taken within one year prior to drilling the well. Specifics on the well to be drilled will be discussed during the pre-spud meeting. H2S and well control (choke) drills will be performed while drilling the well, at least on a weekly basis. This plan shall be available in the well site. All personnel will be required to carry the documentation proving that the H2S training has been taken.

Service company and visiting personnel

A. Each service company that will be on this well will be notified if the zone contains H2S.

B. Each service company must provide for the training and equipment of their employees before they arrive at the well site.

C. Each service company will be expected to attend a well site briefing

Emergency Equipment Requirements

1. Well control equipment

The well shall have hydraulic BOP equipment for the anticipated pressures. Equipment is to be tested on installation and follow Oxy Well Control standard, as well as BLM Onshore Order #2.

Special control equipment:

A. Hydraulic BOP equipment with remote control on ground. Remotely operated choke.
B. Rotating head
C. Gas buster equipment shall be installed before drilling out of surface pipe.

2. Protective equipment for personnel

A. Four (4) 30-minute positive pressure air packs (2 at each briefing area) on location.

B. Adequate fire extinguishers shall be located at strategic locations.

C. Radio / cell telephone communication will be available at the rig.

- Rig floor and trailers.
- Vehicle.

3. Hydrogen sulfide sensors and alarms

A. H2S sensor with alarms will be located on the rig floor, at the bell nipple, and at the flow line. These monitors will be set to alarm at 10 ppm with strobe light, and audible alarm.
B. Hand operated detectors with tubes.
C. H2S monitor tester (to be provided by contract Safety Company.)
D. There shall be one combustible gas detector on location at all times.

4. Visual Warning Systems

A. One sign located at each location entrance with the following language:

Caution – potential poison gas
Hydrogen sulfide
No admittance without authorization

Wind sock – wind streamers:

A. One 36” (in length) wind sock located at protection center, at height visible from rig floor.
B. One 36” (in length) wind sock located at height visible from pit areas.

Condition flags

A. One each condition flag to be displayed to denote conditions.

green – normal conditions
yellow – potential danger
red – danger, H2S present

B. Condition flag shall be posted at each location sign entrance.

5. Mud Program

The mud program is designed to minimize the risk of having H2S and other formation fluids at surface. Proper mud weight and safe drilling practices will be applied. H2S scavengers will be used to minimize the hazards while drilling. Below is a summary of the drilling program.

Mud inspection devices:

Garrett gas train or hatch tester for inspection of sulfide concentration in mud system.

6. Metallurgy

A. Drill string, casing, tubing, wellhead, blowout preventers, drilling spools or adapters, kill lines, choke manifold, lines and valves shall be suitable for the H2S service.
B. All the elastomers, packing, seals and ring gaskets shall be suitable for H2S service.

7. Well Testing

No drill stem test will be performed on this well.

8. Evacuation plan

Evacuation routes should be established prior to well spud for each well and discussed with all rig personnel.

9. Designated area

A. Parking and visitor area: all vehicles are to be parked at a predetermined safe distance from the wellhead.
B. There will be a designated smoking area.
C. Two briefing areas on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds perpendicularly, or at a 45-degree angle if wind direction tends to shift in the area.

Emergency procedures

A. In the event of any evidence of H2S level above 10 ppm, take the following steps:

1. The Driller will pick up off bottom, shut down the pumps, slow down the pipe rotation.

2. Secure and don escape breathing equipment, report to the upwind designated safe briefing / muster area.

3. All personnel on location will be accounted for and emergency search should begin for any missing, the Buddy System will be implemented.

4. Order non-essential personnel to leave the well site, order all essential personnel out of the danger zone and upwind to the nearest designated safe briefing / muster area.

5. Entrance to the location will be secured to a higher level than our usual "Meet and Greet" requirement, and the proper condition flag will be displayed at the entrance to the location.

6. Take steps to determine if the H2S level can be corrected or suppressed and, if so, proceed as required.

B. If uncontrollable conditions occur:

1. Take steps to protect and/or remove any public in the down-wind area from the rig – partial evacuation and isolation. Notify necessary public safety personnel and appropriate regulatory entities (i.e. BLM) of the situation.

2. Remove all personnel to the nearest upwind designated safe briefing / muster area or off location.

3. Notify public safety personnel of safe briefing / muster area.

4. An assigned crew member will blockade the entrance to the location. No unauthorized personnel will be allowed entry to the location.

5. Proceed with best plan (at the time) to regain control of the well. Maintain tight security and safety procedures.

C. Responsibility:

1. Designated personnel.

a. Shall be responsible for the total implementation of this plan.
b. Shall be in complete command during any emergency.
c. Shall designate a back-up.

All personnel:	1.	On alarm, don escape unit and report to the nearest upwind designated safe briefing / muster area upw
	2.	Check status of personnel (buddy system).
	3.	Secure breathing equipment.
	4.	Await orders from supervisor.
Drill site manager:	1.	Don escape unit if necessary and report to nearest upwind designated safe briefing / muster area.
	2.	Coordinate preparations of individuals to return to point of release with tool pusher and driller (using the buddy system).
	3.	Determine H2S concentrations.
	4.	Assess situation and take control measures.
Tool pusher:	1.	Don escape unit Report to up nearest upwind designated safe briefing / muster area.
	2.	Coordinate preparation of individuals to return to point of release with tool pusher drill site manager (using the buddy system).
	3.	Determine H2S concentration.
	4.	Assess situation and take control measures.
Driller:	1.	Don escape unit, shut down pumps, continue

		rotating DP.
	2.	Check monitor for point of release.
	3.	Report to nearest upwind designated safe briefing / muster area.
	4.	Check status of personnel (in an attempt to rescue, use the buddy system).
	5.	Assigns least essential person to notify Drill Site Manager and tool pusher by quickest means in case of their absence.
	6.	Assumes the responsibilities of the Drill Site Manager and tool pusher until they arrive should they be absent.
Derrick man Floor man #1 Floor man #2	1.	Will remain in briefing / muster area until instructed by supervisor.
Mud engineer:	1.	Report to nearest upwind designated safe briefing / muster area.
	2.	When instructed, begin check of mud for ph and H2S level. (Garett gas train.)
Safety personnel:	1.	Mask up and check status of all personnel and secure operations as instructed by drill site manager.

Taking a kick

When taking a kick during an H2S emergency, all personnel will follow standard Well control procedures after reporting to briefing area and masking up.

Open-hole logging

All unnecessary personnel off floor. Drill Site Manager and safety personnel should monitor condition, advise status and determine need for use of air equipment.

Running casing or plugging

Following the same "tripping" procedure as above. Drill Site Manager and safety personnel should determine if all personnel have access to protective equipment.

Ignition procedures

The decision to ignite the well is the responsibility of the operator (Oxy Drilling Management). The decision should be made only as a last resort and in a situation where it is clear that:

1. Human life and property are endangered.
2. There is no hope controlling the blowout under the prevailing conditions at the well.

Instructions for igniting the well

1. Two people are required for the actual igniting operation. They must wear self-contained breathing units and have a safety rope attached. One man (tool pusher or safety engineer) will check the atmosphere for explosive gases with the gas monitor. The other man is responsible for igniting the well.
2. Primary method to ignite: 25 mm flare gun with range of approximately 500 feet.
3. Ignite upwind and do not approach any closer than is warranted.
4. Select the ignition site best for protection, and which offers an easy escape route.
5. Before firing, check for presence of combustible gas.
6. After lighting, continue emergency action and procedure as before.
7. All unassigned personnel will remain in briefing area until instructed by supervisor or directed by the Drill Site Manager.

Remember: After well is ignited, burning hydrogen sulfide will convert to sulfur dioxide, which is also highly toxic. **Do not assume the area is safe after the well is ignited.**

Status check list

Note: All items on this list must be completed before drilling to production casing point.

1. H2S sign at location entrance.
2. Two (2) wind socks located as required.
3. Four (4) 30-minute positive pressure air packs (2 at each Briefing area) on location for all rig personnel and mud loggers.
4. Air packs inspected and ready for use.
5. Cascade system and hose line hook-up as needed.
6. Cascade system for refilling air bottles as needed.
7. Condition flag on location and ready for use.
8. H2S detection system hooked up and tested.
9. H2S alarm system hooked up and tested.
10. Hand operated H2S detector with tubes on location.
11. 1 – 100' length of nylon rope on location.
12. All rig crew and supervisors trained as required.
13. All outside service contractors advised of potential H2S hazard on well.
14. No smoking sign posted and a designated smoking area identified.
15. Calibration of all H2S equipment shall be noted on the IADC report.

Checked by:_____ Date:_____

Procedural check list during H2S events

Perform each tour:

1. Check fire extinguishers to see that they have the proper charge.

2. Check breathing equipment to ensure that it in proper working order.

3. Make sure all the H2S detection system is operative.

Perform each week:

1. Check each piece of breathing equipment to make sure that demand or forced air regulator is working. This requires that the bottle be opened and the mask assembly be put on tight enough so that when you inhale, you receive air or feel air flow.

2. BOP skills (well control drills).

3. Check supply pressure on BOP accumulator stand by source.

4. Check breathing equipment mask assembly to see that straps are loosened and turned back, ready to put on.

5. Check pressure on breathing equipment air bottles to make sure they are charged to full volume. (Air quality checked for proper air grade "D" before bringing to location)

6. Confirm pressure on all supply air bottles.

7. Perform breathing equipment drills with on-site personnel.

8. Check the following supplies for availability.

    A. Emergency telephone list.
    B. Hand operated H2S detectors and tubes.

General evacuation plan

1. When the company approved supervisor (Drill Site Manager, consultant, rig pusher, or driller) determines the H2S gas cannot be limited to the well location and the public will be involved, he will activate the evacuation plan.

2. Drill Site Manager or designee will notify local government agency that a hazardous condition exists and evacuation needs to be implemented.

3. Company or contractor safety personnel that have been trained in the use of H2S detection equipment and self-contained breathing equipment will monitor H2S concentrations, wind directions, and area of exposure. They will delineate the outer perimeter of the hazardous gas area. Extension to the evacuation area will be determined from information gathered.

4. Law enforcement personnel (state police, police dept., fire dept., and sheriff's dept.) Will be called to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.

5. After the discharge of gas has been controlled, company safety personnel will determine when the area is safe for re-entry.

Important: Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

Emergency actions

Well blowout – if emergency

1. Evacuate all personnel to "Safe Briefing / Muster Areas" or off location if needed.

2. If sour gas – evacuate rig personnel.

3. If sour gas – evacuate public within 3000 ft radius of exposure.

4. Don SCBA and shut well in if possible using the buddy system.

5. Notify Drilling Superintendent and call 911 for emergency help (fire dept and ambulance) if needed.
6. Implement the Blowout Contingency Plan, and Drilling Emergency Action Plan.

