

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**

1a. Type of work: <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER 1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other 1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		5. Lease Serial No.  6. If Indian, Allottee or Tribe Name  7. If Unit or CA Agreement, Name and No.  8. Lease Name and Well No.  <div style="text-align: center;"><b>[334838]</b></div>
2. Name of Operator <div style="text-align: center;"><b>[16696]</b></div>		9. API Well No. <b>30-025-52186</b>
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory <b>[334838]</b> <b>XXXXXXXXXX</b>
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		11. Sec., T. R. M. or Blk. and Survey or Area
14. Distance in miles and direction from nearest town or post office*		12. County or Parish 13. State
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
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.<br>2. A Drilling Plan.<br>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).<br>5. Operator certification.<br>6. Such other site specific information and/or plans as may be requested by the BLM. |
|---|---|

25. Signature  Title	Name (Printed/Typed)	Date
Approved by (Signature)	Name (Printed/Typed)	Date
Title	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.

**NGMP Rec 11/08/2023**

**NSP  
SL**

(Continued on page 2)



**Approval Date: 11/03/2023**

**KZ  
11/08/2023**

**NSP REQUIRED**

\*(Instructions on page 2)

## Additional Operator Remarks

### Location of Well

0. SHL: LOT 2 / 606 FNL / 1586 FEL / TWSP: 22S / RANGE: 32E / SECTION: 4 / LAT: 32.4262814 / LONG: -103.6763058 ( TVD: 0 feet, MD: 0 feet )  
PPP: SESE / 1323 FSL / 332 FEL / TWSP: 22S / RANGE: 32E / SECTION: 4 / LAT: 32.417096 / LONG: -103.672222 ( TVD: 12060 feet, MD: 16201 feet )  
PPP: NESE / 2637 FNL / 331 FEL / TWSP: 22S / RANGE: 32E / SECTION: 9 / LAT: 32.406211 / LONG: -103.672208 ( TVD: 12060 feet, MD: 20161 feet )  
PPP: NENE / 4 FNL / 332 FEL / TWSP: 22S / RANGE: 32E / SECTION: 9 / LAT: 32.413468 / LONG: -103.672217 ( TVD: 12060 feet, MD: 17521 feet )  
PPP: SESE / 1325 FSL / 331 FEL / TWSP: 22S / RANGE: 32E / SECTION: 9 / LAT: 32.402582 / LONG: -103.672203 ( TVD: 12060 feet, MD: 21481 feet )  
PPP: NENE / 100 FNL / 330 FEL / TWSP: 22S / RANGE: 32E / SECTION: 4 / LAT: 32.4276888 / LONG: -103.9722356 ( TVD: 12060 feet, MD: 12555 feet )  
PPP: NESE / 2634 FNL / 331 FEL / TWSP: 22S / RANGE: 32E / SECTION: 4 / LAT: 32.420724 / LONG: -103.672227 ( TVD: 12060 feet, MD: 14881 feet )  
BHL: SESE / 20 FSL / 330 FEL / TWSP: 22S / RANGE: 32E / SECTION: 9 / LAT: 32.3989986 / LONG: -103.6721982 ( TVD: 12060 feet, MD: 22785 feet )

### BLM Point of Contact

Name: TENILLE C MOLINA  
Title: Land Law Examiner  
Phone: (575) 234-2224  
Email: TCMOLINA@BLM.GOV

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

<sup>1</sup> API Number <b>30-025-52186</b>	<sup>2</sup> Pool Code <b>98166</b>	<sup>3</sup> Pool Name <b>WC-025 G-09 S22332A; UPR WOLFCAMP</b>
<sup>4</sup> Property Code <b>334838</b>	<sup>5</sup> Property Name <b>GOLD LOG 4_9 FED COM</b>	<sup>6</sup> Well Number <b>35H</b>
<sup>7</sup> OGRID No. <b>16696</b>	<sup>8</sup> Operator Name <b>OXY USA INC.</b>	<sup>9</sup> Elevation <b>3797'</b>

<sup>10</sup> Surface Location

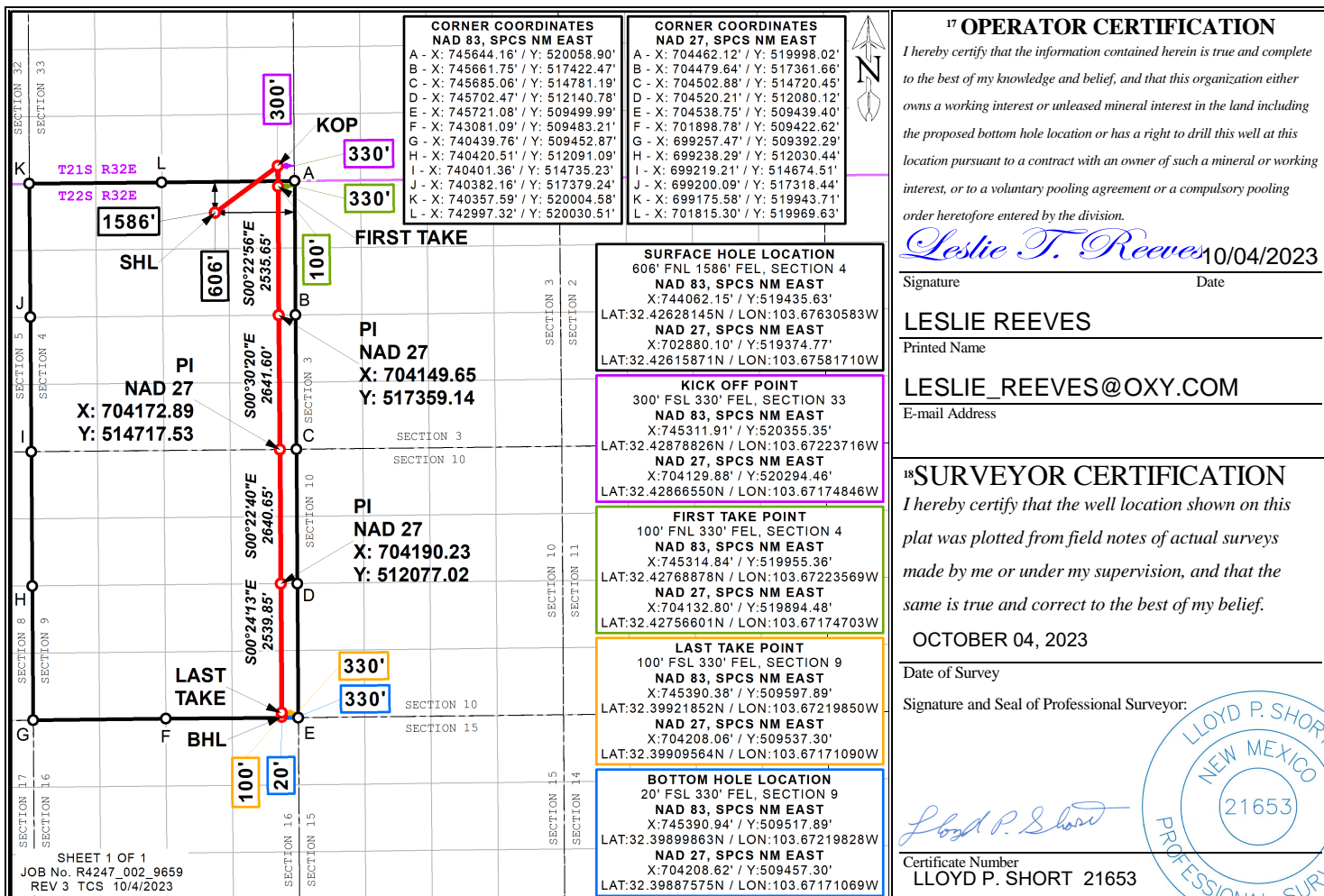
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L 2	4	22S	32E		606	NORTH	1586	EAST	LEA

<sup>11</sup> 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
P	9	22S	32E		20	SOUTH	330	EAST	LEA

<sup>12</sup> Dedicated Acres <b>1279.16</b>	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No. <b>NSP ORDER REQUIRED</b>
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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.



Distances/areas relative to NAD 83 Combined Scale Factor: 0.99977749 Convergence Angle: 00°20'56.98000"

☐ Horizontal Spacing Unit

State of New Mexico  
Energy, Minerals and Natural Resources Department

Submit Electronically  
Via E-permitting

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

## NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

### Section 1 – Plan Description

Effective May 25, 2021

**I. Operator:** OXY USA INC. **OGRID:** 16696 **Date:** 0 2/ 2 2/ 2 3

**II. Type:** ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: \_\_\_\_\_

**III. Well(s):** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
SEE ATTACHED						

**IV. Central Delivery Point Name:** LOST TANK 6 [See 19.15.27.9(D)(1) NMAC]

**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
SEE ATTACHED						

**VI. Separation Equipment:** ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

**VII. Operational Practices:** ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

**VIII. Best Management Practices:** ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.



**Section 2 – Enhanced Plan**  
**EFFECTIVE APRIL 1, 2022**

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

**IX. Anticipated Natural Gas Production:**

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

**X. Natural Gas Gathering System (NGGS):**

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

**XI. Map.** ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

**XII. Line Capacity.** The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

**XIII. Line Pressure.** Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

**XIV. Confidentiality:** ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

### **Section 3 - Certifications**

**Effective May 25, 2021**

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

***If Operator checks this box, Operator will select one of the following:***

**Well Shut-In.** ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

**Venting and Flaring Plan.** ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

### **Section 4 - Notices**

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

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I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: <i>Roni Mathew</i>
Printed Name: Roni Mathew
Title: Regulatory Advisor
E-mail Address: roni_mathew@oxy.com
Date: 02/22/2023
Phone: 713-215-7827
<b>OIL CONSERVATION DIVISION</b> <b>(Only applicable when submitted as a standalone form)</b>
Approved By:
Title:
Approval Date:
Conditions of Approval:

## III. Well(s)

Well Name	API	WELL LOCATION (ULSTR)	Footages	ANTICIPATED OIL BBL/D	ANTICIPATED GAS MCF/D	ANTICIPATED PROD WATER BBL/D
GOLD LOG 4_9 FED COM 11H	Pending	D-4-22S-32E	396 FNL 1076 FWL	1500	3500	4630
GOLD LOG 4_9 FED COM 12H	Pending	D-4-22S-32E	397 FNL 1106 FWL	1500	3500	4630
GOLD LOG 4_9 FED COM 13H	Pending	D-4-22S-32E	397 FNL 1136 FWL	1500	3500	4630
GOLD LOG 4_9 FED COM 14H	Pending	B-4-22S-32E	394 FNL 1825 FEL	1500	3500	4630
GOLD LOG 4_9 FED COM 15H	Pending	B-4-22S-32E	394 FNL 1795 FEL	1500	3500	4630
GOLD LOG 4_9 FED COM 16H	Pending	B-4-22S-32E	394 FNL 1765 FEL	1500	3500	4630
GOLD LOG 4_9 FED COM 1H	Pending	D-4-22S-32E	398 FNL 1196 FWL	1255	2700	4500
GOLD LOG 4_9 FED COM 21H	Pending	D-4-22S-32E	607 FNL 1104 FWL	1460	1667	4667
GOLD LOG 4_9 FED COM 22H	Pending	D-4-22S-32E	607 FNL 1134 FWL	1460	1667	4667
GOLD LOG 4_9 FED COM 23H	Pending	D-4-22S-32E	607 FNL 1164 FWL	1460	1667	4667
GOLD LOG 4_9 FED COM 24H	Pending	B-4-22S-32E	604 FNL 1796 FEL	1460	1667	4667
GOLD LOG 4_9 FED COM 25H	Pending	B-4-22S-32E	604 FNL 1766 FEL	1460	1667	4667
GOLD LOG 4_9 FED COM 26H	Pending	B-4-22S-32E	605 FNL 1736 FEL	1460	1667	4667
GOLD LOG 4_9 FED COM 2H	Pending	D-4-22S-32E	398 FNL 1226 FWL	1255	2700	4500
GOLD LOG 4_9 FED COM 3H	Pending	B-4-22S-32E	395 FNL 1705 FEL	1255	2700	4500
GOLD LOG 4_9 FED COM 4H	Pending	B-4-22S-32E	395 FNL 1675 FEL	1255	2700	4500
GOLD LOG 4_9 FED COM 71H	Pending	D-4-22S-32E	399 FNL 1286 FWL	1800	2750	5000
GOLD LOG 4_9 FED COM 72H	Pending	D-4-22S-32E	399 FNL 1316 FWL	1800	2750	5000
GOLD LOG 4_9 FED COM 73H	Pending	B-4-22S-32E	396 FNL 1615 FEL	1800	2750	5000
GOLD LOG 4_9 FED COM 74H	Pending	B-4-22S-32E	396 FNL 1585 FEL	1800	2750	5000
GOLD LOG 4_9 FED COM 311H	Pending	D-4-22S-32E	608 FNL 1254 FWL	3000	5000	7500
GOLD LOG 4_9 FED COM 31H	Pending	D-4-22S-32E	608 FNL 1224 FWL	3000	5000	7500
GOLD LOG 4_9 FED COM 32H	Pending	D-4-22S-32E	608 FNL 1284 FWL	3000	5000	7500
GOLD LOG 4_9 FED COM 33H	Pending	D-4-22S-32E	609 FNL 1314 FWL	3000	5000	7500
GOLD LOG 4_9 FED COM 312H	Pending	B-4-22S-32E	605 FNL 1676 FEL	3000	5000	7500
GOLD LOG 4_9 FED COM 313H	Pending	B-4-22S-32E	606 FNL 1616 FEL	3000	5000	7500
GOLD LOG 4_9 FED COM 34H	Pending	B-4-22S-32E	606 FNL 1646 FEL	3000	5000	7500
GOLD LOG 4_9 FED COM 35H	Pending	B-4-22S-32E	606 FNL 1586 FEL	3000	5000	7500

## V. Anticipated Schedule

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
GOLD LOG 4_9 FED COM 11H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 12H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 13H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 14H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 15H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 16H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 1H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 21H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 22H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 23H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 24H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 25H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 26H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 2H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 3H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 4H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 71H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 72H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 73H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 74H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 311H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 31H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 32H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 33H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 312H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 313H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 34H	Pending	TBD	TBD	TBD	TBD	TBD
GOLD LOG 4_9 FED COM 35H	Pending	TBD	TBD	TBD	TBD	TBD

Central Delivery Point Name: (Lost Tank 6)

#### **Part VI. Separation Equipment**

Operator will size the flowback separator to handle 11,000 Bbls of fluid and 6-10MMscfd which is more than the expected peak rates for these wells. Each separator is rated to 1440psig, and pressure control valves and automated communication will cause the wells to shut in in the event of an upset at the facility, therefore no gas will be flared on pad during an upset. Current Oxy practices avoid use of flare or venting on pad, therefore if there is an upset or emergency condition at the facility, the wells will immediately shut down, and reassume production once the condition has cleared.



## **VII. Operational Practices**

### **Gathering System and Pipeline Notification**

Well(s) will be connected to a production facility and fluids will be sent to the facility after initial flowback operations are complete, where a gas transporter system is in place. The gas produced from production facility will be dedicated to MarkWest Energy West Texas Gas Company LLC ("MarkWest") and will be connected to MarkWest's high pressure gathering system located in Lea and Eddy Counties, New Mexico and Loving and Culberson Counties, TX. OXY USA INC. ("OXY") will provide (periodically) to MarkWest a production forecast for wells being sent to their system. In addition, OXY and MarkWest will have periodic conference calls to discuss changes to production forecasts arising out of changes to drilling and completion schedules. Gas from these wells will be processed at MarWest's Preakness and Tornado Processing Plants located in Culberson County, TX and Loving County, Texas respectively. 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 MarkWest's 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.

