

Well Name: MESA VERDE WC UNIT	Well Location: T24S / R32E / SEC 16 / SESW / 32.2109555 / -103.682416	County or Parish/State: LEA / NM
Well Number: 41H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM55953	Unit or CA Name:	Unit or CA Number:
US Well Number: 3002548826	Operator: OXY USA INCORPORATED	

Notice of Intent

Sundry ID: 2764703

Type of Submission: Notice of Intent	Type of Action: APD Change
Date Sundry Submitted: 12/06/2023	Time Sundry Submitted: 12:29
Date proposed operation will begin: 08/13/2024	

**Procedure Description:** OXY USA INC. REQUESTS A NOTICE OF INTENT TO UPDATE THE ORIGINALLY APPROVED APD. THE CHANGES INCLUDE: TVD, BHL, SURFACE CASING, INTERMEDIATE CASING, AND PRODUCTION CASING ARE CHANGING. PLEASE SEE ATTACHMENT LABELED 'OXY APD CHANGE SUNDRY LIST' WITH ADDITIONAL DETAILS OF UPDATES BEING MADE TO THE ORIGINALLY APPROVED APD. GENERAL CHANGE DOCUMENTS ARE COMBINED INTO 1 PDF FILE AND WELL SPECIFIC DOCUMENTS ARE ATTACHED INDIVIDUALLY.

NOI Attachments

Procedure Description

- MESAVERDEWCUNIT41H\_General\_Docs\_20240808170756.pdf
- MESAVERDEWCUNIT41H\_VAM\_SPRINT\_SF\_5.5in\_23ppf\_P110RY\_20240808170753.pdf
- MESAVERDEWCUNIT41H\_C102\_20240808170749.pdf
- MESA\_VERDE\_WC\_UNIT\_41H\_\_\_OXY\_APD\_CHANGE\_SUNDRY\_LIST\_8.8.24\_20240808170747.pdf
- MESAVERDEWCUNIT41H\_DrillPlan\_20240808170747.pdf
- MESAVERDEWCUNIT41H\_13inADAPT\_10.75in\_7.625in\_10x10\_20240808170747.pdf
- MesaVerdeWCUnit41H\_DirectPlan\_20240808170747.pdf

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Well Number: 41H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM55953	Unit or CA Name:	Unit or CA Number:
US Well Number: 3002548826	Operator: OXY USA INCORPORATED	

Conditions of Approval

Additional

MESA\_VERDE\_WC\_UNIT\_41H\_\_SUNDRY\_COA\_20240904111433.pdf

Operator

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: RONI MATHEW	Signed on: AUG 13, 2024 10:56 AM
Name: OXY USA INCORPORATED	
Title: REGULATORY SPECIALIST	
Street Address: 5 Greenway Plaza, Suite 110	
City: Houston	State: TX
Phone: (713) 215-7827	
Email address: RONI_MATHEW@OXY.COM	

Field

Representative Name: JIM WILSON		
Street Address: 6001 DEAUVILLE BLVD.		
City: MIDLAND	State: TX	Zip: 79710
Phone: (575)631-2442		
Email address: JIM_WILSON@OXY.COM		

BLM Point of Contact

BLM POC Name: KEITH P IMMATTY	BLM POC Title: ENGINEER
BLM POC Phone: 5759884722	BLM POC Email Address: KIMMATTY@BLM.GOV
Disposition: Approved	Disposition Date: 09/04/2024
Signature: Keith Immatty	

Form 3160-5  
(June 2019)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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

**SUNDRY NOTICES AND REPORTS ON WELLS**  
**Do not use this form for proposals to drill or to re-enter an**  
**abandoned well. Use Form 3160-3 (APD) for such proposals.**

5. Lease Serial No.	
6. If Indian, Allottee or Tribe Name	
7. If Unit of CA/Agreement, Name and/or No.	
8. Well Name and No.	
9. API Well No.	
10. Field and Pool or Exploratory Area	
11. Country or Parish, State	

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

1. Type of Well	
<input type="checkbox"/> Oil Well	<input type="checkbox"/> Gas Well <input type="checkbox"/> Other
2. Name of Operator	
3a. Address	3b. Phone No. (include area code)
4. Location of Well (Footage, Sec., T.,R.,M., or Survey Description)	

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

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

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleate horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be perfonned or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleation in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has detennined that the site is ready for final inspection.)

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

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

Approved by	Title	Date
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office	

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

(Instructions on page 2)

## GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations and reports of such operations when completed as indicated on Federal and Indian lands pursuant to applicable Federal law and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local area or regional procedures and practices, are either shown below, will be issued by or may be obtained from the local Federal office.

## SPECIFIC INSTRUCTIONS

*Item 4* - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

*Item 13*: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. If the proposal will involve **hydraulic fracturing operations**, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

## NOTICES

The privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.

PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c) and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.

ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.

EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

Response to this request is mandatory.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240



## Additional Information

### Location of Well

0. SHL: SESW / 250 FSL / 1785 FWL / TWSP: 24S / RANGE: 32E / SECTION: 16 / LAT: 32.2109555 / LONG: -103.682416 ( TVD: 0 feet, MD: 0 feet )

PPP: SESW / 100 FSL / 2318 FWL / TWSP: 24S / RANGE: 32E / SECTION: 16 / LAT: 32.2105462 / LONG: -103.680693 ( TVD: 13109 feet, MD: 13507 feet )

PPP: SESW / 8 FSL / 2306 FWL / TWSP: 24S / RANGE: 32E / SECTION: 9 / LAT: 32.224764 / LONG: -103.680725 ( TVD: 13109 feet, MD: 18683 feet )

BHL: NENW / 20 FNL / 2318 FWL / TWSP: 24S / RANGE: 32E / SECTION: 9 / LAT: 32.2392523 / LONG: -103.6807057 ( TVD: 13109 feet, MD: 23954 feet )

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 30-025-48826		<sup>2</sup> Pool Code 98252		<sup>3</sup> Pool Name MESA VERDE; WOLFCAMP	
<sup>4</sup> Property Code 320829		<sup>5</sup> Property Name MESA VERDE WC UNIT			<sup>6</sup> Well Number 41H
<sup>7</sup> OGRID No. 16696		<sup>8</sup> Operator Name OXY USA INC.			<sup>9</sup> Elevation 3572.8'

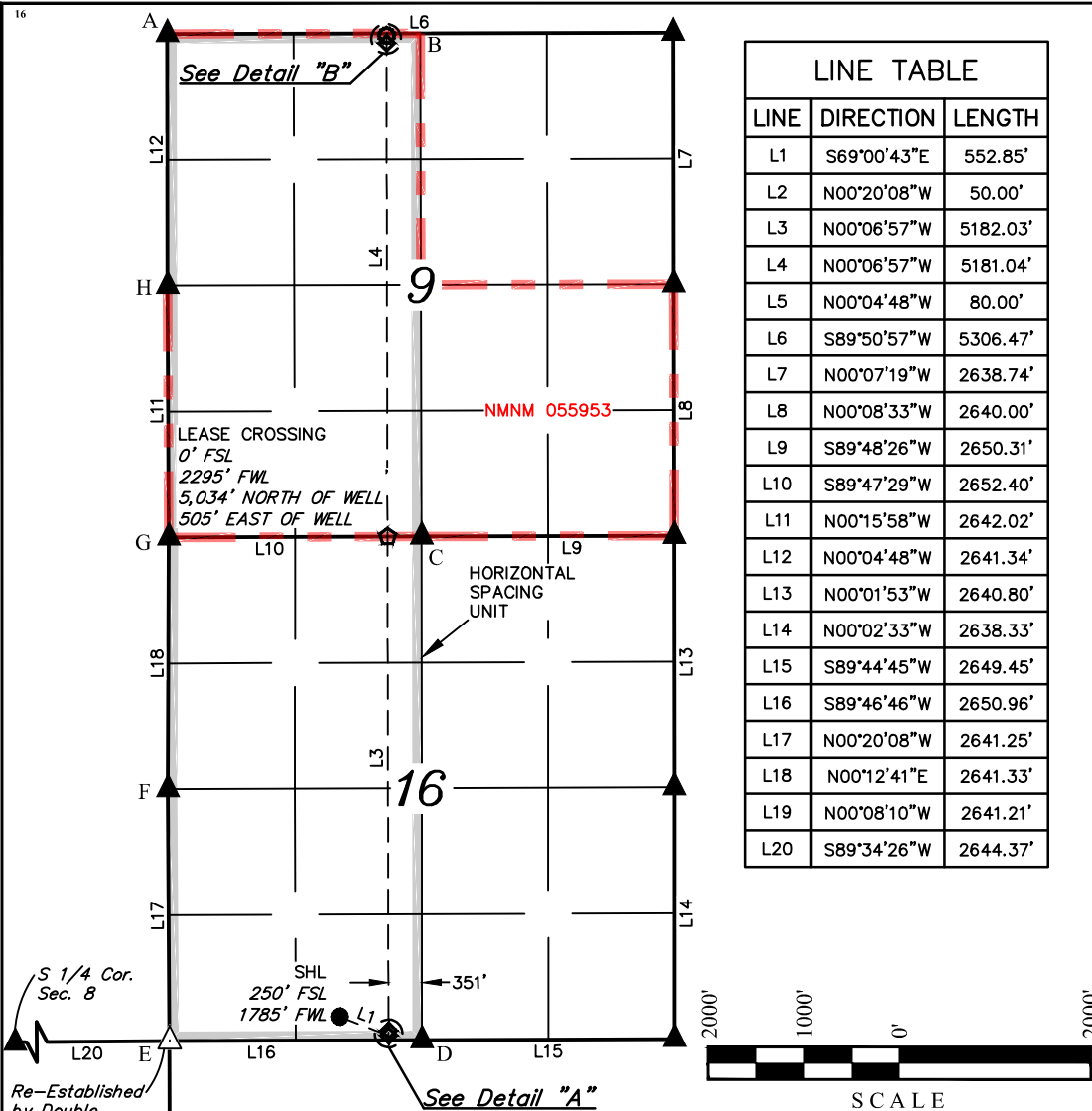
<sup>10</sup> Surface Location

UL or lot no. N	Section 16	Township 24S	Range 32E	Lot Idn	Feet from the 250	North/South line SOUTH	Feet from the 1785	East/West line WEST	County LEA
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<sup>11</sup> Bottom Hole Location If Different From Surface

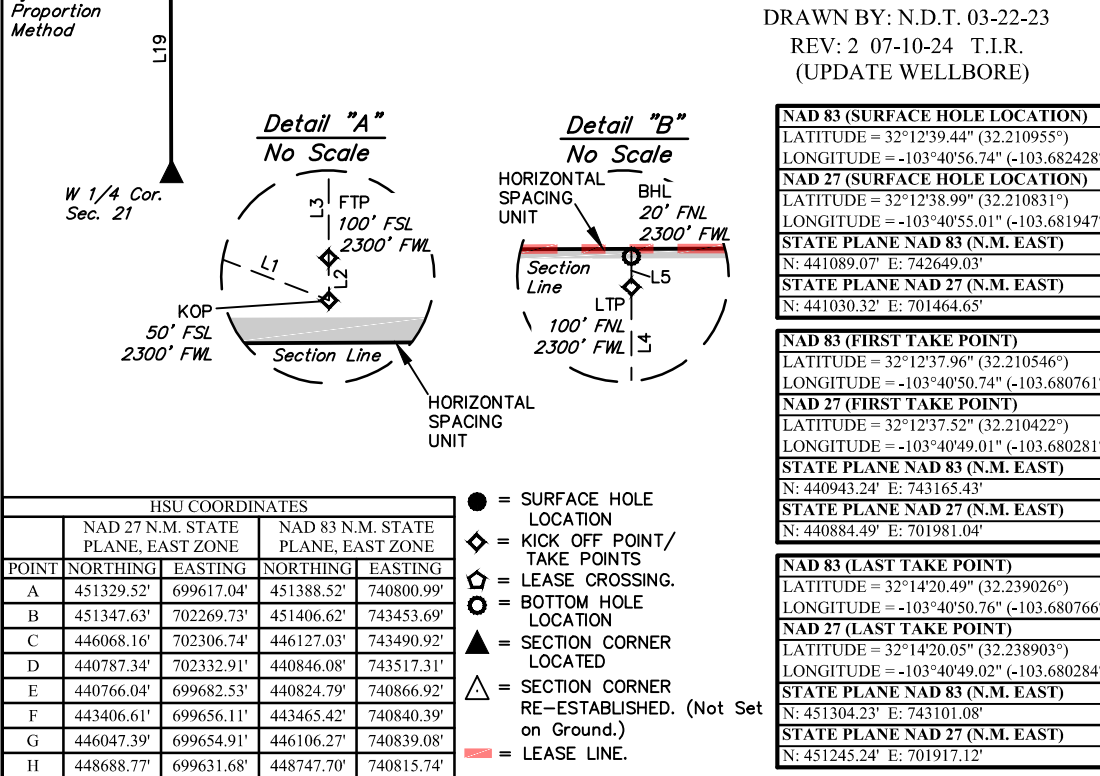
UL or lot no. C	Section 9	Township 24S	Range 32E	Lot Idn	Feet from the 20	North/South line NORTH	Feet from the 2300	East/West line WEST	County LEA
<sup>12</sup> Dedicated Acres 640		<sup>13</sup> Joint or Infill		<sup>14</sup> Consolidation Code		<sup>15</sup> Order No.			

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.



**<sup>17</sup> OPERATOR CERTIFICATION**  
*I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.*  
*Roni Mathew* 8/8/2024  
Signature Date  
**Roni Mathew**  
Printed Name  
**roni\_mathew@oxy.com**  
E-mail Address

**<sup>18</sup> SURVEYOR CERTIFICATION**  
*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.*  
March 16, 2023  
Date of Survey  
Signature and Seal of Professional Surveyor:  
  
Certificate Number:



NOTE:  
• Distances referenced on plat to section lines are perpendicular.  
• Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W 103°53'00" (NAD 83)

<b>NAD 83 (SURFACE HOLE LOCATION)</b> LATITUDE = 32°12'39.44" (32.210955°) LONGITUDE = -103°40'56.74" (-103.682428°) <b>NAD 27 (SURFACE HOLE LOCATION)</b> LATITUDE = 32°12'38.99" (32.210831°) LONGITUDE = -103°40'55.01" (-103.681947°) STATE PLANE NAD 83 (N.M. EAST) N: 441089.07' E: 742649.03' STATE PLANE NAD 27 (N.M. EAST) N: 441030.32' E: 701464.65'	<b>NAD 83 (KICK OFF POINT)</b> LATITUDE = 32°12'37.47" (32.210408°) LONGITUDE = -103°40'50.74" (-103.680760°) <b>NAD 27 (KICK OFF POINT)</b> LATITUDE = 32°12'37.02" (32.210284°) LONGITUDE = -103°40'49.01" (-103.680280°) STATE PLANE NAD 83 (N.M. EAST) N: 440893.25' E: 743165.93' STATE PLANE NAD 27 (N.M. EAST) N: 440834.51' E: 701981.54'
<b>NAD 83 (FIRST TAKE POINT)</b> LATITUDE = 32°12'37.96" (32.210546°) LONGITUDE = -103°40'50.74" (-103.680761°) <b>NAD 27 (FIRST TAKE POINT)</b> LATITUDE = 32°12'37.52" (32.210422°) LONGITUDE = -103°40'49.01" (-103.680281°) STATE PLANE NAD 83 (N.M. EAST) N: 440943.24' E: 743165.43' STATE PLANE NAD 27 (N.M. EAST) N: 440884.49' E: 701981.04'	<b>NAD 83 (LEASE CROSSING)</b> LATITUDE = 32°13'29.23" (32.224787°) LONGITUDE = -103°40'50.75" (-103.680763°) <b>NAD 27 (LEASE CROSSING)</b> LATITUDE = 32°13'28.79" (32.224664°) LONGITUDE = -103°40'49.02" (-103.680282°) STATE PLANE NAD 83 (N.M. EAST) N: 446124.23' E: 743133.26' STATE PLANE NAD 27 (N.M. EAST) N: 446065.36' E: 701949.08'
<b>NAD 83 (LAST TAKE POINT)</b> LATITUDE = 32°14'20.49" (32.239026°) LONGITUDE = -103°40'50.76" (-103.680766°) <b>NAD 27 (LAST TAKE POINT)</b> LATITUDE = 32°14'20.05" (32.238903°) LONGITUDE = -103°40'49.02" (-103.680284°) STATE PLANE NAD 83 (N.M. EAST) N: 451304.23' E: 743101.08' STATE PLANE NAD 27 (N.M. EAST) N: 451245.24' E: 701917.12'	<b>NAD 83 (BOTTOM HOLE LOCATION)</b> LATITUDE = 32°14'21.29" (32.239246°) LONGITUDE = -103°40'50.76" (-103.680765°) <b>NAD 27 (BOTTOM HOLE LOCATION)</b> LATITUDE = 32°14'20.84" (32.239123°) LONGITUDE = -103°40'49.02" (-103.680284°) STATE PLANE NAD 83 (N.M. EAST) N: 451384.22' E: 743100.63' STATE PLANE NAD 27 (N.M. EAST) N: 451325.22' E: 701916.68'

OXY APD CHANGE SUNDRY LIST

DATE	8/8/2024
WELL NAME	MESA VERDE WC UNIT 41H
API NUMBER	30-025-48826

ITEM	PREVIOUS	UPDATE
NAME	NA	
NSL	NA	
SHL	NA	
PAD	NA	
BHL	20' FNL X 2318' FWL	20' FNL X 2300' FWL
HSU SIZE, ACRES	NA	
POOL	NA	
TARGET FORMATION	NA	
TVD	13108'	12850'
SURFACE CASING	14.75" HOLE, 10.75" CASING, 40.5 LBS, J-55, BTC	14.75" HOLE, 10.75" CASING, 45.5 LBS, J-55, BTC
INTERMEDIATE CASING	9.875" HOLE, 7.625" CASING, 26.4 LBS, L-80 HC, BTC	9.875" HOLE, 7.625" CASING, 29.7 LBS, L-80 HC, BTC
PRODUCTION CASING	6.75" HOLE SIZE, 5.5" CASING, 20 LBS, P-110, DQX	6.75" HOLE SIZE, 5.5" CASING, 23 LBS, P-110, SPRINT-SF
LINER OR TIE BACK	N/A	
CEMENT - SURFACE (TAIL)	970 SX, 14.8 LBS, 1.33 YLD, Class C + ACCEL, EXCESS 100%	825 SX, 14.8 LBS, 1.33 YLD, CLASS C + ACCEL, EXCESS 100%
CEMENT - INTERM 1ST (TAIL)	745 SX, 13.2 LBS, 1.65 YLD, Class H + RETARDER, DISP, SALT, EXCESS 5%	715 SX, 13.2 LBS, 1.68 YLD, CLASS C + RETARDER, DISP, EXCESS 5%
CEMENT - INTERM 2ND (TAIL)	886 SX, 12.9 LBS, 1.92 YLD, Class C + ACCEL, EXCESS 10%	1117 SX (BH), 13.3 LBS, 1.71 YLD, CLASS C + ACCEL, EXCESS 25%
CEMENT - PROD (TAIL)	868 SX, 13.2 LBS, 1.38 YLD, Class H + RETARDER, DISP, SALT, EXCESS 20%	620 SX, 13.3 LBS, 1.84 YLD, Class C + RETARDER, EXCESS 25%
FACILITIES	NA	NA
OTHER	NA	NA

OTHER COMMENTS
THE TVD, BHL, SURFACE CASING, INTERMEDIATE CASING, AND PRODUCTION CASING ARE CHANGING.