6. Give first aid as needed.

Person down location/facility

1. If immediately possible, contact 911. Give location and wait for confirmation.

2. Don SCBA and perform rescue operation using buddy system.

Toxic effects of hydrogen sulfide

Hydrogen sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 ppm, which is .001% by volume. Hydrogen sulfide is heavier than air (specific gravity – 1.192) and colorless. It forms an explosive mixture with air between 4.3 and 46.0 percent by volume. Hydrogen sulfide is almost as toxic as hydrogen cyanide and is between five and six times more toxic than carbon monoxide. Toxicity data for hydrogen sulfide and various other gases are compared in table i. Physical effects at various hydrogen sulfide exposure levels are shown in table ii.

Table i
Toxicity of various gases

Common name	Chemical formula	Specific gravity (sc=1)	Threshold limit (1)	Hazardous limit (2)	Lethal concentration (3)
Hydrogen Cyanide	Hcn	0.94	10 ppm	150 ppm/hr	300 ppm
Hydrogen Sulfide	H2S	1.18	10 ppm	250 ppm/hr	600 ppm
Sulfur Dioxide	So2	2.21	5 ppm	-	1000 ppm
Chlorine	Cl2	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	Co	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	Co2	1.52	5000 ppm	5%	10%
Methane	Ch4	0.55	90,000 ppm	Combustible above 5% in air	

1) threshold limit – concentration at which it is believed that all workers may be repeatedly exposed day after day without adverse effects.

2) hazardous limit – concentration that will cause death with short-term exposure.

3) lethal concentration – concentration that will cause death with short-term exposure.

Toxic effects of hydrogen sulfide

Table ii
Physical effects of hydrogen sulfide

Percent (%)	Ppm	Concentration Grains 100 std. Ft3*	Physical effects
0.001	<10	00.65	Obvious and unpleasant odor.

0.002	10	01.30	Safe for 8 hours of exposure.
0.010	100	06.48	Kill smell in 3 – 15 minutes. May sting eyes and throat.
0.020	200	12.96	Kills smell shortly; stings eyes and throat.
0.050	500	32.96	Dizziness; breathing ceases in a few minutes; needs prompt artificial respiration.
0.070	700	45.36	Unconscious quickly; death will result if not rescued promptly.
0.100	1000	64.30	Unconscious at once; followed by death within minutes.

*at 15.00 psia and 60’f.

Use of self-contained breathing equipment (SCBA)

1. Written procedures shall be prepared covering safe use of SCBA's in dangerous atmosphere, which might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available SCBA.

2 SCBA's shall be inspected frequently at random to insure that they are properly used, cleaned, and maintained.

3. Anyone who may use the SCBA's shall be trained in how to insure proper face-piece to face seal. They shall wear SCBA's in normal air and then wear them in a test atmosphere. (note: such items as facial hair {beard or sideburns} and eyeglasses will not allow proper seal.) Anyone that may be reasonably expected to wear SCBA's should have these items removed before entering a toxic atmosphere. A special mask must be obtained for anyone who must wear eyeglasses or contact lenses.

4. Maintenance and care of SCBA's:

    a. A program for maintenance and care of SCBA's shall include the following:
        1. Inspection for defects, including leak checks.
        2. Cleaning and disinfecting.
        3. Repair.
        4. Storage.

    b. Inspection, self-contained breathing apparatus for emergency use shall be inspected monthly.
        1. Fully charged cylinders.
        2. Regulator and warning device operation.
        3. Condition of face piece and connections.
        4. Rubber parts shall be maintained to keep them pliable and prevent deterioration.

    c. Routinely used SCBA's shall be collected, cleaned and disinfected as frequently as necessary to insure proper protection is provided.

5. Persons assigned tasks that requires use of self-contained breathing equipment shall be certified physically fit (medically cleared) for breathing equipment usage at least annually.

6. SCBA's should be worn when:

    A. Any employee works near the top or on top of any tank unless test reveals less than 10 ppm of H2S.

B. When breaking out any line where H2S can reasonably be expected.

C. When sampling air in areas to determine if toxic concentrations of H2S exists.

D. When working in areas where over 10 ppm H2S has been detected.

E. At any time there is a doubt as to the H2S level in the area to be entered.

Rescue
First aid for H2S poisoning

Do not panic!

Remain calm – think!

1. Don SCBA breathing equipment.

2. Remove victim(s) utilizing buddy system to fresh air as quickly as possible. (go up-wind from source or at right angle to the wind. Not down wind.)

3. Briefly apply chest pressure – arm lift method of artificial respiration to clean the victim's lungs and to avoid inhaling any toxic gas directly from the victim's lungs.

4. Provide for prompt transportation to the hospital, and continue giving artificial respiration if needed.

5. Hospital(s) or medical facilities need to be informed, before-hand, of the possibility of H2S gas poisoning – no matter how remote the possibility is.

6. Notify emergency room personnel that the victim(s) has been exposed to H2S gas.

Besides basic first aid, everyone on location should have a good working knowledge of artificial respiration.

Revised CM 6/27/2012

OXY Permian Delaware NM Basin Drilling & Completions Incident Reporting

OXY Permian Crisis Team Hotline Notification

Person	Location	Office Phone	Cell/Mobile Phone	Home Phone	Pager Number
Drilling & Completions Department					
Drilling & Completions Manager: John Willis	Houston	(713) 366-5556	(713) 259-1417		
Drilling Superintendent: Simon Benavides	Houston	(713) 215-7403	(832) 528-3547		
Completions Superintendent: Chris Winter	Houston	(713) 366-5212	(806) 239-8774		
Drilling Eng. Supervisor: Diego Tellez	Houston	(713) 350-4602	(713) 303-4932		
Drilling Eng. Supervisor: Randy Neel	Houston	(713) 215-7987	(713) 517-5544		
Completions Eng. Supervisor: Evan Hinkel	Houston	(713) 366-5436	(281) 236-6153		
Drilling & Completions HES Lead. Ryan Green	Houston	713-336-5753	281-520-5216		
Drilling & Completions HES Advisor:Kenny Williams	Carlsbad	(432) 686-1434	(337) 208-0911		
Drilling & Completions HES Advisor:Kyle Holden	Carlsbad	(432) 686-1435	(661) 369-5328		
Drilling & Completions HES Advisor Sr:Dave Schmidt	Carlsbad		(559) 310-8572		
Drilling & Completions HES Advisor. :Seth Doyle	Carlsbad		(337) 499-0756		
HES / Enviromental & Regulatory Department	Location	Office	Cell Phone		
Jon Hamil-HES Manager	Houston	(713) 497-2494	(832) 537-9885		
Mark Birk-HES Manager	Houston	(713) 350-4615	(949) 413-3127		
Austin Tramell	Midland	(432) 699-4208	(575) 499-4919		
Rico Munoz	Midland	(432) 699-8366	(432) 803-4116		
Amber DuckWorth	Midland		(832) 966-1879		
Kelley Montgomery- Regulatory Manager	Houston	(713) 366-5716	(832) 454-8137		
Sandra Musallam -Regulatory Lead	Houston	+1 (713) 366-5106	+1 (713) 504-8577		
Bishop, Steve-DOT Pipeline Coordinator	Midland	432-685-5614			
Wilson, Dusty-Safety Advisor	Midland	432-685-5771	(432) 254-2336		
John W Dittrich Enviromental Advisor	Midland		(575) 390-2828		
William (Jack) Calhoun-Environmental Lead	Houston	+713 (350) 4906	(281) 917-8571		
Robert Barrow-Risk Engineer Manager	Houston	(713) 366-5611	(832) 867-5336		
Sarah Holmes-HSE Cordinator	Midland	432-685-5758			
Administrative	Location	Office			
Sarah Holmes	Midland	432-685-5830			
Robertson, Debbie	Midland	432-685-5812			
Laci Hollaway	Midland	(432) 685-5716	(432) 631-6341		
Administrative	Location	Office			
Rosalinda Escajeda	Midland	432-685-5831			
Moreno, Leslie (contract)	Hobbs	575-397-8247			
Sehon, Angela (contractor)	Levelland	806-894-8347			
Vasquez, Claudia (contractor)	North Cowden	432-385-3120			
XstremeMD	Location	Office			
Medical Case Management	Orla, TX	(337) 205-9314			
Axiom Medical Consulting	Location	Office			
Medical Case Management		(877) 502-9466			
Regulatory Agencies					
Bureau of Land Management	Carlsbad, NM	(505) 887-6544			
Bureau of Land Management	Hobbs, NM	(505) 393-3612			
Bureau of Land Management	Roswell, NM	(505) 393-3612			
Bureau of Land Management	Santa Fe, NM	(505) 988-6030			