## **VIII. Best Management Practices**

### **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

# Oxy USA Inc. - GOLD LOG 4\_9 FED COM 35H

## Drill Plan

### 1. Geologic Formations

TVD of Target (ft):	12060	Pilot Hole Depth (ft):	
Total Measured Depth (ft):	22786	Deepest Expected Fresh Water (ft):	984

### Delaware Basin

Formation	MD-RKB (ft)	TVD-RKB (ft)	Expected Fluids
Rustler	984	984	
Salado	1154	1154	Salt
Castile	2633	2633	Salt
Delaware	4840	4840	Oil/Gas/Brine
Bell Canyon	4946	4946	Oil/Gas/Brine
Cherry Canyon	5787	5778	Oil/Gas/Brine
Brushy Canyon	7026	6985	Losses
Bone Spring	8931	8841	Oil/Gas
Bone Spring 1st	9985	9868	Oil/Gas
Bone Spring 2nd	10615	10482	Oil/Gas
Bone Spring 3rd	11693	11533	Oil/Gas
Wolfcamp	12131	11912	Oil/Gas
Penn			Oil/Gas
Strawn			Oil/Gas

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

### 2. Casing Program

Section	Hole Size (in)	MD		TVD		Csg. OD (in)	Csg Wt. (ppf)	Grade	Conn.
		From (ft)	To (ft)	From (ft)	To (ft)				
Surface	17.5	0	1044	0	1044	13.375	54.5	J-55	BTC
Intermediate	12.25	0	11477	0	11319	7.625	26.4	L-80 HC	BTC
Production	6.75	0	22786	0	12060	5.5	20	P-110	Wedge 461

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

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

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

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

**Annular Clearance Variance Request**

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

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

**3. Cementing Program**

Section	Stage	Slurry:	Sacks	Yield (ft <sup>3</sup> /ft)	Density (lb/gal)	Excess:	TOC	Placement	Description
Surface	1	Surface - Tail	1091	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.	1	Intermediate 1S - Tail	1340	1.65	13.2	5%	7,276	Circulate	Class H+Accel., Disper., Salt
Int.	2	Intermediate 2S - Tail BH	2620	1.71	13.3	25%	-	Bradenhead	Class C+Accel.
Prod.	1	Production - Tail	892	1.38	13.2	25%	10,977	Circulate	Class H+Ret., Disper., Salt

**Offline Cementing Request**

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

**Bradenhead CBL Request**

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

**4. Pressure Control Equipment**

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:	Deepest TVD Depth (ft) per Section:
12.25" Hole	13-5/8"	5M	Annular	✓	70% of working pressure	11319
		5M	Blind Ram	✓	250 psi / 5000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			
6.75" Hole	13-5/8"	5M	Annular	✓	100% of working pressure	12060
		10M	Blind Ram	✓	250 psi / 10000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			

\*Specify if additional ram is utilized

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

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold.

**5M Annular BOP Request**

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



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

### BOP Break Testing Request

Oxy requests permission to adjust the BOP break testing requirements as per the agreement reached in the OXY/BLM meeting on September 5, 2019. Please see BOP Break Testing Variance attachment for further details.

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

**5. Mud Program**

Section	Depth - MD		Depth - TVD		Type	Weight (ppg)	Viscosity	Water Loss
	From (ft)	To (ft)	From (ft)	To (ft)				
Surface	0	1044	0	1044	Water-Based Mud	8.6 - 8.8	40-60	N/C
Intermediate	1044	11477	1044	11319	Saturated Brine-Based or Oil-Based Mud	8.0 - 10.0	35-45	N/C
Production	11477	22786	11319	12060	Water-Based or Oil-Based Mud	9.5 - 12.5	38-50	N/C

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

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

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

**7. Drilling Conditions**

Condition	Specify what type and where?
BH Pressure at deepest TVD	7839 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	177°F

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

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

N	H2S is present
Y	H2S Plan attached

**8. Other facets of operation**

	Yes/No
Will the well be drilled with a walking/skidding operation? If yes, describe. We plan to drill the 3 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
<b>Total Estimated Cuttings Volume: 2333 bbls</b>	

# Oxy USA Inc. - GOLD LOG 4\_9 FED COM 35H

## Drill Plan

### 1. Geologic Formations

TVD of Target (ft):	12060	Pilot Hole Depth (ft):	
Total Measured Depth (ft):	22786	Deepest Expected Fresh Water (ft):	984

### Delaware Basin

Formation	MD-RKB (ft)	TVD-RKB (ft)	Expected Fluids
Rustler	984	984	
Salado	1154	1154	Salt
Castile	2633	2633	Salt
Delaware	4840	4840	Oil/Gas/Brine
Bell Canyon	4946	4946	Oil/Gas/Brine
Cherry Canyon	5787	5778	Oil/Gas/Brine
Brushy Canyon	7026	6985	Losses
Bone Spring	8931	8841	Oil/Gas
Bone Spring 1st	9985	9868	Oil/Gas
Bone Spring 2nd	10615	10482	Oil/Gas
Bone Spring 3rd	11693	11533	Oil/Gas
Wolfcamp	12131	11912	Oil/Gas
Penn			Oil/Gas
Strawn			Oil/Gas

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

### 2. Casing Program

Section	Hole Size (in)	MD		TVD		Csg. OD (in)	Csg Wt. (ppf)	Grade	Conn.
		From (ft)	To (ft)	From (ft)	To (ft)				
Surface	17.5	0	1044	0	1044	13.375	54.5	J-55	BTC
Salt	12.25	0	4940	0	4940	10.75	45.5	L-80 HC	BTC-SC
Intermediate	9.875	0	11477	0	11319	7.625	26.4	L-80 HC	BTC
Production	6.75	0	22786	0	12060	5.5	20	P-110	Wedge 461

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

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

**Annular Clearance Variance Request**

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

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

**3. Cementing Program**

Section	Stage	Slurry:	Sacks	Yield (ft <sup>3</sup> /ft)	Density (lb/gal)	Excess:	TOC	Placement	Description
Surface	1	Surface - Tail	1091	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.1	1	Intermediate - Tail	85	1.33	14.8	20%	4,440	Circulate	Class C+Accel.
Int.1	1	Intermediate - Lead	697	1.73	12.9	50%	-	Circulate	Class Pozz+Ret.
Int. 2	1	Intermediate 1S - Tail	269	1.65	13.2	5%	7,276	Circulate	Class H+Accel., Disper., Salt
Int. 2	2	Intermediate 2S - Tail BH	815	1.71	13.3	25%	-	Bradenhead	Class C+Accel.
Prod.	1	Production - Tail	892	1.38	13.2	25%	10,977	Circulate	Class H+Ret., Disper., Salt

**Offline Cementing Request**

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

**Bradenhead CBL Request**

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



**4. Pressure Control Equipment**

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:	TVD Depth (ft) per Section:
12.25" Hole	13-5/8"	5M	Annular	✓	70% of working pressure	4940
		5M	Blind Ram	✓	250 psi / 5000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			
9.875" Hole	13-5/8"	5M	Annular	✓	70% of working pressure	11319
		5M	Blind Ram	✓	250 psi / 5000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			
6.75" Hole	13-5/8"	5M	Annular	✓	100% of working pressure	12060
		10M	Blind Ram	✓	250 psi / 10000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			

\*Specify if additional ram is utilized

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

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold.

**5M Annular BOP Request**

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

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

### BOP Break Testing Request

Oxy requests permission to adjust the BOP break testing requirements as per the agreement reached in the OXY/BLM meeting on September 5, 2019. Please see BOP Break Testing Variance attachment for further details.

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

**5. Mud Program**

Section	Depth		Depth - TVD		Type	Weight (ppg)	Viscosity	Water Loss
	From (ft)	To (ft)	From (ft)	To (ft)				
Surface	0	1044	0	1044	Water-Based Mud	8.6 - 8.8	40-60	N/C
Intermediate 1	1044	4940	1044	4940	Saturated Brine-Based or Oil-Based Mud	8.0 - 10.0	35-45	N/C
Intermediate 2	4940	11477	4940	11319	Water-Based or Oil-Based Mud	8.0 - 10.0	38-50	N/C
Production	11477	22786	11319	12060	Water-Based or Oil-Based Mud	9.5 - 12.5	38-50	N/C

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

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

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

**7. Drilling Conditions**

Condition	Specify what type and where?
BH Pressure at deepest TVD	7839 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	177°F

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

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

N	H2S is present
Y	H2S Plan attached

**8. Other facets of operation**

	Yes/No
Will the well be drilled with a walking/skidding operation? If yes, describe. We plan to drill the 3 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
<b>Total Estimated Cuttings Volume:</b> 1999 bbls	

## 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.

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

See supporting information below:

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

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

### Background

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

### Supporting Rationale

43 CFR part 3170 Subpart 3172 became effective on December 19, 1988, and has remained the standard for regulating BLM onshore drilling operations for almost 30 years. During this time there have been significant changes in drilling technology. **BLM** continues to use the variance request process to allow for the use of modern technology and acceptable engineering practices that have arisen since 43 CFR part 3170 Subpart 3172 was originally released. The drilling rig fleet OXY utilizes in New Mexico was built with many modern upgrades. One of which allows the rigs to skid between wells on multi-well pads. A part of this rig package is a hydraulic winch system which safely installs and removes the BOP from the wellhead and carries it during skidding operations. This technology has made break testing a safe and reliable procedure.

American Petroleum Institute (API) standards, specifications and recommended practices are considered industry standards and are consistently utilized and referenced by the industry. 43 CFR part 3170 Subpart 3172 recognized API Recommended Practices (RP) 53 in its original development. API Standard 53,

*Blowout Prevention Equipment Systems for Drilling Wells* (Fourth Edition, November 2012, Addendum 1, July 2016) recognizes break testing as an acceptable practice. Specifically, API Standard 53, Section 6.5.3.4.1.b states "Pressure tests on the well control equipment shall be conducted after the disconnection or repair of any pressure containment seal in the **BOP** stack, choke line, kill line, choke manifold, or wellhead assembly but limited to the affected component."

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

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



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

### Procedures

- 1) OXY to submit the break testing plan in the APD or Sundry Notice (SN) and receive approval prior to implementing (See Appendix for examples)
- 2) OXY would perform BOP break testing on multi-well pads where multiple intermediate sections can be drilled and cased within the 30-day BOP test window
- 3) After performing a complete BOP test on the first well and drilling and casing the hole section, three breaks would be made on the BOP.
  - Between the check valve and the kill line
  - Between the HCR valve and the co-flex hose or the co-flex hose and the manifold
  - Between the BOP flange and the wellhead
- 4) The BOP is then lifted and removed from the wellhead by the hydraulic winch system
- 5) After skidding to the next well, the BOP is moved to the wellhead by the hydraulic winch system and installed
- 6) The choke line and kill line are reconnected
- 7) A test plug is installed in the wellhead with a joint of drill pipe and the internal parts of the check valve are removed
- 8) A shell test is performed against the upper pipe rams testing all three breaks
- 9) The internal parts of the check valve are reinstalled and the HCR valve is closed. A second test is performed on them
- 10) These tests consist of a 250 psi low test and a high test to the value submitted in the APD or SN (e.g., 5000 psi)
- 11) Perform a function test of components not pressure tested to include the lower pipe rams, the blind rams and the annular
- 12) If this were a three well pad, the same three breaks on the BOP would be made and steps 4 through 11 would be repeated
- 13) A second break test would only be done if the third hole section could be completed within the 30-day BOP test window
- 14) If a second break test is performed, additional components that were not tested on the initial break test will be tested on this break test

### Notes:

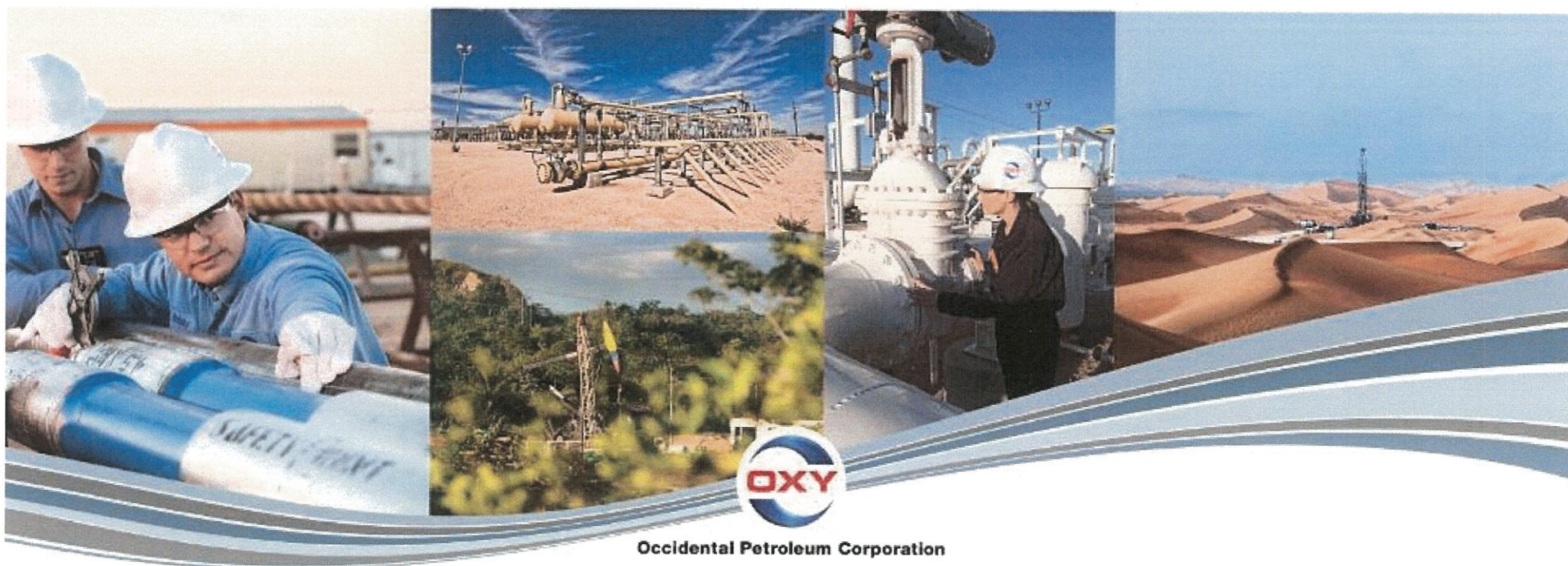
- a. If any parts of the BOP are changed out or any additional breaks are made during the skidding operation, these affected components would also be tested as in step 10.
- b. As the choke manifold remains stationary during the skidding operation and the only break to the manifold is tested in step 8 above, no further testing of the manifold is done until the next full BOP test.

## **Summary**

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

# REQUEST FOR A VARIANCE TO BREAK TEST THE BOP

Permian Resources New Mexico





# Request for Variance

OXY USA Inc. (OXY) requests a variance to allow break testing of the Blowout Preventer (BOP) stack when skidding a drilling rig between wells on multi-well pads

- This practice entails retesting only the connections of the BOP stack that have been disconnected during this operation and not a complete BOP test.
- As the choke manifold remains stationary during the skidding operation and the only break to the manifold is tested, no further testing of the manifold is done until the next full BOP test.
- This request is being made as per Section IV of the *Onshore Oil and Gas Order (OOGO) No. 2*

# Rationale for Allowing BOP Break Testing

American Petroleum Institute (API) standards, specifications and recommended practices are considered industry standards and are consistently utilized and referenced by the industry

- API Standard 53, *Blowout Prevention Equipment Systems for Drilling Wells* (Fourth Edition, November 2012, Addendum 1, July 2016) recognizes break testing as an acceptable practice.
- Specifically, API Standard 53, Section 6.5.3.4.1.b states “Pressure tests on the well control equipment shall be conducted after the disconnection or repair of any pressure containment seal in the BOP stack, choke line, kill line, choke manifold, or wellhead assembly but limited to the affected component.”





# Rationale for Allowing BOP Break Testing

The Bureau of Safety and Environmental Enforcement (BSEE), Department of Interior, has also utilized the API standards, specifications and best practices in the development of its offshore oil and gas regulations and incorporates them by reference within its regulations.

- BSEE issued new offshore regulations in July 2016 under 30 CFR Part 250, *Oil and Gas and Sulphur Operations in the Outer Continental Shelf - Blowout Preventer Systems and Well Control*. Within these regulations is language adopted from API Standard 53 which also supports break testing.
- Specifically, Section 250.737(d.8) states “Pressure test affected BOP components following the disconnection or repair of any well-pressure containment seal in the wellhead or BOP stack assembly.”