ATTACHMENTS
C-102, DRILL PLAN, CASING CONNECTIONS, DIRECTIONAL PLAN ARE ATTACHED. UPDATED VARIANCE REQUESTS FOR BOP BREAK TESTING, BRADENHEAD CBL, AND OFFLINE CEMENT ARE ATTACHED.

# **OXY**

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

**Mesa Verde WC Unit**

**Mesa Verde WC Unit 41H**

**Wellbore #1**

**Plan: Permitting Plan**

## **Standard Planning Report**

**06 August, 2024**

OXY  
Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde WC Unit 41H
Company:	ENGINEERING DESIGNS	TVD Reference:	25' RKB @ 3597.80ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	25' RKB @ 3597.80ft
Site:	Mesa Verde WC Unit	North Reference:	Grid
Well:	Mesa Verde WC Unit 41H	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	Mesa Verde WC Unit		
Site Position:		Northing:	441,172.41 usft
From:	Map	Easting:	734,323.24 usft
Position Uncertainty:	44.72 ft	Slot Radius:	13.200 in
		Latitude:	32.211320
		Longitude:	-103.709345

Well	Mesa Verde WC Unit 41H		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty		0.89 ft	Wellhead Elevation:
Grid Convergence:		0.35 °	
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	12/10/2019	6.60	59.85	47,834.20000000

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	2.51

Plan Survey Tool Program	Date	8/6/2024		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	23,044.61	Permitting Plan (Wellbore #1)	B001Mc_MWD+HRGM_R5
				MWD+HRGM

OXY  
Planning Report

Database:	HOPSPPE	Local Co-ordinate Reference:	Well Mesa Verde WC Unit 41H
Company:	ENGINEERING DESIGNS	TVD Reference:	25' RKB @ 3597.80ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	25' RKB @ 3597.80ft
Site:	Mesa Verde WC Unit	North Reference:	Grid
Well:	Mesa Verde WC Unit 41H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

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	
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,000.21	10.00	110.75	4,995.14	-30.85	81.43	1.00	1.00	0.00	110.75	
7,180.08	10.00	110.75	7,141.88	-164.98	435.49	0.00	0.00	0.00	0.00	
8,180.30	0.00	0.00	8,137.02	-195.83	516.92	1.00	-1.00	0.00	180.00	
11,807.30	0.00	0.00	11,764.02	-195.83	516.92	0.00	0.00	0.00	0.00	
12,307.30	20.00	359.64	12,253.93	-109.45	516.39	4.00	4.00	0.00	359.64	PBHL (Mesa Verde
12,607.30	20.00	359.64	12,535.84	-6.84	515.75	0.00	0.00	0.00	0.00	
13,190.63	90.00	359.64	12,850.00	441.82	512.96	12.00	12.00	0.00	0.00	
23,044.63	90.00	359.64	12,850.00	10,295.63	451.62	0.00	0.00	0.00	0.00	PBHL (Mesa Verde



OXY  
Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde WC Unit 41H
Company:	ENGINEERING DESIGNS	TVD Reference:	25' RKB @ 3597.80ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	25' RKB @ 3597.80ft
Site:	Mesa Verde WC Unit	North Reference:	Grid
Well:	Mesa Verde WC Unit 41H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	1.00	110.75	4,100.00	-0.31	0.82	-0.27	1.00	1.00	0.00
4,200.00	2.00	110.75	4,199.96	-1.24	3.26	-1.09	1.00	1.00	0.00
4,300.00	3.00	110.75	4,299.86	-2.78	7.34	-2.46	1.00	1.00	0.00
4,400.00	4.00	110.75	4,399.68	-4.94	13.05	-4.37	1.00	1.00	0.00
4,500.00	5.00	110.75	4,499.37	-7.72	20.39	-6.82	1.00	1.00	0.00
4,600.00	6.00	110.75	4,598.90	-11.12	29.35	-9.82	1.00	1.00	0.00
4,700.00	7.00	110.75	4,698.26	-15.13	39.94	-13.37	1.00	1.00	0.00
4,800.00	8.00	110.75	4,797.40	-19.75	52.14	-17.45	1.00	1.00	0.00
4,900.00	9.00	110.75	4,896.30	-24.99	65.97	-22.08	1.00	1.00	0.00
5,000.00	10.00	110.75	4,994.93	-30.84	81.40	-27.24	1.00	1.00	0.00
5,000.21	10.00	110.75	4,995.14	-30.85	81.43	-27.25	1.00	1.00	0.00
5,100.00	10.00	110.75	5,093.41	-36.99	97.64	-32.68	0.00	0.00	0.00
5,200.00	10.00	110.75	5,191.89	-43.14	113.88	-38.11	0.00	0.00	0.00
5,300.00	10.00	110.75	5,290.37	-49.30	130.13	-43.55	0.00	0.00	0.00

# OXY

## Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well Mesa Verde WC Unit 41H
<b>Company:</b>	ENGINEERING DESIGNS	<b>TVD Reference:</b>	25' RKB @ 3597.80ft
<b>Project:</b>	PRD NM DIRECTIONAL PLANS (NAD 1983)	<b>MD Reference:</b>	25' RKB @ 3597.80ft
<b>Site:</b>	Mesa Verde WC Unit	<b>North Reference:</b>	Grid
<b>Well:</b>	Mesa Verde WC Unit 41H	<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	10.00	110.75	5,388.85	-55.45	146.37	-48.98	0.00	0.00	0.00
5,500.00	10.00	110.75	5,487.33	-61.60	162.61	-54.42	0.00	0.00	0.00
5,600.00	10.00	110.75	5,585.81	-67.76	178.85	-59.85	0.00	0.00	0.00
5,700.00	10.00	110.75	5,684.29	-73.91	195.09	-65.29	0.00	0.00	0.00
5,800.00	10.00	110.75	5,782.77	-80.06	211.34	-70.72	0.00	0.00	0.00
5,900.00	10.00	110.75	5,881.25	-86.21	227.58	-76.16	0.00	0.00	0.00
6,000.00	10.00	110.75	5,979.73	-92.37	243.82	-81.59	0.00	0.00	0.00
6,100.00	10.00	110.75	6,078.21	-98.52	260.06	-87.03	0.00	0.00	0.00
6,200.00	10.00	110.75	6,176.69	-104.67	276.30	-92.47	0.00	0.00	0.00
6,300.00	10.00	110.75	6,275.17	-110.83	292.55	-97.90	0.00	0.00	0.00
6,400.00	10.00	110.75	6,373.65	-116.98	308.79	-103.34	0.00	0.00	0.00
6,500.00	10.00	110.75	6,472.13	-123.13	325.03	-108.77	0.00	0.00	0.00
6,600.00	10.00	110.75	6,570.61	-129.29	341.27	-114.21	0.00	0.00	0.00
6,700.00	10.00	110.75	6,669.09	-135.44	357.51	-119.64	0.00	0.00	0.00
6,800.00	10.00	110.75	6,767.57	-141.59	373.76	-125.08	0.00	0.00	0.00
6,900.00	10.00	110.75	6,866.05	-147.75	390.00	-130.51	0.00	0.00	0.00
7,000.00	10.00	110.75	6,964.53	-153.90	406.24	-135.95	0.00	0.00	0.00
7,100.00	10.00	110.75	7,063.01	-160.05	422.48	-141.38	0.00	0.00	0.00
7,180.08	10.00	110.75	7,141.88	-164.98	435.49	-145.74	0.00	0.00	0.00
7,200.00	9.80	110.75	7,161.50	-166.19	438.69	-146.81	1.00	-1.00	0.00
7,300.00	8.80	110.75	7,260.18	-171.92	453.81	-151.87	1.00	-1.00	0.00
7,400.00	7.80	110.75	7,359.13	-177.03	467.31	-156.39	1.00	-1.00	0.00
7,500.00	6.80	110.75	7,458.32	-181.54	479.20	-160.36	1.00	-1.00	0.00
7,600.00	5.80	110.75	7,557.72	-185.43	489.47	-163.80	1.00	-1.00	0.00
7,700.00	4.80	110.75	7,657.29	-188.70	498.11	-166.69	1.00	-1.00	0.00
7,800.00	3.80	110.75	7,757.00	-191.36	505.13	-169.04	1.00	-1.00	0.00
7,900.00	2.80	110.75	7,856.84	-193.40	510.51	-170.84	1.00	-1.00	0.00
8,000.00	1.80	110.75	7,956.75	-194.82	514.27	-172.10	1.00	-1.00	0.00
8,100.00	0.80	110.75	8,056.73	-195.63	516.40	-172.81	1.00	-1.00	0.00
8,180.30	0.00	0.00	8,137.02	-195.83	516.92	-172.99	1.00	-1.00	0.00
8,200.00	0.00	0.00	8,156.72	-195.83	516.92	-172.99	0.00	0.00	0.00
8,300.00	0.00	0.00	8,256.72	-195.83	516.92	-172.99	0.00	0.00	0.00
8,400.00	0.00	0.00	8,356.72	-195.83	516.92	-172.99	0.00	0.00	0.00
8,500.00	0.00	0.00	8,456.72	-195.83	516.92	-172.99	0.00	0.00	0.00
8,600.00	0.00	0.00	8,556.72	-195.83	516.92	-172.99	0.00	0.00	0.00
8,700.00	0.00	0.00	8,656.72	-195.83	516.92	-172.99	0.00	0.00	0.00
8,800.00	0.00	0.00	8,756.72	-195.83	516.92	-172.99	0.00	0.00	0.00
8,900.00	0.00	0.00	8,856.72	-195.83	516.92	-172.99	0.00	0.00	0.00
9,000.00	0.00	0.00	8,956.72	-195.83	516.92	-172.99	0.00	0.00	0.00
9,100.00	0.00	0.00	9,056.72	-195.83	516.92	-172.99	0.00	0.00	0.00
9,200.00	0.00	0.00	9,156.72	-195.83	516.92	-172.99	0.00	0.00	0.00
9,300.00	0.00	0.00	9,256.72	-195.83	516.92	-172.99	0.00	0.00	0.00
9,400.00	0.00	0.00	9,356.72	-195.83	516.92	-172.99	0.00	0.00	0.00
9,500.00	0.00	0.00	9,456.72	-195.83	516.92	-172.99	0.00	0.00	0.00
9,600.00	0.00	0.00	9,556.72	-195.83	516.92	-172.99	0.00	0.00	0.00
9,700.00	0.00	0.00	9,656.72	-195.83	516.92	-172.99	0.00	0.00	0.00
9,800.00	0.00	0.00	9,756.72	-195.83	516.92	-172.99	0.00	0.00	0.00
9,900.00	0.00	0.00	9,856.72	-195.83	516.92	-172.99	0.00	0.00	0.00
10,000.00	0.00	0.00	9,956.72	-195.83	516.92	-172.99	0.00	0.00	0.00
10,100.00	0.00	0.00	10,056.72	-195.83	516.92	-172.99	0.00	0.00	0.00
10,200.00	0.00	0.00	10,156.72	-195.83	516.92	-172.99	0.00	0.00	0.00
10,300.00	0.00	0.00	10,256.72	-195.83	516.92	-172.99	0.00	0.00	0.00
10,400.00	0.00	0.00	10,356.72	-195.83	516.92	-172.99	0.00	0.00	0.00
10,500.00	0.00	0.00	10,456.72	-195.83	516.92	-172.99	0.00	0.00	0.00
10,600.00	0.00	0.00	10,556.72	-195.83	516.92	-172.99	0.00	0.00	0.00

OXY  
Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde WC Unit 41H
Company:	ENGINEERING DESIGNS	TVD Reference:	25' RKB @ 3597.80ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	25' RKB @ 3597.80ft
Site:	Mesa Verde WC Unit	North Reference:	Grid
Well:	Mesa Verde WC Unit 41H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,700.00	0.00	0.00	10,656.72	-195.83	516.92	-172.99	0.00	0.00	0.00
10,800.00	0.00	0.00	10,756.72	-195.83	516.92	-172.99	0.00	0.00	0.00
10,900.00	0.00	0.00	10,856.72	-195.83	516.92	-172.99	0.00	0.00	0.00
11,000.00	0.00	0.00	10,956.72	-195.83	516.92	-172.99	0.00	0.00	0.00
11,100.00	0.00	0.00	11,056.72	-195.83	516.92	-172.99	0.00	0.00	0.00
11,200.00	0.00	0.00	11,156.72	-195.83	516.92	-172.99	0.00	0.00	0.00
11,300.00	0.00	0.00	11,256.72	-195.83	516.92	-172.99	0.00	0.00	0.00
11,400.00	0.00	0.00	11,356.72	-195.83	516.92	-172.99	0.00	0.00	0.00
11,500.00	0.00	0.00	11,456.72	-195.83	516.92	-172.99	0.00	0.00	0.00
11,600.00	0.00	0.00	11,556.72	-195.83	516.92	-172.99	0.00	0.00	0.00
11,700.00	0.00	0.00	11,656.72	-195.83	516.92	-172.99	0.00	0.00	0.00
11,800.00	0.00	0.00	11,756.72	-195.83	516.92	-172.99	0.00	0.00	0.00
11,807.30	0.00	0.00	11,764.02	-195.83	516.92	-172.99	0.00	0.00	0.00
11,900.00	3.71	359.64	11,856.66	-192.83	516.91	-169.99	4.00	4.00	0.00
12,000.00	7.71	359.64	11,956.14	-182.89	516.84	-160.06	4.00	4.00	0.00
12,100.00	11.71	359.64	12,054.69	-166.03	516.74	-143.22	4.00	4.00	0.00
12,200.00	15.71	359.64	12,151.82	-142.33	516.59	-119.56	4.00	4.00	0.00
12,300.00	19.71	359.64	12,247.07	-111.92	516.40	-89.19	4.00	4.00	0.00
12,307.30	20.00	359.64	12,253.93	-109.45	516.39	-86.71	4.00	4.00	0.00
12,400.00	20.00	359.64	12,341.04	-77.74	516.19	-55.05	0.00	0.00	0.00
12,500.00	20.00	359.64	12,435.01	-43.54	515.98	-20.89	0.00	0.00	0.00
12,600.00	20.00	359.64	12,528.98	-9.34	515.76	13.27	0.00	0.00	0.00
12,607.30	20.00	359.64	12,535.84	-6.84	515.75	15.76	0.00	0.00	0.00
12,700.00	31.12	359.64	12,619.33	33.09	515.50	55.65	12.00	12.00	0.00
12,800.00	43.12	359.64	12,698.92	93.34	515.12	115.82	12.00	12.00	0.00
12,900.00	55.12	359.64	12,764.24	168.81	514.65	191.20	12.00	12.00	0.00
13,000.00	67.12	359.64	12,812.45	256.22	514.11	278.50	12.00	12.00	0.00
13,100.00	79.12	359.64	12,841.42	351.73	513.52	373.90	12.00	12.00	0.00
13,190.63	90.00	359.64	12,850.00	441.82	512.96	463.87	12.00	12.00	0.00
13,200.00	90.00	359.64	12,850.00	451.19	512.90	473.23	0.00	0.00	0.00
13,300.00	90.00	359.64	12,850.00	551.19	512.27	573.11	0.00	0.00	0.00
13,400.00	90.00	359.64	12,850.00	651.19	511.65	672.98	0.00	0.00	0.00
13,500.00	90.00	359.64	12,850.00	751.18	511.03	772.86	0.00	0.00	0.00
13,600.00	90.00	359.64	12,850.00	851.18	510.41	872.73	0.00	0.00	0.00
13,700.00	90.00	359.64	12,850.00	951.18	509.78	972.60	0.00	0.00	0.00
13,800.00	90.00	359.64	12,850.00	1,051.18	509.16	1,072.48	0.00	0.00	0.00
13,900.00	90.00	359.64	12,850.00	1,151.18	508.54	1,172.35	0.00	0.00	0.00
14,000.00	90.00	359.64	12,850.00	1,251.17	507.92	1,272.23	0.00	0.00	0.00
14,100.00	90.00	359.64	12,850.00	1,351.17	507.29	1,372.10	0.00	0.00	0.00
14,200.00	90.00	359.64	12,850.00	1,451.17	506.67	1,471.98	0.00	0.00	0.00
14,300.00	90.00	359.64	12,850.00	1,551.17	506.05	1,571.85	0.00	0.00	0.00
14,400.00	90.00	359.64	12,850.00	1,651.17	505.43	1,671.73	0.00	0.00	0.00
14,500.00	90.00	359.64	12,850.00	1,751.16	504.81	1,771.60	0.00	0.00	0.00
14,600.00	90.00	359.64	12,850.00	1,851.16	504.18	1,871.48	0.00	0.00	0.00
14,700.00	90.00	359.64	12,850.00	1,951.16	503.56	1,971.35	0.00	0.00	0.00
14,800.00	90.00	359.64	12,850.00	2,051.16	502.94	2,071.23	0.00	0.00	0.00
14,900.00	90.00	359.64	12,850.00	2,151.16	502.32	2,171.10	0.00	0.00	0.00
15,000.00	90.00	359.64	12,850.00	2,251.15	501.69	2,270.98	0.00	0.00	0.00
15,100.00	90.00	359.64	12,850.00	2,351.15	501.07	2,370.85	0.00	0.00	0.00
15,200.00	90.00	359.64	12,850.00	2,451.15	500.45	2,470.73	0.00	0.00	0.00
15,300.00	90.00	359.64	12,850.00	2,551.15	499.83	2,570.60	0.00	0.00	0.00
15,400.00	90.00	359.64	12,850.00	2,651.15	499.20	2,670.48	0.00	0.00	0.00
15,500.00	90.00	359.64	12,850.00	2,751.14	498.58	2,770.35	0.00	0.00	0.00
15,600.00	90.00	359.64	12,850.00	2,851.14	497.96	2,870.22	0.00	0.00	0.00
15,700.00	90.00	359.64	12,850.00	2,951.14	497.34	2,970.10	0.00	0.00	0.00