DOT Juisdictional Pipelines-Incident Reporting New Mexico Public Regulaion Commission	Santa Fe, NM	(505) 827-3549 (505) 490-2375			
DOT Juisdictional Pipelines-Incident Reporting Texas Railroad Commission	Austin, TX	(512) 463-6788			
EPA Hot Line	Dallas, Texas	(214) 665-6444			
Federal OSHA, Area Office	Lubbock, Texas	(806) 472-7681			
National Response Center	Washington, D. C.	(800) 424-8802			
National Infrastructure Coordinator Center		(202) 282-9201			
New Mexico Air Quality Bureau	Santa Fe, NM	(505) 827-1494			
New Mexico Oil Conservation Division	Artesia, NM	(505) 748-1283	After Hours (505) 370-7545		
New Mexico Oil Conservation Division	Hobbs, NM	(505) 393-6161			
New Mexico Oil Conservation Division	Santa Fe, NM	(505) 471-1068			
New Mexico OCD Environmental Bureau	Santa Fe, NM	(505) 476-3470			
New Mexico Environmental Department	Hobbs, NM	(505) 827-9329			
NM State Emergency Response Center	Santa Fe, NM	(505) 827-9222			
Railroad Commission of TX	District 1 San Antonio,	(210) 227-1313			
Railroad Commission of TX	District 7C San Angelo	(325) 657-7450			
Railroad Commission of TX	District 8, 8A Midland	(432) 684-5581			
Texas Emergency Response Center	Austin, TX	(512) 463-7727			
TCEQ Air	Region 2 Lubbock, TX	(806) 796-3494			
TCEQ Water/Waste/Air	Region 3 Abilene, TX	(325) 698-9674			
TCEQ Water/Waste/Air	Region 7 Midland, TX	(432) 570-1359			
TCEQ Water/Waste/Air	Region 9 San Antonio,	(512) 734-7981			
TCEQ Water/Waste/Air	Region 8 San Angelo	(325) 655-9479			
Medical Facilities					
Abernathy Medical Clinic	Abernathy, TX	(806) 298-2524			
Alliance Hospital	Odessa, TX	(432) 550-1000			
Artesia General Hospital	Artesia, NM	(505) 748-3333			
Brownfield Regional Medical Center	Brownfield, TX	(806) 637-3551			
Cogdell Memorial Hospital	Snyder, TX	(325) 573-6374			
Covenant Hospital Levelland	Levelland, TX	(806) 894-4963			
Covenant Medical Center	Lubbock, TX	(806) 725-1011			
Covenant Medical Center Lakeside	Lubbock, TX	(806) 725-6000			
Covenant Family Health	Synder, TX	(325) 573-1300			
Crockett County Hospital	Ozona, TX	(325) 392-2671			
Guadalupe Medical Center	Carlsbad, NM	(505) 887-6633			
Lea Regional Hospital	Hobbs, NM	(505) 492-5000			
McCamey Hospital	McCamey, TX	(432) 652-8626			
Medical Arts Hospital	Lamesa, TX	(806) 872-2183			
Medical Center Hospital	Odessa, TX	(432) 640-4000			
Medi Center Hospital	San Angelo, TX	(325) 653-6741			
Memorial Hospital	Ft. Stockton	(432) 336-2241			
Memorial Hospital	Seminole, TX	(432) 758-5811			
Midland Memorial Hospital	Midland, TX	(432) 685-1111			
Nor-Lea General Hospital	Lovington, NM	(505) 396-6611			
Odessa Regional Hospital	Odessa, TX	(432) 334-8200			
Permian General Hospital	Andrews, TX	(432) 523-2200			
Reagan County Hospital	Big Lake, TX	(325) 884-2561			
Reeves County Hospital	Pecos, TX	(432) 447-3551			
Shannon Medical Center	San Angelo, TX	(325) 653-6741			
Union County General Hospital	Clayton, NM	(505) 374-2585			
University Medical Center	Lubbock, TX	(806) 725-8200			
Val Verde Regional Medical Center	Del Rio, TX	(830) 775-8566			
Ward Memorial Hospital	Monahans, TX	(432) 943-2511			
Yoakum County Hospital	Denver City, TX	(806) 592-5484			

Law Enforcement - Sheriff					
Andrews Cty Sheriff's Department	Andrews County(Andr	(432) 523-5545			
Crane Cty Sheriff's Department	Crane, County (Crane)	(432) 558-3571			
Crockett Cty Sheriff's Department	Crockett County (Ozor	(325) 392-2661			
Dawson Cty Sheriff's Department	Dawson County (Lame	(806) 872-7560			
Ector Cty Sheriff's Department	Ector County (Odessa)	(432) 335-3050			
Eddy Cty Sheriff's Department	Eddy County (Artesia)	(505) 746-2704			
Eddy Cty Sheriff's Department	Eddy County (Carlsbac	(505) 887-7551			
Gaines Cty Sheriff's Department	Gaines County (Semin	(432) 758-9871			
Hockley Cty Sheriff's Department	Hockley County(Levell	(806) 894-3126			
Kent Cty (Jayton City Sheriff's Dept.)	Kent County(Jayton)	(806) 237-3801			
Lea Cty Sheriff's Department	Lea County (Eunice)	(505) 384-2020			
Lea Cty Sheriff's Department	Lea County (Hobbs)	(505) 393-2515			
Lea Cty Sheriff's Department	Lea County (Lovingtor	(505) 396-3611			
Lubbock Cty Sheriff's Department	Lubbock Cty (Abernatl	(806) 296-2724			
Midland Cty Sheriff's Department	Midland County (Midl	(432) 688-1277			
Pecos Cty Sheriff's Department	Pecos County (Iraan)	(432) 639-2251			
Reeves Cty Sheriff's Department	Reeves County (Pecos)	(432) 445-4901			
Scurry Cty Sheriff's Department	Scurry County (Snyder	(325) 573-3551			
Terry Cty Sheriff's Department	Terry County (Brownfi	(806) 637-2212			
Union Cty Sheriff's Department	Union County (Clayton	(505) 374-2583			
Upton Cty Sheriff's Department	Upton County (Rankin	(432) 693-2422			
Ward Cty Sheriff's Department	Ward County (Monaha	(432) 943-3254			
Yoakum City Sheriff's Department	Yoakum Co. (Denever	(806) 456-2377			
Law Enforcement - Police					
Abernathy City Police	Abernathy, TX	(806) 298-2545			
Andrews City Police	Andrews, TX	(432) 523-5675			
Artesia City Police	Artesia, NM	(505) 746-2704			
Brownfield City Police	Brownfield, TX	(806) 637-2544			
Carlsbad City Police	Carlsbad, NM	(505) 885-2111			
Clayton City Police	Clayton, NM	(505) 374-2504			
Denver City Police	Denver City, TX	(806) 592-3516			
Eunice City Police	Eunice, NM	(505) 394-2112			
Hobbs City Police	Hobbs, NM	393-2677			
Jal City Police	Jal, NM	(505) 395-2501			
Jayton City Police	Jayton, TX	(806) 237-3801			
Lamesa City Police	Lamesa, TX	(806) 872-2121			
Levelland City Police	Levelland, TX	(806) 894-6164			
Lovington City Police	Lovington, NM	(505) 396-2811			
Midland City Police	Midland, TX	(432) 685-7113			
Monahans City Police	Monahans, TX	(432) 943-3254			
Odessa City Police	Odessa, TX	(432) 335-3378			
Seminole City Police	Seminole, TX	(432) 758-9871			
Snyder City Police	Snyder, TX	(325) 573-2611			
Sundown City Police	Sundown, TX	(806) 229-8241			
Law Enforcement - FBI					
FBI	Alburqueque, NM	(505) 224-2000			
FBI	Midland, TX	(432) 570-0255			
Law Enforcement - DPS					
NM State Police	Artesia, NM	(505) 746-2704			
NM State Police	Carlsbad, NM	(505) 885-3137			
NM State Police	Eunice, NM	(505) 392-5588			

NM State Police	Hobbs, NM	(505) 392-5588			
NM State Police	Clayton, NM	(505) 374-2473; 911			
TX Dept of Public Safety	Andrews, TX	(432) 524-1443			
TX Dept of Public Safety	Big Lake, TX	(325) 884-2301			
TX Dept of Public Safety	Brownfield, TX	(806) 637-2312			
TX Dept of Public Safety	Iraan, TX	(432) 639-3232			
TX Dept of Public Safety	Lamesa, TX	(806) 872-8675			
TX Dept of Public Safety	Levelland, TX	(806) 894-4385			
TX Dept of Public Safety	Lubbock, TX	(806) 747-4491			
TX Dept of Public Safety	Midland, TX	(432) 697-2211			
TX Dept of Public Safety	Monahans, TX	(432) 943-5857			
TX Dept of Public Safety	Odessa, TX	(432) 332-6100			
TX Dept of Public Safety	Ozona, TX	(325) 392-2621			
TX Dept of Public Safety	Pecos, TX	(432) 447-3533			
TX Dept of Public Safety	Seminole, TX	(432) 758-4041			
TX Dept of Public Safety	Snyder, TX	(325) 573-0113			
TX Dept of Public Safety	Terry County TX	(806) 637-8913			
TX Dept of Public Safety	Yoakum County TX	(806) 456-2377			
Firefighting & Rescue					
Abernathy	Abernathy, TX	(806) 298-2022			
Amistad/Rosebud	Amistad/Rosebud, NM	(505) 633-9113			
Andrews	Andrews, TX	523-3111			
Artesia	Artesia, NM	(505) 746-5051			
Big Lake	Big Lake, TX	(325) 884-3650			
Brownfield-Administrative & other calls	Brownfield, TX	(816) 637-4547			
Brownfield emergency only	Brownfield, TX	-911			
Carlsbad	Carlsbad, NM	(505) 885-3125			
Clayton	Clayton, NM	(505) 374-2435			
Cotton Center	Cotton Center, TX	(806) 879-2157			
Crane	Crane, TX	(432) 558-2361			
Del Rio	Del Rio, TX	(830) 774-8650			
Denver City	Denver City, TX	(806) 592-3516			
Eldorado	Eldorado, TX	(325) 853-2691			
Eunice	Eunice, NM	(505) 394-2111			
Garden City	Garden City, TX	(432) 354-2404			
Goldsmith	Goldsmith, TX	(432) 827-3445			
Hale Center	Hale Center, TX	(806) 839-2411			
Halfway	Halfway, TX				
Hobbs	Hobbs, NM	(505) 397-9308			
Jal	Jal, NM	(505) 395-2221			
Jayton	Jayton, TX	(806) 237-3801			
Kermit	Kermit, TX	(432) 586-3468			
Lamesa	Lamesa, TX	(806) 872-4352			
Levelland	Levelland, TX	(806) 894-3154			
Lovington	Lovington, NM	(505) 396-2359			
Maljamar	Maljamar, NM	(505) 676-4100			
McCamey	McCamey, TX	(432) 652-8232			
Midland	Midland, TX	(432) 685-7346			
Monahans	Monahans, TX	(432) 943-4343			
Nara Visa	Nara Visa, NM	(505) 461-3300			
Notrees	Notress, TX	(432) 827-3445			
Odessa	Odessa, TX	(432) 335-4659			
Ozona	Ozona, TX	(325) 392-2626			
Pecos	Pecos, TX	(432) 445-2421			
Petersburg	Petersburg, TX	(806) 667-3461			