# Rationale for Allowing BOP Break Testing

Break testing has been approved by the BLM in the past

- The Farmington Field Office approved a Sundry Notice (SN) to allow break testing in 2015
- This SN granted permission for the operator to break test when skidding its Aztec 1000 rig on multi-well pads

Oxy feels break testing and our current procedures meet or exceed the intent of OOGO No. 2

- As skidding operations take place within the 30-day full BOPE test window, the BOP shell and components such as the pipe rams and check valve get tested to the full rated working pressure more often
- Oxy's standard requires complete BOP tests more often than that of OOGO No. 2
- Oxy performs a choke drill prior to drilling out every casing shoe. As a crew's training is a vital part of well control, this procedure to simulate step one of the Driller's Method exceeds the requirements of OOGO No. 2



# Break Testing Procedures

- 1) OXY to submit the break testing plan in the APD or Sundry Notice (SN) and receive approval prior to implementing
- 2) OXY would perform BOP break testing on multi-well pads where multiple intermediate sections can be drilled and cased within the full BOP test window
- 3) After performing a complete BOP test on the first well and drilling and casing the hole section, three breaks would be made on the BOP.
  - Between the check valve and the kill line
  - Between the HCR valve and the co-flex hose or the co-flex hose and the manifold
  - Between the BOP flange and the wellhead
- 4) The BOP is then lifted and removed from the wellhead by the hydraulic winch system
- 5) After skidding to the next well, the BOP is moved to the wellhead by the hydraulic winch system and installed
- 6) The choke line and kill line are reconnected
- 7) A test plug is installed in the wellhead with a joint of drill pipe and the internal parts of the check valve are removed





## Break Testing Procedures

- 8) A shell test is performed against the upper pipe rams testing all three breaks
- 9) The internal parts of the check valve are reinstalled and the HCR valve is closed.  
A second test is performed on them
- 10) These tests consist of a 250 psi low test and a high test to the value submitted in the APD or SN (e.g., 5000 psi)
- 11) Perform a function test of components not pressure tested to include the lower pipe rams, the blind rams and the annular
- 12) If this were a three well pad, the same three breaks on the BOP would be made and steps 4 through 11 would be repeated
- 13) A second break test would only be done if the third hole section could be completed within the 30-day BOP test window
- 14) If a second break test is performed, additional components that were not tested on the first break test will be tested





# Break Testing Procedures and Tests

1. After performing a complete BOP test on the first well, the BOP is removed, the rig is skidded and the BOP is installed on the second well

2. A test plug is installed in the wellhead on drill pipe and the inner components of the check valve are removed





# Break Testing Procedures and Tests

3. After Test #1, the inner components of the check valve are reinstalled and the HCR valve is closed





# Second Break Testing Procedures and Tests

Procedures 1 and 2 and Test #1 will be completed as in the first break test (see slide 8)

3. After Test #1, the inner components of the check valve are reinstalled and the inside choke line valve is closed





# BOP Handling System



Hydraulic winch system which moves the BOP from its carrier to the wellhead

BOP standing in its carrier







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# BOP Handling System



Hydraulic winch  
system moving  
the BOP over to  
the wellhead

Wellhead



## Summary for Variance Request for Break Testing

- API standards, specifications and recommended practices are considered industry standards
  - OOGO No. 2 recognized API Recommended Practices (RP) 53 in its original development
  - API Standard 53 recognizes break testing as an acceptable practice
  - The Bureau of Safety and Environmental Enforcement has utilized API standards, specifications and best practices in the development of its offshore oil and gas regulations
  - API Standard 53 recognizes break testing as an acceptable practice
- OXY feels break testing meets the intent of OOGO No. 2 to protect public health and safety and the environment

## **Bradenhead Cement CBL Variance Request**

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

### **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

### **Four string wells:**

- CBL is not required
- 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



## Offline Cementing Variance Request

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

### 1. Cement Program

No changes to the cement program will take place for offline cementing.

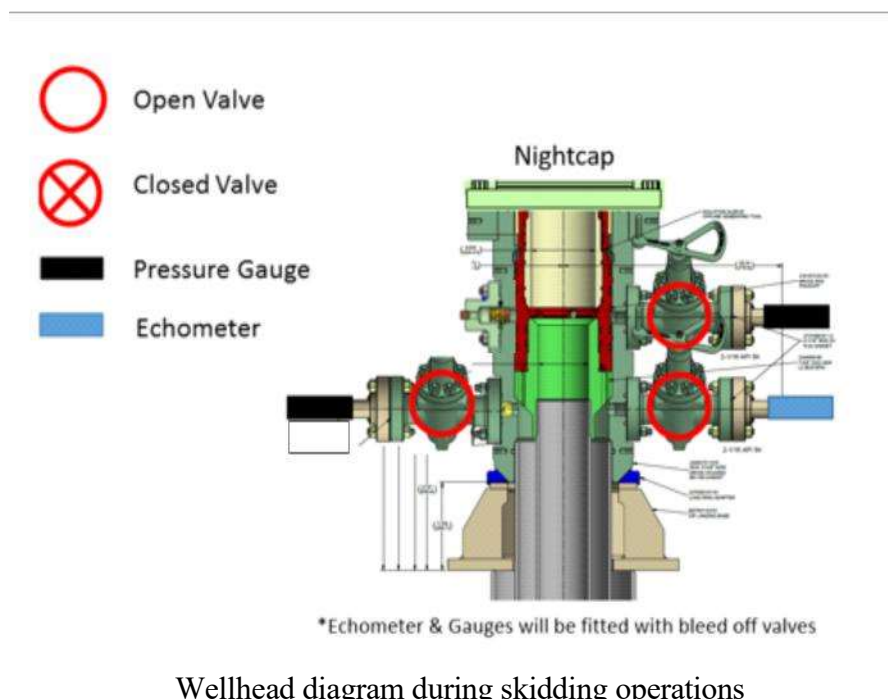
### 2. Offline Cementing Procedure

The operational sequence will be as follows:

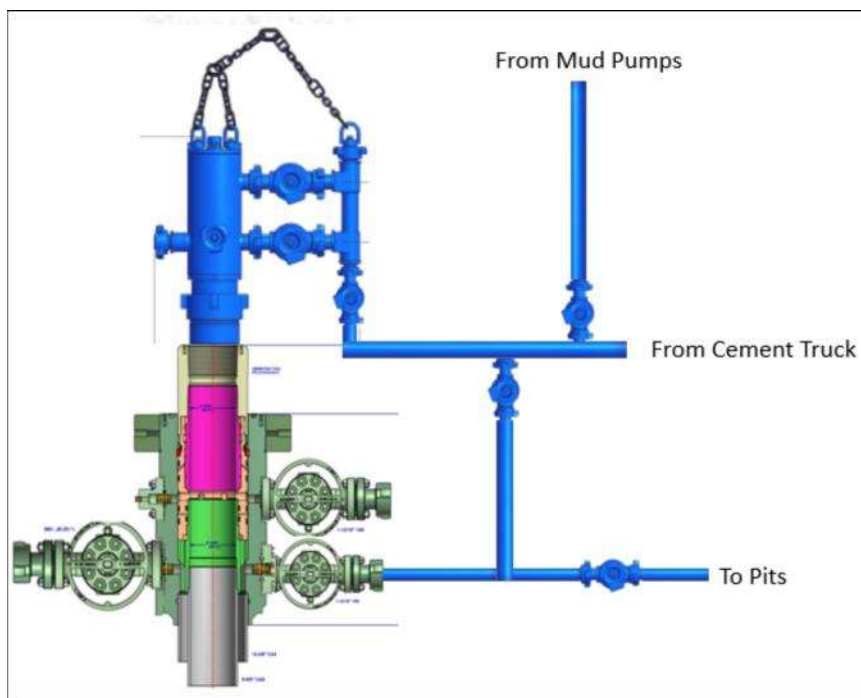
1. Run casing as per normal operations. While running casing, conduct negative pressure test and confirm integrity of the float equipment (float collar and shoe)
2. Land casing with mandrel
3. Fill pipe with kill weight fluid, do not circulate through floats and confirm well is static
4. Set annular packoff shown below and pressure test to confirm integrity of the seal.  
Pressure ratings of wellhead components and valves is 5,000 psi

Annular packoff with both external and internal seals





5. After confirmation of both annular barriers and internal barriers, nipple down BOP and install cap flange.
  - a. If any barrier fails to test, the BOP stack will not be nipped down until after the cement job is completed with cement 500ft above the highest formation capable of flow with kill weight mud above or after it has achieved 50 psi compressive strength if cannot be verified.
6. Skid rig to next well on pad.
7. Confirm well is static before removing cap flange, flange will not be removed and offline cementing operations will not commence until well is under control. If well is not static, casing outlet valves will provide access to both the casing ID and annulus. Rig or third party pump truck will kill well prior to cementing or nipping up for further remediation.
  - a. Well Control Plan
    - i. The Drillers Method will be the primary well control method to regain control of the wellbore prior to cementing, if wellbore conditions do not permit the drillers method other methods of well control may be used
    - ii. Rig pumps or a 3<sup>rd</sup> party pump will be tied into the upper casing valve to pump down the casing ID
    - iii. A high pressure return line will be rigged up to lower casing valve and run to choke manifold to control annular pressure
    - iv. Once influx is circulated out of the hole, kill weight mud will be circulated
    - v. Well will be confirmed static
    - vi. Once confirmed static, cap flange will be removed to allow for offline cementing operations to commence
8. Install offline cement tool
9. Rig up cement equipment



Wellhead diagram during offline cementing operations

10. Circulate bottoms up with cement truck
  - a. If gas is present on bottoms up, well will be shut in and returns rerouted through gas buster to handle entrained gas
  - b. Max anticipated time before circulating with cement truck is 6 hrs
11. Perform cement job taking returns from the annulus wellhead valve
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.

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

As per the agreement reached in the Oxy/BLM face-to-face meeting on Feb 22, 2018, Oxy requests permission to allow deviation from the 0.422" annular clearance requirement from 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.

# **OXY**

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

**Gold Log 4\_9 Fed Com**

**Gold Log 4\_9 Fed Com 35H**

**Wellbore #1**

**Plan: Permitting Plan**

## **Standard Planning Report**

**27 July, 2023**

OXY  
Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Gold Log 4_9 Fed Com 35H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 3822.00ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 3822.00ft
Site:	Gold Log 4_9 Fed Com	North Reference:	Grid
Well:	Gold Log 4_9 Fed Com 35H	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	Gold Log 4_9 Fed Com		
Site Position:		Northing:	519,408.71 usft
From:	Map	Easting:	741,616.89 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	32.426249
		Longitude:	-103.684231

Well	Gold Log 4_9 Fed Com 35H		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	2.00 ft	Wellhead Elevation:	ft
Grid Convergence:	0.35 °		
		Latitude:	32.426282
		Longitude:	-103.676306
		Ground Level:	3,797.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	11/21/2022	6.40	60.10	47,755.20000000

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	172.37

Plan Survey Tool Program	Date	7/27/2023		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,785.45	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	
4,560.00	0.00	0.00	4,560.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,860.28	13.00	52.21	5,849.14	90.02	116.10	1.00	1.00	0.00	52.21	
11,577.20	13.00	52.21	11,419.49	878.25	1,132.59	0.00	0.00	0.00	0.00	
12,555.70	90.00	179.58	12,060.00	311.53	1,254.27	10.00	7.87	13.02	126.66	
22,785.70	90.00	179.58	12,060.00	-9,918.19	1,328.85	0.00	0.00	0.00	0.00	PBHL (Gold Log)

# OXY

## Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well Gold Log 4_9 Fed Com 35H
<b>Company:</b>	ENGINEERING DESIGNS	<b>TVD Reference:</b>	RKB=25' @ 3822.00ft
<b>Project:</b>	PRD NM DIRECTIONAL PLANS (NAD 1983)	<b>MD Reference:</b>	RKB=25' @ 3822.00ft
<b>Site:</b>	Gold Log 4_9 Fed Com	<b>North Reference:</b>	Grid
<b>Well:</b>	Gold Log 4_9 Fed Com 35H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	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
4,560.00	0.00	0.00	4,560.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.40	52.21	4,600.00	0.09	0.11	-0.07	1.00	1.00	0.00
4,700.00	1.40	52.21	4,699.99	1.05	1.35	-0.86	1.00	1.00	0.00
4,800.00	2.40	52.21	4,799.93	3.08	3.97	-2.53	1.00	1.00	0.00
4,900.00	3.40	52.21	4,899.80	6.18	7.97	-5.07	1.00	1.00	0.00
5,000.00	4.40	52.21	4,999.57	10.35	13.34	-8.48	1.00	1.00	0.00
5,100.00	5.40	52.21	5,099.20	15.58	20.09	-12.78	1.00	1.00	0.00
5,200.00	6.40	52.21	5,198.67	21.88	28.22	-17.94	1.00	1.00	0.00
5,300.00	7.40	52.21	5,297.94	29.24	37.71	-23.98	1.00	1.00	0.00

# OXY

## Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well Gold Log 4_9 Fed Com 35H
<b>Company:</b>	ENGINEERING DESIGNS	<b>TVD Reference:</b>	RKB=25' @ 3822.00ft
<b>Project:</b>	PRD NM DIRECTIONAL PLANS (NAD 1983)	<b>MD Reference:</b>	RKB=25' @ 3822.00ft
<b>Site:</b>	Gold Log 4_9 Fed Com	<b>North Reference:</b>	Grid
<b>Well:</b>	Gold Log 4_9 Fed Com 35H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,400.00	8.40	52.21	5,396.99	37.66	48.57	-30.88	1.00	1.00	0.00
5,500.00	9.40	52.21	5,495.79	47.15	60.80	-38.65	1.00	1.00	0.00
5,600.00	10.40	52.21	5,594.30	57.68	74.38	-47.29	1.00	1.00	0.00
5,700.00	11.40	52.21	5,692.49	69.27	89.33	-56.79	1.00	1.00	0.00
5,800.00	12.40	52.21	5,790.34	81.90	105.62	-67.15	1.00	1.00	0.00
5,860.28	13.00	52.21	5,849.14	90.02	116.10	-73.81	1.00	1.00	0.00
5,900.00	13.00	52.21	5,887.85	95.50	123.16	-78.30	0.00	0.00	0.00
6,000.00	13.00	52.21	5,985.29	109.29	140.94	-89.61	0.00	0.00	0.00
6,100.00	13.00	52.21	6,082.72	123.08	158.72	-100.91	0.00	0.00	0.00
6,200.00	13.00	52.21	6,180.16	136.86	176.50	-112.21	0.00	0.00	0.00
6,300.00	13.00	52.21	6,277.59	150.65	194.28	-123.52	0.00	0.00	0.00
6,400.00	13.00	52.21	6,375.03	164.44	212.06	-134.82	0.00	0.00	0.00
6,500.00	13.00	52.21	6,472.46	178.23	229.84	-146.13	0.00	0.00	0.00
6,600.00	13.00	52.21	6,569.90	192.01	247.62	-157.43	0.00	0.00	0.00
6,700.00	13.00	52.21	6,667.34	205.80	265.40	-168.74	0.00	0.00	0.00
6,800.00	13.00	52.21	6,764.77	219.59	283.18	-180.04	0.00	0.00	0.00
6,900.00	13.00	52.21	6,862.21	233.38	300.96	-191.34	0.00	0.00	0.00
7,000.00	13.00	52.21	6,959.64	247.17	318.74	-202.65	0.00	0.00	0.00
7,100.00	13.00	52.21	7,057.08	260.95	336.52	-213.95	0.00	0.00	0.00
7,200.00	13.00	52.21	7,154.52	274.74	354.30	-225.26	0.00	0.00	0.00
7,300.00	13.00	52.21	7,251.95	288.53	372.08	-236.56	0.00	0.00	0.00
7,400.00	13.00	52.21	7,349.39	302.32	389.87	-247.87	0.00	0.00	0.00
7,500.00	13.00	52.21	7,446.82	316.10	407.65	-259.17	0.00	0.00	0.00
7,600.00	13.00	52.21	7,544.26	329.89	425.43	-270.47	0.00	0.00	0.00
7,700.00	13.00	52.21	7,641.70	343.68	443.21	-281.78	0.00	0.00	0.00
7,800.00	13.00	52.21	7,739.13	357.47	460.99	-293.08	0.00	0.00	0.00
7,900.00	13.00	52.21	7,836.57	371.25	478.77	-304.39	0.00	0.00	0.00
8,000.00	13.00	52.21	7,934.00	385.04	496.55	-315.69	0.00	0.00	0.00
8,100.00	13.00	52.21	8,031.44	398.83	514.33	-327.00	0.00	0.00	0.00
8,200.00	13.00	52.21	8,128.88	412.62	532.11	-338.30	0.00	0.00	0.00
8,300.00	13.00	52.21	8,226.31	426.40	549.89	-349.60	0.00	0.00	0.00
8,400.00	13.00	52.21	8,323.75	440.19	567.67	-360.91	0.00	0.00	0.00
8,500.00	13.00	52.21	8,421.18	453.98	585.45	-372.21	0.00	0.00	0.00
8,600.00	13.00	52.21	8,518.62	467.77	603.23	-383.52	0.00	0.00	0.00
8,700.00	13.00	52.21	8,616.06	481.55	621.01	-394.82	0.00	0.00	0.00
8,800.00	13.00	52.21	8,713.49	495.34	638.79	-406.13	0.00	0.00	0.00
8,900.00	13.00	52.21	8,810.93	509.13	656.57	-417.43	0.00	0.00	0.00
9,000.00	13.00	52.21	8,908.36	522.92	674.35	-428.74	0.00	0.00	0.00
9,100.00	13.00	52.21	9,005.80	536.70	692.13	-440.04	0.00	0.00	0.00
9,200.00	13.00	52.21	9,103.23	550.49	709.91	-451.34	0.00	0.00	0.00
9,300.00	13.00	52.21	9,200.67	564.28	727.69	-462.65	0.00	0.00	0.00
9,400.00	13.00	52.21	9,298.11	578.07	745.47	-473.95	0.00	0.00	0.00
9,500.00	13.00	52.21	9,395.54	591.85	763.25	-485.26	0.00	0.00	0.00
9,600.00	13.00	52.21	9,492.98	605.64	781.03	-496.56	0.00	0.00	0.00
9,700.00	13.00	52.21	9,590.41	619.43	798.81	-507.87	0.00	0.00	0.00
9,800.00	13.00	52.21	9,687.85	633.22	816.60	-519.17	0.00	0.00	0.00
9,900.00	13.00	52.21	9,785.29	647.00	834.38	-530.47	0.00	0.00	0.00
10,000.00	13.00	52.21	9,882.72	660.79	852.16	-541.78	0.00	0.00	0.00
10,100.00	13.00	52.21	9,980.16	674.58	869.94	-553.08	0.00	0.00	0.00
10,200.00	13.00	52.21	10,077.59	688.37	887.72	-564.39	0.00	0.00	0.00
10,300.00	13.00	52.21	10,175.03	702.15	905.50	-575.69	0.00	0.00	0.00
10,400.00	13.00	52.21	10,272.47	715.94	923.28	-587.00	0.00	0.00	0.00
10,500.00	13.00	52.21	10,369.90	729.73	941.06	-598.30	0.00	0.00	0.00
10,600.00	13.00	52.21	10,467.34	743.52	958.84	-609.60	0.00	0.00	0.00
10,700.00	13.00	52.21	10,564.77	757.31	976.62	-620.91	0.00	0.00	0.00