OXY  
Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde WC Unit 41H
Company:	ENGINEERING DESIGNS	TVD Reference:	25' RKB @ 3597.80ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	25' RKB @ 3597.80ft
Site:	Mesa Verde WC Unit	North Reference:	Grid
Well:	Mesa Verde WC Unit 41H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,800.00	90.00	359.64	12,850.00	3,051.14	496.71	3,069.97	0.00	0.00	0.00
15,900.00	90.00	359.64	12,850.00	3,151.14	496.09	3,169.85	0.00	0.00	0.00
16,000.00	90.00	359.64	12,850.00	3,251.13	495.47	3,269.72	0.00	0.00	0.00
16,100.00	90.00	359.64	12,850.00	3,351.13	494.85	3,369.60	0.00	0.00	0.00
16,200.00	90.00	359.64	12,850.00	3,451.13	494.22	3,469.47	0.00	0.00	0.00
16,300.00	90.00	359.64	12,850.00	3,551.13	493.60	3,569.35	0.00	0.00	0.00
16,400.00	90.00	359.64	12,850.00	3,651.13	492.98	3,669.22	0.00	0.00	0.00
16,500.00	90.00	359.64	12,850.00	3,751.13	492.36	3,769.10	0.00	0.00	0.00
16,600.00	90.00	359.64	12,850.00	3,851.12	491.73	3,868.97	0.00	0.00	0.00
16,700.00	90.00	359.64	12,850.00	3,951.12	491.11	3,968.85	0.00	0.00	0.00
16,800.00	90.00	359.64	12,850.00	4,051.12	490.49	4,068.72	0.00	0.00	0.00
16,900.00	90.00	359.64	12,850.00	4,151.12	489.87	4,168.60	0.00	0.00	0.00
17,000.00	90.00	359.64	12,850.00	4,251.12	489.24	4,268.47	0.00	0.00	0.00
17,100.00	90.00	359.64	12,850.00	4,351.11	488.62	4,368.35	0.00	0.00	0.00
17,200.00	90.00	359.64	12,850.00	4,451.11	488.00	4,468.22	0.00	0.00	0.00
17,300.00	90.00	359.64	12,850.00	4,551.11	487.38	4,568.10	0.00	0.00	0.00
17,400.00	90.00	359.64	12,850.00	4,651.11	486.75	4,667.97	0.00	0.00	0.00
17,500.00	90.00	359.64	12,850.00	4,751.11	486.13	4,767.84	0.00	0.00	0.00
17,600.00	90.00	359.64	12,850.00	4,851.10	485.51	4,867.72	0.00	0.00	0.00
17,700.00	90.00	359.64	12,850.00	4,951.10	484.89	4,967.59	0.00	0.00	0.00
17,800.00	90.00	359.64	12,850.00	5,051.10	484.27	5,067.47	0.00	0.00	0.00
17,900.00	90.00	359.64	12,850.00	5,151.10	483.64	5,167.34	0.00	0.00	0.00
18,000.00	90.00	359.64	12,850.00	5,251.10	483.02	5,267.22	0.00	0.00	0.00
18,100.00	90.00	359.64	12,850.00	5,351.09	482.40	5,367.09	0.00	0.00	0.00
18,200.00	90.00	359.64	12,850.00	5,451.09	481.78	5,466.97	0.00	0.00	0.00
18,300.00	90.00	359.64	12,850.00	5,551.09	481.15	5,566.84	0.00	0.00	0.00
18,400.00	90.00	359.64	12,850.00	5,651.09	480.53	5,666.72	0.00	0.00	0.00
18,500.00	90.00	359.64	12,850.00	5,751.09	479.91	5,766.59	0.00	0.00	0.00
18,600.00	90.00	359.64	12,850.00	5,851.08	479.29	5,866.47	0.00	0.00	0.00
18,700.00	90.00	359.64	12,850.00	5,951.08	478.66	5,966.34	0.00	0.00	0.00
18,800.00	90.00	359.64	12,850.00	6,051.08	478.04	6,066.22	0.00	0.00	0.00
18,900.00	90.00	359.64	12,850.00	6,151.08	477.42	6,166.09	0.00	0.00	0.00
19,000.00	90.00	359.64	12,850.00	6,251.08	476.80	6,265.97	0.00	0.00	0.00
19,100.00	90.00	359.64	12,850.00	6,351.07	476.17	6,365.84	0.00	0.00	0.00
19,200.00	90.00	359.64	12,850.00	6,451.07	475.55	6,465.72	0.00	0.00	0.00
19,300.00	90.00	359.64	12,850.00	6,551.07	474.93	6,565.59	0.00	0.00	0.00
19,400.00	90.00	359.64	12,850.00	6,651.07	474.31	6,665.46	0.00	0.00	0.00
19,500.00	90.00	359.64	12,850.00	6,751.07	473.68	6,765.34	0.00	0.00	0.00
19,600.00	90.00	359.64	12,850.00	6,851.07	473.06	6,865.21	0.00	0.00	0.00
19,700.00	90.00	359.64	12,850.00	6,951.06	472.44	6,965.09	0.00	0.00	0.00
19,800.00	90.00	359.64	12,850.00	7,051.06	471.82	7,064.96	0.00	0.00	0.00
19,900.00	90.00	359.64	12,850.00	7,151.06	471.19	7,164.84	0.00	0.00	0.00
20,000.00	90.00	359.64	12,850.00	7,251.06	470.57	7,264.71	0.00	0.00	0.00
20,100.00	90.00	359.64	12,850.00	7,351.06	469.95	7,364.59	0.00	0.00	0.00
20,200.00	90.00	359.64	12,850.00	7,451.05	469.33	7,464.46	0.00	0.00	0.00
20,300.00	90.00	359.64	12,850.00	7,551.05	468.70	7,564.34	0.00	0.00	0.00
20,400.00	90.00	359.64	12,850.00	7,651.05	468.08	7,664.21	0.00	0.00	0.00
20,500.00	90.00	359.64	12,850.00	7,751.05	467.46	7,764.09	0.00	0.00	0.00
20,600.00	90.00	359.64	12,850.00	7,851.05	466.84	7,863.96	0.00	0.00	0.00
20,700.00	90.00	359.64	12,850.00	7,951.04	466.21	7,963.84	0.00	0.00	0.00
20,800.00	90.00	359.64	12,850.00	8,051.04	465.59	8,063.71	0.00	0.00	0.00
20,900.00	90.00	359.64	12,850.00	8,151.04	464.97	8,163.59	0.00	0.00	0.00
21,000.00	90.00	359.64	12,850.00	8,251.04	464.35	8,263.46	0.00	0.00	0.00
21,100.00	90.00	359.64	12,850.00	8,351.04	463.72	8,363.34	0.00	0.00	0.00
21,200.00	90.00	359.64	12,850.00	8,451.03	463.10	8,463.21	0.00	0.00	0.00

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde WC Unit 41H
Company:	ENGINEERING DESIGNS	TVD Reference:	25' RKB @ 3597.80ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	25' RKB @ 3597.80ft
Site:	Mesa Verde WC Unit	North Reference:	Grid
Well:	Mesa Verde WC Unit 41H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
21,300.00	90.00	359.64	12,850.00	8,551.03	462.48	8,563.08	0.00	0.00	0.00
21,400.00	90.00	359.64	12,850.00	8,651.03	461.86	8,662.96	0.00	0.00	0.00
21,500.00	90.00	359.64	12,850.00	8,751.03	461.24	8,762.83	0.00	0.00	0.00
21,600.00	90.00	359.64	12,850.00	8,851.03	460.61	8,862.71	0.00	0.00	0.00
21,700.00	90.00	359.64	12,850.00	8,951.02	459.99	8,962.58	0.00	0.00	0.00
21,800.00	90.00	359.64	12,850.00	9,051.02	459.37	9,062.46	0.00	0.00	0.00
21,900.00	90.00	359.64	12,850.00	9,151.02	458.75	9,162.33	0.00	0.00	0.00
22,000.00	90.00	359.64	12,850.00	9,251.02	458.12	9,262.21	0.00	0.00	0.00
22,100.00	90.00	359.64	12,850.00	9,351.02	457.50	9,362.08	0.00	0.00	0.00
22,200.00	90.00	359.64	12,850.00	9,451.01	456.88	9,461.96	0.00	0.00	0.00
22,300.00	90.00	359.64	12,850.00	9,551.01	456.26	9,561.83	0.00	0.00	0.00
22,400.00	90.00	359.64	12,850.00	9,651.01	455.63	9,661.71	0.00	0.00	0.00
22,500.00	90.00	359.64	12,850.00	9,751.01	455.01	9,761.58	0.00	0.00	0.00
22,600.00	90.00	359.64	12,850.00	9,851.01	454.39	9,861.46	0.00	0.00	0.00
22,700.00	90.00	359.64	12,850.00	9,951.01	453.77	9,961.33	0.00	0.00	0.00
22,800.00	90.00	359.64	12,850.00	10,051.00	453.14	10,061.21	0.00	0.00	0.00
22,900.00	90.00	359.64	12,850.00	10,151.00	452.52	10,161.08	0.00	0.00	0.00
23,000.00	90.00	359.64	12,850.00	10,251.00	451.90	10,260.95	0.00	0.00	0.00
23,044.63	90.00	359.64	12,850.00	10,295.63	451.62	10,305.53	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
KOP (Mesa Verde WC - hit/miss target - Shape - Point	0.00	0.00	0.00	-195.83	516.92	440,893.25	743,165.93	32.210408	-103.680761
FTP (Mesa Verde WC - plan misses target center by 279.98ft at 12776.06ft MD (12681.04 TVD, 77.42 N, 515.22 E) - Point	0.00	0.00	12,850.00	-145.84	516.42	440,943.24	743,165.43	32.210546	-103.680761
PBHL (Mesa Verde - plan hits target center - Point	0.00	0.00	12,850.00	10,295.63	451.62	451,384.22	743,100.63	32.239246	-103.680766

OXY  
Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well Mesa Verde WC Unit 41H
Company:	ENGINEERING DESIGNS	TVD Reference:	25' RKB @ 3597.80ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	25' RKB @ 3597.80ft
Site:	Mesa Verde WC Unit	North Reference:	Grid
Well:	Mesa Verde WC Unit 41H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
925.80	925.80	RUSTLER			
1,234.80	1,234.80	SALADO			
3,140.80	3,140.80	CASTILE			
4,738.85	4,736.80	DELAWARE			
4,761.04	4,758.80	BELL CANYON			
5,664.98	5,649.80	CHERRY CANYON			
6,994.18	6,958.80	BRUSHY CANYON			
8,713.08	8,669.80	BONE SPRING			
9,811.08	9,767.80	BONE SPRING 1ST			
10,403.08	10,359.80	BONE SPRING 2ND			
11,700.08	11,656.80	BONE SPRING 3RD			
12,146.23	12,099.80	WOLFCAMP			
12,349.73	12,293.80	WOLFCAMP A			

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,000.00	4,000.00	0.00	0.00	Build 1°/100'
5,000.21	4,995.14	-30.85	81.43	Hold 10° Tangent
7,180.08	7,141.88	-164.98	435.49	Drop 1°/100'
8,180.30	8,137.02	-195.83	516.92	Hold Vertical
11,807.30	11,764.02	-195.83	516.92	Build 4°/100'
12,307.30	12,253.93	-109.45	516.39	Hold 20°
12,607.30	12,535.84	-6.84	515.75	KOP, Build 12°/100'
13,190.63	12,850.00	441.82	512.96	Landing Point
23,044.63	12,850.00	10,295.63	451.62	TD at 23044.63' MD



# Oxy USA Inc. - MESA VERDE WC UNIT 41H

## Drill Plan

### 1. Geologic Formations

TVD of Target (ft):	12850	Pilot Hole Depth (ft):	
Total Measured Depth (ft):	23045	Deepest Expected Fresh Water (ft):	926

### Delaware Basin

Formation	MD-RKB (ft)	TVD-RKB (ft)	Expected Fluids
Rustler	926	926	
Salado	1235	1235	Salt
Castile	3141	3141	Salt
Delaware	4739	4737	Oil/Gas/Brine
Bell Canyon	4761	4759	Oil/Gas/Brine
Cherry Canyon	5665	5650	Oil/Gas/Brine
Brushy Canyon	6994	6959	Losses
Bone Spring	8713	8670	Oil/Gas
Bone Spring 1st	9811	9768	Oil/Gas
Bone Spring 2nd	10403	10360	Oil/Gas
Bone Spring 3rd	11700	11657	Oil/Gas
Wolfcamp	12146	12100	Oil/Gas
Penn			Oil/Gas
Strawn			Oil/Gas

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

### 2. Casing Program

		MD		TVD					
Section	Hole Size (in)	From (ft)	To (ft)	From (ft)	To (ft)	Csg. OD (in)	Csg Wt. (ppf)	Grade	Conn.
Surface	14.75	0	986	0	986	10.75	45.5	J-55	BTC
Intermediate	9.875	0	12569	0	12500	7.625	29.7	L-80 HC	BTC
Production	6.75	0	23045	0	12850	5.5	23	P-110	Sprint-SF

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

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

	Y or N
Is casing new? If used, attach certification as required in 43 CFR 3160	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM’s minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50’ above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500’ into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100’ to 600’ below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Section	Stage	Slurry:	Sacks	Yield (ft^3/ft)	Density (lb/gal)	Excess:	TOC	Placement	Description
Surface	1	Surface - Tail	825	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.	1	Intermediate 1S - Tail	715	1.68	13.2	5%	7,244	Circulate	Class C+Ret., Disper.
Int.	2	Intermediate 2S - Tail BH	1117	1.71	13.3	25%	-	Bradenhead	Class C+Accel.
Prod.	1	Production - Tail	620	1.84	13.3	25%	12,069	Circulate	Class C+Ret.

Offline Cementing Request

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

Bradenhead CBL Request

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

4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type		✓	Tested to:	Deepest TVD Depth (ft) per Section:
9.875" Hole	13-5/8"	5M	Annular		✓	70% of working pressure	12500
		5M	Blind Ram		✓	250 psi / 5000 psi	
			Pipe Ram				
			Double Ram		✓		
			Other*				
6.75" Hole	13-5/8"	5M	Annular		✓	100% of working pressure	12850
		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

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?
	<p>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.</p> <p>See attached schematics.</p>	

**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	986	0	986	Water-Based Mud	8.6 - 8.8	40-60	N/C
Intermediate	986	12569	986	12500	Saturated Brine-Based or Oil-Based Mud	8.0 - 10.0	35-45	N/C
Production	12569	23045	12500	12850	Water-Based or Oil-Based Mud	9.5 - 13.5	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,

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	9021 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	183°F

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

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

8. Other facets of operation

		Yes/No
Will the well be drilled with a walking/skidding operation? If yes, describe. We plan to drill the 2 well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the rig is not over the well.		Yes
Will more than one drilling rig be used for drilling operations? If yes, describe. Oxy requests the option to contract a Surface Rig to drill, set surface casing, and cement for this well. If the timing between rigs is such that Oxy would not be able to preset surface, the Primary Rig will MIRU and drill the well in its entirety per the APD. Please see the attached document for information on the spudder rig.		Yes
Total Estimated Cuttings Volume: 1770 bbls		

## 5M Annular BOP Variance 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 Well Control Plan below.

### Oxy Well Control Plan

#### A. Component and Preventer Compatibility Table

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

Pilot hole and Lateral sections, 10M requirement

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

VBR = Variable Bore Ram. Compatible range listed in chart.

HWDP = Heavy Weight Drill Pipe

MWD = Measurement While Drilling

#### B. Well Control Procedures

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

#### General Procedure While Drilling

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

#### General Procedure While Tripping

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

#### General Procedure While Running Casing

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

General Procedure With No Pipe In Hole (Open Hole)

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

General Procedures While Pulling BHA thru Stack

1. PRIOR to pulling last joint of drill pipe thru the stack.
  - a. Perform flow check, if flowing:
  - b. Sound alarm (alert crew)
  - c. Stab full opening safety valve and close
  - d. Space out drill string with tool joint just beneath the upper pipe ram
  - e. Shut-in using upper pipe ram. (The HCR and choke will already be in the closed position)
  - f. Confirm shut-in
  - g. Notify tool pusher/company representative
  - h. Read and record the following:
    - i. SIDPP and SICP
    - ii. Pit gain
    - iii. Time
    - iv. Regroup and identify forward plan
2. With BHA in the stack and compatible ram preventer and pipe combo immediately available.
  - a. Sound alarm (alert crew)
  - b. Stab crossover and full opening safety valve and close
  - c. Space out drill string with upset just beneath the compatible pipe ram
  - d. Shut-in using compatible pipe ram. (The HCR and choke will already be in the closed position.)
  - e. Confirm shut-in
  - f. Notify tool pusher/company representative
  - g. Read and record the following:
    - i. SIDPP and SICP
    - ii. Pit gain
    - iii. Time
    - iv. Regroup and identify forward plan
3. With BHA in the stack and NO compatible ram preventer and pipe combo immediately available.

- a. Sound alarm (alert crew)
- b. If possible to pick up high enough, pull string clear of the stack and follow “Open Hole” scenario
- c. If impossible to pick up high enough to pull the string clear of the stack
- d. Stab crossover, make up one joint/stand of drill pipe, and full opening safety valve and close
- e. Space out drill string with tool joint just beneath the upper pipe ram
- f. Shut-in using upper pipe ram. (The HCR and choke will already be in the closed position)
- g. Confirm shut-in
- h. Notify tool pusher/company representative
- i. Read and record the following:
  - i. SIDPP and SICP
  - ii. Pit gain
  - iii. Time
- j. Regroup and identify forward plan

## 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

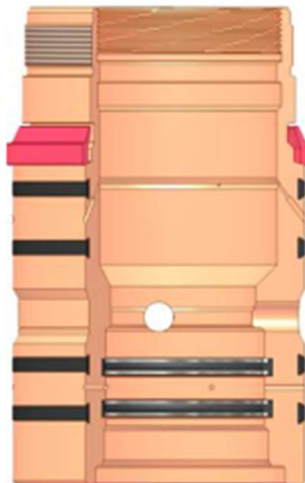
No changes to the cement program will take place for offline cementing.

### 2. Offline Cementing Procedure

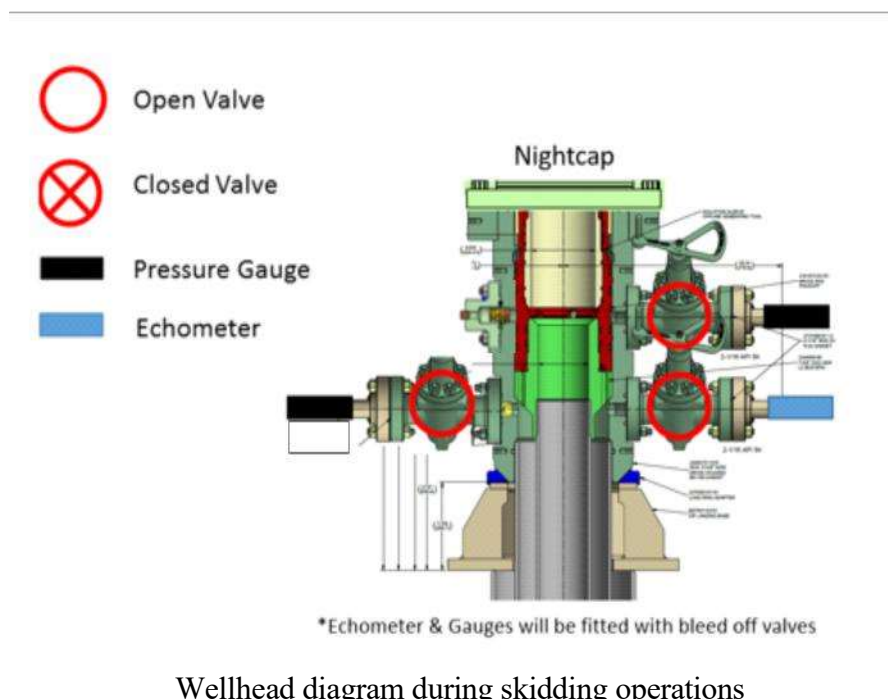
The operational sequence will be as follows:

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

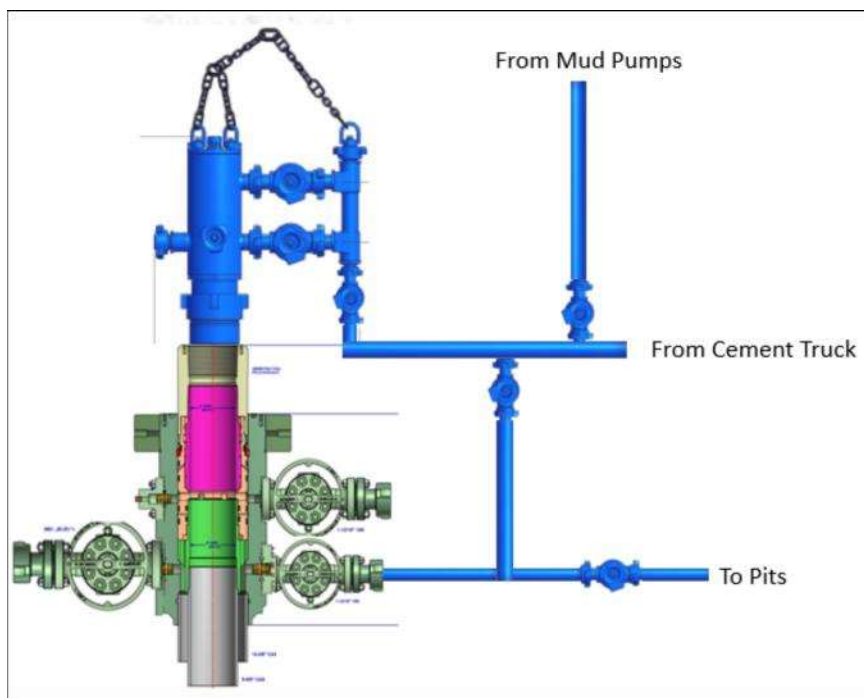
Annular packoff with both external and internal seals







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.