Plains	Plains, TX	(806) 456-8067			
Plainview	Plainview, TX	(806) 296-1170			
Rankin	Rankin, TX	(432) 693-2252			
San Angelo	San Angelo, TX	(325) 657-4355			
Sanderson	Sanderson, TX	(432) 345-2525			
Seminole	Seminole, TX	758-9871			
Smyer	Smyer, TX	(806) 234-3861			
Snyder	Snyder, TX	(325) 573-6215			
Sundown	Sundown, TX	**911**			
Tucumcari	Tucumcari, NM	911			
West Odessa	Odessa, TX	(432) 381-3033			
Ambulance					
Abernathy Ambulance	Abernathy, TX	(806) 298-2241			
Amistad/Rosebud	Amistad/Rosebud, NM	(505) 633-9113			
Andrews Ambulance	Andrews, TX	(432) 523-5675			
Artesia Ambulance	Artesia, NM	(505) 746-2701			
Big Lake Ambulance	Big Lake, TX	(325) 884-2423			
Big Spring Ambulance	Big Spring, TX	(432) 264-2550			
Brownfield Ambulance	Brownfield, TX	(806) 637-2511			
Carlsbad Ambulance	Carlsbad, NM	(505) 885-2111; 911			
Clayton, NM	Clayton, NM	(505) 374-2501			
Denver City Ambulance	Denver City, TX	(806) 592-3516			
Eldorado Ambulance	Eldorado, TX	(325) 853-3456			
Eunice Ambulance	Eunice, NM	(505) 394-3258			
Goldsmith Ambulance	Goldsmith, TX	(432) 827-3445			
Hobbs, NM	Hobbs, NM	(505) 397-9308			
Jal, NM	Jal, NM	(505) 395-2501			
Jayton Ambulance	Jayton, TX	(806) 237-3801			
Lamesa Ambulance	Lamesa, TX	(806) 872-3464			
Levelland Ambulance	Levelland, TX	(806) 894-8855			
Lovington Ambulance	Lovington, NM	(505) 396-2811			
McCamey Hospital	McCamey, TX	(432) 652-8626			
Midland Ambulance	Midland, TX	(432) 685-7499			
Monahans Ambulance	Monahans, TX	3731			
Nara Visa, NM	Nara Visa, NM	(505) 461-3300			
Odessa Ambulance	Odessa, TX	(432) 335-3378			
Ozona Ambulance	Ozona, TX	(325) 392-2671			
Pecos Ambulance	Pecos, TX	(432) 445-4444			
Rankin Ambulance	Rankin, TX	(432) 693-2443			
San Angelo Ambulance	San Angelo, TX	(325) 657-4357			
Seminole Ambulance	Seminole, TX	758-9871			
Snyder Ambulance	Snyder, TX	(325) 573-1911			
Stanton Ambulance	Stanton, TX	(432) 756-2211			
Sundown Ambulance	Sundown, TX	**911**			
Tucumcari, NM	Tucumcari, NM	911			
Medical Air Ambulance Service					
AEROCARE - Methodist Hospital	Lubbock, TX	(800) 627-2376			
San Angelo Med-Vac Air Ambulance	San Angelo, TX	(800) 277-4354			
Southwest Air Ambulance Service	Stanford, TX	(800) 242-6199			
Southwest MediVac	Snyder, TX	(800) 242-6199			
Southwest MediVac	Hobbs, NM	(800) 242-6199			
Odessa Care Star	Odessa, TX	(888) 624-3571			
NWTH Medivac	Amarillo, TX	(800) 692-1331			

OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)
Jeff Smith MDP1 7_18
Jeff Smith MDP1 7_18 Fed Com 31H

Wellbore #1

Plan: Permitting Plan

Standard Planning Report

16 December, 2019

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Jeff Smith MDP1 7_18 Fed Com 31H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3477.50ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3477.50ft
Site:	Jeff Smith MDP1 7_18	**North Reference:**	Grid
Well:	Jeff Smith MDP1 7_18 Fed Com 31H	**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 Jeff Smith MDP1 7_18

Site Position:		**Northing:**	451,833.32 usft	**Latitude:**	32° 14' 28.042208 N
From:	Map	**Easting:**	700,054.46 usft	**Longitude:**	103° 49' 11.922256 W
Position Uncertainty:	1.00 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.27 °

Well Jeff Smith MDP1 7_18 Fed Com 31H

Well Position	**+N/-S**	-0.30 ft	**Northing:**	451,833.02 usft	**Latitude:**	32° 14' 28.042313 N
	+E/-W	-65.00 ft	**Easting:**	699,989.46 usft	**Longitude:**	103° 49' 12.679097 W
Position Uncertainty		1.00 ft	**Wellhead Elevation:**		**Ground Level:**	3,451.00 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	12/16/2019	6.75	59.90	47,877.10000000

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	184.08

Plan Survey Tool Program **Date** 12/16/2019

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	21,504.03	Permitting Plan (Wellbore #1)	B001Mb_MWD+HRGM	
				OWSG 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	
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,800.20	10.00	250.63	5,797.66	-14.45	-41.09	2.00	2.00	0.00	250.63	
10,193.74	10.00	250.63	10,124.40	-267.58	-761.12	0.00	0.00	0.00	0.00	
11,055.14	89.40	179.77	10,657.50	-834.01	-846.72	10.00	9.22	-8.23	-71.23	FTP (Jeff Smith
21,504.04	89.40	179.77	10,767.50	-11,282.24	-804.42	0.00	0.00	0.00	0.00	PBHL (Jeff Smith

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Jeff Smith MDP1 7_18 Fed Com 31H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3477.50ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3477.50ft
Site:	Jeff Smith MDP1 7_18	**North Reference:**	Grid
Well:	Jeff Smith MDP1 7_18 Fed Com 31H	**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
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Jeff Smith MDP1 7_18 Fed Com 31H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3477.50ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3477.50ft
Site:	Jeff Smith MDP1 7_18	**North Reference:**	Grid
Well:	Jeff Smith MDP1 7_18 Fed Com 31H	**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)
5,400.00	2.00	250.63	5,399.98	-0.58	-1.65	0.69	2.00	2.00	0.00
5,500.00	4.00	250.63	5,499.84	-2.31	-6.58	2.78	2.00	2.00	0.00
5,600.00	6.00	250.63	5,599.45	-5.21	-14.81	6.24	2.00	2.00	0.00
5,700.00	8.00	250.63	5,698.70	-9.25	-26.30	11.09	2.00	2.00	0.00
5,800.00	10.00	250.63	5,797.47	-14.44	-41.06	17.32	2.00	2.00	0.00
5,800.20	10.00	250.63	5,797.66	-14.45	-41.09	17.33	2.00	2.00	0.00
5,900.00	10.00	250.63	5,895.95	-20.20	-57.45	24.23	0.00	0.00	0.00
6,000.00	10.00	250.63	5,994.42	-25.96	-73.84	31.14	0.00	0.00	0.00
6,100.00	10.00	250.63	6,092.90	-31.72	-90.22	38.06	0.00	0.00	0.00
6,200.00	10.00	250.63	6,191.38	-37.48	-106.61	44.97	0.00	0.00	0.00
6,300.00	10.00	250.63	6,289.86	-43.24	-123.00	51.88	0.00	0.00	0.00
6,400.00	10.00	250.63	6,388.34	-49.00	-139.39	58.79	0.00	0.00	0.00
6,500.00	10.00	250.63	6,486.82	-54.77	-155.78	65.71	0.00	0.00	0.00
6,600.00	10.00	250.63	6,585.30	-60.53	-172.17	72.62	0.00	0.00	0.00
6,700.00	10.00	250.63	6,683.78	-66.29	-188.55	79.53	0.00	0.00	0.00
6,800.00	10.00	250.63	6,782.26	-72.05	-204.94	86.44	0.00	0.00	0.00
6,900.00	10.00	250.63	6,880.74	-77.81	-221.33	93.36	0.00	0.00	0.00
7,000.00	10.00	250.63	6,979.22	-83.57	-237.72	100.27	0.00	0.00	0.00
7,100.00	10.00	250.63	7,077.70	-89.34	-254.11	107.18	0.00	0.00	0.00
7,200.00	10.00	250.63	7,176.18	-95.10	-270.49	114.09	0.00	0.00	0.00
7,300.00	10.00	250.63	7,274.66	-100.86	-286.88	121.01	0.00	0.00	0.00
7,400.00	10.00	250.63	7,373.14	-106.62	-303.27	127.92	0.00	0.00	0.00
7,500.00	10.00	250.63	7,471.62	-112.38	-319.66	134.83	0.00	0.00	0.00
7,600.00	10.00	250.63	7,570.10	-118.14	-336.05	141.74	0.00	0.00	0.00
7,700.00	10.00	250.63	7,668.58	-123.91	-352.44	148.66	0.00	0.00	0.00
7,800.00	10.00	250.63	7,767.06	-129.67	-368.82	155.57	0.00	0.00	0.00
7,900.00	10.00	250.63	7,865.54	-135.43	-385.21	162.48	0.00	0.00	0.00
8,000.00	10.00	250.63	7,964.02	-141.19	-401.60	169.39	0.00	0.00	0.00
8,100.00	10.00	250.63	8,062.50	-146.95	-417.99	176.31	0.00	0.00	0.00
8,200.00	10.00	250.63	8,160.98	-152.71	-434.38	183.22	0.00	0.00	0.00
8,300.00	10.00	250.63	8,259.46	-158.48	-450.77	190.13	0.00	0.00	0.00
8,400.00	10.00	250.63	8,357.93	-164.24	-467.15	197.04	0.00	0.00	0.00
8,500.00	10.00	250.63	8,456.41	-170.00	-483.54	203.96	0.00	0.00	0.00
8,600.00	10.00	250.63	8,554.89	-175.76	-499.93	210.87	0.00	0.00	0.00
8,700.00	10.00	250.63	8,653.37	-181.52	-516.32	217.78	0.00	0.00	0.00
8,800.00	10.00	250.63	8,751.85	-187.28	-532.71	224.69	0.00	0.00	0.00
8,900.00	10.00	250.63	8,850.33	-193.04	-549.10	231.61	0.00	0.00	0.00
9,000.00	10.00	250.63	8,948.81	-198.81	-565.48	238.52	0.00	0.00	0.00
9,100.00	10.00	250.63	9,047.29	-204.57	-581.87	245.43	0.00	0.00	0.00
9,200.00	10.00	250.63	9,145.77	-210.33	-598.26	252.34	0.00	0.00	0.00
9,300.00	10.00	250.63	9,244.25	-216.09	-614.65	259.26	0.00	0.00	0.00
9,400.00	10.00	250.63	9,342.73	-221.85	-631.04	266.17	0.00	0.00	0.00
9,500.00	10.00	250.63	9,441.21	-227.61	-647.42	273.08	0.00	0.00	0.00
9,600.00	10.00	250.63	9,539.69	-233.38	-663.81	279.99	0.00	0.00	0.00
9,700.00	10.00	250.63	9,638.17	-239.14	-680.20	286.91	0.00	0.00	0.00
9,800.00	10.00	250.63	9,736.65	-244.90	-696.59	293.82	0.00	0.00	0.00
9,900.00	10.00	250.63	9,835.13	-250.66	-712.98	300.73	0.00	0.00	0.00
10,000.00	10.00	250.63	9,933.61	-256.42	-729.37	307.65	0.00	0.00	0.00
10,100.00	10.00	250.63	10,032.09	-262.18	-745.75	314.56	0.00	0.00	0.00
10,193.74	10.00	250.63	10,124.40	-267.58	-761.12	321.04	0.00	0.00	0.00
10,200.00	10.22	247.29	10,130.57	-267.98	-762.14	321.50	10.00	3.49	-53.38
10,300.00	16.74	213.33	10,227.90	-283.48	-778.28	338.11	10.00	6.52	-33.96
10,400.00	25.58	200.05	10,321.11	-315.88	-793.64	371.52	10.00	8.84	-13.27
10,500.00	35.02	193.43	10,407.38	-364.19	-807.74	420.71	10.00	9.44	-6.62