# OXY

## Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well Gold Log 4_9 Fed Com 35H
<b>Company:</b>	ENGINEERING DESIGNS	<b>TVD Reference:</b>	RKB=25' @ 3822.00ft
<b>Project:</b>	PRD NM DIRECTIONAL PLANS (NAD 1983)	<b>MD Reference:</b>	RKB=25' @ 3822.00ft
<b>Site:</b>	Gold Log 4_9 Fed Com	<b>North Reference:</b>	Grid
<b>Well:</b>	Gold Log 4_9 Fed Com 35H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,800.00	13.00	52.21	10,662.21	771.09	994.40	-632.21	0.00	0.00	0.00
10,900.00	13.00	52.21	10,759.65	784.88	1,012.18	-643.52	0.00	0.00	0.00
11,000.00	13.00	52.21	10,857.08	798.67	1,029.96	-654.82	0.00	0.00	0.00
11,100.00	13.00	52.21	10,954.52	812.46	1,047.74	-666.13	0.00	0.00	0.00
11,200.00	13.00	52.21	11,051.95	826.24	1,065.52	-677.43	0.00	0.00	0.00
11,300.00	13.00	52.21	11,149.39	840.03	1,083.30	-688.73	0.00	0.00	0.00
11,400.00	13.00	52.21	11,246.83	853.82	1,101.08	-700.04	0.00	0.00	0.00
11,500.00	13.00	52.21	11,344.26	867.61	1,118.86	-711.34	0.00	0.00	0.00
11,577.20	13.00	52.21	11,419.49	878.25	1,132.59	-720.07	0.00	0.00	0.00
11,600.00	11.78	61.20	11,441.75	880.94	1,136.66	-722.20	10.00	-5.35	39.44
11,650.00	10.41	86.43	11,490.84	883.69	1,145.65	-723.72	10.00	-2.74	50.45
11,700.00	11.29	112.81	11,539.98	882.07	1,154.67	-720.92	10.00	1.76	52.77
11,750.00	14.00	132.20	11,588.78	876.10	1,163.67	-713.81	10.00	5.42	38.78
11,800.00	17.72	144.53	11,636.89	865.84	1,172.58	-702.46	10.00	7.44	24.67
11,850.00	21.94	152.48	11,683.92	851.34	1,181.31	-686.93	10.00	8.44	15.90
11,900.00	26.43	157.91	11,729.52	832.74	1,189.82	-667.36	10.00	8.97	10.86
11,950.00	31.06	161.84	11,773.36	810.16	1,198.03	-643.89	10.00	9.26	7.86
12,000.00	35.78	164.83	11,815.08	783.78	1,205.88	-616.70	10.00	9.44	5.98
12,050.00	40.56	167.20	11,854.38	753.80	1,213.31	-586.00	10.00	9.56	4.74
12,100.00	45.38	169.15	11,890.96	720.45	1,220.26	-552.03	10.00	9.64	3.90
12,150.00	50.23	170.80	11,924.53	683.98	1,226.69	-515.03	10.00	9.70	3.30
12,200.00	55.10	172.23	11,954.84	644.67	1,232.54	-475.29	10.00	9.74	2.86
12,250.00	59.98	173.50	11,981.67	602.82	1,237.77	-433.12	10.00	9.77	2.54
12,300.00	64.88	174.65	12,004.80	558.75	1,242.33	-388.83	10.00	9.79	2.30
12,350.00	69.78	175.71	12,024.07	512.79	1,246.20	-342.76	10.00	9.81	2.12
12,400.00	74.69	176.70	12,039.32	465.29	1,249.35	-295.27	10.00	9.82	1.99
12,450.00	79.61	177.65	12,050.44	416.62	1,251.74	-246.71	10.00	9.83	1.90
12,500.00	84.52	178.57	12,057.34	367.14	1,253.37	-197.45	10.00	9.83	1.84
12,550.00	89.44	179.48	12,059.97	317.24	1,254.22	-147.87	10.00	9.84	1.81
12,555.70	90.00	179.58	12,060.00	311.53	1,254.27	-142.21	10.00	9.84	1.81
12,600.00	90.00	179.58	12,060.00	267.24	1,254.59	-98.27	0.00	0.00	0.00
12,700.00	90.00	179.58	12,060.00	167.24	1,255.32	0.94	0.00	0.00	0.00
12,800.00	90.00	179.58	12,060.00	67.24	1,256.05	100.15	0.00	0.00	0.00
12,900.00	90.00	179.58	12,060.00	-32.76	1,256.78	199.36	0.00	0.00	0.00
13,000.00	90.00	179.58	12,060.00	-132.75	1,257.50	298.57	0.00	0.00	0.00
13,100.00	90.00	179.58	12,060.00	-232.75	1,258.23	397.78	0.00	0.00	0.00
13,200.00	90.00	179.58	12,060.00	-332.75	1,258.96	496.98	0.00	0.00	0.00
13,300.00	90.00	179.58	12,060.00	-432.74	1,259.69	596.19	0.00	0.00	0.00
13,400.00	90.00	179.58	12,060.00	-532.74	1,260.42	695.40	0.00	0.00	0.00
13,500.00	90.00	179.58	12,060.00	-632.74	1,261.15	794.61	0.00	0.00	0.00
13,600.00	90.00	179.58	12,060.00	-732.74	1,261.88	893.82	0.00	0.00	0.00
13,700.00	90.00	179.58	12,060.00	-832.73	1,262.61	993.03	0.00	0.00	0.00
13,800.00	90.00	179.58	12,060.00	-932.73	1,263.34	1,092.24	0.00	0.00	0.00
13,900.00	90.00	179.58	12,060.00	-1,032.73	1,264.07	1,191.44	0.00	0.00	0.00
14,000.00	90.00	179.58	12,060.00	-1,132.73	1,264.80	1,290.65	0.00	0.00	0.00
14,100.00	90.00	179.58	12,060.00	-1,232.72	1,265.52	1,389.86	0.00	0.00	0.00
14,200.00	90.00	179.58	12,060.00	-1,332.72	1,266.25	1,489.07	0.00	0.00	0.00
14,300.00	90.00	179.58	12,060.00	-1,432.72	1,266.98	1,588.28	0.00	0.00	0.00
14,400.00	90.00	179.58	12,060.00	-1,532.72	1,267.71	1,687.49	0.00	0.00	0.00
14,500.00	90.00	179.58	12,060.00	-1,632.71	1,268.44	1,786.70	0.00	0.00	0.00
14,600.00	90.00	179.58	12,060.00	-1,732.71	1,269.17	1,885.90	0.00	0.00	0.00
14,700.00	90.00	179.58	12,060.00	-1,832.71	1,269.90	1,985.11	0.00	0.00	0.00
14,800.00	90.00	179.58	12,060.00	-1,932.71	1,270.63	2,084.32	0.00	0.00	0.00
14,900.00	90.00	179.58	12,060.00	-2,032.70	1,271.36	2,183.53	0.00	0.00	0.00
15,000.00	90.00	179.58	12,060.00	-2,132.70	1,272.09	2,282.74	0.00	0.00	0.00

# OXY

## Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well Gold Log 4_9 Fed Com 35H
<b>Company:</b>	ENGINEERING DESIGNS	<b>TVD Reference:</b>	RKB=25' @ 3822.00ft
<b>Project:</b>	PRD NM DIRECTIONAL PLANS (NAD 1983)	<b>MD Reference:</b>	RKB=25' @ 3822.00ft
<b>Site:</b>	Gold Log 4_9 Fed Com	<b>North Reference:</b>	Grid
<b>Well:</b>	Gold Log 4_9 Fed Com 35H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,100.00	90.00	179.58	12,060.00	-2,232.70	1,272.82	2,381.95	0.00	0.00	0.00
15,200.00	90.00	179.58	12,060.00	-2,332.69	1,273.54	2,481.15	0.00	0.00	0.00
15,300.00	90.00	179.58	12,060.00	-2,432.69	1,274.27	2,580.36	0.00	0.00	0.00
15,400.00	90.00	179.58	12,060.00	-2,532.69	1,275.00	2,679.57	0.00	0.00	0.00
15,500.00	90.00	179.58	12,060.00	-2,632.69	1,275.73	2,778.78	0.00	0.00	0.00
15,600.00	90.00	179.58	12,060.00	-2,732.68	1,276.46	2,877.99	0.00	0.00	0.00
15,700.00	90.00	179.58	12,060.00	-2,832.68	1,277.19	2,977.20	0.00	0.00	0.00
15,800.00	90.00	179.58	12,060.00	-2,932.68	1,277.92	3,076.41	0.00	0.00	0.00
15,900.00	90.00	179.58	12,060.00	-3,032.68	1,278.65	3,175.61	0.00	0.00	0.00
16,000.00	90.00	179.58	12,060.00	-3,132.67	1,279.38	3,274.82	0.00	0.00	0.00
16,100.00	90.00	179.58	12,060.00	-3,232.67	1,280.11	3,374.03	0.00	0.00	0.00
16,200.00	90.00	179.58	12,060.00	-3,332.67	1,280.84	3,473.24	0.00	0.00	0.00
16,300.00	90.00	179.58	12,060.00	-3,432.67	1,281.56	3,572.45	0.00	0.00	0.00
16,400.00	90.00	179.58	12,060.00	-3,532.66	1,282.29	3,671.66	0.00	0.00	0.00
16,500.00	90.00	179.58	12,060.00	-3,632.66	1,283.02	3,770.87	0.00	0.00	0.00
16,600.00	90.00	179.58	12,060.00	-3,732.66	1,283.75	3,870.07	0.00	0.00	0.00
16,700.00	90.00	179.58	12,060.00	-3,832.65	1,284.48	3,969.28	0.00	0.00	0.00
16,800.00	90.00	179.58	12,060.00	-3,932.65	1,285.21	4,068.49	0.00	0.00	0.00
16,900.00	90.00	179.58	12,060.00	-4,032.65	1,285.94	4,167.70	0.00	0.00	0.00
17,000.00	90.00	179.58	12,060.00	-4,132.65	1,286.67	4,266.91	0.00	0.00	0.00
17,100.00	90.00	179.58	12,060.00	-4,232.64	1,287.40	4,366.12	0.00	0.00	0.00
17,200.00	90.00	179.58	12,060.00	-4,332.64	1,288.13	4,465.33	0.00	0.00	0.00
17,300.00	90.00	179.58	12,060.00	-4,432.64	1,288.86	4,564.53	0.00	0.00	0.00
17,400.00	90.00	179.58	12,060.00	-4,532.64	1,289.58	4,663.74	0.00	0.00	0.00
17,500.00	90.00	179.58	12,060.00	-4,632.63	1,290.31	4,762.95	0.00	0.00	0.00
17,600.00	90.00	179.58	12,060.00	-4,732.63	1,291.04	4,862.16	0.00	0.00	0.00
17,700.00	90.00	179.58	12,060.00	-4,832.63	1,291.77	4,961.37	0.00	0.00	0.00
17,800.00	90.00	179.58	12,060.00	-4,932.63	1,292.50	5,060.58	0.00	0.00	0.00
17,900.00	90.00	179.58	12,060.00	-5,032.62	1,293.23	5,159.79	0.00	0.00	0.00
18,000.00	90.00	179.58	12,060.00	-5,132.62	1,293.96	5,258.99	0.00	0.00	0.00
18,100.00	90.00	179.58	12,060.00	-5,232.62	1,294.69	5,358.20	0.00	0.00	0.00
18,200.00	90.00	179.58	12,060.00	-5,332.61	1,295.42	5,457.41	0.00	0.00	0.00
18,300.00	90.00	179.58	12,060.00	-5,432.61	1,296.15	5,556.62	0.00	0.00	0.00
18,400.00	90.00	179.58	12,060.00	-5,532.61	1,296.88	5,655.83	0.00	0.00	0.00
18,500.00	90.00	179.58	12,060.00	-5,632.61	1,297.60	5,755.04	0.00	0.00	0.00
18,600.00	90.00	179.58	12,060.00	-5,732.60	1,298.33	5,854.25	0.00	0.00	0.00
18,700.00	90.00	179.58	12,060.00	-5,832.60	1,299.06	5,953.45	0.00	0.00	0.00
18,800.00	90.00	179.58	12,060.00	-5,932.60	1,299.79	6,052.66	0.00	0.00	0.00
18,900.00	90.00	179.58	12,060.00	-6,032.60	1,300.52	6,151.87	0.00	0.00	0.00
19,000.00	90.00	179.58	12,060.00	-6,132.59	1,301.25	6,251.08	0.00	0.00	0.00
19,100.00	90.00	179.58	12,060.00	-6,232.59	1,301.98	6,350.29	0.00	0.00	0.00
19,200.00	90.00	179.58	12,060.00	-6,332.59	1,302.71	6,449.50	0.00	0.00	0.00
19,300.00	90.00	179.58	12,060.00	-6,432.59	1,303.44	6,548.71	0.00	0.00	0.00
19,400.00	90.00	179.58	12,060.00	-6,532.58	1,304.17	6,647.91	0.00	0.00	0.00
19,500.00	90.00	179.58	12,060.00	-6,632.58	1,304.90	6,747.12	0.00	0.00	0.00
19,600.00	90.00	179.58	12,060.00	-6,732.58	1,305.62	6,846.33	0.00	0.00	0.00
19,700.00	90.00	179.58	12,060.00	-6,832.57	1,306.35	6,945.54	0.00	0.00	0.00
19,800.00	90.00	179.58	12,060.00	-6,932.57	1,307.08	7,044.75	0.00	0.00	0.00
19,900.00	90.00	179.58	12,060.00	-7,032.57	1,307.81	7,143.96	0.00	0.00	0.00
20,000.00	90.00	179.58	12,060.00	-7,132.57	1,308.54	7,243.17	0.00	0.00	0.00
20,100.00	90.00	179.58	12,060.00	-7,232.56	1,309.27	7,342.37	0.00	0.00	0.00
20,200.00	90.00	179.58	12,060.00	-7,332.56	1,310.00	7,441.58	0.00	0.00	0.00
20,300.00	90.00	179.58	12,060.00	-7,432.56	1,310.73	7,540.79	0.00	0.00	0.00
20,400.00	90.00	179.58	12,060.00	-7,532.56	1,311.46	7,640.00	0.00	0.00	0.00
20,500.00	90.00	179.58	12,060.00	-7,632.55	1,312.19	7,739.21	0.00	0.00	0.00