## 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.

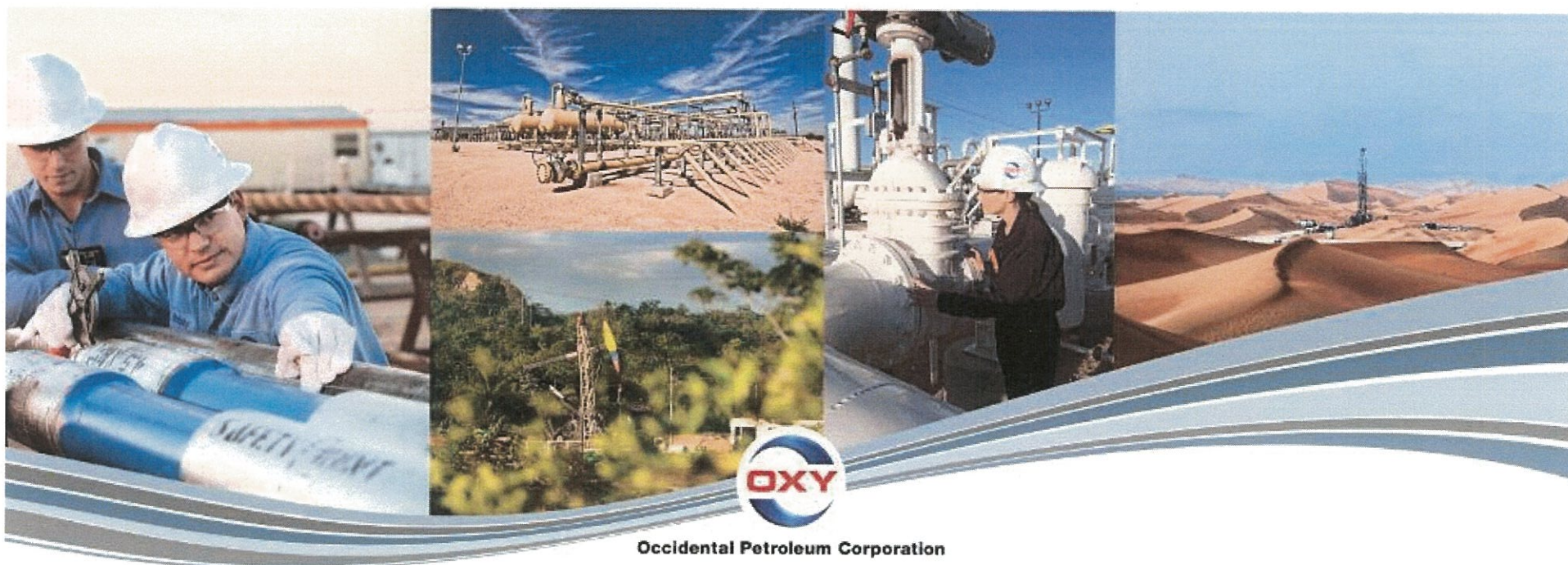
## **Summary**

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



Occidental Petroleum Corporation

# 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

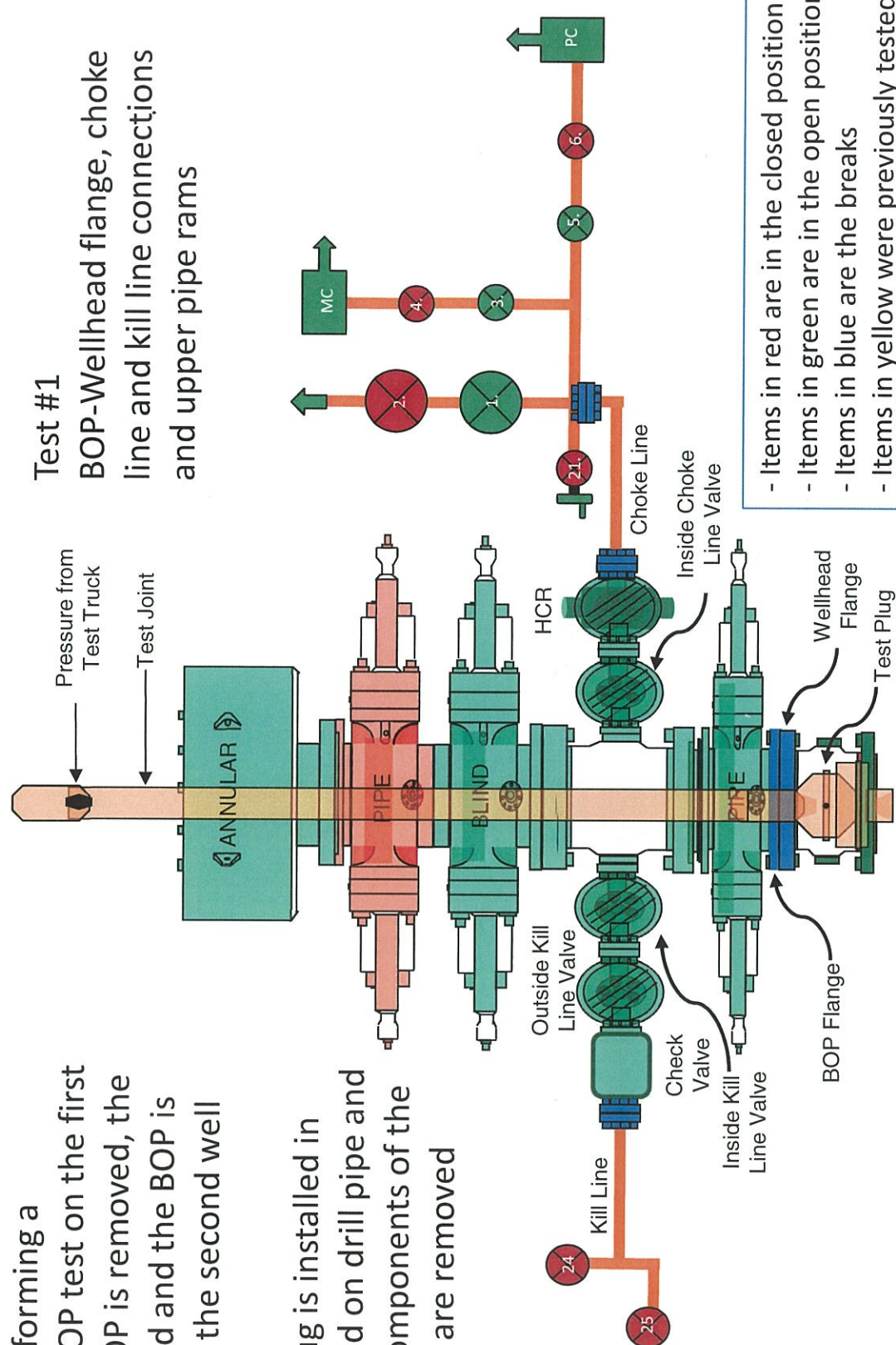




# Break Testing Procedures and Tests

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

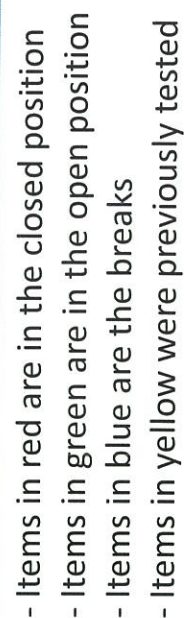
3. After Test #1, the inner components of the check valve are reinstalled and the HCR valve is closed





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

BOP-Wellhead flange, inside  
choke line valve, check valve  
and upper pipe rams





# BOP Handling System



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

BOP standing in its carrier

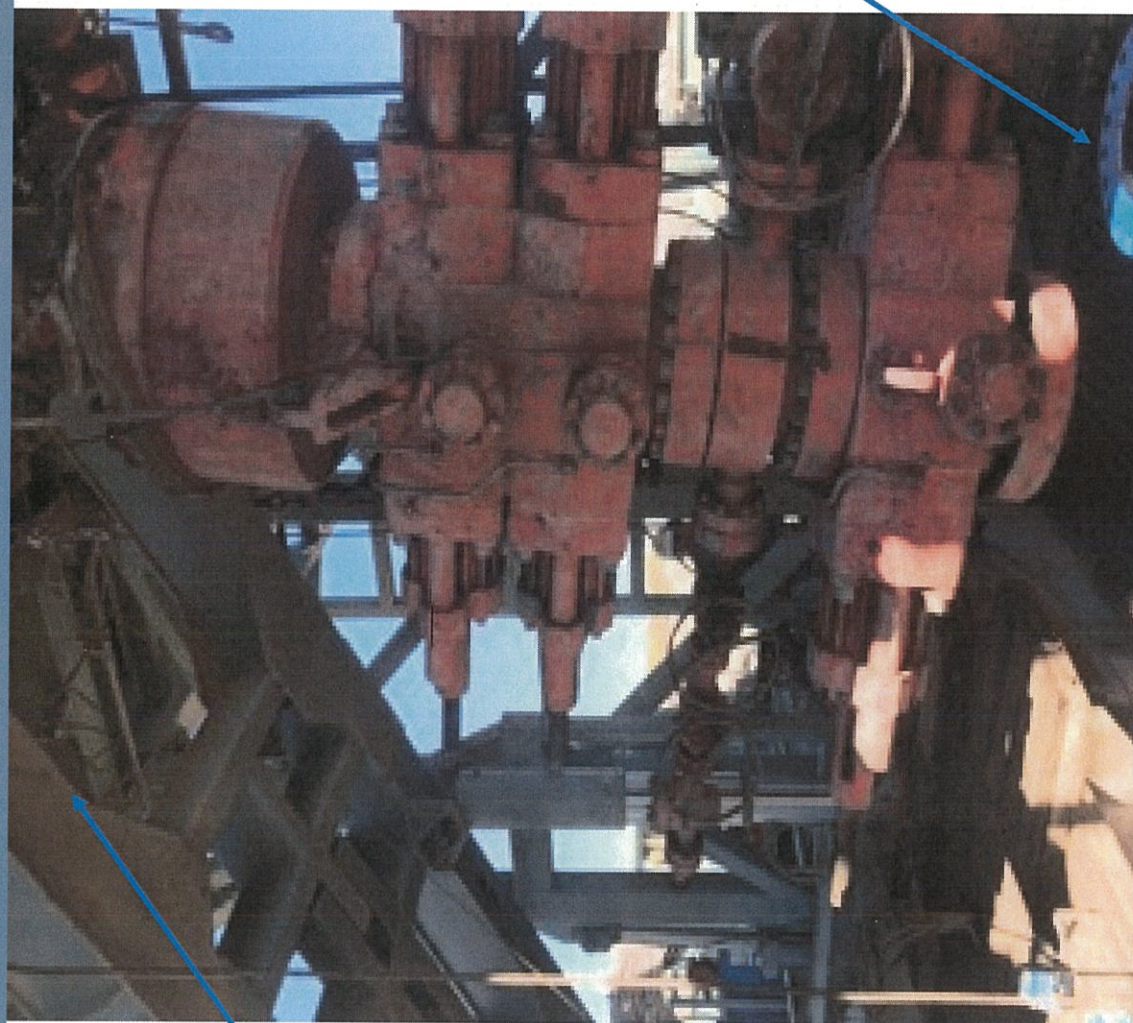






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# BOP Handling System



Wellhead

Hydraulic winch  
system moving  
the BOP over to  
the 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

**OXY USA Inc**  
**APD ATTACHMENT: SPUDDER RIG DATA**

**OPERATOR NAME / NUMBER:** OXY USA Inc

**1. SUMMARY OF REQUEST:**

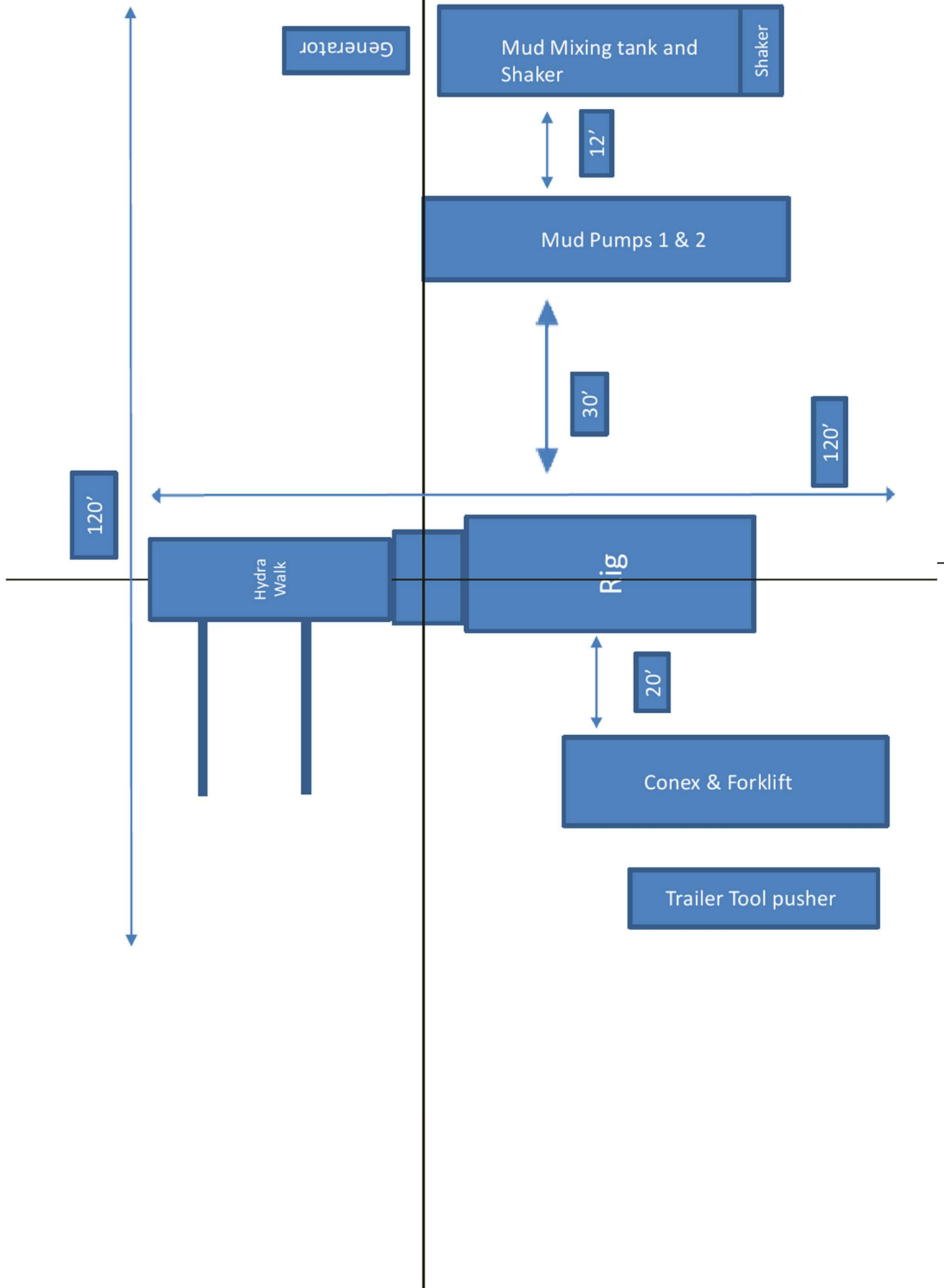
Oxy USA respectfully requests approval for the following operations for the surface hole in the drill plan:

1. Utilize a spudder rig to pre-set surface casing for time and cost savings.

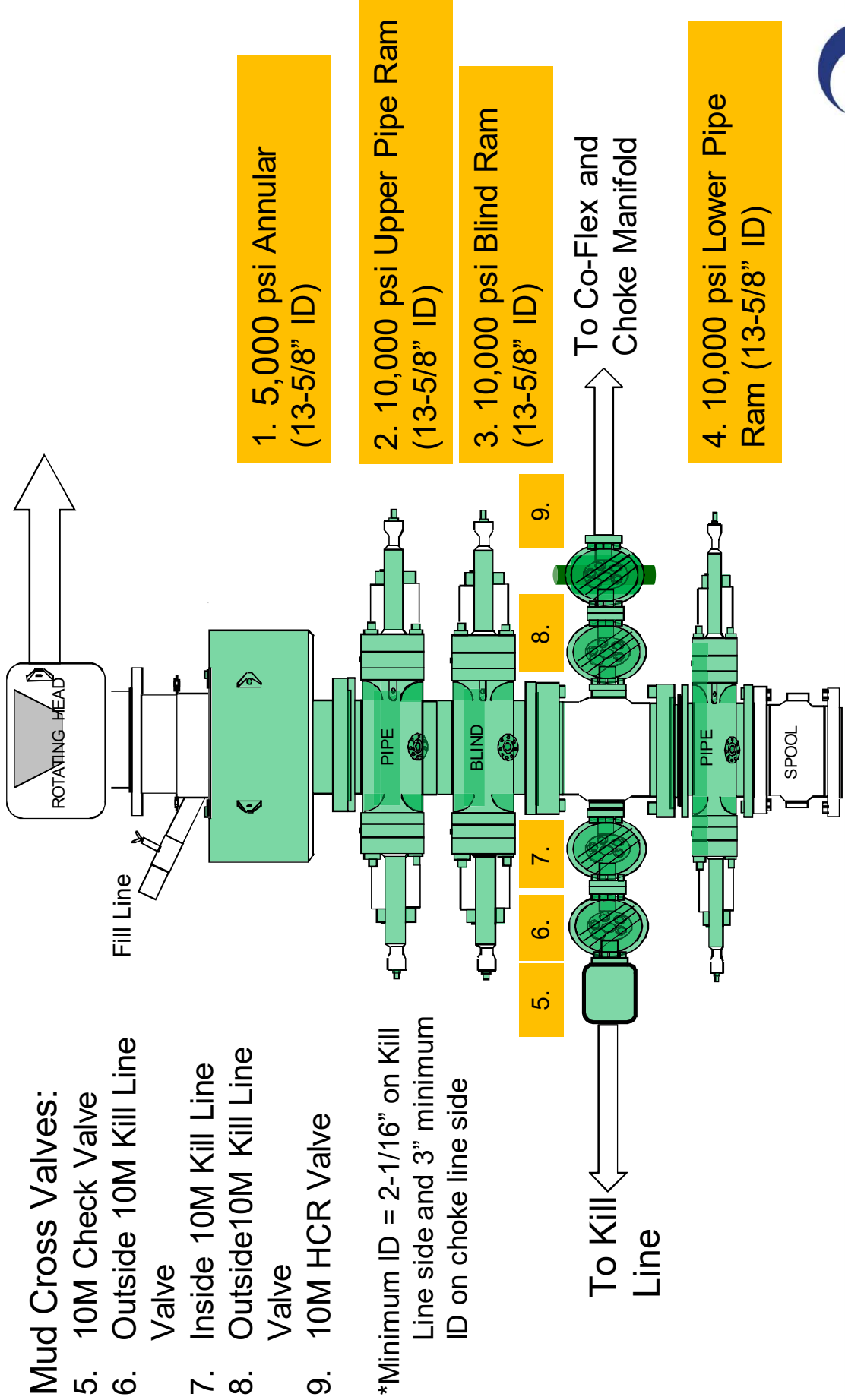
**2. Description of Operations**

1. Spudder rig will move in to drill the surface hole and pre-set surface casing on the well.
  - a. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (43 CFR part 3170 Subpart 3172, all COAs and NMOCD regulations).
  - b. The spudder rig will utilize fresh water-based mud to drill the surface hole to TD. Solids control will be handled entirely on a closed loop basis. No earth pits will be used.
2. The wellhead will be installed and tested as soon as the surface casing is cut off and the WOC time has been reached.
3. A blind flange at the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with needle valves installed on two wingvalves.
  - a. A means for intervention will be maintained while the drilling rig is not over the well.
4. Spudder rig operations are expected to take 2-3 days per well on the pad.
5. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
6. Drilling operations will begin with a larger rig and a BOP stack equal to or greater than the pressure rating that was permitted will be nipped up and tested on the wellhead before drilling operations resume on each well.
  - a. The larger rig will move back onto the location within 90 days from the point at which the wells are secured and the spudder rig is moved off location.
  - b. The BLM will be contacted / notified 24 hours before the larger rig moves back on the pre-set locations.
7. Oxy will have supervision on the rig to ensure compliance with all BLM and NMOCD regulations and to oversee operations.
8. Once the rig is removed, Oxy will secure the wellhead area by placing a guard rail around the cellar area.