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Jeff Smith MDP1 7_18 Fed Com 31H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3477.50ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3477.50ft
Site:	Jeff Smith MDP1 7_18	**North Reference:**	Grid
Well:	Jeff Smith MDP1 7_18 Fed Com 31H	**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	44.68	189.38	10,484.08	-426.94	-820.17	484.19	10.00	9.66	-4.06
10,700.00	54.44	186.51	10,548.87	-502.24	-830.54	560.03	10.00	9.76	-2.86
10,800.00	64.26	184.28	10,599.79	-587.78	-838.53	645.93	10.00	9.81	-2.23
10,900.00	74.10	182.39	10,635.30	-680.97	-843.91	739.27	10.00	9.84	-1.89
11,000.00	83.96	180.68	10,654.31	-778.99	-846.51	837.22	10.00	9.86	-1.71
11,055.14	89.40	179.77	10,657.50	-834.01	-846.72	892.12	10.00	9.86	-1.65
11,100.00	89.40	179.77	10,657.97	-878.87	-846.54	936.85	0.00	0.00	0.00
11,200.00	89.40	179.77	10,659.03	-978.86	-846.14	1,036.56	0.00	0.00	0.00
11,300.00	89.40	179.77	10,660.08	-1,078.86	-845.73	1,136.27	0.00	0.00	0.00
11,400.00	89.40	179.77	10,661.13	-1,178.85	-845.33	1,235.98	0.00	0.00	0.00
11,500.00	89.40	179.77	10,662.18	-1,278.84	-844.92	1,335.70	0.00	0.00	0.00
11,600.00	89.40	179.77	10,663.24	-1,378.84	-844.52	1,435.41	0.00	0.00	0.00
11,700.00	89.40	179.77	10,664.29	-1,478.83	-844.11	1,535.12	0.00	0.00	0.00
11,800.00	89.40	179.77	10,665.34	-1,578.83	-843.71	1,634.83	0.00	0.00	0.00
11,900.00	89.40	179.77	10,666.39	-1,678.82	-843.30	1,734.54	0.00	0.00	0.00
12,000.00	89.40	179.77	10,667.45	-1,778.81	-842.90	1,834.25	0.00	0.00	0.00
12,100.00	89.40	179.77	10,668.50	-1,878.81	-842.49	1,933.97	0.00	0.00	0.00
12,200.00	89.40	179.77	10,669.55	-1,978.80	-842.09	2,033.68	0.00	0.00	0.00
12,300.00	89.40	179.77	10,670.61	-2,078.79	-841.68	2,133.39	0.00	0.00	0.00
12,400.00	89.40	179.77	10,671.66	-2,178.79	-841.28	2,233.10	0.00	0.00	0.00
12,500.00	89.40	179.77	10,672.71	-2,278.78	-840.87	2,332.81	0.00	0.00	0.00
12,600.00	89.40	179.77	10,673.76	-2,378.77	-840.47	2,432.52	0.00	0.00	0.00
12,700.00	89.40	179.77	10,674.82	-2,478.77	-840.07	2,532.24	0.00	0.00	0.00
12,800.00	89.40	179.77	10,675.87	-2,578.76	-839.66	2,631.95	0.00	0.00	0.00
12,900.00	89.40	179.77	10,676.92	-2,678.76	-839.26	2,731.66	0.00	0.00	0.00
13,000.00	89.40	179.77	10,677.97	-2,778.75	-838.85	2,831.37	0.00	0.00	0.00
13,100.00	89.40	179.77	10,679.03	-2,878.74	-838.45	2,931.08	0.00	0.00	0.00
13,200.00	89.40	179.77	10,680.08	-2,978.74	-838.04	3,030.79	0.00	0.00	0.00
13,300.00	89.40	179.77	10,681.13	-3,078.73	-837.64	3,130.51	0.00	0.00	0.00
13,400.00	89.40	179.77	10,682.19	-3,178.72	-837.23	3,230.22	0.00	0.00	0.00
13,500.00	89.40	179.77	10,683.24	-3,278.72	-836.83	3,329.93	0.00	0.00	0.00
13,600.00	89.40	179.77	10,684.29	-3,378.71	-836.42	3,429.64	0.00	0.00	0.00
13,700.00	89.40	179.77	10,685.34	-3,478.70	-836.02	3,529.35	0.00	0.00	0.00
13,800.00	89.40	179.77	10,686.40	-3,578.70	-835.61	3,629.06	0.00	0.00	0.00
13,900.00	89.40	179.77	10,687.45	-3,678.69	-835.21	3,728.78	0.00	0.00	0.00
14,000.00	89.40	179.77	10,688.50	-3,778.69	-834.80	3,828.49	0.00	0.00	0.00
14,100.00	89.40	179.77	10,689.55	-3,878.68	-834.40	3,928.20	0.00	0.00	0.00
14,200.00	89.40	179.77	10,690.61	-3,978.67	-833.99	4,027.91	0.00	0.00	0.00
14,300.00	89.40	179.77	10,691.66	-4,078.67	-833.59	4,127.62	0.00	0.00	0.00
14,400.00	89.40	179.77	10,692.71	-4,178.66	-833.18	4,227.33	0.00	0.00	0.00
14,500.00	89.40	179.77	10,693.77	-4,278.65	-832.78	4,327.05	0.00	0.00	0.00
14,600.00	89.40	179.77	10,694.82	-4,378.65	-832.37	4,426.76	0.00	0.00	0.00
14,700.00	89.40	179.77	10,695.87	-4,478.64	-831.97	4,526.47	0.00	0.00	0.00
14,800.00	89.40	179.77	10,696.92	-4,578.63	-831.56	4,626.18	0.00	0.00	0.00
14,900.00	89.40	179.77	10,697.98	-4,678.63	-831.16	4,725.89	0.00	0.00	0.00
15,000.00	89.40	179.77	10,699.03	-4,778.62	-830.75	4,825.60	0.00	0.00	0.00
15,100.00	89.40	179.77	10,700.08	-4,878.62	-830.35	4,925.32	0.00	0.00	0.00
15,200.00	89.40	179.77	10,701.13	-4,978.61	-829.94	5,025.03	0.00	0.00	0.00
15,300.00	89.40	179.77	10,702.19	-5,078.60	-829.54	5,124.74	0.00	0.00	0.00
15,400.00	89.40	179.77	10,703.24	-5,178.60	-829.13	5,224.45	0.00	0.00	0.00
15,500.00	89.40	179.77	10,704.29	-5,278.59	-828.73	5,324.16	0.00	0.00	0.00
15,600.00	89.40	179.77	10,705.35	-5,378.58	-828.32	5,423.87	0.00	0.00	0.00
15,700.00	89.40	179.77	10,706.40	-5,478.58	-827.92	5,523.59	0.00	0.00	0.00
15,800.00	89.40	179.77	10,707.45	-5,578.57	-827.51	5,623.30	0.00	0.00	0.00