OXY  
Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Gold Log 4_9 Fed Com 35H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 3822.00ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 3822.00ft
Site:	Gold Log 4_9 Fed Com	North Reference:	Grid
Well:	Gold Log 4_9 Fed Com 35H	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)
20,600.00	90.00	179.58	12,060.00	-7,732.55	1,312.92	7,838.42	0.00	0.00	0.00
20,700.00	90.00	179.58	12,060.00	-7,832.55	1,313.64	7,937.62	0.00	0.00	0.00
20,800.00	90.00	179.58	12,060.00	-7,932.55	1,314.37	8,036.83	0.00	0.00	0.00
20,900.00	90.00	179.58	12,060.00	-8,032.54	1,315.10	8,136.04	0.00	0.00	0.00
21,000.00	90.00	179.58	12,060.00	-8,132.54	1,315.83	8,235.25	0.00	0.00	0.00
21,100.00	90.00	179.58	12,060.00	-8,232.54	1,316.56	8,334.46	0.00	0.00	0.00
21,200.00	90.00	179.58	12,060.00	-8,332.54	1,317.29	8,433.67	0.00	0.00	0.00
21,300.00	90.00	179.58	12,060.00	-8,432.53	1,318.02	8,532.88	0.00	0.00	0.00
21,400.00	90.00	179.58	12,060.00	-8,532.53	1,318.75	8,632.08	0.00	0.00	0.00
21,500.00	90.00	179.58	12,060.00	-8,632.53	1,319.48	8,731.29	0.00	0.00	0.00
21,600.00	90.00	179.58	12,060.00	-8,732.52	1,320.21	8,830.50	0.00	0.00	0.00
21,700.00	90.00	179.58	12,060.00	-8,832.52	1,320.94	8,929.71	0.00	0.00	0.00
21,800.00	90.00	179.58	12,060.00	-8,932.52	1,321.66	9,028.92	0.00	0.00	0.00
21,900.00	90.00	179.58	12,060.00	-9,032.52	1,322.39	9,128.13	0.00	0.00	0.00
22,000.00	90.00	179.58	12,060.00	-9,132.51	1,323.12	9,227.34	0.00	0.00	0.00
22,100.00	90.00	179.58	12,060.00	-9,232.51	1,323.85	9,326.54	0.00	0.00	0.00
22,200.00	90.00	179.58	12,060.00	-9,332.51	1,324.58	9,425.75	0.00	0.00	0.00
22,300.00	90.00	179.58	12,060.00	-9,432.51	1,325.31	9,524.96	0.00	0.00	0.00
22,400.00	90.00	179.58	12,060.00	-9,532.50	1,326.04	9,624.17	0.00	0.00	0.00
22,500.00	90.00	179.58	12,060.00	-9,632.50	1,326.77	9,723.38	0.00	0.00	0.00
22,600.00	90.00	179.58	12,060.00	-9,732.50	1,327.50	9,822.59	0.00	0.00	0.00
22,700.00	90.00	179.58	12,060.00	-9,832.50	1,328.23	9,921.80	0.00	0.00	0.00
22,785.70	90.00	179.58	12,060.00	-9,918.19	1,328.85	10,006.82	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL (Gold Log 4_9	0.00	0.01	12,060.00	-9,918.19	1,328.85	509,517.89	745,390.94	32.398999	-103.672199
- plan hits target center									
- Point									
FTP (Gold Log 4_9	0.00	0.00	12,060.00	519.75	1,252.75	519,955.36	745,314.84	32.427689	-103.672236
- plan misses target center by 36.69ft at 12354.76ft MD (12025.70 TVD, 508.33 N, 1246.54 E)									
- Point									

# OXY

## Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well Gold Log 4_9 Fed Com 35H
<b>Company:</b>	ENGINEERING DESIGNS	<b>TVD Reference:</b>	RKB=25' @ 3822.00ft
<b>Project:</b>	PRD NM DIRECTIONAL PLANS (NAD 1983)	<b>MD Reference:</b>	RKB=25' @ 3822.00ft
<b>Site:</b>	Gold Log 4_9 Fed Com	<b>North Reference:</b>	Grid
<b>Well:</b>	Gold Log 4_9 Fed Com 35H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Permitting Plan		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
984.00	984.00	RUSTLER			
1,154.00	1,154.00	SALADO			
2,633.00	2,633.00	CASTILE			
4,840.11	4,840.00	DELAWARE			
4,946.29	4,946.00	BELL CANYON			
5,787.37	5,778.00	CHERRY CANYON			
7,026.02	6,985.00	BRUSHY CANYON			
8,930.86	8,841.00	BONE SPRING			
9,984.89	9,868.00	BONE SPRING 1ST			
10,615.05	10,482.00	BONE SPRING 2ND			
11,692.89	11,533.00	BONE SPRING 3RD			
12,130.79	11,912.00	WOLFCAMP			

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,560.00	4,560.00	0.00	0.00	Build 1°/100'
5,860.28	5,849.15	90.03	116.10	Hold 13° Tangent
11,577.20	11,419.48	878.25	1,132.59	KOP, Build & Turn 10°/100'
12,555.70	12,060.00	311.54	1,254.27	Landing Point
22,785.70	12,060.00	-9,918.19	1,328.85	TD at 22785.70' MD



Project: PRD NM DIRECTIONAL PLANS (NAD 1983)  
 Site: Gold Log 4.9 Fed Com  
 Well: Gold Log 4.9 Fed Com 35H  
 Wellbore: Wellbore #1  
 Design: Permitting Plan

## PROJECT DETAILS: NM DIRECTIONAL PLANS (NAD 1983)

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: Gold Log 4.9 Fed Com 35H

+N/-S	+E/-W	Northing	3797.00 Easting	Latitude	Longitude
0.00	0.00	519435.63	744062.15	32.426281	-103.676306

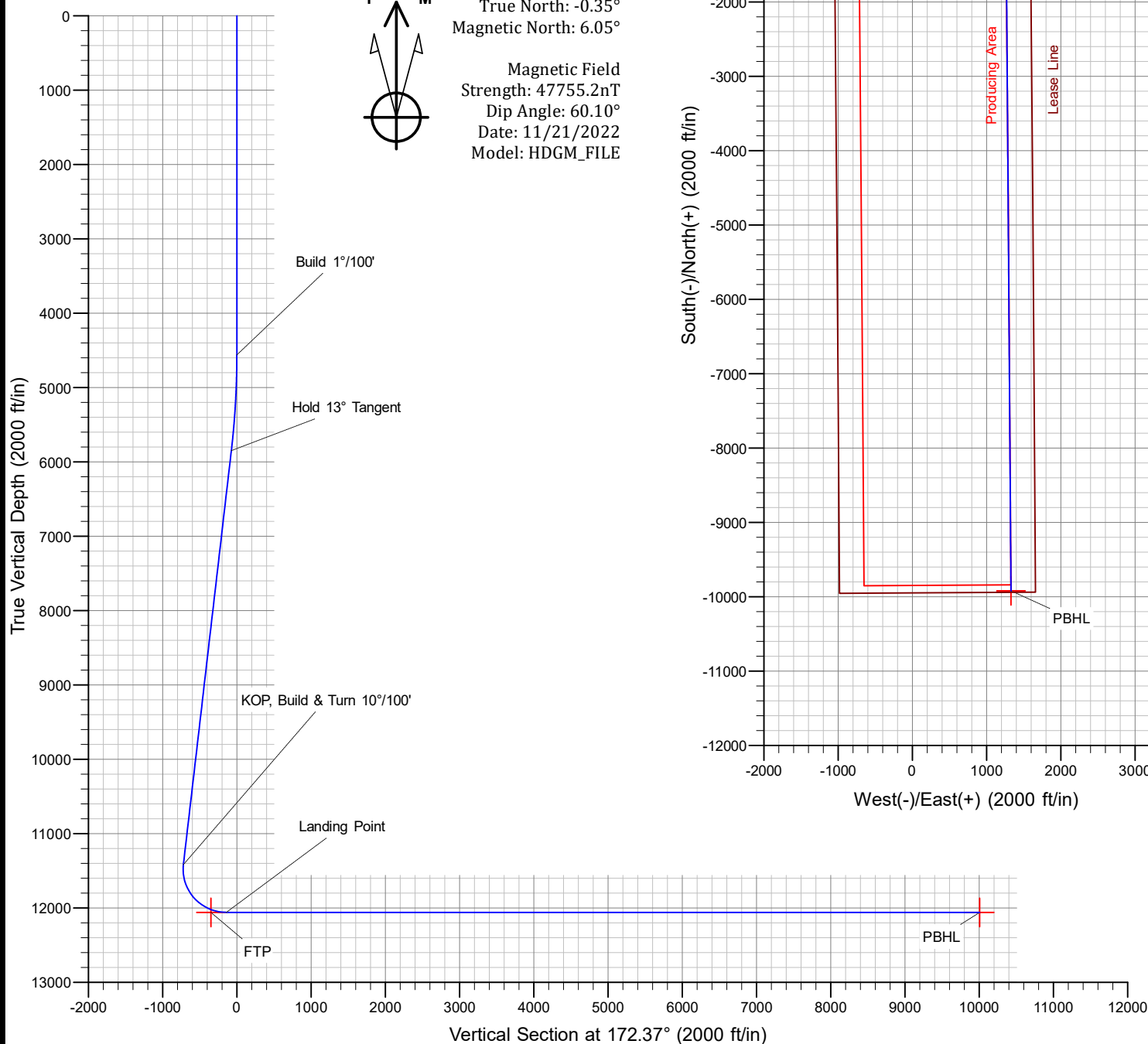
## SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4560.00	0.00	0.00	4560.00	0.00	0.00	0.00	0.00	0.00	Build 1°/100'
5860.28	13.00	52.21	5849.14	90.02	116.10	1.00	52.21	-73.81	Hold 13° Tangent
11577.20	13.00	52.21	11419.49	878.25	1132.59	0.00	0.00	-720.07	KOP, Build & Turn 10°/100'
12555.70	90.00	179.58	12060.00	311.53	1254.27	10.00	126.66	-142.21	Landing Point
22785.70	90.00	179.58	12060.00	-9918.19	1328.85	0.00	0.00	10006.82	TD at 22785.70' MD



Azimuths to Grid North  
 True North: -0.35°  
 Magnetic North: 6.05°

Magnetic Field  
 Strength: 47755.2nT  
 Dip Angle: 60.10°  
 Date: 11/21/2022  
 Model: HDGM\_FILE



## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OXY USA INC
WELL NAME & NO.:	GOLD LOG 4_9 FED COM 35H
SURFACE HOLE FOOTAGE:	606'/N & 1586'/E
BOTTOM HOLE FOOTAGE:	20'/S & 330'/E Sec 9 T22S R32E
LOCATION:	Section 4, T.22 S., R.32 E., NMP
COUNTY:	Lea County, New Mexico

COA

H2S	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Potash	<input type="radio"/> None	<input checked="" type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input checked="" type="radio"/> Low	<input type="radio"/> Medium	<input type="radio"/> High
Cave/Karst Potential	<input type="radio"/> Critical		
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both
Wellhead Variance	<input type="radio"/> Diverter		
Other	<input type="checkbox"/> 4 String	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input checked="" type="checkbox"/> Fluid Filled	<input type="checkbox"/> Pilot Hole	<input type="checkbox"/> Open Annulus
Cementing	<input type="checkbox"/> Contingency Cement Squeeze	<input checked="" type="checkbox"/> EchoMeter	<input checked="" type="checkbox"/> Primary Cement Squeeze
Special Requirements	<input type="checkbox"/> Water Disposal	<input checked="" type="checkbox"/> COM	<input type="checkbox"/> Unit
Special Requirements	<input type="checkbox"/> Batch Sundry		
Special Requirements Variance	<input checked="" type="checkbox"/> Break Testing	<input checked="" type="checkbox"/> Offline Cementing	<input checked="" type="checkbox"/> Casing Clearance

### A. HYDROGEN SULFIDE

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

### B. CASING

#### Primary Casing Design:

1. The **10-3/4** inch surface casing shall be set at approximately **1044 feet** (a minimum of 25 feet (Lea County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface. The surface hole shall be **14-3/4 inch** in diameter.

- a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. **Cement excess is less than 25%, more cement is required if washout occurs. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.** The minimum required fill of cement behind the 7-5/8 inch intermediate casing is:
- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**
  - Operator will perform bradenhead squeeze and top-out cement to surface. If cement does not reach surface, the appropriate BLM office shall be notified. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

**Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.**

**Casing test must be conducted in accordance with Onshore Order 2. Surface pressure applied will vary based on fluid in the casing and burst conditions.**

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

**Operator has proposed to pump down 10-3/4" X 7-5/8" annulus. Operator must top out cement after the bradenhead squeeze and verify cement to surface. Operator can also check TOC with Echo-meter. CBL must be run from TD of the 7-5/8" casing to surface if confidence is lacking on the quality of the bradenhead squeeze cement job. Submit results to BLM.**



**Submit results to the BLM. No displacement fluid/wash out shall be utilized at the top of the cement slurry between second stage BH and top out. Operator must run one CBL per Well Pad.**

**If cement does not reach surface, the next casing string must come to surface.**

**Operator must use a limited flush fluid volume of 1 bbl following backside cementing procedures.**

3. **Cement excess is less than 25%, more cement is required if washout occurs. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.** The minimum required fill of cement behind the 5-1/2 inch production casing is:

- Cement should tie-back at least **500 feet** into previous casing string. Operator shall provide method of verification.  
**Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

### **C. PRESSURE CONTROL**

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the **10-3/4 inch** 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 3500 (70% Working Pressure) psi.**
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
  - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.



## D. SPECIAL REQUIREMENT (S)

### **Communitization Agreement**

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in Onshore Order 1 and 2.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

### **(Note: For a minimum 5M BOPE or less (Utilizing a 10M BOPE system)**

#### **BOPE Break Testing Variance**

- BOPE Break Testing is ONLY permitted for 5M BOPE or less. (Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP)
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- Variance only pertains to the intermediate hole-sections and no deeper than the Bone Springs formation.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer (575-706-2779) prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required. (200' TVD tolerance between intermediate shoes is allowable).
- The BLM is to be contacted (575-689-5981 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.
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

#### **Offline Cementing**

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

**Casing Clearance:**

Operator casing variance is approved for the utilization of:

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.

Operator shall clean up cycles until wellbore is clear of cuttings and any large debris, ensure cutting sizes are adequate "coffee ground or less" before cementing.

## **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)  
689-5981

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

**B. PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.

- d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
  - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
- 5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead cement), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
  - 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 cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)
  - c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to 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.

JS 6/14/2023



## **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 (H<sub>2</sub>S) gas.

While drilling this well, it is possible to encounter H<sub>2</sub>S bearing formations. At all times, the first barrier to control H<sub>2</sub>S 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 H<sub>2</sub>S is detected. All H<sub>2</sub>S 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 <u>commence</u> .
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 H<sub>2</sub>S.
2. Proper use and maintenance of personal protective equipment and life support systems.
3. H<sub>2</sub>S detection.
4. Proper use of H<sub>2</sub>S 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 H<sub>2</sub>S 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 H<sub>2</sub>S Drilling Operations Plan.