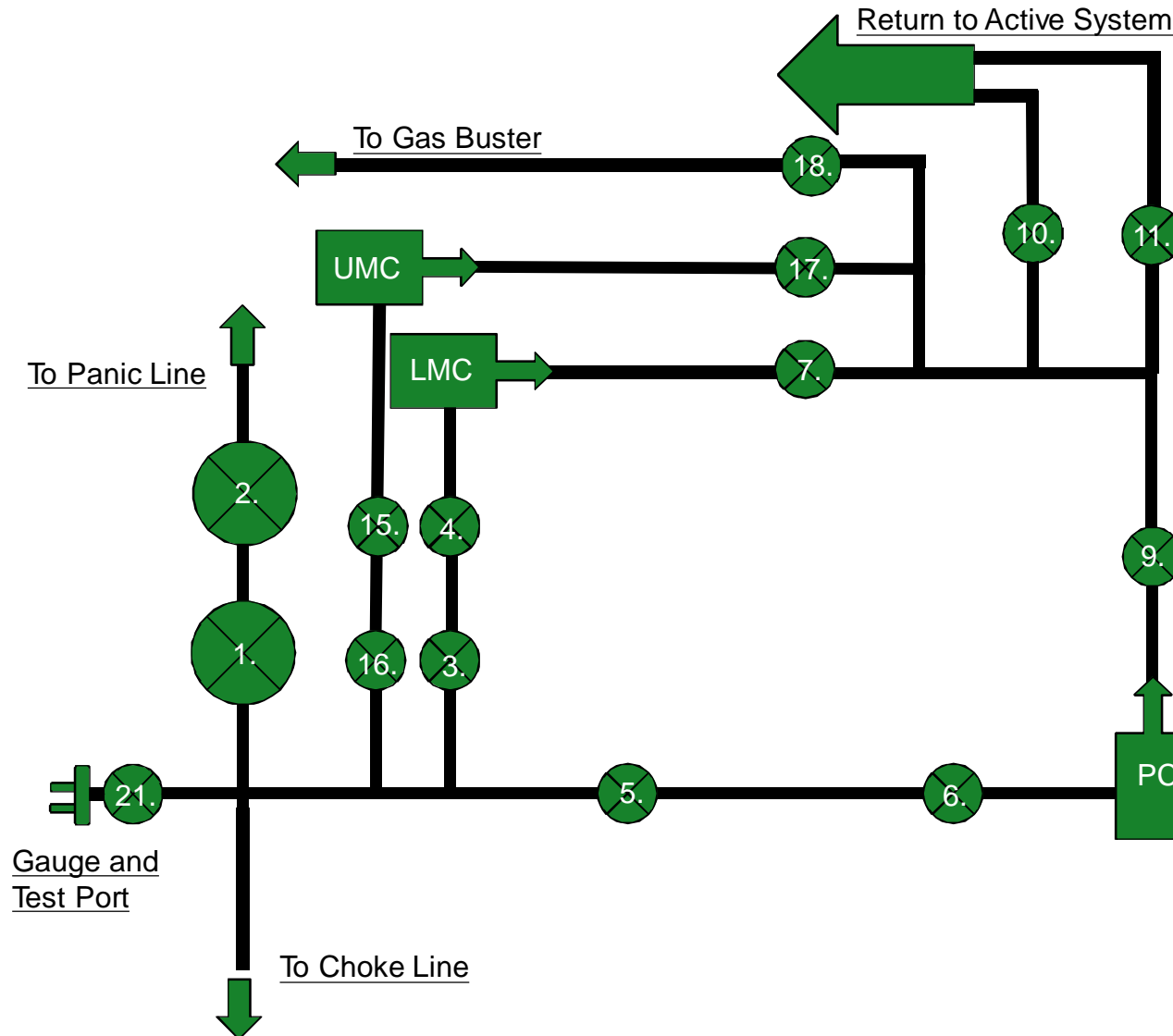
# Spudder Rig Layout



# 5/10M BOP Stack



# 10M Choke Panel



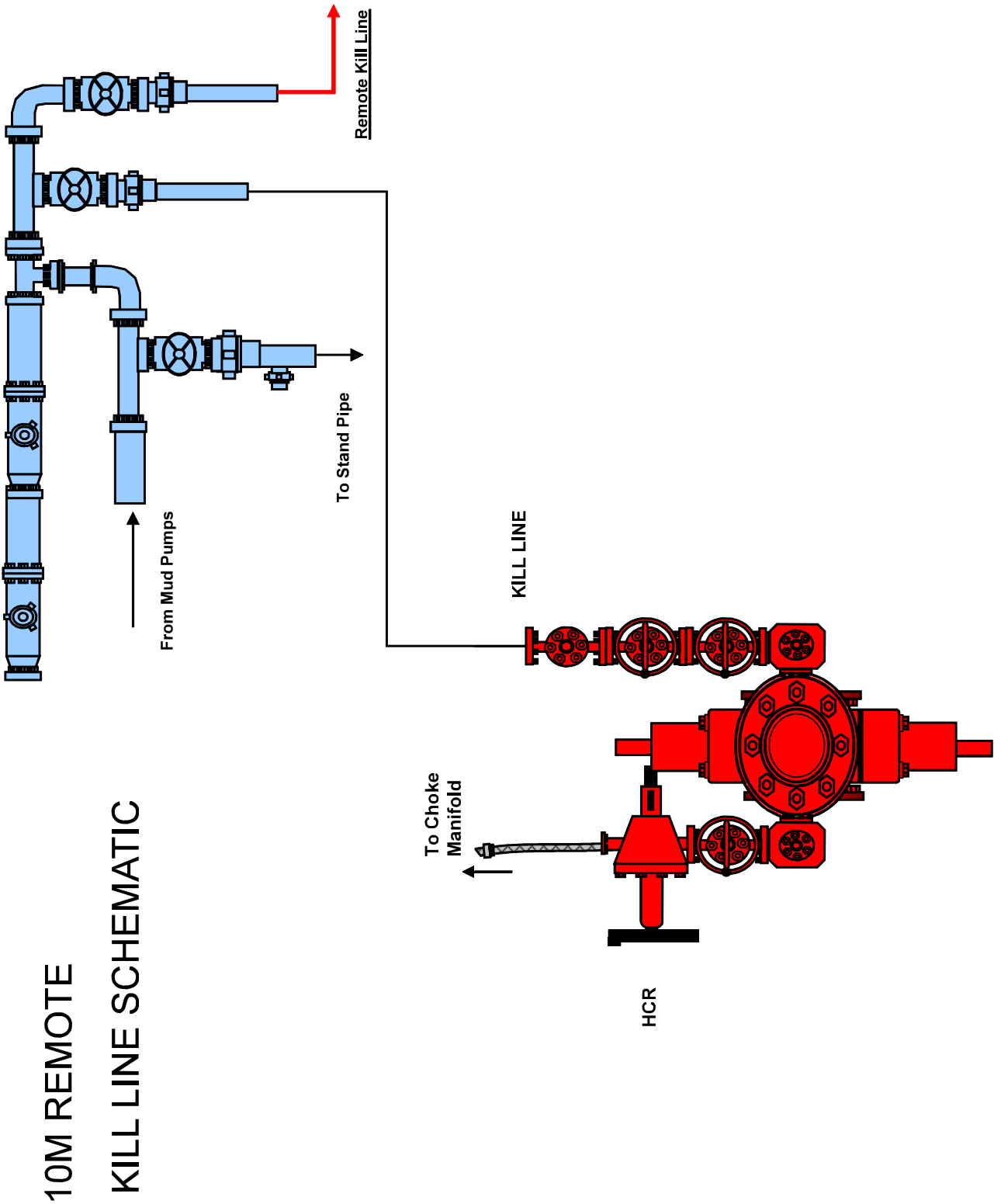
1. Choke Manifold Valve
2. Choke Manifold Valve
3. Choke Manifold Valve
4. Choke Manifold Valve
5. Choke Manifold Valve
6. Choke Manifold Valve
7. Choke Manifold Valve
8. PC – Power Choke
9. Choke Manifold Valve
10. Choke Manifold Valve
11. Choke Manifold Valve
12. LMC – Lower Manual Choke
13. UMC –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

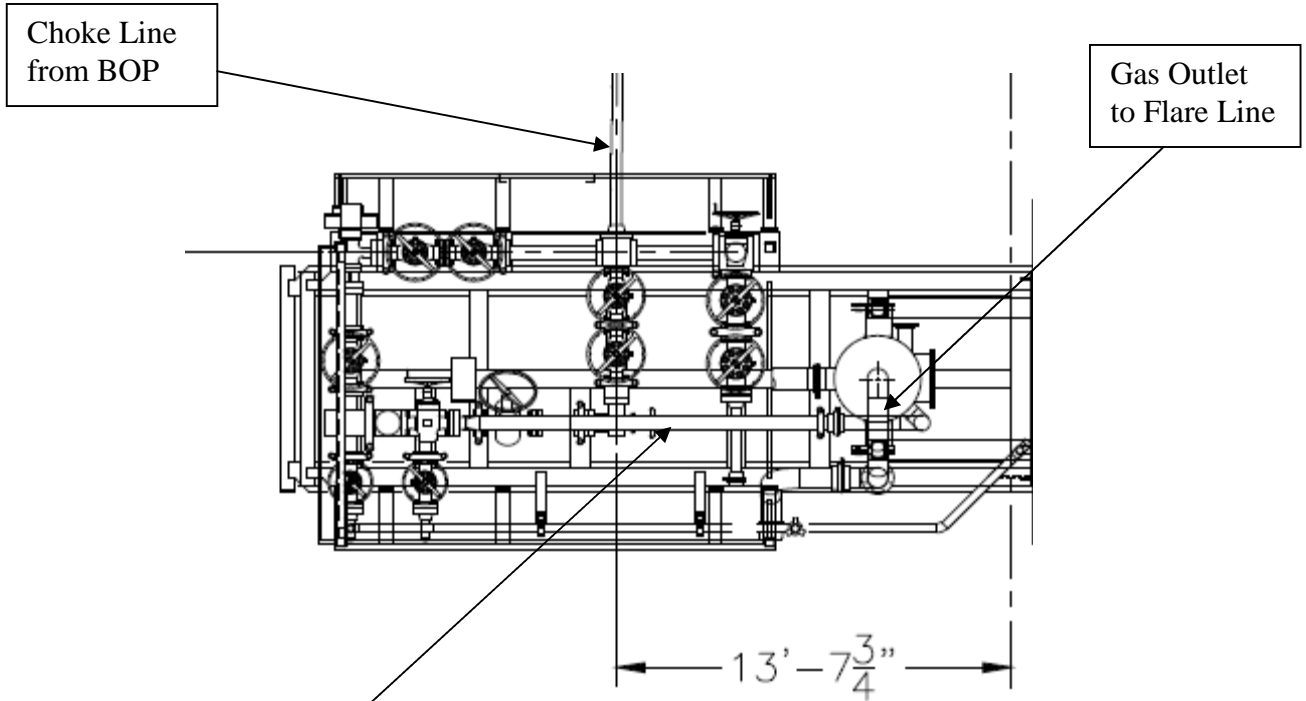




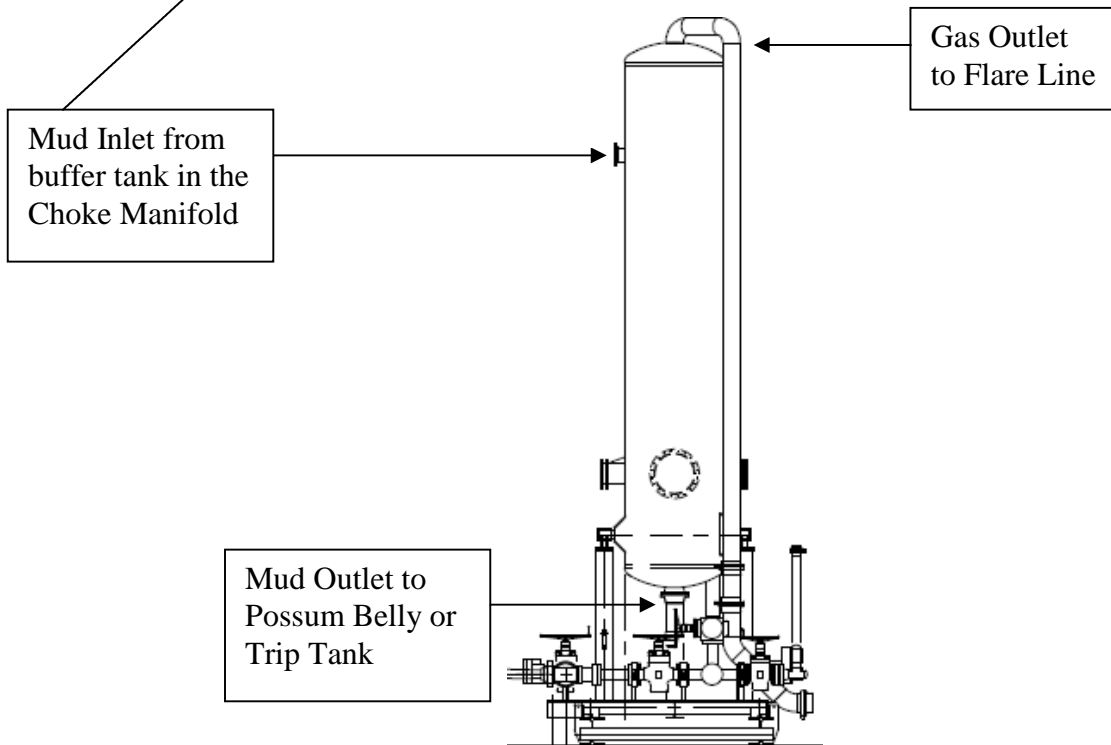
## Gas Separator Routing Flex III Rigs



**Choke Manifold – Gas Separator (Top View)**



**Choke Manifold – Gas Separator (Side View)**



## 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 43 CFR part 3170 Subpart 3172 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 43 CFR part 3170 Subpart 3172 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 43 CFR part 3170 Subpart 3172 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.

**Certificate of Conformity**

ContiTech

<b>Certificate Number</b> H100161	<b>COM Order Reference</b> 1429702	<b>Customer Name &amp; Address</b> HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA	
<b>Customer Purchase Order No:</b> 740382384			
<b>Project:</b>			
<b>Test Center Address</b> ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	<b>Accepted by COM Inspection</b> Signed: Gerson Mejia-Lazo Date: 06/27/22 		<b>Accepted by Client Inspection</b>

We certify that the items detailed below meet the requirements of the customer's Purchase Order referenced above, and are in conformance with the specifications given below.

Item	Part No.	Description	Qty	Serial Number	Specifications
30	RECERTIFICATION	3" ID 10K Choke and Kill Hose x 35ft OAL	1	70024	ContiTech Standard

ContiTech Oil Marine Corp.

11535 Brittmoore Park Drive Houston, TX 77041, USA

Internal





# Hydrostatic Test Certificate

ContiTech

<b>Certificate Number</b> H100161	<b>COM Order Reference</b> 1429702	<b>Customer Name &amp; Address</b> HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA
<b>Customer Purchase Order No:</b> 740382384		
<b>Project:</b>		
<b>Test Center Address</b> ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	<b>Accepted by COM Inspection</b> Signed: Gerson Mejia-Lazo Date: 06/27/22	<b>Accepted by Client Inspection</b>

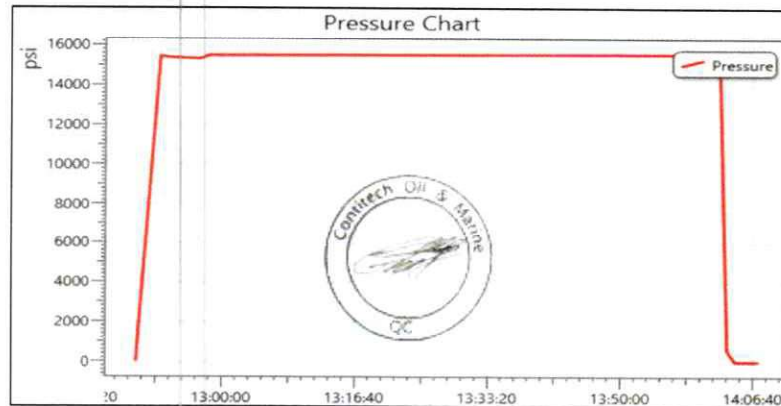
We certify that the goods detailed hereon have been inspected as described below by our Quality Management System, and to the best of our knowledge are found to conform the requirements of the above referenced purchase order as issued to ContiTech Oil & Marine Corporation.

Item	Part No.	Description	Qty	Serial Number	Work. Press. (psi)	Test Press. (psi)	Test Time (minutes)
------	----------	-------------	-----	---------------	--------------------	-------------------	---------------------

30	RECERTIFICATION	3" ID 10K Choke and Kill Hose x 35ft OAL	1	70024	10,000	15,000	60
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Record Information	
Start Time	6/8/2022 12:49:19
End Time	6/8/2022 14:07:25
Interval	00:01:00
Number	79
MaxValue	15762
MinValue	-7
AvgValue	14395
RecordName	70024-sh
RecordNumber	235

Gauge Information	
Model	ADT680
SN	21817380014
Range	(0-40000)psi
Unit	psi



ContiTech Oil Marine Corp.

11535 Brittmoore Park Drive Houston, TX 77041, USA

Internal



SIGNATURE: *Norma Cobb*  
 TITLE: QUALITY ASSURANCE  
 DATE: 11/20/2019

CUSTOMER: A-7 AUSTIN INC DBA AUSTIN HOSE  
 CUSTOMERS P.O.#: 4128128 (RIG 1 PO 002773)  
 CUSTOMER P/N: 10KFR3.012.0CK411610KFIXXFLT SSA SC LE  
 PART DESCRIPTION: 3" X 12 FT GATES CHOKE & KILL HOSE ASSEMBLY WITH STAINLESS STEEL ARMOR C/W 4 1/16 10K FIX X FLOAT H2S SUITED FLANGES WITH BX 155 RING GROOVE SUPPLIED WITH SAFETY CLAMPS & SLINGS & LIFT EYE CLAMPS  
 SALES ORDER #: 516982  
 QUANTITY: 1  
 SERIAL #: H2-112019-4

This is to certify that all parts and materials included in this shipment have manufactured and/or processed in accordance with various Gates and API assembly and test specifications. Records of required tests are on-file and subject to examination. Test reports and subsequent test graphs have been made available with this shipment. Additional supporting documentation related to materials, welding, weld inspections, and heat-treatment activities are available upon request.

## CERTIFICATE OF CONFORMANCE

EMAIL: Troy.Schmidt@gates.com

FAX:

PHONE : (281) 602-4119

Houston, TX. 77086

7603 Prairie Oak Dr.

Gates Engineering & Services North America



THIS REDEC 23/22  
 IN USE  
 AS

02.9  
 130021  
 2019  
 CHOKES  
 HOSE



Revision 1\_022819

PRODUCTION
11/20/2019
<i>[Signature]</i>

Production:  
Date :  
Signature :

QUALITY
11/20/2019
<i>[Signature]</i>

F-PRD-005

Quality:  
Date :  
Signature :

**Gates Engineering & Services North America certifies that:**

The following hose assembly has successfully passed all pressure testing requirements set forth in Gates specifications: GTS-04-052 (for 5K assemblies) or GTS-04-053 (10K assemblies), which include reference to Specification API 16C (2nd Edition); sections 7.5.4, 7.5.9, and 10.8.7. A test graph will accompany this test certificate to illustrate conformity to test requirements. This hose assembly was pressure tested using equipment and instrumentation that has been calibrated in accordance with the requirements set forth in the GESNA management system.

4 1/16 10K FLANGES FLOAT
L41242 113018
15,000 PSI
10,000 PSI

End Fitting 2:  
Assembly Code:  
Test Pressure:  
Working Pressure:

4 1/16 10K FLANGES FIXED
68903010-9879429
10KFR3.012.0CK411610KFIXFLT 55A 5C LE

End Fitting 1:  
Grade Star No.:  
CUSTOMER P/N:

3" X 12 FT GATES CHOKE & KILL HOSE ASSEMBLY WITH STAINLESS STEEL ARMOR C/W 4 1/16 10K FIX X FLOAT H25 SUITED FLANGES WITH BX 155 RING GROOVE SUPPLIED WITH SAFETY CLAMPS & SLINGS & LIFT EYE CLAMPS
---

Product Description:

11/20/2019
H2-112019-4
Norma Cabrera

Test Date:  
Hose Serial No.:  
Created By:

A-7 AUSTIN INC DBA AUSTIN HOSE
4128128 (RIG 1 PO 002773)
516982

Customer:  
Customer Ref.:  
Invoice No.:

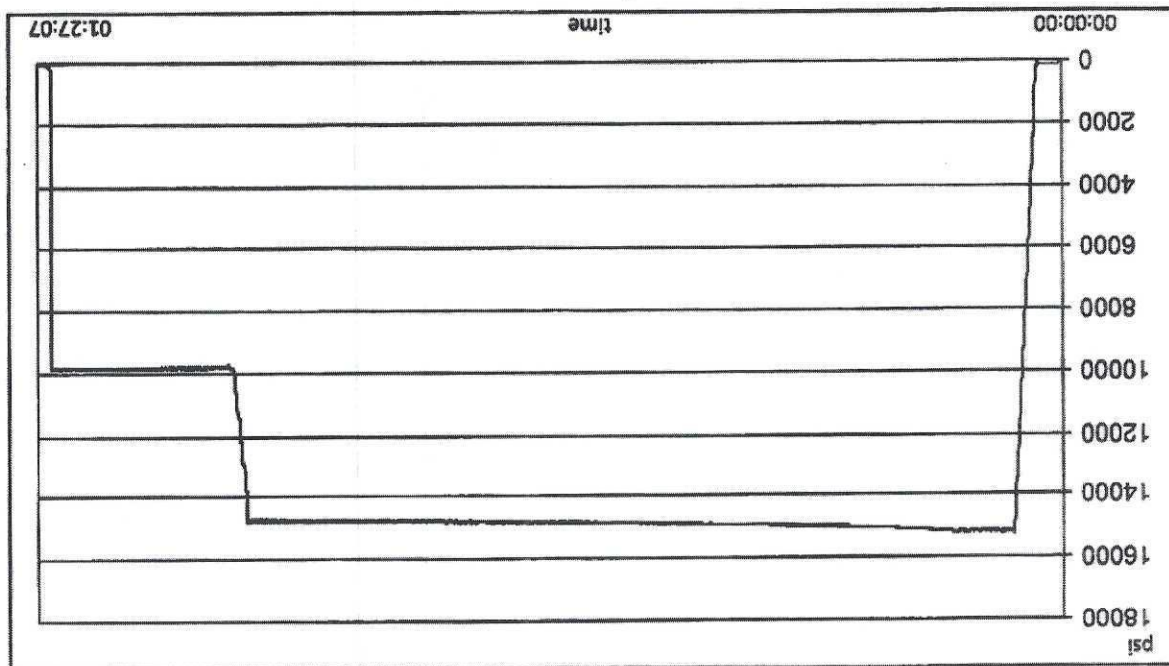
## PRESSURE TEST CERTIFICATE

PHONE: (281) 602 - 4119  
FAX:  
EMAIL: Troy.Schmidt@gates.com  
WEB: www.gates.com

GATES ENGINEERING &amp; SERVICES NORTH AMERICA

7603 Prairie Oak Dr.  
Houston, TX 77086





Test operator: Roderick Shambra

Length measurement result:

Pressure test result: PASS

Visual check:

Length difference:

0.24 inch

Length difference:

0.00 %

Work pressure hold:

900.00 sec

Work pressure:

9750.00 psi

Test pressure hold:

3600.00 sec

Test pressure:

15000.00 psi

Test procedure:

GTS-04-053

### TEST INFORMATION

Customer reference:

516982

Production description:

Austin Hose

Company:

### TEST OBJECT

Serial number:

H2-112019-4

Lot number:

L41242113018

Description:

3.0 10K MS C&K

Part number:

3.0 x 4-1/16 10K

Fitting 1:

Part number:

3.0 x 4-1/16 10K

Fitting 2:

Part number:

12 feet

Length:

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

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Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

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Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

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Test pressure:

Test pressure hold:

Work pressure:

Work pressure hold:

Length difference:

Length difference:

Visual check:

Pressure test result: PASS

Length measurement result:

Test operator: Roderick Shambra

Test procedure:

Test pressure:

Test pressure hold:

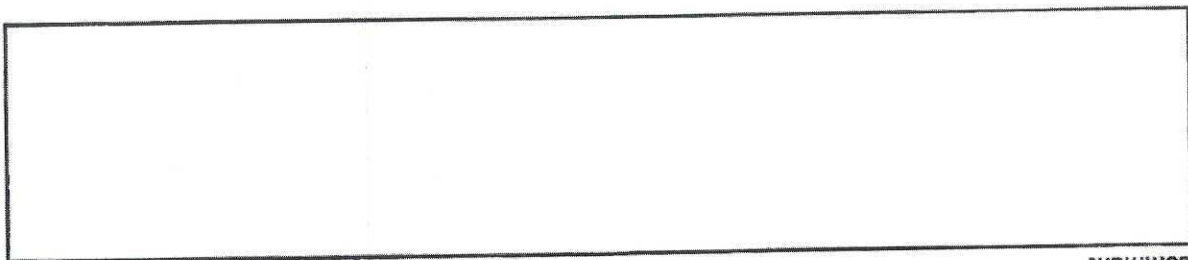
Work pressure:

Work pressure hold:



Page 2/2

Filename: D:\Certificates\Report\_112019-H2-112019-4.pdf



Comment

Description	Serial number	Calibration date	Calibration due date
S-25-A-W	110AMCLO	2019-03-17	2020-03-15
S-25-A-W	110APO2K	2019-04-16	2020-04-14

GAUGE TRACEABILITY

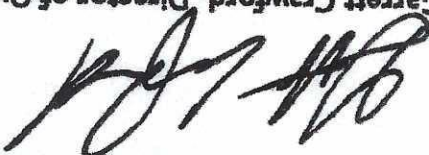


# TEST REPORT

11/20/2019 12:13:07 PM

H2-1987



Rev Date: 12/17/2019  
OF-018-OF, Rev NewGarrett Crawford, Director of Quality  
DW Industries Inc.

Certificate Issue Date: 2/27/2020

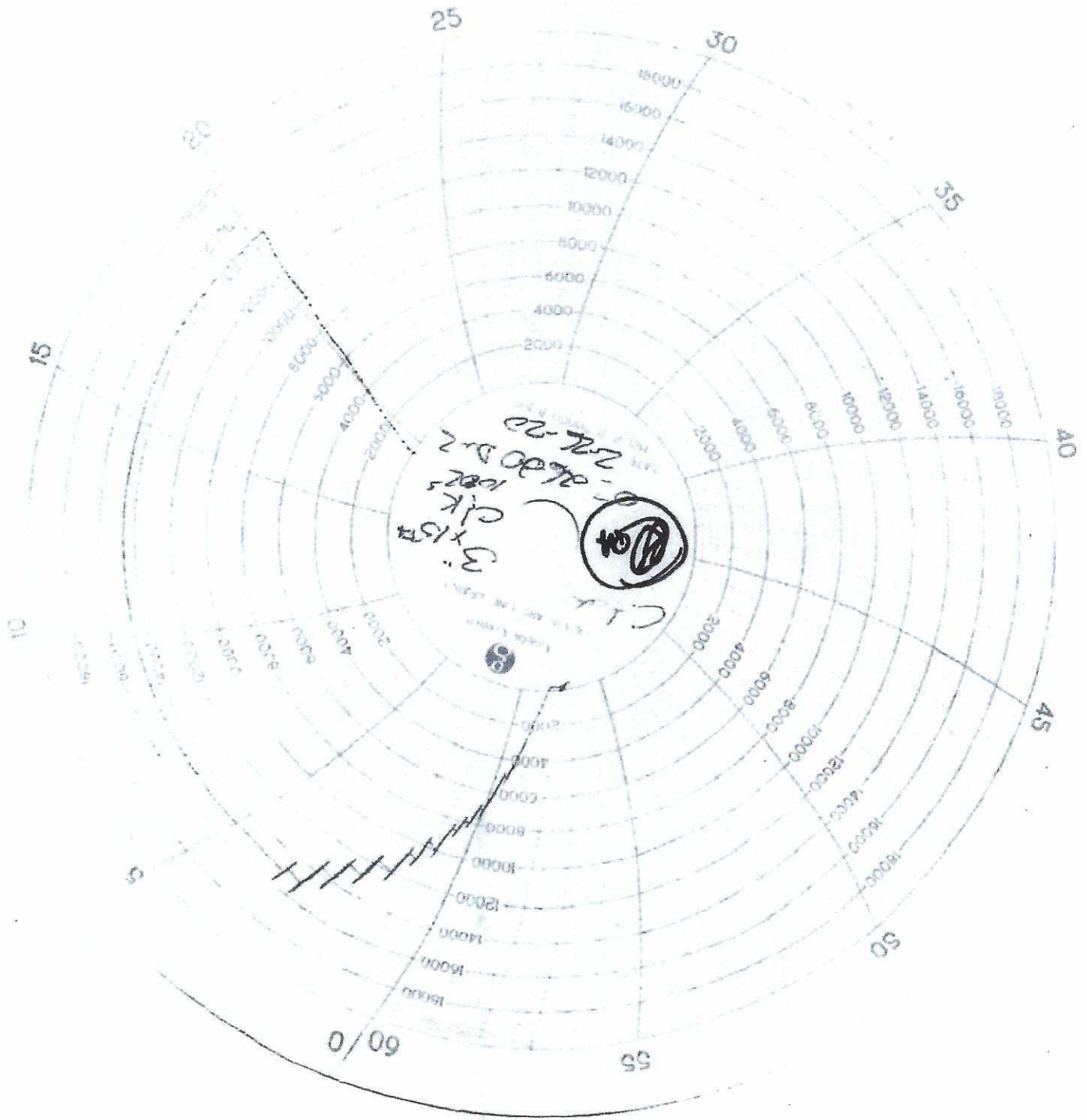
I DO HEREBY CERTIFY, AS THE AUTHORIZED REPRESENTATIVE OF DW INDUSTRIES, THAT THE PRODUCT LISTED ABOVE ARE OF THE QUALITY SPECIFIED AND CONFORM TO ALL REQUIREMENTS OF THE PURCHASE ORDER, INCLUDING: QUALITY CONTROL CLAUSES, DESIGN SPECIFICATIONS, DRAWINGS, PRESERVATION, PACKAGING, MARKING, AND PHYSICAL IDENTIFICATION REQUIREMENTS AND HAS BEEN PROCESSED IN ACCORDANCE WITH ISO-9001:2015, API Q1 AND API SPEC 7K.

Purchase Order Information				Customer Name:	
Customer Part Number:	OA-5640-4815-1002-4	Part Description:	3" 10,000 psi WP CHOKE HOSE M X F 4" 1002 HAMMER UNIONS C/W CLAMPS	CONTACT PAUL HOFFMAN FOR INFO	CITADEL DRILLING
QTY Ordered:	1	Assembly Date:	02/26/2020		
DW Industries Part Number:	OA-5640-4815-1002-4	Serial Number:	022620DW-2		
Customer Purchase Order Number:		DW Industries Work Order Number:	20020163		
				Customer Contact:	PAUL HOFFMAN 432-241-5360

DW INDUSTRIES INC.  
6287 Long Drive  
Houston, TX 77087  
Tel. 713 644-8372 Fax 713-644-4947

COPY

Certificate of Performance



COPY



QP-018-OF, Rev New  
Rev Date: 12/17/2019Garrett Crawford, Director of Quality  
DW Industries Inc.

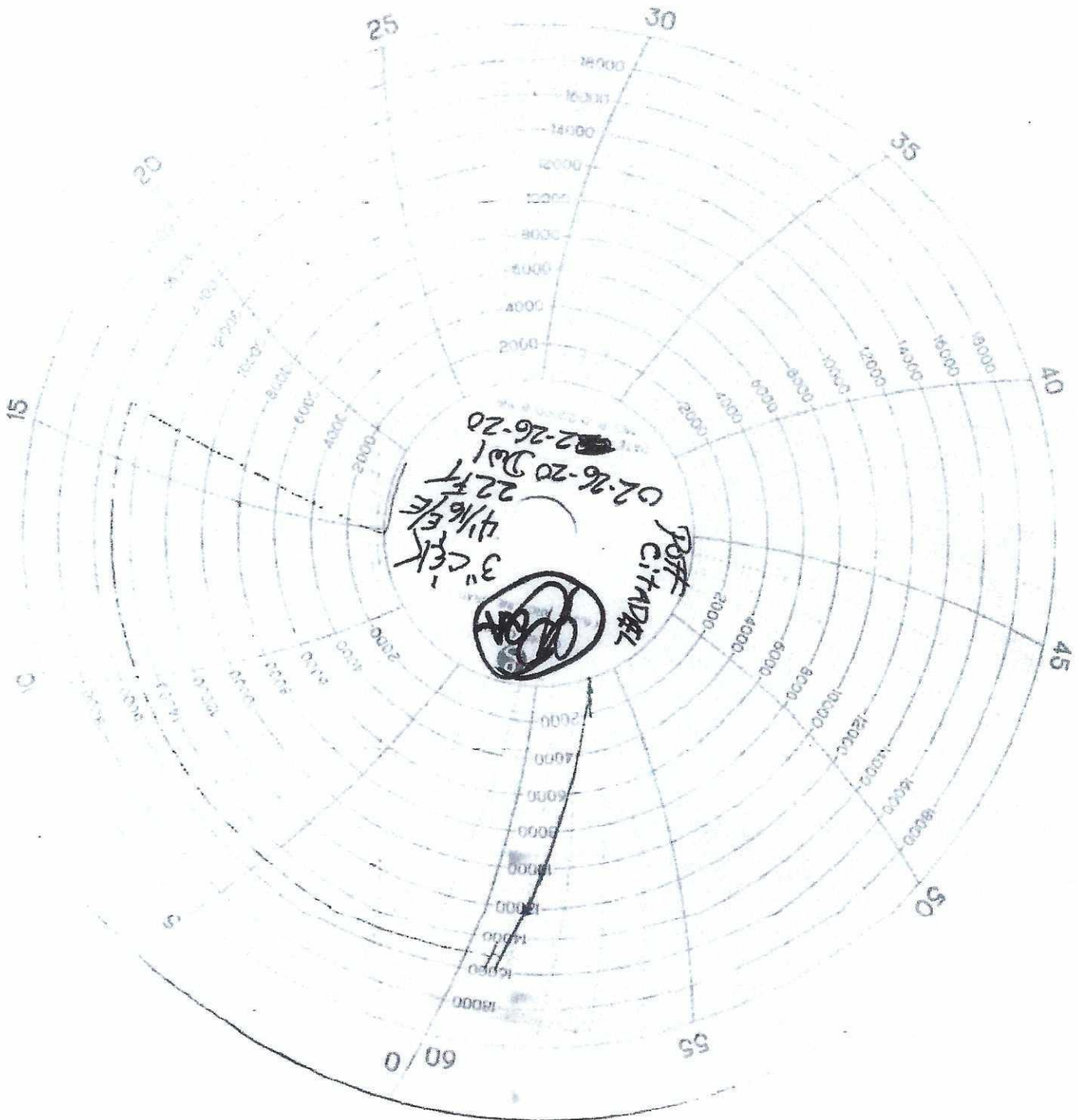
Certificate Issue Date: 2/27/2020

I DO HEREBY CERTIFY, AS THE AUTHORIZED REPRESENTATIVE OF DW INDUSTRIES, THAT THE PRODUCT LISTED ABOVE ARE OF THE QUALITY SPECIFIED AND CONFORM TO ALL REQUIREMENTS OF THE PURCHASE ORDER, INCLUDING: QUALITY CONTROL CLAUSES, DESIGN SPECIFICATIONS, DRAWINGS, PRESERVATION, PACKAGING, MARKING, AND PHYSICAL IDENTIFICATION REQUIREMENTS AND HAS BEEN PROCESSED IN ACCORDANCE WITH ISO-9001:2015, API Q1 AND API SPEC 7K.

Purchase Order Information				Customer Name:	
Customer Part Number:	OA-5640-4822-4-1/16FXFL-ALE	Part Description:	3" 10,000 PSI WP CHOKE HOSE 4-1/16" FIXED BY FLOAT FLANGES C/W SS ARMOR & LIFTING EYES	CITADEL DRILLING	Customer Contact: PAUL HOFFMAN 432-241-5360
QTY Ordered:	1	Assembly Date:	02/26/2020		
DW Industries Part Number:	OA-5640-4822-4-1/16FXFL-ALE	Serial Number:	022620DW-1		
Customer Purchase Order Number:	CONTACT PAUL HOFFMAN FOR INFO	DW Industries Work Order Number:	20020164		

DW INDUSTRIES INC.  
6287 LONG DRIVE  
HOUSTON, TX 77067  
Tel. 713 644-8372 Fax 713-644-4947

**COPY**  
**Certificate of Conformance**



COPY



Quality Assurance,  
DW Industries, Inc.

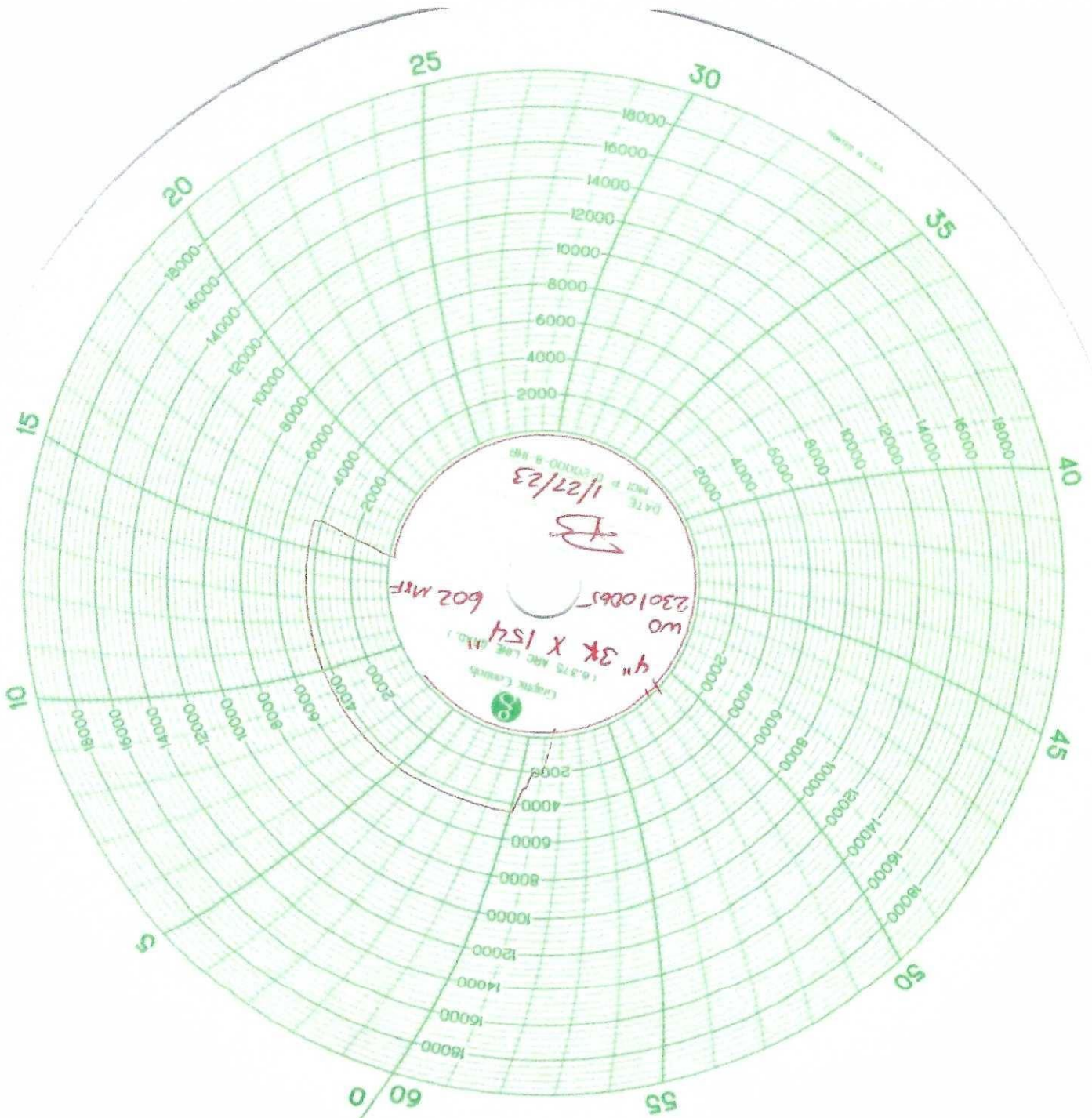
Certificate Issue Date: 1/27/2023

I DO HEREBY CERTIFY, AS THE AUTHORIZED REPRESENTATIVE OF DW INDUSTRIES, THAT THE PRODUCT LISTED ABOVE ARE OF THE QUALITY SPECIFIED AND CONFORM TO ALL REQUIREMENTS OF THE PURCHASE ORDER, INCLUDING: QUALITY CONTROL CLAUSES, DESIGN SPECIFICATIONS, DRAWINGS, PRESERVATION, PACKAGING, MARKING, AND PHYSICAL IDENTIFICATION REQUIREMENTS AND HAS BEEN PROCESSED IN ACCORDANCE WITH ISO-9001:2015, API Q1 AND API SPEC 7K.

Customer Name:		ASUTIN HOSE		Customer Contact:	JUDY LOERA		
Purchase Order Information	Customer Purchase Order Number:	00704977		DW Industries Work Order Number:	23010065		
	DW Industries Part Number:	OA-PS5038-64154"-602		Serial Number:	23010065		
	QTY Ordered:	1		Assembly Date:	1/27/2023		
	Customer Part Number:		Part Description:	4"X154" 3K W/4" FIG 602 MXF			

DW INDUSTRIES INC.  
6287 Long Drive  
Houston, TX 77087  
Tel. 713 644-8372 Fax 713-644-4947

Certificate of Conformance





IN SERVICE  
12-20-21

**GATES ENGINEERING & SERVICES NORTH AMERICA**  
7603 Prairie Oak Dr. Suite 190  
Houston, TX. 77086

**PHONE: +1 (281) 602-4100**  
**FAX: +1 (281) 602-4147**  
**EMAIL: gesna.quality@gates.com**  
**WEB: www.gates.com/ollandgas**

**PRESSURE TEST CERTIFICATE**

Customer:	A-7 AUSTIN INC DBA AUSTIN HOSE	Test Date:	10/15/2021
Customer Ref.:	00595477	Hose Serial No.:	H3-101521-2
Invoice No.:	521925	Created By:	Micky Mhina

Product Description: 3" X 35' GATES FIRE RATED CHOKE & KILL HOSE ASSEMBLY SUITED FOR H2S SERVICE C/W 4 1/16 10K FIXED X FLOAT HEAT TREATED FLANGES SUPPLIED WITH STAINLESS STEEL ARMOR SAFETY CLAMPS & LIFT EYES

End Fitting 1:	4 1/16 10K FIXED FLANGE	End Fitting 2:	4 1/16 10K FLOAT HEAT TREATED FLANGES
Oracle Star No.:	68703010-10074881	Assembly Code:	L41975 091719
CUSTOMER P/N:	10K3.035.0CK411610KFIXXFLTW/SSA/SC/LE	Test Pressure:	15,000 PSI.
		Working Pressure:	10,000 PSI.

**Gates Engineering & Services North America certifies that:**

The following hose assembly has successfully passed all pressure testing requirements set forth in Gates specifications: GTS-04-052 (for 5K assemblies) or GTS-04-053 (10K assemblies) or GTS-04-048 (15K assemblies), which include reference to Specification API 16C (2nd Edition); sections 7.5.4, 7.5.9, and 10.8.7. A test graph will accompany this test certificate to illustrate conformity to test requirements. This hose assembly was pressure tested using equipment and instrumentation that has been calibrated in accordance with the requirements set-forth in the GESNA management system.

Quality:	QUALITY
Date :	10/15/2021
Signature :	<i>Micky Mhina</i>

F-PRD-005B

Production:	PRODUCTION
Date :	10/15/2021
Signature :	<i>[Signature]</i>

Revision 6\_05032021

**BLACK GOLD®**

**GATES ENGINEERING & SERVICES NORTH AMERICA**  
**7603 Prairie Oak Dr.**  
**Houston, TX. 77086**

**PHONE: +1 (281) 602-4100**  
**FAX: +1 (281) 602-4147**  
**EMAIL: gesna.quality@gates.com**  
**WEB: www.gates.com/ollandgas**

## CERTIFICATE OF CONFORMANCE

This is to certify that all parts and materials included in this shipment have manufactured and/or processed in accordance with various Gates and API assembly and test specifications. Records of required tests are on-file and subject to examination. Test reports and subsequent test graphs have been made available with this shipment. Additional supporting documentation related to materials, welding, weld inspections, and heat-treatment activities are available upon request.

**CUSTOMER:** A-7 AUSTIN INC DBA AUSTIN HOSE  
**CUSTOMER P.O.#:** 00595477  
**CUSTOMER P./N.#:** 10K3.035.0CK411610KFIXXFLTW/SSA/SC/LE  
**PART DESCRIPTION:** 3" X 35' GATES FIRE RATED CHOKE & KILL HOSE ASSEMBLY SUITED FOR H2S  
SERVICE C/W 4 1/16 10K FIXED X FLOAT HEAT TREATED FLANGES SUPPLIED WITH  
STAINLESS STEEL ARMOR SAFETY CLAMPS & LIFT EYES  
**SALES ORDER #:** 521925  
**QUANTITY:** 1  
**SERIAL #:** H3-101521-2

SIGNATURE: \_\_\_\_\_

TITLE: \_\_\_\_\_

QUALITY ASSURANCE

DATE: \_\_\_\_\_

10/15/2021





H3-6963

10/15/2021 10:15:57 AM

**TEST REPORT****CUSTOMER**

Company: Austin Distributing

Production description:

Sales order #: 521925

Customer reference:

**TEST OBJECT**

Serial number: H3-101521-2

Lot number: L41975091719

Description:

Hose ID: 3" 10k ck

Part number:

**TEST INFORMATION**

Test procedure: GTS-04-053

Test pressure: 15000.00 psi

Test pressure hold: 3600.00 sec

Work pressure: 10000.00 psi

Work pressure hold: 900.00 sec

Length difference: 0.00 %

Length difference: 0.00 inch

Fitting 1: 3.0 x 4-1/16 10K

Part number:

Description:

Fitting 2: 3.0 x 4-1/16 10K

Part number:

Description:

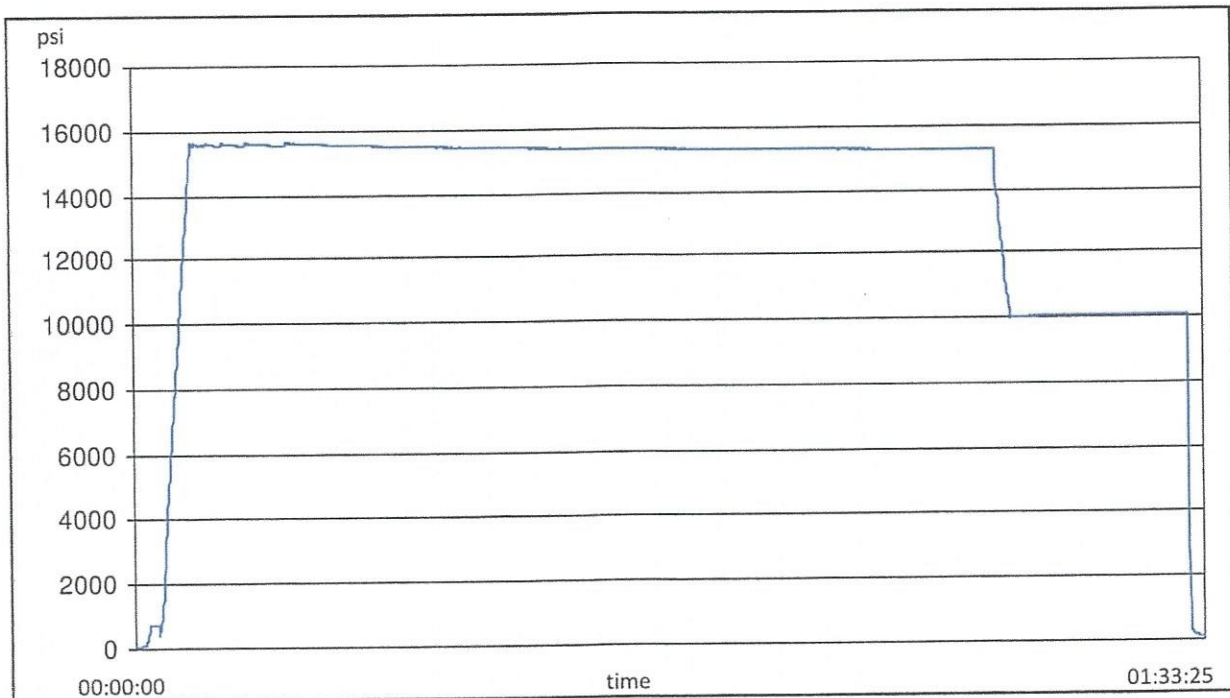
Visual check:

Pressure test result: PASS

Length measurement result:

Length: 35 feet

Test operator: francisco





H3-6963

10/15/2021 10:15:57 AM

## TEST REPORT

### GAUGE TRACEABILITY

Description	Serial number	Calibration date	Calibration due date
S-25-A-W	110AQA1S	2021-02-24	2022-02-24
S-25-A-W	110D3PHQ	2021-03-11	2022-03-11

Comment

## Hydrostatic Test Certificate

ContiTech

<b>Certificate Number</b> H100163		<b>COM Order Reference</b> 1429702		<b>Customer Name &amp; Address</b> HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA	
<b>Customer Purchase Order No:</b> 740382384					
<b>Project:</b>					
<b>Test Center Address</b> ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA		<b>Accepted by COM Inspection</b> Signed: Gerson Mejia-Lazo Date: 07/14/22		<b>Accepted by Client Inspection</b>	

We certify that the goods detailed hereon have been inspected as described below by our Quality Management System, and to the best of our knowledge are found to conform the requirements of the above referenced purchase order as issued to ContiTech Oil & Marine Corporation.

Item	Part No.	Description	Qty	Serial Number	Work. Press. (psi)	Test Press. (psi)	Test Time (minutes)
------	----------	-------------	-----	---------------	--------------------	-------------------	---------------------

50 RECERTIFICATION

3" ID 10K Choke and Kill Hose x 35ft OAL

1

70025

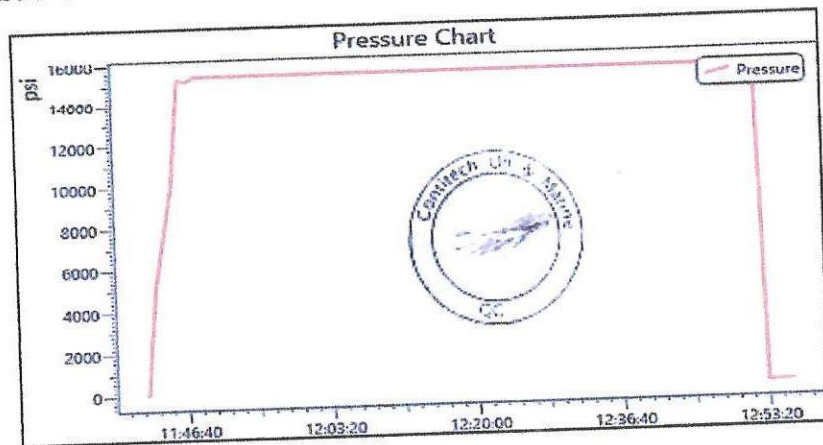
10,000

15,000

60

Record Information	
Start Time	6/14/2022 11:42:08
End Time	6/14/2022 12:56:14
Interval	00:01:00
Number	75
MaxValue	15888
MinValue	-8
AvgValue	14184
RecordName	70025-sh
RecordNumber	237


Gauge Information	
Model	ADT680
SN	21817380014
Range	(0-40000)psi
Unit	psi





## Certificate of Conformity

ContiTech

<b>Certificate Number</b> H100163	<b>COM Order Reference</b> 1429702	<b>Customer Name &amp; Address</b> HELMERICH & PAYNE DRILLING CO 1434 SOUTH BOULDER AVE TULSA, OK 74119 USA	
<b>Customer Purchase Order No:</b> 740382384			
<b>Project:</b>			
<b>Test Center Address</b> ContiTech Oil & Marine Corp. 11535 Brittmoore Park Drive Houston, TX 77041 USA	<b>Accepted by COM Inspection</b> Signed: Gerson Mejia-Lazo Date: 07/14/22 	<b>Accepted by Client Inspection</b>	

We certify that the items detailed below meet the requirements of the customer's Purchase Order referenced above, and are in conformance with the specifications given below.

Item	Part No.	Description	Qty	Serial Number	Specifications
50	RECERTIFICATION	3" ID 10K Choke and Kill Hose x 35ft OAL	1	70025	ContiTech Standard

ARMORED CHOKE HOSE

Installed


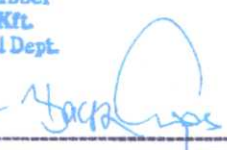
4-29-22





ContiTech

CONTITECH RUBBER Industrial Kft.	No: QC-DB- 120 / 2019
	Page: 16 / 91

<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>		CERT. N°: 75819	
PURCHASER: ContiTech Oil & Marine Corp.		P.O. N°: 4501225327	
CONTITECH RUBBER order N°: 1127442	HOSE TYPE: 3" ID Choke and Kill Hose		
HOSE SERIAL N°: 75819	NOMINAL / ACTUAL LENGTH: 10,67 m / 10,68 m		
W.P. 69,0 MPa 10000 psi	T.P. 103,5 MPa 15000 psi	Duration: 60	min.
Pressure test with water at ambient temperature			
See attachment ( 1 page )			
COUPLINGS Type	Serial N°	Quality	Heat N°
3" coupling with	6026	AISI 4130	A0607J
4 1/16" 10K API Swivel Flange end		AISI 4130	040841
Hub		AISI 4130	54194
3" coupling with	6016	AISI 4130	A0607J
4 1/16" 10K API b.w. Flange end		AISI 4130	040431
<b>Not Designed For Well Testing</b>		<b>API Spec 16 C 2<sup>nd</sup> Edition– FSL2</b>	
<b>Temperature rate: "B"</b>			
All metal parts are flawless			
WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.			
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			
Date:	Inspector	Quality Control	
08. April 2019.		ContiTech Rubber Industrial Kft. Quality Control Dept. (1)  	



## Hose Assembly Evaluation Sheet

Prepared by	Cristian Rivera	Date:	8/27/2022	QIN:	N/A
Customer:	HELMERICH & PAYNE, INC	Location:	H&P INT'L DRILLING CO 210 MAGNOLIA DR GALENA PARK, TX, 77547-2738		
User contact:	MITCH MCKINNIS	Phone:		e-mail:	<a href="mailto:mitch.mckinnis@hpinc.com">mitch.mckinnis@hpinc.com</a>
	<b>Parameters</b>	<b>Hose Details</b>			<b>Test Status</b>
Application Information	PO	740398454 (88000240   SN:70035)			PASS
	Gates SO	525035			
	Serial #:	88000240   SN:70035			
	As Tested Serial:	H2-082722-1 RE-TEST			
	Hose ID:	3 IN			
	Hose type:	INSPECT AND RETEST CUSTOMER HOSE 3IN X 35FT CHOKE & KILL ASSEMBLY C/W 4-1/16 FLANGES BX155 RING GROOVE EACH END			
	Working pressure:	10000 PSI.			

### 1. Visual Examination

An API 16C, IN X 35FT CHOKE & KILL ASSEMBLY C/W 4-1/16 FLANGES BX155 RING GROOVE EACH END received from HELMERICH & PAYNE, INC for inspection, testing and external cosmetic repairs. The hydrostatic pressure testing was requested to 15000 PSI., by the customer HELMERICH & PAYNE, INC

Visual inspection and examination of external hose assembly showed some cosmetic dents and repairable damages to the external armor at distance 32ft 9in. from EF2. (Need to fix a part of the hose.)

Both external & internal hose body and couplings of the hose were examined. Visual Inspection photos are in Table 2, while post inspection/testing pictures are in Table 4.



The hose was hydrostatically tested at 15000 PSI. test pressure with an hour-long hold. On completion of hydrostatic testing, an internal baroscopic examination was carried out, to check the condition of internal hose areas, mainly hose tube and coupling hose interface.



Figure 1: Generic Hose Assembly

Hose Assembly Evaluation Sheet



1.0 Observations and comments

	Comments
1	<div></div> <p>Photos: ID.</p>
2	<div></div> <p>Photo: Damaged armor areas</p>





Hose Assembly Evaluation Sheet

3	<div data-bbox="326 195 1253 873"></div> <p data-bbox="688 945 889 972">Photos: At Shipping.</p>
4	<div data-bbox="318 1005 1292 1715"></div> <p data-bbox="639 1751 938 1778">Photos: Armor and Engraving.</p>

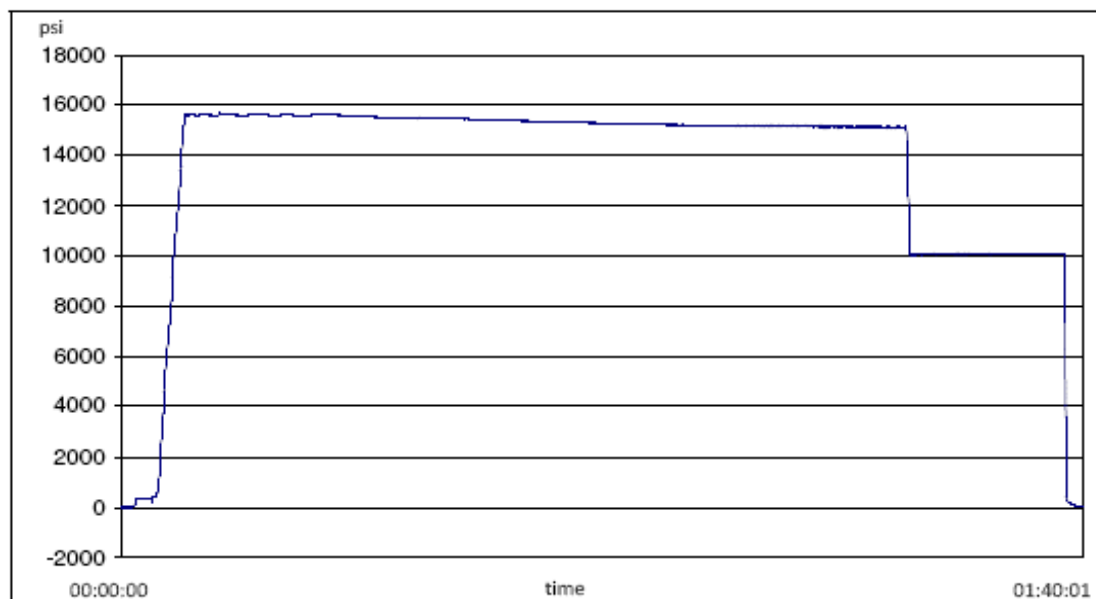




## Hose Assembly Evaluation Sheet

5	 <p style="text-align: center;">Photo: In the Crate</p>
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## 2. Hydro Static Pressure test



## 2.1 Hydrostatic Pressure test Procedures

	Hose Type	Test Specification	Test Date	Technician
1	IN X 35FT CHOKE & KILL ASSEMBLY C/W 4-1/16	3 10K C&K	2022-08-27	Martin Orozco

## 2.2 Gates Hydrostatic Pressure tester

	Test Equipment	Serial No	Last Cal Date	Cal Due Date
1	S-25-A-W	110AMCLO	2022-01-10	2023-01-10
2	S-25-A-W	110BSEUZ	2022-03-09	2023-03-09

Hose Assembly Evaluation Sheet

2.3 Hydro Static Test Pressure results

	Details	Results	
1	Hydrostatic Test Results <sup>(1)</sup>	Pass	Fail
2	Failure Mode	None	
3	Hose Dispatched to the customer?	Yes	No

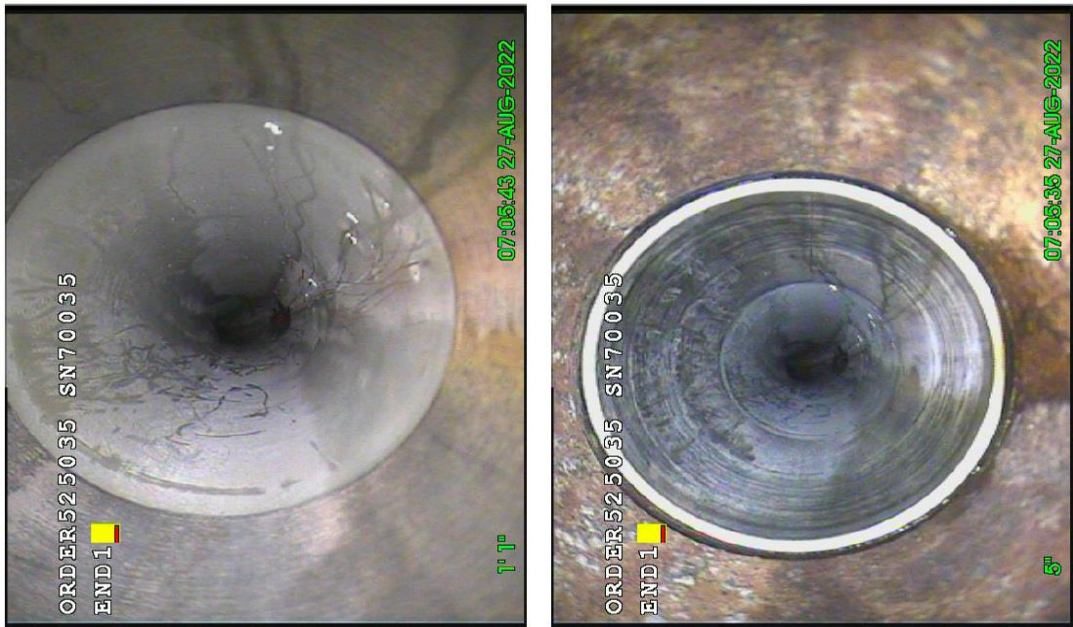
Note:

1. Hydrostatic Pressure report is given in Appendix 1

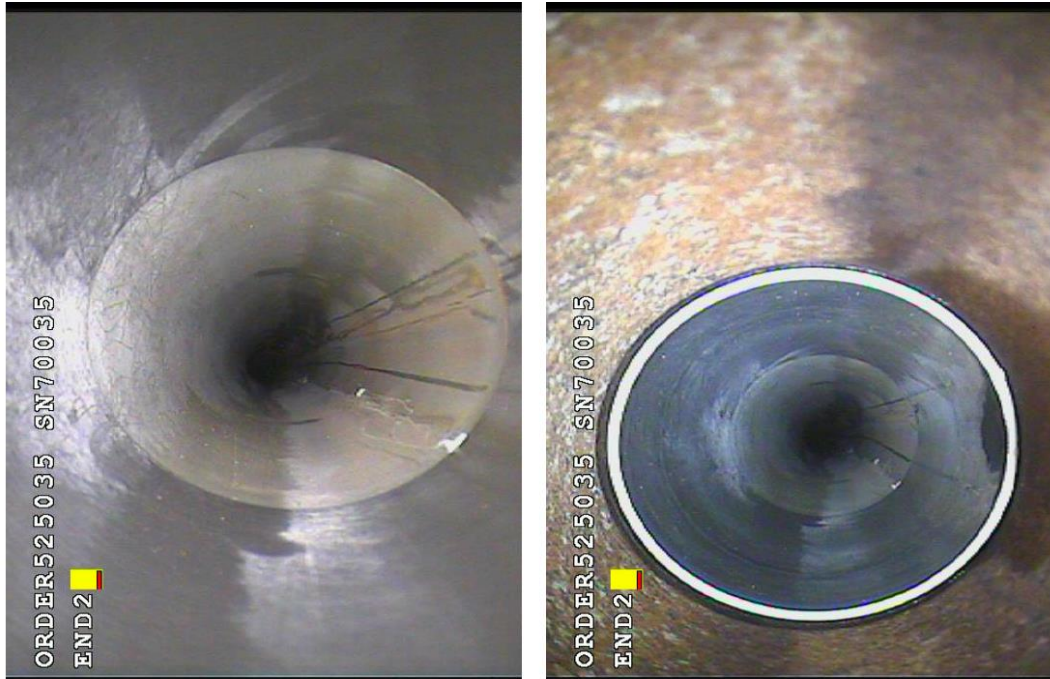
3. Hose borescope inspection

3.2 Internal Failure Details

	Type of Failure	Location of Defect	Ref. Photo	Defect Details
1	Liner breach/ collapse	None		None
2	Bulges/ Blisters	None		None
3	Other breach/failures	None		None



Photos: Liner/Coupling Interface END 1

**Hose Assembly Evaluation Sheet**

Photos: Liner/Coupling Interface END 2

**Note**

Borescope completed? Yes

**4. Summary**

Hose assembly successfully tested to requested test pressure of 15000 PSI. with an hour hold. It was then serialized and stamped, as H2-082722-1 RE-TEST. The bore scope showed no blisters or delamination in the internal lining/tube area. External damages were repaired as agreed with the customer.



## Hose Assembly Evaluation Sheet

APPENDIX 1:  
Pressure Chart

H2-8316

8/27/2022 8:51:22 AM

## TEST REPORT

## CUSTOMER

Company:

Production description:

Sales order #:

525035

Customer reference:

740398454 (88000240 |  
SN:70035)

## TEST OBJECT

Serial number:

H2-082722-1

Lot number:

Description:

Hose ID:

3 10k C&amp;K

Part number:

## TEST INFORMATION

Test procedure:

3 10K C&amp;K

Test pressure:

15000.00 psi

Test pressure hold:

3600.00 sec

Work pressure:

10000.00 psi

Work pressure hold:

900.00 sec

Length difference:

0.00 %

Length difference:

0.00 inch

Fitting 1:

3.0 x 4-1/16 10K

Part number:

Description:

Fitting 2:

3.0 x 4-1/16 10K

Part number:

Description:

Visual check:

Pressure test result:

PASS

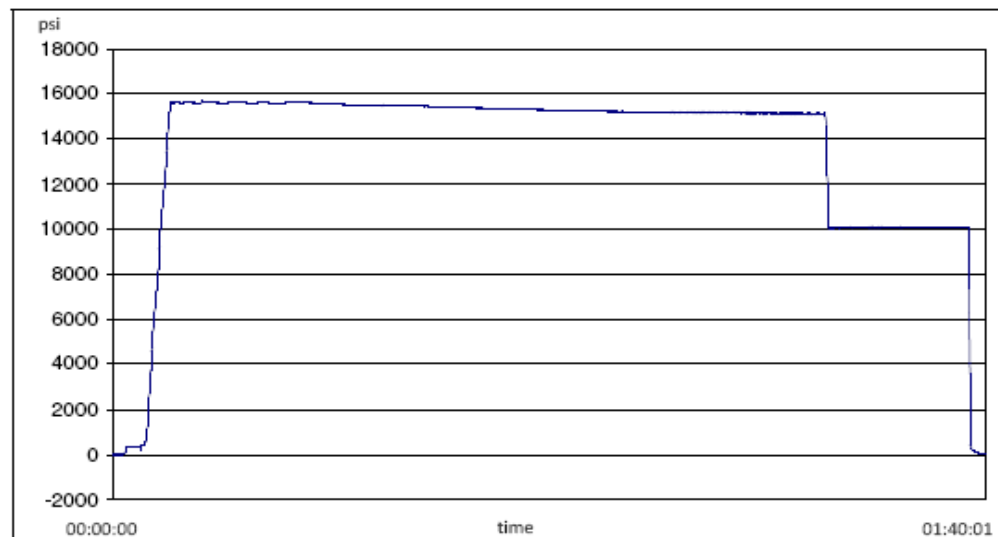
Length measurement result:

Length:

35 feet

Test operator:

Martin



Filename: D:\Certificates\Report\_082722-H2-082722-1.pdf

Page 1/2





Hose Assembly Evaluation Sheet



H2-8316

8/27/2022 8:51:22 AM

TEST REPORT

GAUGE TRACEABILITY

Description	Serial number	Calibration date	Calibration due date
S-25-A-W	110AMCLO	2022-01-10	2023-01-10
S-25-A-W	110BSEUZ	2022-03-09	2023-03-09

Comment



## Hose Assembly Evaluation Sheet

APPENDIX 2:  
Certificate of Conformance

**GATES ENGINEERING & SERVICES NORTH AMERICA**  
7603 Prairie Oak Dr.  
Houston, TX. 77086

PHONE: +1 (281) 602-4100  
FAX: +1 (281) 602-4147  
EMAIL: [geena.quality@gates.com](mailto:geena.quality@gates.com)  
WEB: [www.gates.com/oilandgas](http://www.gates.com/oilandgas)

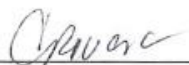
**CERTIFICATE OF CONFORMANCE**

This is to verify that the items detailed below meet the requirements of the Customer's Purchase Order referenced herein, and are in Conformance with applicable specifications, and that Records of Required Tests are on file and subject to examination. The following items were inspected and hydrostatically tested at **Gates Engineering & Services North America** facilities in Houston, TX, USA.

**CUSTOMER:** HELMERICH & PAYNE, INC  
**CUSTOMER P.O.#:** 740398454 (88000240 | SN:70035)  
**CUSTOMER P/N:** 88000240 | SN:70035

**PART DESCRIPTION:** INSPECT AND RETEST CUSTOMER HOSE 3IN X 35FT CHOKE & KILL ASSEMBLY C/W 4-1/16  
FLANGES BX155 RING GROOVE EACH END

**SALES ORDER #:** 525035  
**QUANTITY:** 1  
**SERIAL #:** H2-082722-1 RE-TEST

**SIGNATURE:**   
**TITLE:** QUALITY ASSURANCE  
**DATE:** 8/27/2022

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OXY USA INCORPORATED
WELL NAME & NO.:	MESA VERDE BS UNIT 41H
LOCATION:	Section 16, T.24 S., R.32 E.
COUNTY:	Lea County, New Mexico

COA

H2S	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input 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 type="checkbox"/> Fluid Filled	<input type="checkbox"/> Pilot Hole	<input type="checkbox"/> Open Annulus
Cementing	<input type="checkbox"/> Contingency Cement Squeeze	<input type="checkbox"/> EchoMeter	<input checked="" type="checkbox"/> Primary Cement Squeeze
Special Requirements	<input type="checkbox"/> Water Disposal	<input type="checkbox"/> COM	<input checked="" 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 **986** 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.
  - 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. The **7-5/8** inch intermediate casing shall be set at approximately **12,569** feet. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

**Option 1 (Single Stage):**

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

**Option 2:**

Operator has proposed to cement in two stages by conventionally cementing the first stage and performing a bradenhead squeeze on the second stage, contingent upon no returns to surface.

- a. First stage: Operator will cement with intent to reach the top of the **Brushy Canyon**
- b. Second stage:
  - Operator will perform bradenhead squeeze and top-out. Cement to surface. If cement does not reach surface, the appropriate BLM office shall be notified.

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

**If cement does not tie-back into the previous casing shoe, a third stage remediation BH may be performed. The appropriate BLM office shall be notified.**

**Bradenhead squeeze in the production interval is only as an edge case remediation measure and is NOT approved in this COA. If production cement job experiences**



**losses and a bradenhead squeeze is needed for tie-back, BLM Engineering should be notified prior to job with volumes and planned wellbore schematic. CBL will be needed when this occurs.**

**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. The 5-1/2 inch production casing shall be set at approximately **23,045** feet The minimum required fill of cement behind the 5-1/2 inch production casing is:

**Option 1 (Single Stage):**

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

**(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 43 CFR part 3170 Subpart 3172.
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

**Offline Cementing**

Operator has been (**Approved**) to pump the proposed cement program offline in the **Surface and intermediate(s) intervals.**

Offline cementing should commence within 24 hours of landing the casing for the interval.

Notify the BLM 4hrs prior to cementing offline at **Lea County: 575-689-5981**.

**Casing Clearance:**

Overlap OK

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)

**Contact Eddy County Petroleum Engineering Inspection Staff:**

Email or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220; [BLM NM CFO DrillingNotifications@BLM.GOV](mailto:BLM_NM_CFO_DrillingNotifications@BLM.GOV); (575) 361-2822

**Contact Lea County Petroleum Engineering Inspection Staff:**

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 689-5981

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - i. Notify the BLM when moving in and removing the Spudder Rig.
    - ii. Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - iii. BOP/BOPE test to be conducted per **43 CFR 3172** as soon as 2<sup>nd</sup> Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area

immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. For intervals in which cement to surface is required, cement to surface should be verified with a visual check and density or pH check to differentiate cement from spacer and drilling mud. The results should be documented in the driller's log and daily reports.

#### A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends of both lead and tail cement, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

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

#### B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in **43 CFR 3172**.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke

manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

- i. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
- ii. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- iii. Manufacturer representative shall install the test plug for the initial BOP test.
- iv. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.
- v. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

- i. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead cement), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
- ii. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)
- iii. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR 3172** with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for 8 hours or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- iv. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M



BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

- v. The results of the test shall be reported to the appropriate BLM office.
- vi. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- vii. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- viii. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per **43 CFR 3172**.

#### **C. DRILLING MUD**

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

#### **D. WASTE MATERIAL AND FLUIDS**

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

KPI 9/4/2024

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**Oil Conservation Division**  
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**Santa Fe, NM 87505**

CONDITIONS  
  
Action 380909

CONDITIONS

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID: 16696
	Action Number: 380909
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
pkautz	TOC MUST BE DETERMINED BY CBL.	9/12/2024