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Jeff Smith MDP1 7_18 Fed Com 31H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3477.50ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3477.50ft
Site:	Jeff Smith MDP1 7_18	**North Reference:**	Grid
Well:	Jeff Smith MDP1 7_18 Fed Com 31H	**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)
15,900.00	89.40	179.77	10,708.50	-5,678.56	-827.11	5,723.01	0.00	0.00	0.00
16,000.00	89.40	179.77	10,709.56	-5,778.56	-826.70	5,822.72	0.00	0.00	0.00
16,100.00	89.40	179.77	10,710.61	-5,878.55	-826.30	5,922.43	0.00	0.00	0.00
16,200.00	89.40	179.77	10,711.66	-5,978.55	-825.90	6,022.14	0.00	0.00	0.00
16,300.00	89.40	179.77	10,712.72	-6,078.54	-825.49	6,121.86	0.00	0.00	0.00
16,400.00	89.40	179.77	10,713.77	-6,178.53	-825.09	6,221.57	0.00	0.00	0.00
16,500.00	89.40	179.77	10,714.82	-6,278.53	-824.68	6,321.28	0.00	0.00	0.00
16,600.00	89.40	179.77	10,715.87	-6,378.52	-824.28	6,420.99	0.00	0.00	0.00
16,700.00	89.40	179.77	10,716.93	-6,478.51	-823.87	6,520.70	0.00	0.00	0.00
16,800.00	89.40	179.77	10,717.98	-6,578.51	-823.47	6,620.41	0.00	0.00	0.00
16,900.00	89.40	179.77	10,719.03	-6,678.50	-823.06	6,720.13	0.00	0.00	0.00
17,000.00	89.40	179.77	10,720.08	-6,778.49	-822.66	6,819.84	0.00	0.00	0.00
17,100.00	89.40	179.77	10,721.14	-6,878.49	-822.25	6,919.55	0.00	0.00	0.00
17,200.00	89.40	179.77	10,722.19	-6,978.48	-821.85	7,019.26	0.00	0.00	0.00
17,300.00	89.40	179.77	10,723.24	-7,078.48	-821.44	7,118.97	0.00	0.00	0.00
17,400.00	89.40	179.77	10,724.30	-7,178.47	-821.04	7,218.68	0.00	0.00	0.00
17,500.00	89.40	179.77	10,725.35	-7,278.46	-820.63	7,318.40	0.00	0.00	0.00
17,600.00	89.40	179.77	10,726.40	-7,378.46	-820.23	7,418.11	0.00	0.00	0.00
17,700.00	89.40	179.77	10,727.45	-7,478.45	-819.82	7,517.82	0.00	0.00	0.00
17,800.00	89.40	179.77	10,728.51	-7,578.44	-819.42	7,617.53	0.00	0.00	0.00
17,900.00	89.40	179.77	10,729.56	-7,678.44	-819.01	7,717.24	0.00	0.00	0.00
18,000.00	89.40	179.77	10,730.61	-7,778.43	-818.61	7,816.95	0.00	0.00	0.00
18,100.00	89.40	179.77	10,731.66	-7,878.42	-818.20	7,916.67	0.00	0.00	0.00
18,200.00	89.40	179.77	10,732.72	-7,978.42	-817.80	8,016.38	0.00	0.00	0.00
18,300.00	89.40	179.77	10,733.77	-8,078.41	-817.39	8,116.09	0.00	0.00	0.00
18,400.00	89.40	179.77	10,734.82	-8,178.41	-816.99	8,215.80	0.00	0.00	0.00
18,500.00	89.40	179.77	10,735.88	-8,278.40	-816.58	8,315.51	0.00	0.00	0.00
18,600.00	89.40	179.77	10,736.93	-8,378.39	-816.18	8,415.22	0.00	0.00	0.00
18,700.00	89.40	179.77	10,737.98	-8,478.39	-815.77	8,514.94	0.00	0.00	0.00
18,800.00	89.40	179.77	10,739.03	-8,578.38	-815.37	8,614.65	0.00	0.00	0.00
18,900.00	89.40	179.77	10,740.09	-8,678.37	-814.96	8,714.36	0.00	0.00	0.00
19,000.00	89.40	179.77	10,741.14	-8,778.37	-814.56	8,814.07	0.00	0.00	0.00
19,100.00	89.40	179.77	10,742.19	-8,878.36	-814.15	8,913.78	0.00	0.00	0.00
19,200.00	89.40	179.77	10,743.24	-8,978.35	-813.75	9,013.49	0.00	0.00	0.00
19,300.00	89.40	179.77	10,744.30	-9,078.35	-813.34	9,113.21	0.00	0.00	0.00
19,400.00	89.40	179.77	10,745.35	-9,178.34	-812.94	9,212.92	0.00	0.00	0.00
19,500.00	89.40	179.77	10,746.40	-9,278.34	-812.53	9,312.63	0.00	0.00	0.00
19,600.00	89.40	179.77	10,747.46	-9,378.33	-812.13	9,412.34	0.00	0.00	0.00
19,700.00	89.40	179.77	10,748.51	-9,478.32	-811.73	9,512.05	0.00	0.00	0.00
19,800.00	89.40	179.77	10,749.56	-9,578.32	-811.32	9,611.76	0.00	0.00	0.00
19,900.00	89.40	179.77	10,750.61	-9,678.31	-810.92	9,711.47	0.00	0.00	0.00
20,000.00	89.40	179.77	10,751.67	-9,778.30	-810.51	9,811.19	0.00	0.00	0.00
20,100.00	89.40	179.77	10,752.72	-9,878.30	-810.11	9,910.90	0.00	0.00	0.00
20,200.00	89.40	179.77	10,753.77	-9,978.29	-809.70	10,010.61	0.00	0.00	0.00
20,300.00	89.40	179.77	10,754.82	-10,078.28	-809.30	10,110.32	0.00	0.00	0.00
20,400.00	89.40	179.77	10,755.88	-10,178.28	-808.89	10,210.03	0.00	0.00	0.00
20,500.00	89.40	179.77	10,756.93	-10,278.27	-808.49	10,309.74	0.00	0.00	0.00
20,600.00	89.40	179.77	10,757.98	-10,378.27	-808.08	10,409.46	0.00	0.00	0.00
20,700.00	89.40	179.77	10,759.04	-10,478.26	-807.68	10,509.17	0.00	0.00	0.00
20,800.00	89.40	179.77	10,760.09	-10,578.25	-807.27	10,608.88	0.00	0.00	0.00
20,900.00	89.40	179.77	10,761.14	-10,678.25	-806.87	10,708.59	0.00	0.00	0.00
21,000.00	89.40	179.77	10,762.19	-10,778.24	-806.46	10,808.30	0.00	0.00	0.00
21,100.00	89.40	179.77	10,763.25	-10,878.23	-806.06	10,908.01	0.00	0.00	0.00
21,200.00	89.40	179.77	10,764.30	-10,978.23	-805.65	11,007.73	0.00	0.00	0.00

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Jeff Smith MDP1 7_18 Fed Com 31H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3477.50ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3477.50ft
Site:	Jeff Smith MDP1 7_18	**North Reference:**	Grid
Well:	Jeff Smith MDP1 7_18 Fed Com 31H	**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)
21,300.00	89.40	179.77	10,765.35	-11,078.22	-805.25	11,107.44	0.00	0.00	0.00
21,400.00	89.40	179.77	10,766.41	-11,178.22	-804.84	11,207.15	0.00	0.00	0.00
21,500.00	89.40	179.77	10,767.46	-11,278.21	-804.44	11,306.86	0.00	0.00	0.00
21,504.04	89.40	179.77	10,767.50	-11,282.24	-804.42	11,310.88	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
FTP (Jeff Smith MDP1 - plan hits target center - Point	0.00	0.00	10,657.50	-834.01	-846.72	450,999.06	699,142.79	32° 14' 19.829665 N	103° 49' 22.583411
PBHL (Jeff Smith - plan hits target center - Point	0.00	0.00	10,767.50	-11,282.24	-804.42	440,551.50	699,185.09	32° 12' 36.442066 N	103° 49' 22.668710

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
5,300.00	5,300.00	0.00	0.00	Build 2°/100'
5,800.20	5,797.66	-14.45	-41.09	Hold 10° Tangent
10,193.74	10,124.40	-267.58	-761.12	KOP, Build & Turn 10°/100'
11,055.14	10,657.50	-834.01	-846.72	Landing Point
21,504.04	10,767.50	-11,282.24	-804.42	TD at 21504.03' MD

PROJECT DETAILS: NM DIRECTIONAL PLANS (NAD 1983)

Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Jeff Smith MDP1 7_18
Well: Jeff Smith MDP1 7_18 Fed Com 31H
Wellbore: Wellbore #1
Design: Permitting Plan

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

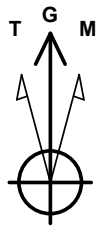
WELL DETAILS: Jeff Smith MDP1 7_18 Fed Com 31H

3451.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	451833.02	699989.46	32° 14' 28.042313 N	103° 49' 12.679097 W