H<sub>2</sub>S 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. H<sub>2</sub>S 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 H<sub>2</sub>S 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 H<sub>2</sub>S.
- 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. H<sub>2</sub>S 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. H<sub>2</sub>S 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 H<sub>2</sub>S 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 H<sub>2</sub>S 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:      | <ol style="list-style-type: none"> <li>1. On alarm, don escape unit and report to the nearest upwind designated safe briefing / muster area upw</li> <li>2. Check status of personnel (buddy system).</li> <li>3. Secure breathing equipment.</li> <li>4. Await orders from supervisor.</li> </ol>   |
| Drill site manager: | <ol style="list-style-type: none"> <li>1. Don escape unit if necessary and report to nearest upwind designated safe briefing / muster area.</li> <li>2. Coordinate preparations of individuals to return to point of release with tool pusher and driller (using the buddy system).</li> <li>3. Determine H2S concentrations.</li> <li>4. Assess situation and take control measures.</li> </ol> |
| Tool pusher:        | <ol style="list-style-type: none"> <li>1. Don escape unit Report to up nearest upwind designated safe briefing / muster area.</li> <li>2. Coordinate preparation of individuals to return to point of release with tool pusher drill site manager (using the buddy system).</li> <li>3. Determine H2S concentration.</li> <li>4. Assess situation and take control measures.</li> </ol>          |
| Driller:            | <ol style="list-style-type: none"> <li>1. Don escape unit, shut down pumps, continue</li> </ol>  |

- 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 is 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

<u>Percent (%)</u>	<u>Ppm</u>	<u>Concentration</u> Grains <u>100 std. Ft3*</u>	<u>Physical effects</u>
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 H<sub>2</sub>S.

- B. When breaking out any line where H<sub>2</sub>S can reasonably be expected.
- C. When sampling air in areas to determine if toxic concentrations of H<sub>2</sub>S exists.
- D. When working in areas where over 10 ppm H<sub>2</sub>S has been detected.
- E. At any time there is a doubt as to the H<sub>2</sub>S level in the area to be entered.

**Rescue**  
**First aid for H<sub>2</sub>S 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 H<sub>2</sub>S gas poisoning – no matter how remote the possibility is.
6. Notify emergency room personnel that the victim(s) has been exposed to H<sub>2</sub>S gas.

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

Revised CM 6/27/2012

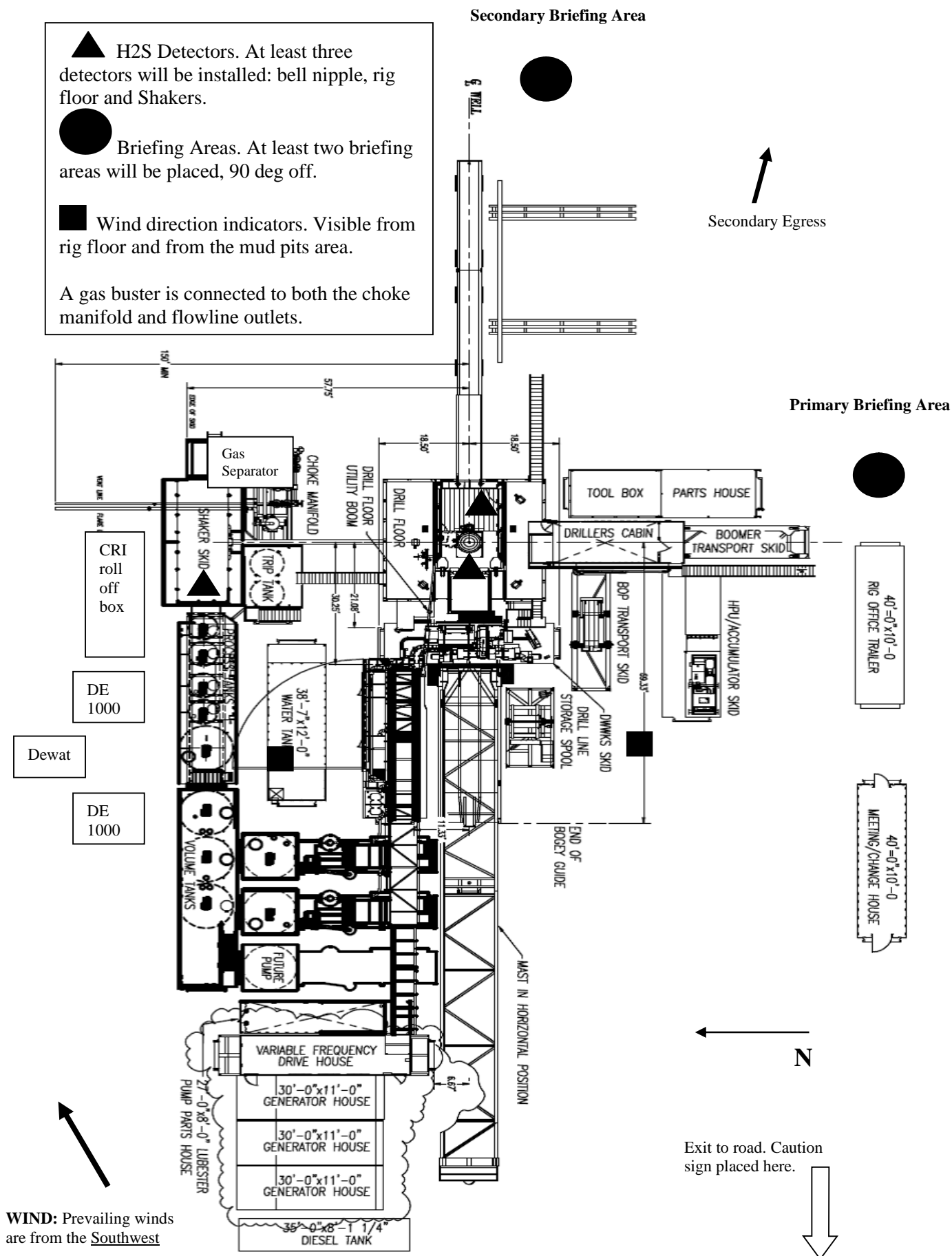


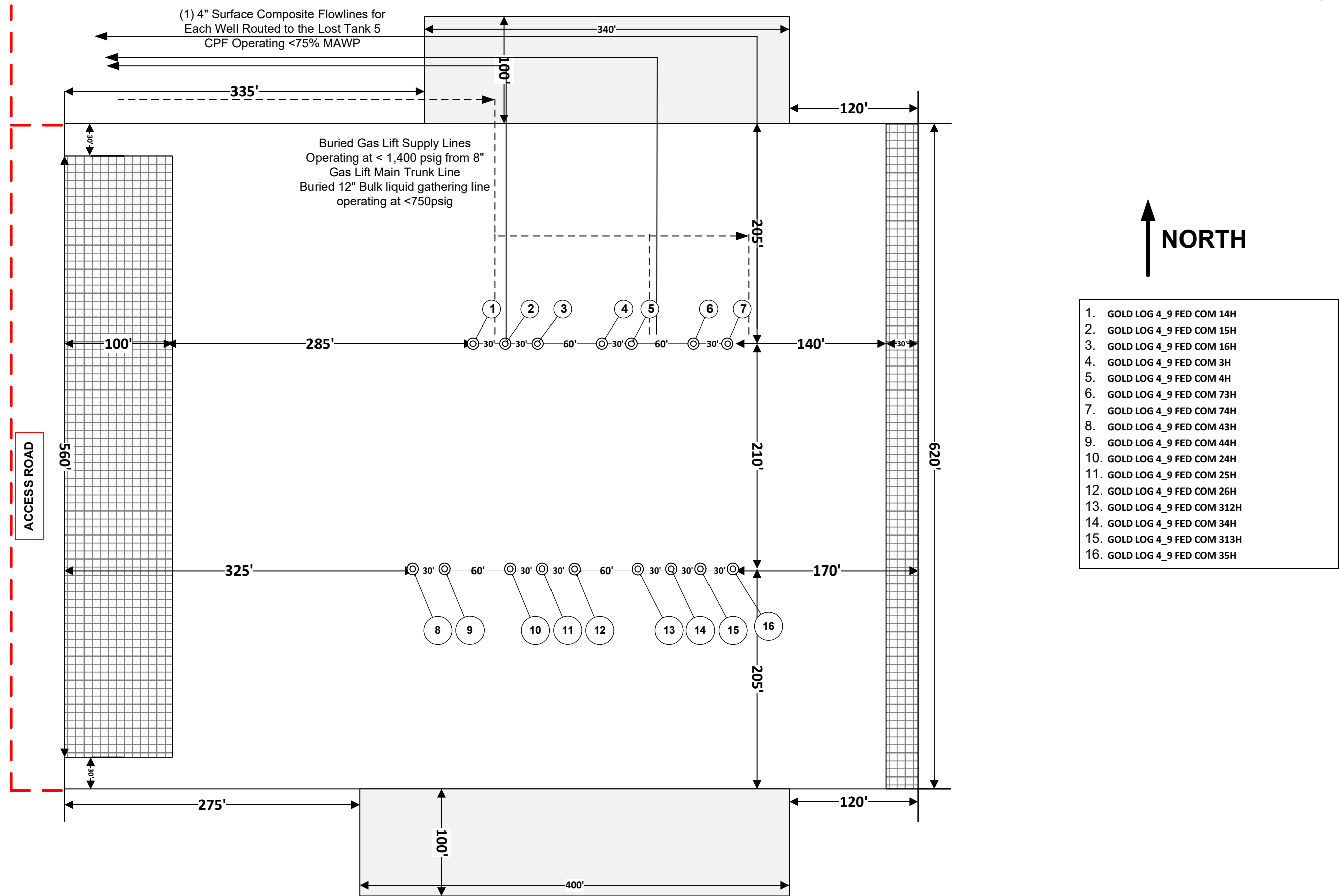
## **Permian Drilling Hydrogen Sulfide Drilling Operations Plan**

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.

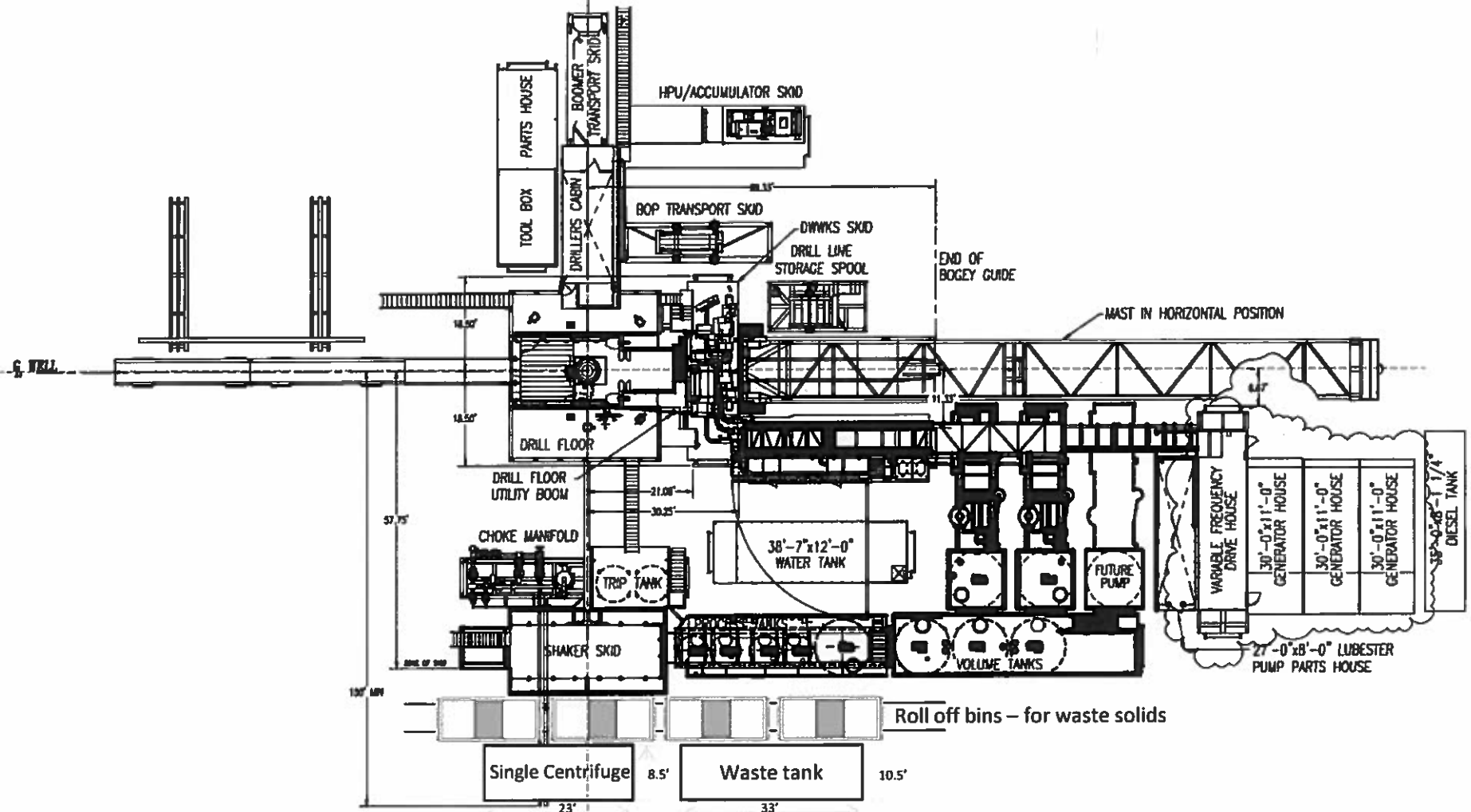




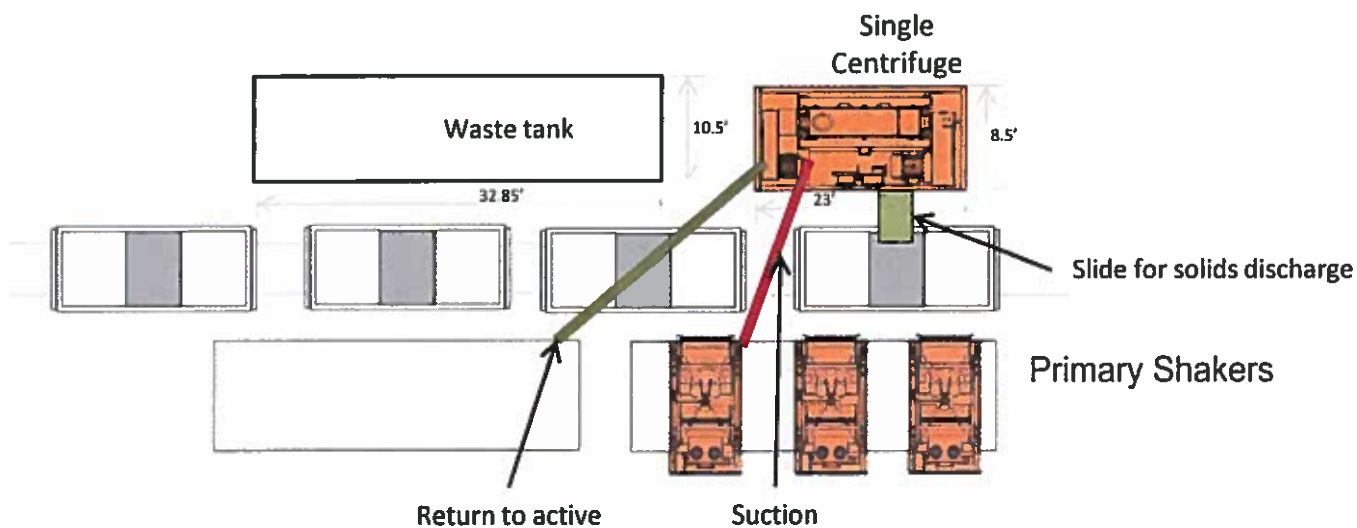
REVISION BLOCK						ENGINEERING RECORD		PAD 0402 RIG DIAGRAM V-DOOR EAST GOLD LOG 4_9 FED COM 14H, 15H, 16H, 3H, 4H, 73H, 74H, 43H, 44H, 24H, 25H, 26H, 312H, 34H, 313H, 35H SECTION 4, TOWNSHIP 22S, RANGE 32E LEA COUNTY, NEW MEXICO
NO.	DATE	DESCRIPTION	BY	CHK	APP	BY	DATE	
						DM	11/21/2022	