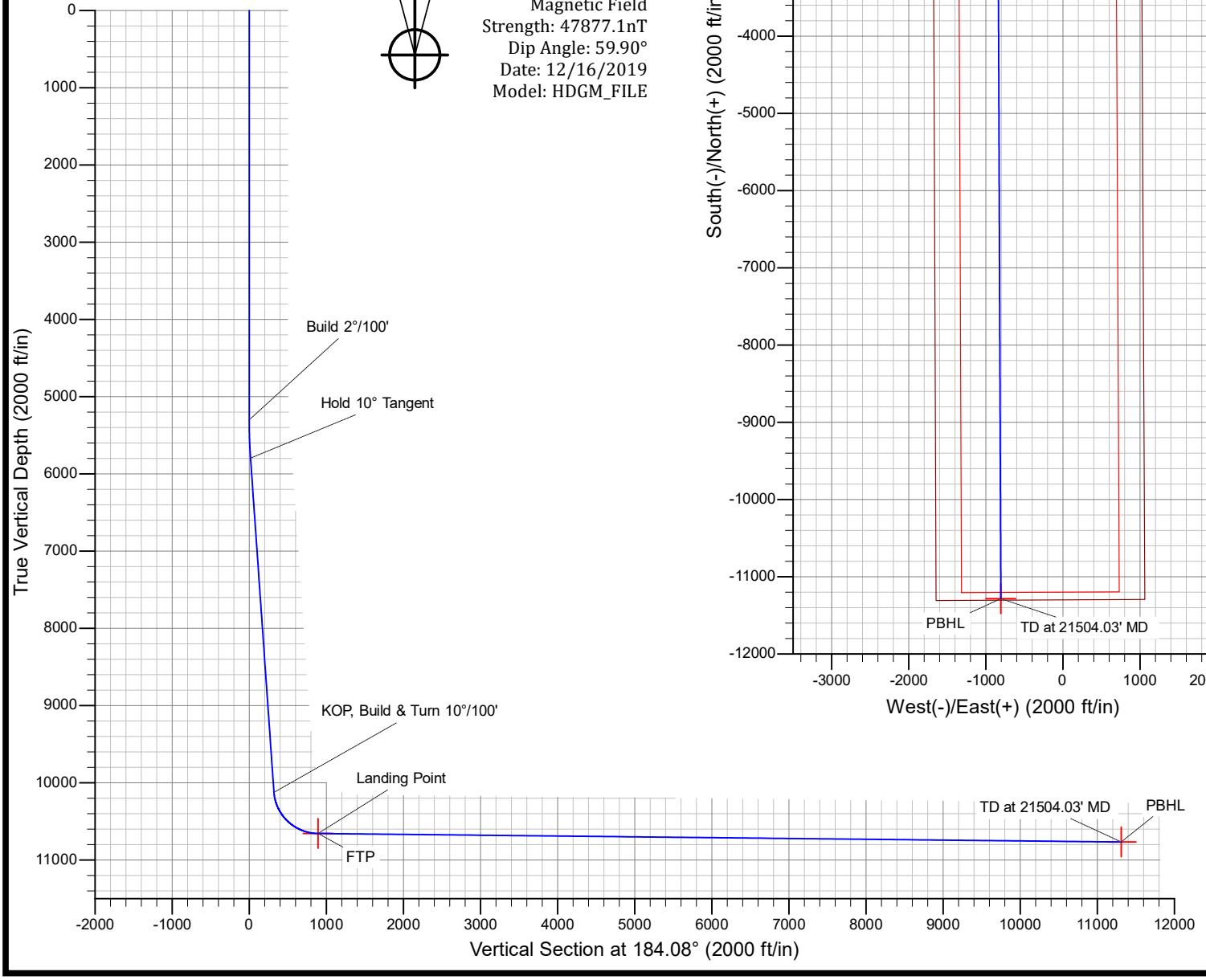
SECTION DETAILS

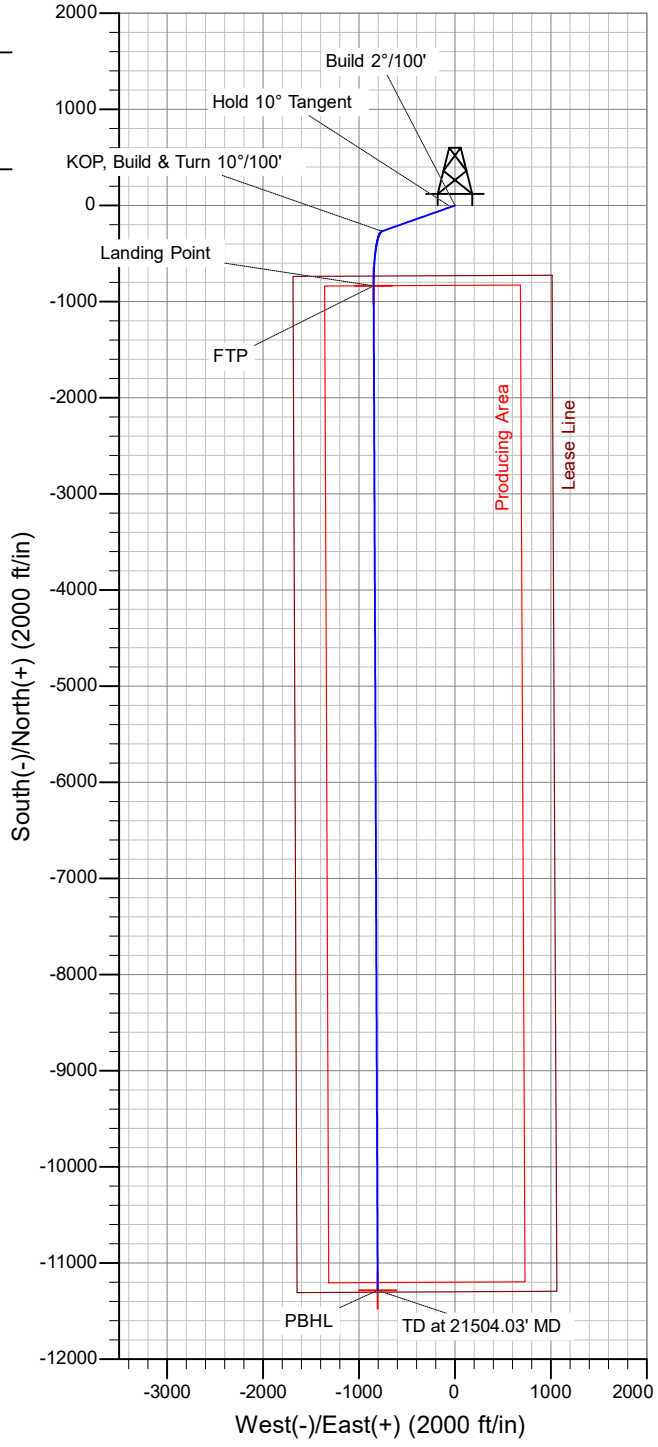
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5300.00	0.00	0.00	5300.00	0.00	0.00	0.00	0.00	0.00	Build 2°/100'
5800.20	10.00	250.63	5797.66	-14.45	-41.09	2.00	250.63	17.33	Hold 10° Tangent
10193.74	10.00	250.63	10124.40	-267.58	-761.12	0.00	0.00	321.04	KOP, Build & Turn 10°/100'
11055.14	89.40	179.77	10657.50	-834.01	-846.72	10.00	-71.23	892.12	Landing Point
21504.03	89.40	179.77	10767.50	-11282.24	-804.42	0.00	0.00	11310.88	TD at 21504.03' MD



Azimuths to Grid North
True North: -0.27°
Magnetic North: 6.48°

Magnetic Field
Strength: 47877.1nT
Dip Angle: 59.90°
Date: 12/16/2019
Model: HDGM_FILE





Oxy USA Inc. - JEFF SMITH MDP1 7_18 FED COM 31H

1. Geologic Formations

TVD of target	10767'	Pilot Hole Depth	N/A
MD at TD:	21504'	Deepest Expected fresh water:	530'

Delaware Basin

Formation	TVD - RKB	Expected Fluids
Rustler	530	Brine
Salado	907	Brine
Castile	2,756	Brine
Lamar/Delaware	4,172	Brine
Bell Canyon	4,202	Oil/Gas
Cherry Canyon	5,092	Oil/Gas
Brushy Canyon	6,353	Losses
Bone Spring	8,035	Oil/Gas
1st Bone Spring	9,048	Oil/Gas
2nd Bone Spring	**9,774**	**Oil/Gas**

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

2. Casing Program

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	Buoyant Body SF Tension	Buoyant Joint SF Tension
	From (ft)	To (ft)								
14.75	0	847	10.75	40.5	J-55	BTC	1.125	1.2	1.4	1.4
9.875	0	10094	7.625	26.4	L-80 HC	BTC	1.125	1.2	1.4	1.4
6.75	0	21504	5.5	20	P-110	DQX	1.125	1.2	1.4	1.4
							SF Values will meet or Exceed			

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
*Oxy requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower and a DV tool may be run in case hole conditions merit pumping a second stage cement job to comply with permitted top of cement. If cement circulated to surface during first stage, we will drop a cancelation cone and not pump the second stage.
*Oxy requests the option to run production casing with DQX, SF TORQ, and/or DQW TORQ connections to accommodate hole conditions or drilling operations.

Annular Clearance Variance Request

As per the agreement reached in the Oxy/BLM meeting on Feb 22, 2018, Oxy requests permission to allow deviation from the 0.422" annular clearance requirement from Onshore Order #2 under the following conditions:

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

	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.	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?	Y
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	Y
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

Casing String	# Sks	Wt. (lb/gal)	Yld (ft3/sack)	H20 (gal/sk)	500# Comp. Strength (hours)	Slurry Description
Surface (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Surface (Tail)	695	14.8	1.33	6.365	5:26	Class C Cement, Accelerator
Intermediate 1st Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate 1st Stage (Tail)	484	13.2	1.65	8.640	11:54	Class H Cement, Retarder, Dispersant, Salt
Intermediate 2nd Stage (Tail Slurry) to be pumped as Bradenhead Squeeze from surface, down the Intermediate annulus						
Intermediate 2nd Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate 2nd Stage (Tail)	812	12.9	1.92	10.41	23:10	Class C Cement, Accelerator
Production (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Production (Tail)	873	13.2	1.38	6.686	3:39	Class H Cement, Retarder, Dispersant, Salt

Casing String	Top (ft)	Bottom (ft)	% Excess
Surface (Lead)	N/A	N/A	N/A
Surface (Tail)	0	847	100%
Intermediate 1st Stage (Lead)	N/A	N/A	N/A
Intermediate 1st Stage (Tail)	6603	10094	5%
Intermediate 2nd Stage (Lead)	N/A	N/A	N/A
Intermediate 2nd Stage (Tail)	0	6603	10%
Production (Lead)	N/A	N/A	N/A
Production (Tail)	9594	21504	20%

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.

The summarized operational sequence will be as follows:

1. Run casing as per normal operations. While running casing, conduct negative pressure test and confirm integrity of the float equipment (float collar and shoe).

2. Land casing.
3. Fill pipe with kill weight fluid, and confirm well is static.
    a. If well is not static notify BLM and kill well.
    b. Once well is static notify BLM with intent to proceed with nipple down and offline cementing.
4. Set and pressure test annular packoff.
5. After confirmation of both annular barriers and internal barriers, nipple down BOP and install cap flange. If any barrier fails to test, the BOP stack will not be nippled down until after the cement job is completed.
6. Skid rig to next well on pad.
7. Confirm well is static before removing cap flange.
8. If well is not static notify BLM and kill well prior to cementing or nippling up for further remediation.
9. Install offline cement tool.
10. Rig up cement equipment.
    a. Notify BLM prior to cement job.
11. Perform cement job.
12. Confirm well is static and floats are holding after cement job.
13. Remove cement equipment, offline cement tools and install night cap with pressure gauge for monitoring.

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.

Three string wells:

- CBL will be required on one well per pad
- If the pumped volume of cement is less than permitted in the APD, BLM will be notified and a CBL may be run
- Echometer will be used after bradenhead cement job to determine TOC before pumping top-out cement

4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
9.875" Hole	13-5/8"	5M	Annular	✓	70% of working pressure
		5M	Blind Ram	✓	250 psi / 5000 psi
			Pipe Ram		
			Double Ram	✓	
			Other*		
6.75" Hole	13-5/8"	5M	Annular	✓	70% of working pressure
		5M	Blind Ram	✓	250 psi / 5000 psi
			Pipe Ram		
			Double Ram	✓	
			Other*		

*Specify if additional ram is utilized.

Oxy will utilize a 5M annular with a 10M BOPE stack. The 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 and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

	Formation integrity test will be performed per Onshore Order #2. 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.
	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 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. 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. A separate sundry will be sent prior to spud that reflects the pad based break testing plan.

BOP break test under the following conditions:

- After a full BOP test is conducted
- When skidding to drill an intermediate section where ICP is set into the third Bone Spring or shallower.
- When skidding to drill a production section that does not penetrate into the third Bone Spring or deeper.

If the kill line is broken prior to skid, two tests will be performed.

1) Wellhead flange, co-flex hose, kill line connections and upper pipe rams
2) Wellhead flange, HCR valve, check valve, upper pipe rams

If the kill line is not broken prior to skid, only one test will be performed.

1) Wellhead flange, co-flex hose, check valve, upper pipe rams

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From (ft)	To (ft)				
0	847	Water-Based Mud	8.6-8.8	40-60	N/C
847	10094	Saturated Brine-Based or Oil-Based Mud	8.0-10.0	35-45	N/C
10094	21504	Water-Based or Oil-Based Mud	9.5-12.0	38-50	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. The following is a general list of products: Barite, Bentonite,

Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Salt Water Clay, CACL2. Oxy will use a closed mud system.

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

6. Logging and Testing Procedures

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

Additional logs planned		**Interval**
No	Resistivity	
No	Density	
No	CBL	
Yes	Mud log	ICP - TD
No	PEX	

7. Drilling Conditions

Condition	**Specify what type and where?**
BH Pressure at deepest TVD	6719 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	167°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 zonal isolation.