**Oxy Single Centrifuge  
Closed Loop System – New  
Mexico Flex III**  
May 28, 2013

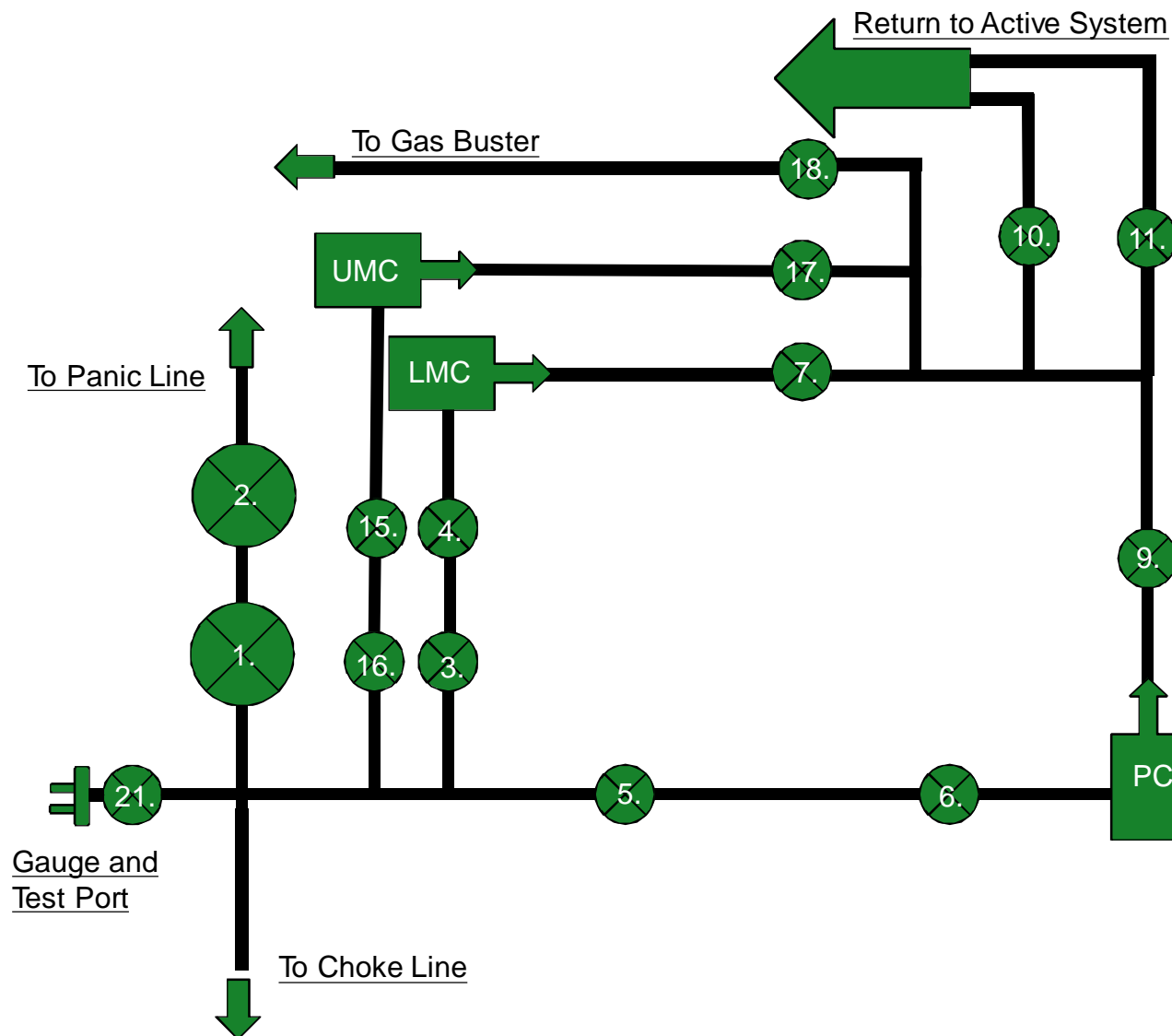


Oxy



Oxy Single Centrifuge  
Closed Loop System – New  
Mexico Flex III  
May 28, 2013

# 10M Choke Panel

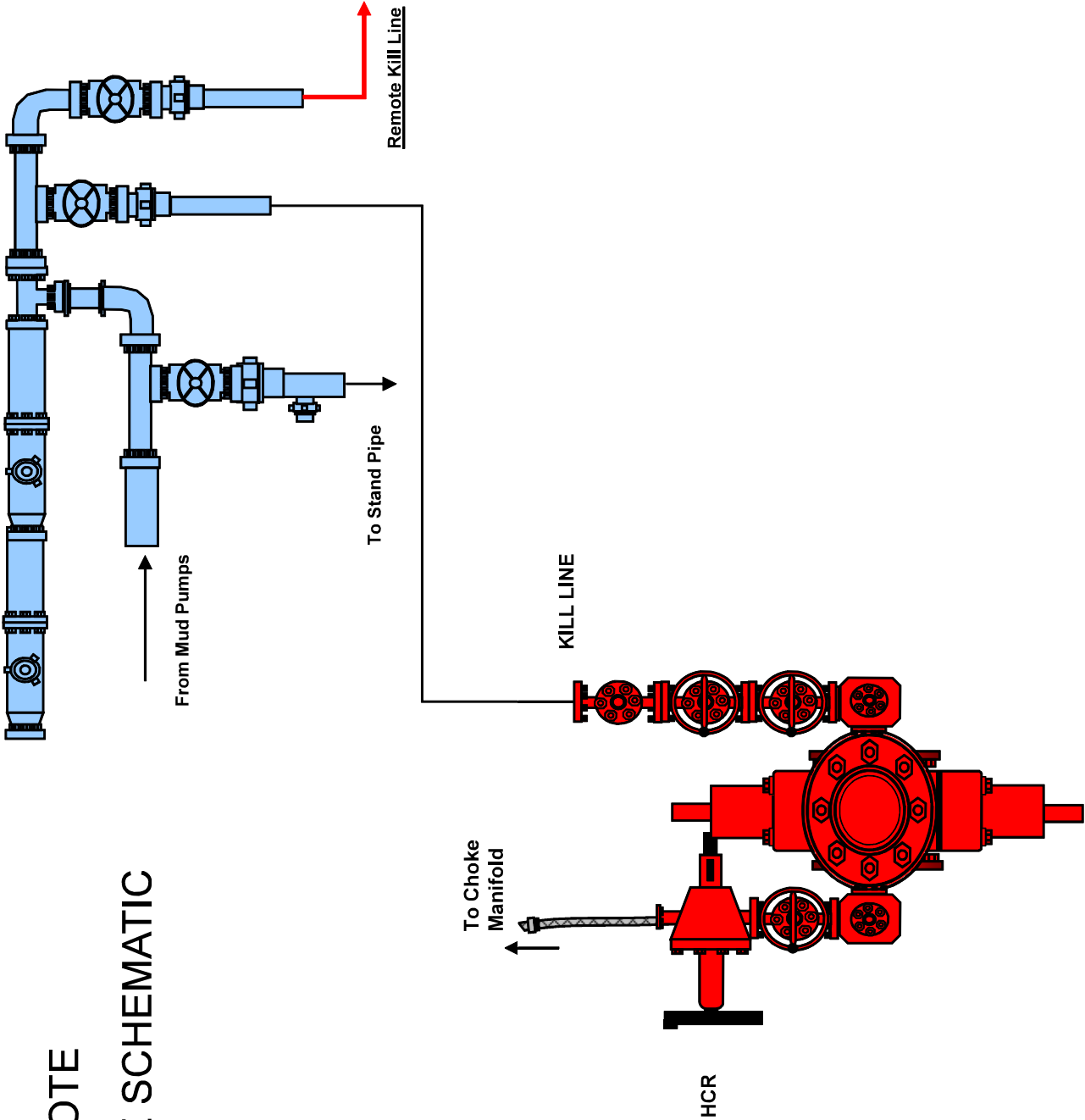


1. Choke Manifold Valve
2. Choke Manifold Valve
3. Choke Manifold Valve
4. Choke Manifold Valve
5. Choke Manifold Valve
6. Choke Manifold Valve
7. Choke Manifold Valve
8. PC – Power Choke
9. Choke Manifold Valve
10. Choke Manifold Valve
11. Choke Manifold Valve
12. LMC – Lower Manual Choke
13. UMC –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





Fluid Technology

Quality Document

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## CERTIFICATE OF CONFORMITY

**Supplier** : CONTITECH RUBBER INDUSTRIAL KFT.  
**Equipment** : 6 pcs. Choke and Kill Hose with installed couplings  
**Type** : 3" x 10,67 m WP: 10000 psi  
**Supplier File Number** : 412638  
**Date of Shipment** : April. 2008  
**Customer** : Phoenix Beattie Co.  
**Customer P.o.** : 002491  
**Referenced Standards**  
**/ Codes / Specifications** : API Spec 16 C  
**Serial No.:** 52754,52755,52776,52777,52778,52782

### STATEMENT OF CONFORMITY

We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

Signed : .....

A handwritten signature in black ink, appearing to read "Jack G. G.", written over a dotted line.

ContiTech Rubber  
Industrial Kft.  
Quality Control Dept.  
(1)

Date: 04. April. 2008

Position: Q.C. Manager

Coflex Hose Certification

Page: 1/1

15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
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Back  
ContiTech Rubber  
Industrial Kft.  
Quality Control Dept.  
(2)

## Coflex Hose Certification

[illegible]

We hereby certify that these goods have been inspected by our Quality Management System, and to the best of our knowledge are found to conform to relevant industry standards within the requirements of the purchase order as issued to Phoenix Beattie Corporation.

05/23/08

Coflex Hose Certification

Form No 100/12

**Phoenix Beattie Corp**

11535 Brittmoore Park Drive  
Houston, TX 77041  
Tel: (832) 327-0141  
Fax: (832) 327-0148  
E-mail mail@phoenixbeattie.com  
www.phoenixbeattie.com

**Delivery Note**

<b>Customer Order Number</b>	370-369-001	<b>Delivery Note Number</b>	003078	<b>Page</b>	1
<b>Customer / Invoice Address</b> HELMERICH & PAYNE INT'L DRILLING CO 1437 SOUTH BOULDER TULSA, OK 74119		<b>Delivery / Address</b> HELMERICH & PAYNE IDC ATTN: JOE STEPHENSON - RIG 370 13609 INDUSTRIAL ROAD HOUSTON, TX 77015			

<b>Customer Acc No</b>	<b>Phoenix Beattie Contract Manager</b>	<b>Phoenix Beattie Reference</b>	<b>Date</b>
H01	JJL	006330	05/23/2008

Item No	Beattie Part Number / Description	Qty Ordered	Qty Sent	Qty To Follow
1	HP10CK3A-35-4F1 3" 10K 16C C&K HOSE x 35ft OAL CW 4.1/16" API SPEC FLANGE E/ End 1: 4.1/16" 10Kpsi API Spec 6A Type 6BX Flange End 2: 4.1/16" 10Kpsi API Spec 6A Type 6BX Flange c/w BX155 Standard ring groove at each end Suitable for H2S Service Working pressure: 10,000psi Test pressure: 15,000psi Standard: API 16C Full specification Armor Guarding: Included Fire Rating: Not Included Temperature rating: -20 Deg C to +100 Deg C	1	1	0
2	SECK3-HPF3 LIFTING & SAFETY EQUIPMENT TO SUIT HP10CK3-35-F1 2 x 160mm ID Safety Clamps 2 x 244mm ID Lifting Collars & element C's 2 x 7ft Stainless Steel wire rope 3/4" OD 4 x 7.75t Shackles	1	1	0
3	SC725-200CS SAFETY CLAMP 200MM 7.25T C/S GALVANISED	1	1	0

Continued...

All goods remain the property of Phoenix Beattie until paid for in full. Any damage or shortage on this delivery must be advised within 5 days.  
Returns may be subject to a handling charge.



Coflex Hose Certification

Fluid Technology

Quality Document

<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>				CERT. N°: 746	
PURCHASER: Phoenix Beattie Co.				P.O. N°: 002491	
CONTITECH ORDER N°: 412638		HOSE TYPE: 3" ID Choke and Kill Hose			
HOSE SERIAL N°: 52777		NOMINAL / ACTUAL LENGTH: 10,67 m			
W.P. 68,96 MPa 10000 psi		T.P. 103,4 MPa 15000 psi		Duration: 60 ~ min.	
Pressure test with water at ambient temperature  <p style="text-align: center;">See attachment. (1 page)</p>					
↑ 10 mm = 10 Min. → 10 mm = 25 MPa					
<b>COUPLINGS</b>					
Type		Serial N°		Quality	
3" coupling with 4 1/16" Flange end		917 913		AISI 4130 AISI 4130	
				Heat N° T7998A 26984	
<b>INFOCHIP INSTALLED</b>				API Spec 16 C Temperature rate: "B"	
All metal parts are flawless					
WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.					
Date:  04. April. 2008		Inspector		Quality Control  ContiTech Rubber Industrial Kft. Quality Control Dept. (1)	

Coflex Hose Certification

Form No 100/12

**Phoenix Beattie Corp**

11535 Brittmoore Park Drive  
Houston, TX 77041  
Tel: (832) 327-0141  
Fax: (832) 327-0148  
E-mail mail@phoenixbeattie.com  
www.phoenixbeattie.com

**Delivery Note**

<b>Customer Order Number</b>	370-369-001	<b>Delivery Note Number</b>	003078	<b>Page</b>	2
<b>Customer / Invoice Address</b> HELMERICH & PAYNE INT'L DRILLING CO 1437 SOUTH BOULDER TULSA, OK 74119		<b>Delivery / Address</b> HELMERICH & PAYNE IDC ATTN: JOE STEPHENSON - RIG 370 13609 INDUSTRIAL ROAD HOUSTON, TX 77015			

<b>Customer Acc No</b>	<b>Phoenix Beattie Contract Manager</b>	<b>Phoenix Beattie Reference</b>	<b>Date</b>
H01	JJL	006330	05/23/2008

Item No	Beattie Part Number / Description	Qty Ordered	Qty Sent	Qty To Follow
4	SC725-132CS SAFETY CLAMP 132MM 7.25T C/S GALVANIZED C/W BOLTS	1	1	0
5	00CERT-HYDRO HYDROSTATIC PRESSURE TEST CERTIFICATE	1	1	0
6	00CERT-LOAD LOAD TEST CERTIFICATES	1	1	0
7	00FREIGHT INBOUND / OUTBOUND FREIGHT PRE-PAY & ADD TO FINAL INVOICE NOTE: MATERIAL MUST BE ACCOMPANIED BY PAPERWORK INCLUDING THE PURCHASE ORDER, RIG NUMBER TO ENSURE PROPER PAYMENT	1	1	0

Phoenix Beattie Inspection Signature :

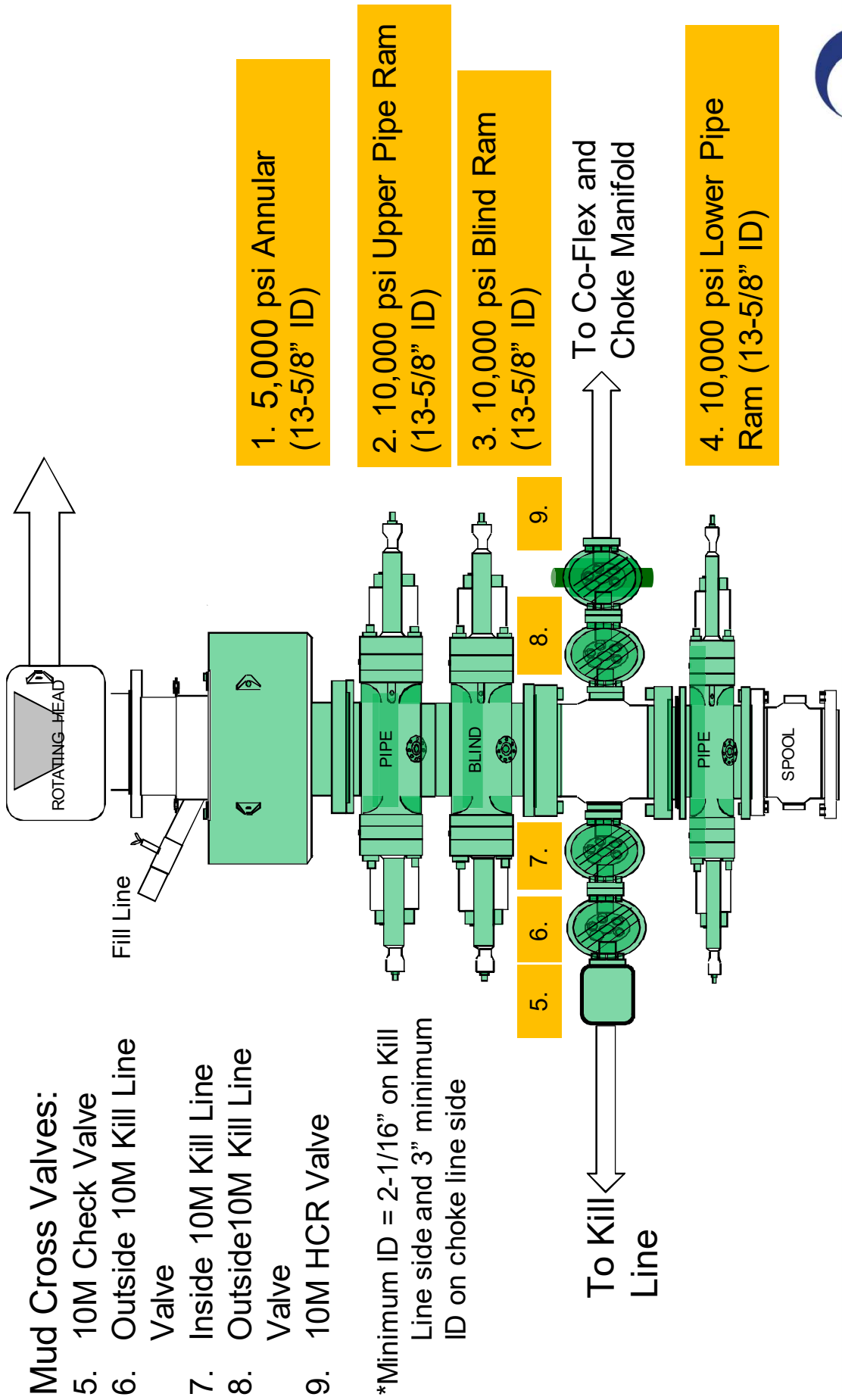
Received In Good Condition : Signature

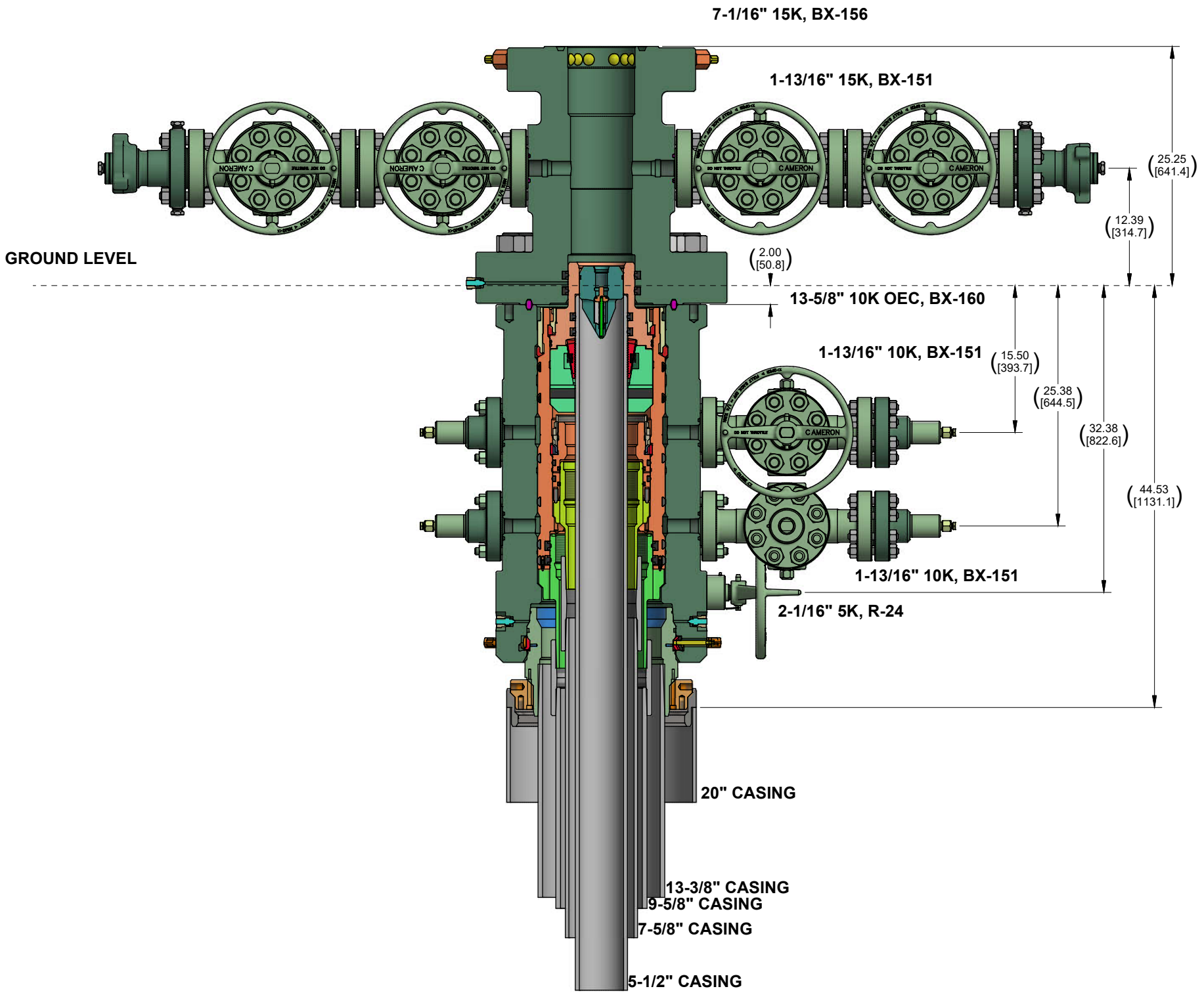
Print Name


Date

All goods remain the property of Phoenix Beattie until paid for in full. Any damage or shortage on this delivery must be advised within 5 days.  
Returns may be subject to a handling charge.

# 5/10M BOP Stack





CONFIDENTIAL					
SURFACE TREATMENT	DO NOT SCALE		 <b>CAMERON</b> A Schlumberger Company	SURFACE SYSTEMS	
MATERIAL & HEAT TREAT	DRAWN BY:	DATE	OXY ADAPT NST 10K 3 STAGE WELLHEAD STANDARD / EMERGENCY SYSTEM		
	A. SKLENKA	26 Apr 22			
	CHECKED BY:	DATE			
ESTIMATED WEIGHT:	APPROVED BY:	DATE	SHEET		REV:
	A. SKLENKA	26 Apr 22			
7968.4 LBS (3614.4 KG) INITIAL USE B/M: IT# 7836394			1 of 1		
					INVENTOR: 01

## OXY's Minimum Design Criteria

Burst, Collapse, and Tensile SF are calculated using Landmark's Stress Check (Casing Design) software. A sundry will be requested if any lesser grade or different size casing is substituted.

### 1) Casing Design Assumptions

#### a) Burst Loads

##### CSG Test (Surface)

- Internal: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
- External: Pore pressure in open hole.

##### CSG Test (Intermediate)

- Internal: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
- External: Mud Weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

##### CSG Test (Production)

- Internal:
  - For Drilling: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
  - For Production: The design pressure test should be the greater of (1) the planned test pressure prior to stimulation down the casing. (2) the regulatory test pressure, and (3) the expected gas lift system pressure. The design test fluid should be the fluid associated with pressure test having the greatest pressure.
- External:
  - For Drilling: Mud Weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.
  - For Production: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

##### Gas Column (Surface)

- Internal: Assumes a full column of gas in the casing with a Gas/Oil Gradient of 0.1 psi/ft in the absence of better information. It is limited to the controlling pressure based on the fracture pressure at the shoe or the maximum expected pore pressure within the next drilling interval, whichever results in a lower surface pressure.
- External: Fluid gradient below TOC, pore pressure from the TOC to the Intermediate CSG shoe (if applicable), and MW of the drilling mud that was in the hole when the CSG was run from Intermediate CSG shoe to surface.

##### Bullheading (Surface / Intermediate)

- Internal: The string must be designed to withstand a pressure profile based on the fracture pressure at the casing shoe with a column of water above the shoe plus an additional surface pressure (in psi) of  $0.02 \times \text{MD of the shoe}$  to account for pumping friction pressure.
- External: Mud weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

**Gas Kick (Intermediate)**

- The string must be designed to at least a gas kick load case unless the rig is unable to detect a kick. For the gas kick load case, the internal pressure profile must be based on a minimum volume of 50 bbl or the minimum kick detection capability of the rig, whichever is greater, and a kick intensity of 2.0 ppg for Class 1, 1.0 ppg of Class 2, and 0.5 ppg for Class 3 and 4 wells.
- Internal: Influx depth of the maximum pore pressure of 0.55 “gas kick gravity” of gas to surface while drilling the next hole section.
- External: Mud weight to the TOC, cement mix water gradient below TOC, and pore pressure in open hole.

**Tubing Leak Near Surface While Producing (Production)**

- Internal: SITP plus a packer fluid gradient to the shoe or top of packer.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

**Tubing Leak Near Surface While Stimulating (Production)**

- Internal: Surface pressure or pressure-relief system pressure, whichever is lower plus packer fluid gradient.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

**Injection / Stimulation Down Casing (Production)**

- Internal: Surface pressure plus injection fluid gradient.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

**b) Collapse Loads****Lost Circulation (Surface / Intermediate)**

- Internal: Lost circulation at the TD of the next hole section, and the fluid level falls to a depth where the hydrostatic of the mud equals pore pressure at the depth of the lost circulation zone.
- External: MW of the drilling mud that was in the hole when the casing was run.

**Cementing (Surface / Intermediate / Production)**

- Internal: Displacement fluid density.
- External: Mud weight from TOC to surface and cement slurry weight from TOC to casing shoe.

**Full Evacuation (Production)**

- Internal: Full void pipe.
- External: MW of drilling mud in the hole when the casing was run.

**c) Tension Loads****Running Casing (Surface / Intermediate / Production)**

- Axial: Buoyant weight of the string plus the lesser of 100,000 lb or the string weight in air.

**Green Cement (Surface / Intermediate / Production)**

- Axial: Buoyant weight of the string plus cement plug bump pressure load.





# TenarisHydril Wedge 425<sup>®</sup>



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

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

## Pipe Body Data

Geometry				Performance	
Nominal OD	5.500 in.	Wall Thickness	0.361 in.	Body Yield Strength	641 x1000 lb
Nominal Weight	20 lb/ft	Plain End Weight	19.83 lb/ft	Min. Internal Yield Pressure	12,640 psi
Drift	4.653 in.	OD Tolerance	API	SMYS	110,000 psi
Nominal ID	4.778 in.			Collapse Pressure	11,100 psi

## Connection Data

Geometry		Performance		Make-Up Torques	
Connection OD	5.777 in.	Tension Efficiency	90 %	Minimum	15,700 ft-lb
Connection ID	4.734 in.	Joint Yield Strength	577 x1000 lb	Optimum	19,600 ft-lb
Make-up Loss	5.823 in.	Internal Pressure Capacity	12,640 psi	Maximum	21,600 ft-lb
Threads per inch	3.77	Compression Efficiency	90 %	Operation Limit Torques	
Connection OD Option	Regular	Compression Strength	577 x1000 lb	Operating Torque	29,000 ft-lb
		Max. Allowable Bending	82 °/100 ft	Yield Torque	36,000 ft-lb
		External Pressure Capacity	11,100 psi		

## Notes

This connection is fully interchangeable with:  
TORQ® SFW™ - 5.5 in. - 0.361 in.  
Connections with Dopeless® Technology are fully compatible with the same connection in its Standard version

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

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# TenarisHydril Wedge 441®



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

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

## Pipe Body Data

Geometry				Performance	
Nominal OD	5.500 in.	Wall Thickness	0.361 in.	Body Yield Strength	641 x1000 lb
Nominal Weight	20 lb/ft	Plain End Weight	19.83 lb/ft	Min. Internal Yield Pressure	12,640 psi
Drift	4.653 in.	OD Tolerance	API	SMYS	110,000 psi
Nominal ID	4.778 in.			Collapse Pressure	11,100 psi

## Connection Data

Geometry		Performance		Make-Up Torques	
Connection OD	5.852 in.	Tension Efficiency	81.50 %	Minimum	15,000 ft-lb
Coupling Length	8.714 in.	Joint Yield Strength	522 x1000 lb	Optimum	16,000 ft-lb
Connection ID	4.778 in.	Internal Pressure Capacity	12,640 psi	Maximum	19,200 ft-lb
Make-up Loss	3.780 in.	Compression Efficiency	81.50 %	Operation Limit Torques	
Threads per inch	3.40	Compression Strength	522 x1000 lb	Operating Torque	32,000 ft-lb
Connection OD Option	Regular	Max. Allowable Bending	71 °/100 ft	Yield Torque	38,000 ft-lb
		External Pressure Capacity	11,100 psi	Buck-On	
				Minimum	19,200 ft-lb
				Maximum	20,700 ft-lb

## Notes

This connection is fully interchangeable with:  
Wedge 441® - 5.5 in. - 0.304 in.  
Connections with Dopeless® Technology are fully compatible with the same connection in its Standard version

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5.500" 20.00 lb/ft P110-CY  
TenarisHydril Wedge 461™ Matched  
Strength



Special Data Sheet  
TH DS-20.0359  
12 August 2020  
Rev 00

Nominal OD	5.500 in.	Wall Thickness	0.361 in.	Grade	P110-CY
Min Wall Thickness	87.5%	Type	CASING	Connection OD Option	MATCHED STRENGTH

Pipe Body Data

Geometry			Performance		
Nominal OD	5.500 in.	Nominal ID	4.778 in.	Body Yield Strength	641 x 1000 lbs
Nominal Weight	20.00 lbs/ft	Wall Thickness	0.361 in.	Internal Yield	12640 psi
Standard Drift Diameter	4.653 in.	Plain End Weight	19.83 lbs/ft	SMYS	110000 psi
Special Drift Diameter	N/A	OD Tolerance	API	Collapse Pressure	11110 psi

Connection Data

Geometry		Performance		Make-up Torques	
Matched Strength OD	6.050 in.	Tension Efficiency	100%	Minimum	17000 ft-lbs
Make-up Loss	3.775 in.	Joint Yield Strength	641 x 1000 lbs	Optimum	18000 ft-lbs
Threads per in.	3.40	Internal Yield	12640 psi	Maximum	21600 ft-lbs
Connection OD Option	MATCHED STRENGTH	Compression Efficiency	100%	Operational Limit Torques	
Coupling Length	7.714 in.	Compression Strength	641 x 1000 lbs	Operating Torque	32000 ft-lbs
		Bending	92 °/100 ft	Yield Torque	38000 ft-lbs
		Collapse	11110 psi	Buck-On Torques	
				Minimum	21600 ft-lbs
				Maximum	23100 ft-lbs

Notes

\*If you need to use torque values that are higher than the maximum indicated, please contact a local Tenaris technical sales representative

**District I**

1625 N. French Dr., Hobbs, NM 88240  
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**District IV**

1220 S. St Francis Dr., Santa Fe, NM 87505  
 Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 283874

**CONDITIONS**

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID:
	16696
	Action Number: 283874
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

**CONDITIONS**

Created By	Condition	Condition Date
pkautz	The APD for the above well is a non-standard spacing unit of 1279.16 acre in the WC-025 G-09 S233216K:UPR WOLFCAMP [98166] pool. It has been approved with the following COA. Well may not produce without first obtaining a NSP order from the OCD. If a NSP is not obtained operator will be required to submit a new C-102 with a standard spacing unit assigned.	11/8/2023
pkautz	Will require administrative order for non-standard spacing unit	11/8/2023
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	11/8/2023
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	11/8/2023
pkautz	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	11/8/2023
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	11/8/2023
pkautz	If cement does not circulate on any string, a CBL is required for that string of casing	11/8/2023