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 Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

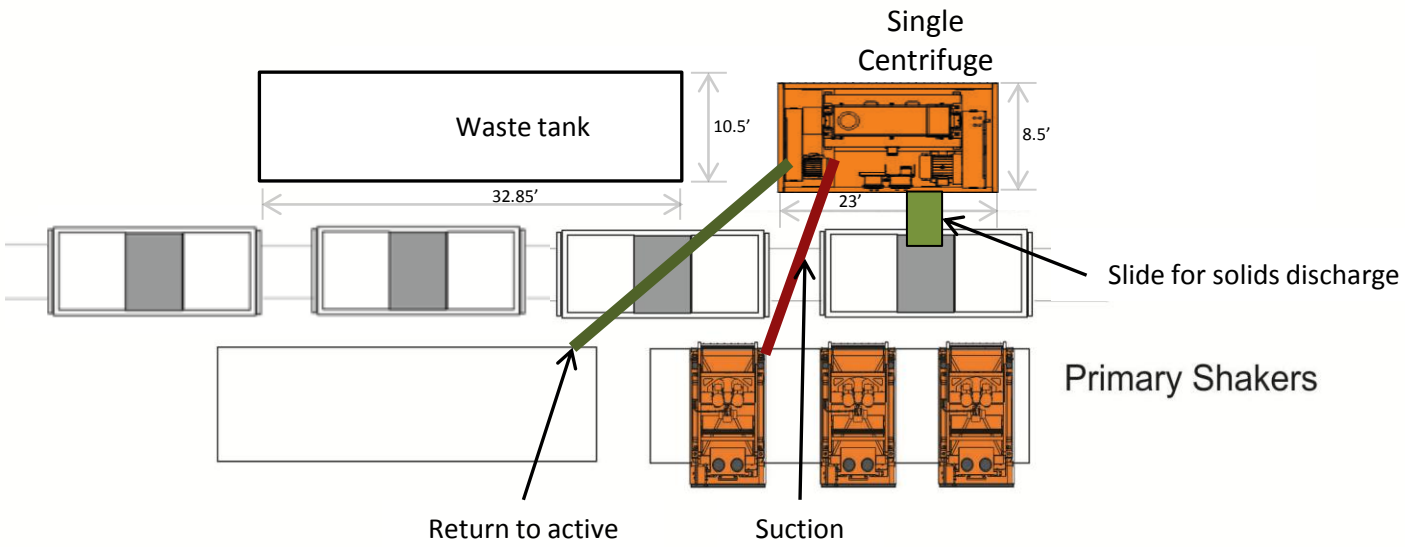
8. Other facets of operation	**Yes/No**
Will the well be drilled with a walking/skidding operation? If yes, describe. • We plan to drill the two well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the 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: 1560 bbls**.**

9. Company Personnel

Name	Title	Office Phone	Mobile Phone
Linsay Earle	Drilling Engineer		832-596-5507
William Turner	Drilling Engineer Supervisor	713-350-4951	661-817-4586
Simon Benavides	Drilling Superintendent	713-522-8652	281-684-6897
Diego Tellez	Drilling Manager	713-350-4602	713-303-4932

Oxy



Oxy Single Centrifuge Closed Loop System – New Mexico Flex III

May 28, 2013

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 02-11-2020

☒ Original Operator & OGRID No.: OXY USA INC. - 16696

☐ Amended - Reason for Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared orVent	Comments
JEFF SMITH MDP1 7 FED COM 175H	Pending	P-6-T24S-R-31E	331 FSL 565 FEL	2,800	0	
JEFF SMITH MDP1 7 FED COM 176H	Pending	P-6-T24S-R31E	331 FSL 530 FEL	2,800	0	
JEFF SMITH MDP1 7 FED COM 25H	Pending	P-6-T24S-R31E	330 FSL 240 FEL	3,700	0	
JEFF SMITH MDP1 7_18 FED COM 11H	Pending	N-6-T24S-R31E	277 FSL 1926 FWL	2,500	0	
JEFF SMITH MDP1 7_18 FED COM 12H	Pending	N-6-T24S-31E	277 FSL 1961 FWL	2,500	0	
JEFF SMITH MDP1 7_18 FED COM 13H	Pending	P-6-T24S-R31E	418 FSL 994 FEL	2,500	0	
JEFF SMITH MDP1 7_18 FED COM 14H	Pending	P-6-T24S-R31E	348 FSL 994 FEL	2,500	0	
JEFF SMITH MDP1 7_18 FED COM 171H	Pending	M-7-T24S-R31E	779 FSL 705 FWL	4,200	0	
JEFF SMITH MDP1 7_18 FED COM 172H	Pending	M-6-T24S-R31E	779 FSL 740 FWL	4,200	0	
JEFF SMITH MDP1 7_18 FED COM 173H	Pending	N-6-T24S-R31E	275 FSL 2256 FWL	4,200	0	
JEFF SMITH MDP1 7_18 FED COM 174H	Pending	N-6-T23S-R31E	275 FSL 2291 FWL	4,200	0	
JEFF SMITH MDP1 7_18 FED COM 1H	Pending	N-6-T24S-R31E	730 FSL 1755 FWL	3,800	0	
JEFF SMITH MDP1 7_18 FED COM 21H	Pending	D-7-T24S-R31E	198 FNL 321 FWL	5,500	0	
JEFF SMITH MDP1 7_18 FED COM 22H	Pending	D-7-T24S-R31E	198 FNL 421 FWL	5,500	0	
JEFF SMITH MDP1 7_18 FED COM 23H	Pending	C-7-T24S-R31E	233 FNL 2136 FWL	5,500	0	
JEFF SMITH MDP1 7_18 FED COM 24H	Pending	C-7-T24S-R31E	233 FNL 2206 FWL	5,500	0	

JEFF SMITH MDP1 7_18 FED COM 26H	Pending	P-6-T24S-R31E	329 FSL 170 FEL	5,500	0	
JEFF SMITH MDP1 7_18 FED COM 2H	Pending	A-7-T24S-R31E	248 FNL 1200 FEL	3,800	0	
JEFF SMITH MDP1 7_18 FED COM 31H	Pending	N-6-T24S-R31E	730 FSL 1690 FWL	3,000	0	
JEFF SMITH MDP1 7_18 FED COM 32H	Pending	N-6-T24S-R31E	730 FSL 1790 FWL	3,000	0	
JEFF SMITH MDP1 7_18 FED COM 33H	Pending	P-6-T24S-R31E	518 FSL 994 FEL	3,000	0	
JEFF SMITH MDP1 7_18 FED COM 34H	Pending	P-6-T24S-R31E	488 FSL 994 FEL	3,000	0	
JEFF SMITH MDP1 7_18 FED COM 3H	Pending	A-7-T24S-R31E	248 FNL 1100 FEL	3,800	0	
JEFF SMITH MDP1 7_18 FED COM 41H	Pending	N-6-T24S-R31E	279 FSL 1566 FWL	7,200	0	
JEFF SMITH MDP1 7_18 FED COM 42H	Pending	N-6-T24S-R31E	278 FSL 1636 FWL	7,200	0	
JEFF SMITH MDP1 7_18 FED COM 43H	Pending	N-6-T24S-R31E	730 FSL 2020 FWL	7,200	0	
JEFF SMITH MDP1 7_18 FED COM 44H	Pending	N-6-T24S-R31E	730 FSL 2090 FWL	7,200	0	
JEFF SMITH MDP1 7_18 FED COM 45H	Pending	P-6-T24S-R31E	1225 FSL 1200 FEL	7,200	0	
JEFF SMITH MDP1 7_18 FED COM 46H	Pending	P-6-T24S-R31E	1295 FSL 1200 FEL	7,200	0	
NUGGET 6_31 FED COM 11H	Pending	N-6-T24S-31E	277 FSL 1896 FWL	2,500	0	
NUGGET 6_31 FED COM 12H	Pending	N-6-T24S-R31E	277 FSL 1996 FWL	2,500	0	
NUGGET 6_31 FED COM 13H	Pending	P-6-T24S-R31E	453 FSL 994 FEL	2,500	0	
NUGGET 6_31 FED COM 14H	Pending	P-6-T24S-R31E	383 FSL 994 FEL	2,500	0	
NUGGET 6_31 FED COM 171H	Pending	D-7-T24S-R31E	198 FNL 456 FWL	4,200	0	
NUGGET 6_31 FED COM 172H	Pending	D-7-T24S-R31E	198 FNL 491 FWL	4,200	0	
NUGGET 6_31 FED COM 173H	Pending	C-7-T24S-R31E	620 FNL 1994 FWL	4,200	0	
NUGGET 6_31 FED COM 174H	Pending	C-7-T24S-R31E	620 FNL 2029 FWL	4,200	0	
NUGGET 6_31 FED COM 175H	Pending	P-6-T24S-R31E	1089 FSL 300 FEL	4,200	0	
NUGGET 6_31 FED COM 176H	Pending	P-6-T24S-R31E	1089 FSL 265 FEL	4,200	0	
NUGGET 6_31 FED COM 1H	Pending	N-6-T24S-R31E	730 FSL 1720 FWL	3,800	0	
NUGGET 6_31 FED COM 21H	Pending	D-7-T24S-R31E	198 FNL 351 FWL	5,500	0	
NUGGET 6_31 FED COM 22H	Pending	D-7-T24S-R31E	198 FNL 386 FWL	5,500	0	

NUGGET 6_31 FED COM 23H	Pending	C-7-T24S-R31E	233 FNL 2106 FWL	5,500	0	
NUGGET 6_31 FED COM 24H	Pending	C-7-T24S-R31E	233 FNL 2171 FWL	5,500	0	
NUGGET 6_31 FED COM 25H	Pending	P-6-T24S-R31E	330 FSL 270 FEL	5,500	0	
NUGGET 6_31 FED COM 26H	Pending	P-6-T24S-R31E	329 FSL 205 FEL	5,500	0	
NUGGET 6_31 FED COM 2H	Pending	A-7-T24S-R31E	248 FNL 1170 FEL	3,800	0	
NUGGET 6_31 FED COM 31H	Pending	C-7-T24S-R31E	231 FNL 1811 FWL	3,000	0	
NUGGET 6_31 FED COM 32H	Pending	C-7-T24S-R31E	231 FNL 1846 FWL	3,000	0	
NUGGET 6_31 FED COM 33H	Pending	P-6-T24S-R31E	1090 FSL 515 FEL	3,000	0	
NUGGET 6_31 FED COM 34H	Pending	P-6-T24S-R31E	1090 FSL 480 FEL	3,000	0	
NUGGET 6_31 FED COM 3H	Pending	A-7-T24S-R31E	248 FNL 1135 FEL	3,800	0	
NUGGET 6_31 FED COM 41H	Pending	N-6-T24S-R31E	279 FSL 1536 FWL	7,200	0	
NUGGET 6_31 FED COM 42H	Pending	N-6-T24S-R31E	278 FSNL 1601 FWL	7,200	0	
NUGGET 6_31 FED COM 43H	Pending	N-6-T24S-R31E	730 FSL 1990 FWL	7,200	0	
NUGGET 6_31 FED COM 44H	Pending	N-6-T24S-R31E	730 FSL 2055 FWL	7,200	0	
NUGGET 6_31 FED COM 45H	Pending	P-6-T24S-R31E	1195 FSL 1200 FEL	7,200	0	
NUGGET 6_31 FED COM 46H	Pending	P-6-T24S-R31E	1260 FSL 1200 FEL	7,200	0	

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, where a gas transporter system is in place. The gas produced from production facility is dedicated to Enterprise Field Services, LLC ("Enterprise") and is connected to Enterprise low/high pressure gathering system located in Eddy County, New Mexico. OXY USA INC. ("OXY") provides (periodically) to Enterprise a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, OXY and Enterprise have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Enterprise's Processing Plant located in Sec. 36, Twn. 24S, Rng. 30E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Enterprise system at that time. Based on current information, it is OXY's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
    - Only a portion of gas is consumed operating the generator, remainder of gas will be flared

- Compressed Natural Gas – On lease
    - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
    - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines