

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 Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

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

Form C-101
August 1, 2011

Permit 330357

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

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address OXY USA INC P.O. Box 4294 Houston, TX 772104294		2. OGRID Number 16696
		3. API Number 30-015-53279
4. Property Code 326058	5. Property Name VANADIUM 32 STATE	6. Well No. 176H

7. Surface Location

UL - Lot O	Section 29	Township 23S	Range 31E	Lot Idn	Feet From 472	N/S Line S	Feet From 1405	E/W Line E	County Eddy
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8. Proposed Bottom Hole Location

UL - Lot B	Section 32	Township 23S	Range 31E	Lot Idn B	Feet From 10	N/S Line N	Feet From 2560	E/W Line E	County Eddy
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9. Pool Information

WC-015 G-08 S233135D;WOLFCAMP	98236
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Additional Well Information

11. Work Type New Well	12. Well Type OIL	13. Cable/Rotary	14. Lease Type State	15. Ground Level Elevation 3359
16. Multiple N	17. Proposed Depth 22800	18. Formation Wolfcamp	19. Contractor	20. Spud Date 3/1/2023
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ We will be using a closed-loop system in lieu of lined pits

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17.5	13.375	54.5	463	484	0
Int1	12.25	9.625	40	4260	1133	0
Int2	8.75	7.625	26.4	10993	724	0
Prod	6.75	5.5	20	22800	929	10493

Casing/Cement Program: Additional Comments

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22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	5000	5000	
Double Ram	10000	10000	
Pipe	10000	10000	
Blind	10000	10000	

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.
I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒, if applicable.

OIL CONSERVATION DIVISION

Signature:

Printed Name: Electronically filed by KELLEY MONTGOMERY

Title: Manager Regulatory

Email Address: kelly_montgomery@oxy.com

Date: 12/9/2022

Phone: 713-366-5716

Approved By: Katherine Pickford

Title: Geoscientist

Approved Date: 1/13/2023

Expiration Date: 1/13/2025

Conditions of Approval Attached

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District IV
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Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015 53279		² Pool Code 98236		³ Pool Name WC-015 G-08 S233135D; WOLFCAMP	
⁴ Property Code 326058		⁵ Property Name VANADIUM 32 STATE			⁶ Well Number 176H
⁷ OGRID No. 16696		⁸ Operator Name OXY USA INC.			⁹ Elevation 3359.7'

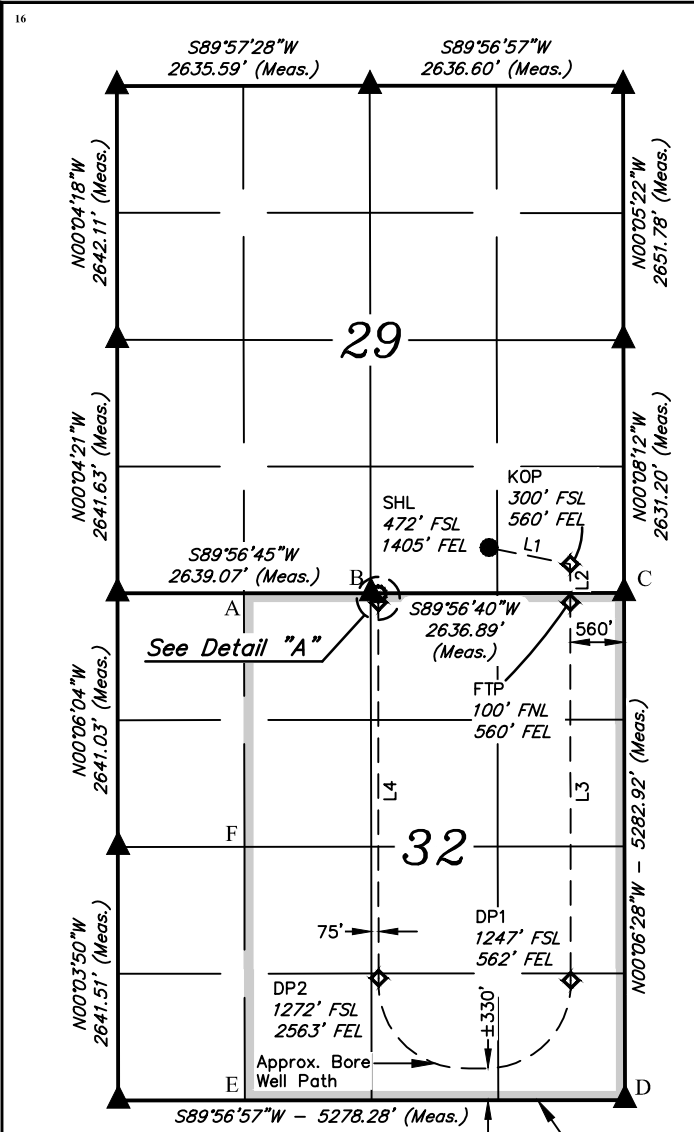
¹⁰ Surface Location

UL or lot no. O	Section 29	Township 23S	Range 31E	Lot Idn	Feet from the 472	North/South line SOUTH	Feet from the 1405	East/West line EAST	County EDDY
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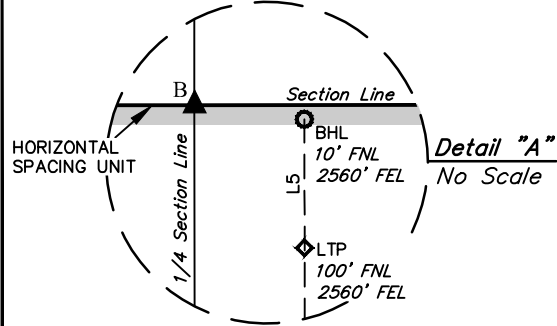
¹¹ Bottom Hole Location If Different From Surface

UL or lot no. B	Section 32	Township 23S	Range 31E	Lot Idn	Feet from the 10	North/South line NORTH	Feet from the 2560	East/West line EAST	County EDDY
¹² Dedicated Acres 480		¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ 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.



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S78°31'29"E	862.35'
L2	S00°07'46"E	400.00'
L3	S00°05'04"E	3936.00'
L4	N00°03'27"W	3910.72'
L5	N00°06'28"W	90.00'



NAD 83 (SURFACE HOLE LOCATION) LATITUDE = 32°16'10.12" (32.269477°) LONGITUDE = 103°47'45.01" (103.795836°)
NAD 27 (SURFACE HOLE LOCATION) LATITUDE = 32°16'09.67" (32.269354°) LONGITUDE = 103°47'43.26" (103.795350°)
STATE PLANE NAD 83 (N.M. EAST) N: 462184.62' E: 707467.08'
STATE PLANE NAD 27 (N.M. EAST) N: 462125.32' E: 666283.53'
NAD 83 (KICK OFF POINT) LATITUDE = 32°16'08.41" (32.269003°) LONGITUDE = 103°47'35.17" (103.793103°)
NAD 27 (KICK OFF POINT) LATITUDE = 32°16'07.97" (32.268880°) LONGITUDE = 103°47'33.42" (103.792617°)
STATE PLANE NAD 83 (N.M. EAST) N: 462016.64' E: 708312.74'
STATE PLANE NAD 27 (N.M. EAST) N: 461957.34' E: 667129.18'
NAD 83 (FIRST TAKE POINT) LATITUDE = 32°16'04.45" (32.267904°) LONGITUDE = 103°47'35.16" (103.793101°)
NAD 27 (FIRST TAKE POINT) LATITUDE = 32°16'04.01" (32.267781°) LONGITUDE = 103°47'33.42" (103.792616°)
STATE PLANE NAD 83 (N.M. EAST) N: 461616.73' E: 708315.32'
STATE PLANE NAD 27 (N.M. EAST) N: 461557.43' E: 667131.75'
NAD 83 (DEFLECTION POINT 1) LATITUDE = 32°15'25.51" (32.257087°) LONGITUDE = 103°47'35.14" (103.793093°)
NAD 27 (DEFLECTION POINT 1) LATITUDE = 32°15'25.07" (32.256964°) LONGITUDE = 103°47'33.39" (103.792608°)
STATE PLANE NAD 83 (N.M. EAST) N: 457681.55' E: 708337.62'
STATE PLANE NAD 27 (N.M. EAST) N: 457622.36' E: 667153.94'
NAD 83 (DEFLECTION POINT 2) LATITUDE = 32°15'25.76" (32.257155°) LONGITUDE = 103°47'58.44" (103.799568°)
NAD 27 (DEFLECTION POINT 2) LATITUDE = 32°15'25.32" (32.257032°) LONGITUDE = 103°47'56.70" (103.799082°)
STATE PLANE NAD 83 (N.M. EAST) N: 457696.49' E: 706336.04'
STATE PLANE NAD 27 (N.M. EAST) N: 457637.30' E: 665152.36'
NAD 83 (LAST TAKE POINT) LATITUDE = 32°16'04.45" (32.267903°) LONGITUDE = 103°47'58.45" (103.799571°)
NAD 27 (LAST TAKE POINT) LATITUDE = 32°16'04.01" (32.267780°) LONGITUDE = 103°47'56.70" (103.799085°)
STATE PLANE NAD 83 (N.M. EAST) N: 461606.41' E: 706315.73'
STATE PLANE NAD 27 (N.M. EAST) N: 461547.11' E: 665132.17'
NAD 83 (BOTTOM HOLE LOCATION) LATITUDE = 32°16'05.34" (32.268150°) LONGITUDE = 103°47'58.46" (103.799571°)
NAD 27 (BOTTOM HOLE LOCATION) LATITUDE = 32°16'04.90" (32.268027°) LONGITUDE = 103°47'56.71" (103.799085°)
STATE PLANE NAD 83 (N.M. EAST) N: 461696.39' E: 706315.18'
STATE PLANE NAD 27 (N.M. EAST) N: 461637.09' E: 665131.62'

HSU COORDINATES				
	NAD 27 N.M. STATE PLANE, EAST ZONE		NAD 83 N.M. STATE PLANE, EAST ZONE	
POINT	NORTHING	EASTING	NORTHING	EASTING
A	461639.91'	663735.43'	461699.21'	704918.98'
B	461646.69'	665054.68'	461705.99'	706238.24'
C	461660.30'	667691.03'	461719.60'	708874.60'
D	456378.63'	667722.95'	456437.79'	708906.67'
E	456358.54'	663765.06'	456417.70'	704948.77'
F	458999.41'	663750.67'	459058.64'	704934.31'

¹⁷ OPERATOR
CERTIFICATION

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

Leslie T. Reeves 12/9/22

Signature Date

LESLIE REEVES

Printed Name

LESLIE_REEVES@OXY.COM

E-mail Address

¹⁸ SURVEYOR
CERTIFICATION

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

November 09, 2022

Date of Survey
Signature and Seal of Professional Surveyor:



Certificate Number:

- = SURFACE HOLE LOCATION
- ◆ = KICK OFF/TAKE/DEFLECTION POINTS
- = BOTTOM HOLE LOCATION
- ▲ = SECTION CORNER LOCATED

NOTE:
• Distances referenced on plat to section lines are perpendicular.
• Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00" (NAD 83)



SCALE
DRAWN BY: Z.T. 11-10-22

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

Form APD Conditions

Permit 330357

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address: OXY USA INC [16696] P.O. Box 4294 Houston, TX 772104294	API Number: 30-015-53279
	Well: VANADIUM 32 STATE #176H

OCD Reviewer	Condition
kpickford	Notify OCD 24 hours prior to casing & cement
kpickford	Will require a File As Drilled C-102 and a Directional Survey with the C-104
kpickford	The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud
kpickford	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
kpickford	Cement is required to circulate on both surface and intermediate1 strings of casing
kpickford	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system

Electronic Delivery Confirmation™



Leslie Reeves
PO BOX 4294
HOUSTON TX 77210-4294

\$5.20 US POSTAGE
FIRST-CLASS
Jan 05 2023
Mailed from ZIP 77210
1 OZ FIRST-CLASS MAIL FLATS RATE
ZONE 4
11923275



USPS CERTIFIED MAIL



9407 1118 9876 5839 3135 86

Mosaic Potash Carlsbad Inc
1361 POTASH MINES RD
CARLSBAD NM 88220-8958



Reference	
USPS #	9407111898765839313586
USPS Mail Class	Certified with Electronic Delivery Confirmation
USPS Status	Your item was picked up at the post office at 4:19 pm on January 11, 2023 in CARLSBAD, NM 88220.
USPS History	Available for Pickup, 01/11/2023, 5:58 am, CARLSBAD, NM 88220 Arrived at Post Office, 01/11/2023, 5:57 am, CARLSBAD, NM 88220 Departed USPS Regional Facility, January 11, 2023, 5:04 am, LUBBOCK TX DISTRIBUTION CENTER Arrived at USPS Regional Destination Facility, 01/10/2023, 5:32 pm, LUBBOCK TX DISTRIBUTION CENTER In Transit to Next Facility, 01/09/2023 In Transit to Next Facility, 01/08/2023 In Transit to Next Facility, 01/07/2023 Arrived at USPS Regional Origin Facility, 01/06/2023, 9:55 pm, NORTH HOUSTON TX DISTRIBUTION CENTER Accepted at USPS Origin Facility, January 6, 2023, 8:40 pm, HOUSTON, TX 77210 Shipping Label Created, USPS Awaiting Item, January 5, 2023, 8:37 pm, HOUSTON, TX 77210 Pre-Shipment Info Sent to USPS, USPS Awaiting Item, January 5, 2023

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary Designate

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Division Director
Oil Conservation Division



December 20, 2022

BUREAU OF LAND MANAGEMENT
ATT: James S. Rutley
620 E Greene Street
Carlsbad, NM 88220

STATE LAND OFFICE
ATT: Paige A Czoski
PO BOX 1148
Santa Fe, NM 87505

RE: APPLICATION FOR PERMIT TO DRILL IN POTASH AREA

OPERATOR: OXY USA INC

LEASE NAME: VANADIUM 32 STATE #176H

PROPOSED LOCATION: U/L O Sec 29 T23S R31E 472 FSL 1405 FEL

Lat. 32.269477 Long. -103.795836 NAD83

PROPOSED DEPTH: 22800' MD 11374' TVD

Gentleman:

The application for permit to drill identified above has been filed with this office of the New Mexico Oil Conservation Division. Pursuant to the provisions of Oil Conservation Division Order R – 111 - P, please advise this office whether the location is within an established Life-of-Mine-Reserve that are filed with and approved by your office. If not, please advise whether it is within the buffer zone established by the order.

Thank you for your assistance. Please Return as soon as possible.

Very truly yours,

OIL CONSERVATION DIVISION

Kate Pickford

Petroleum Specialist

505-334-6178 Ext 114

505-372-8856 (cell)

RESONSE:

The above referenced location is in LMR (_____ year) -----Yes_____ No _____

The above referenced location is within the Buffer Zone-----Yes_____ No _____

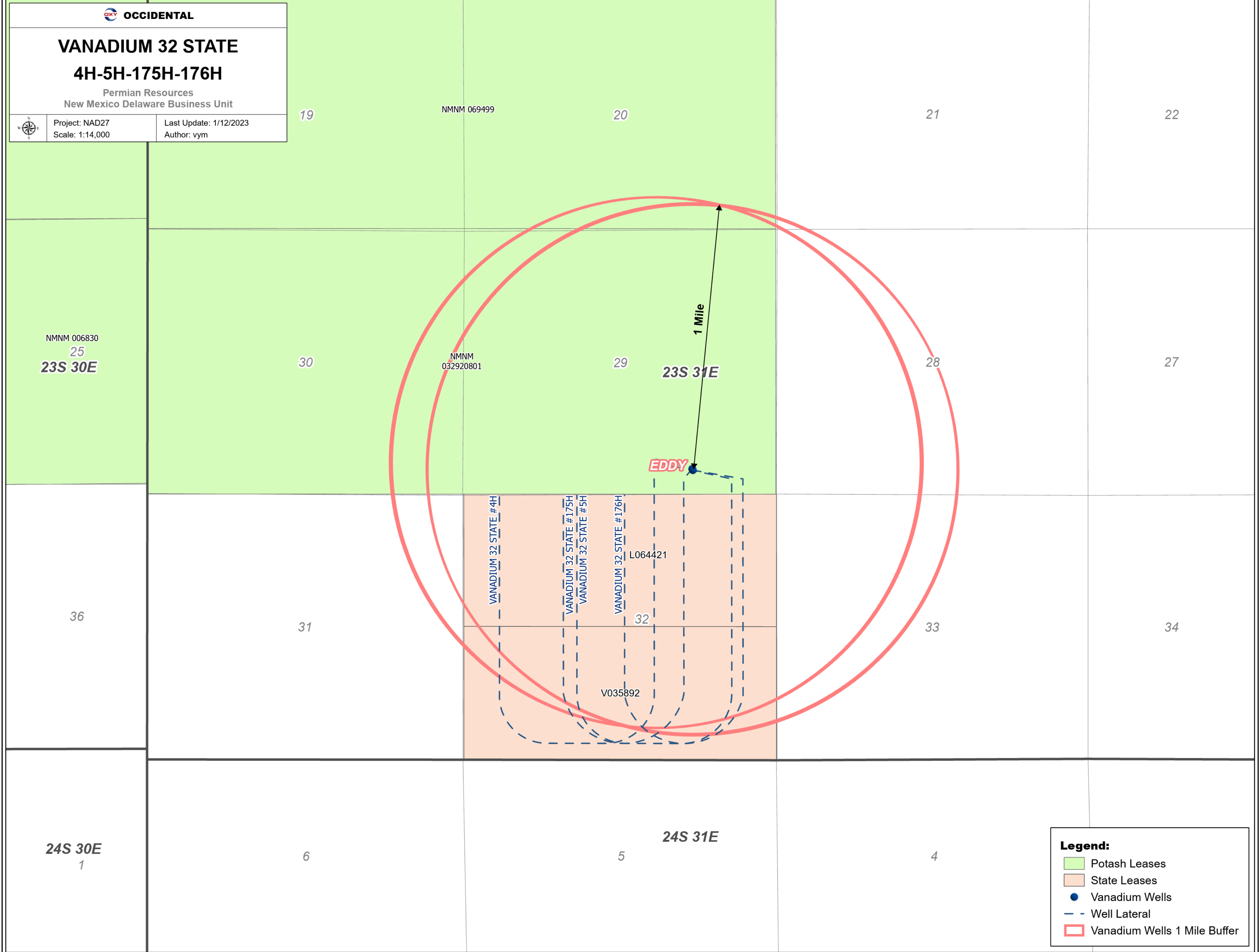
Signed _____

Printed Signature _____

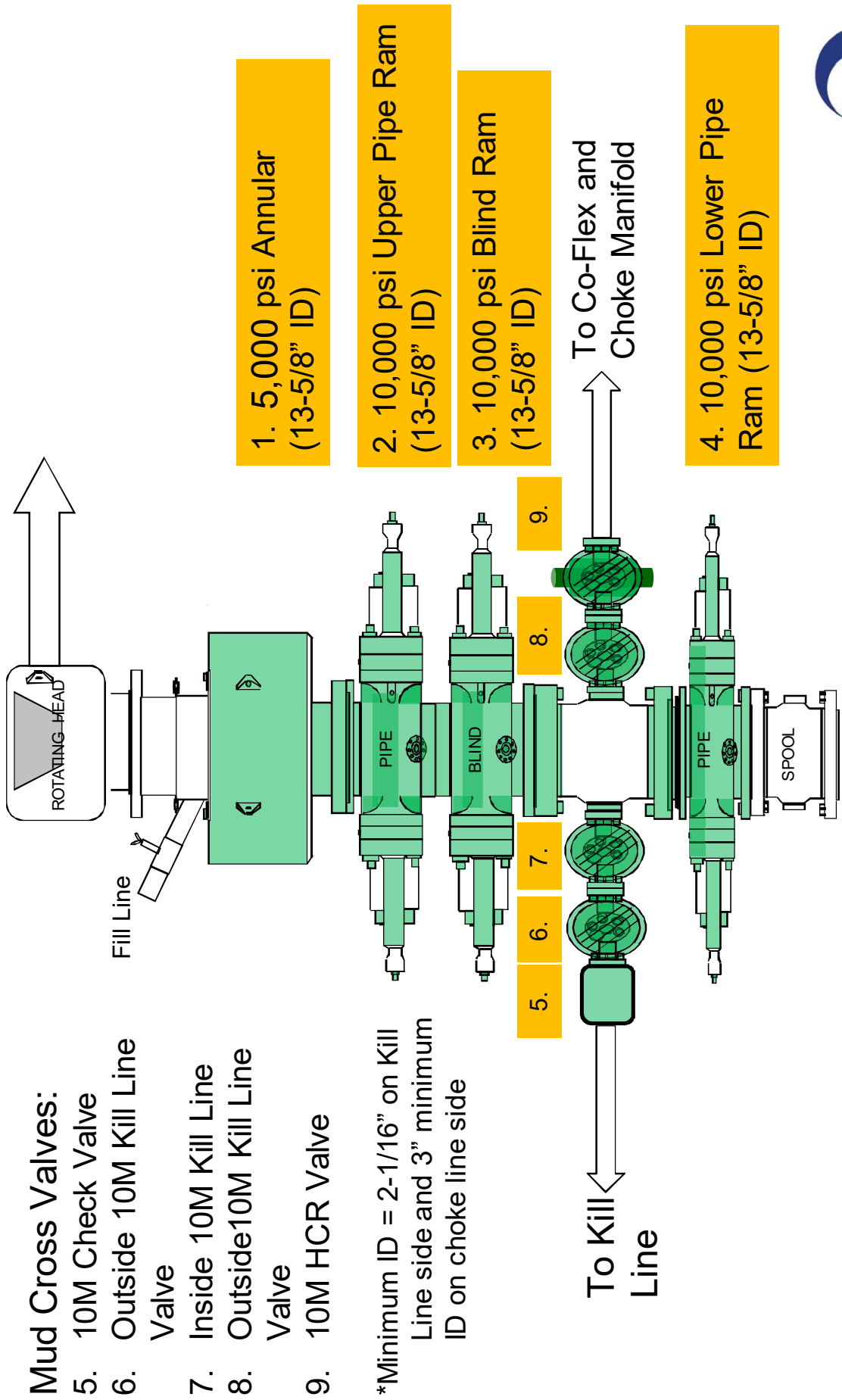
Representing _____

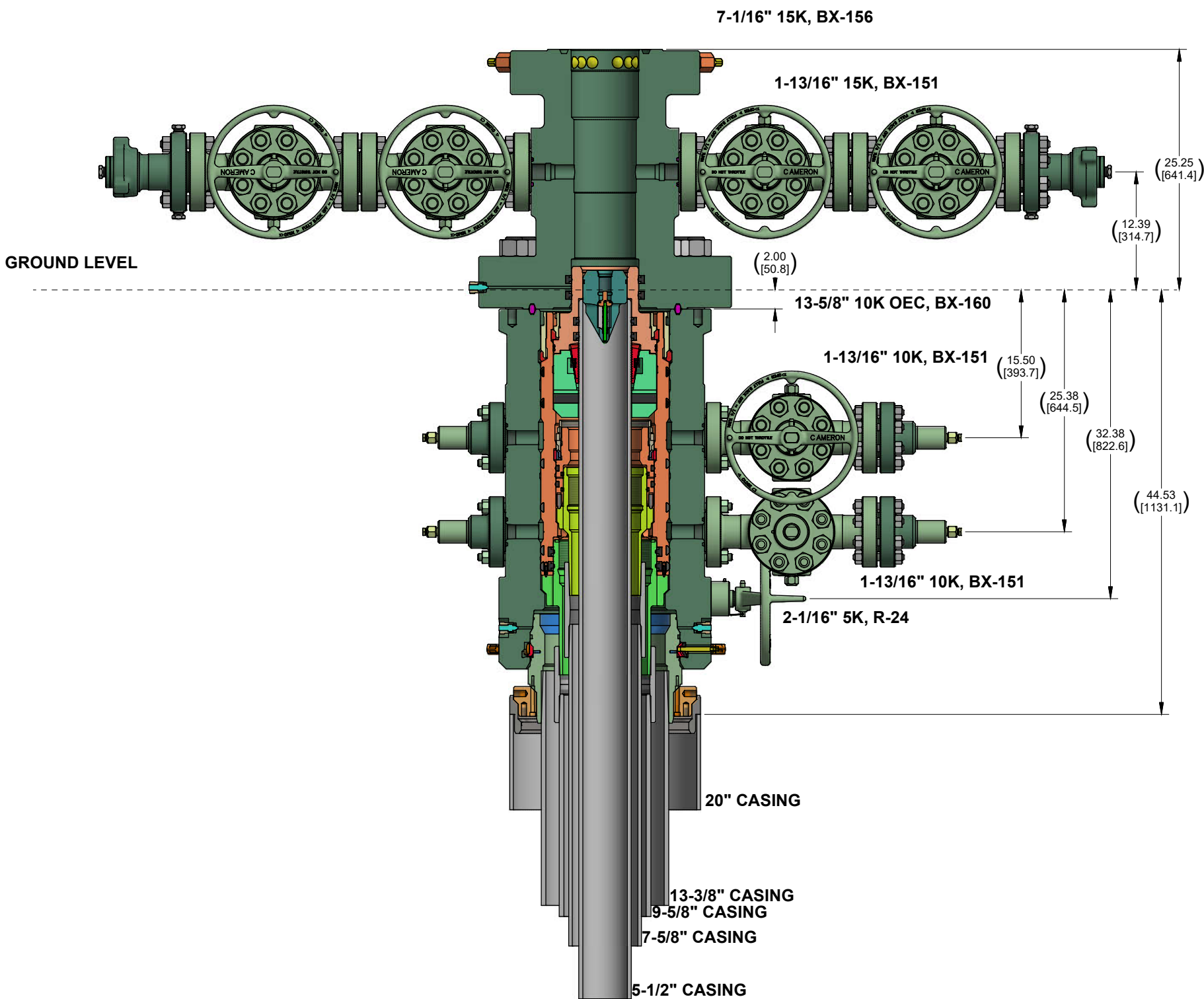
December 14, 2022


Page 2



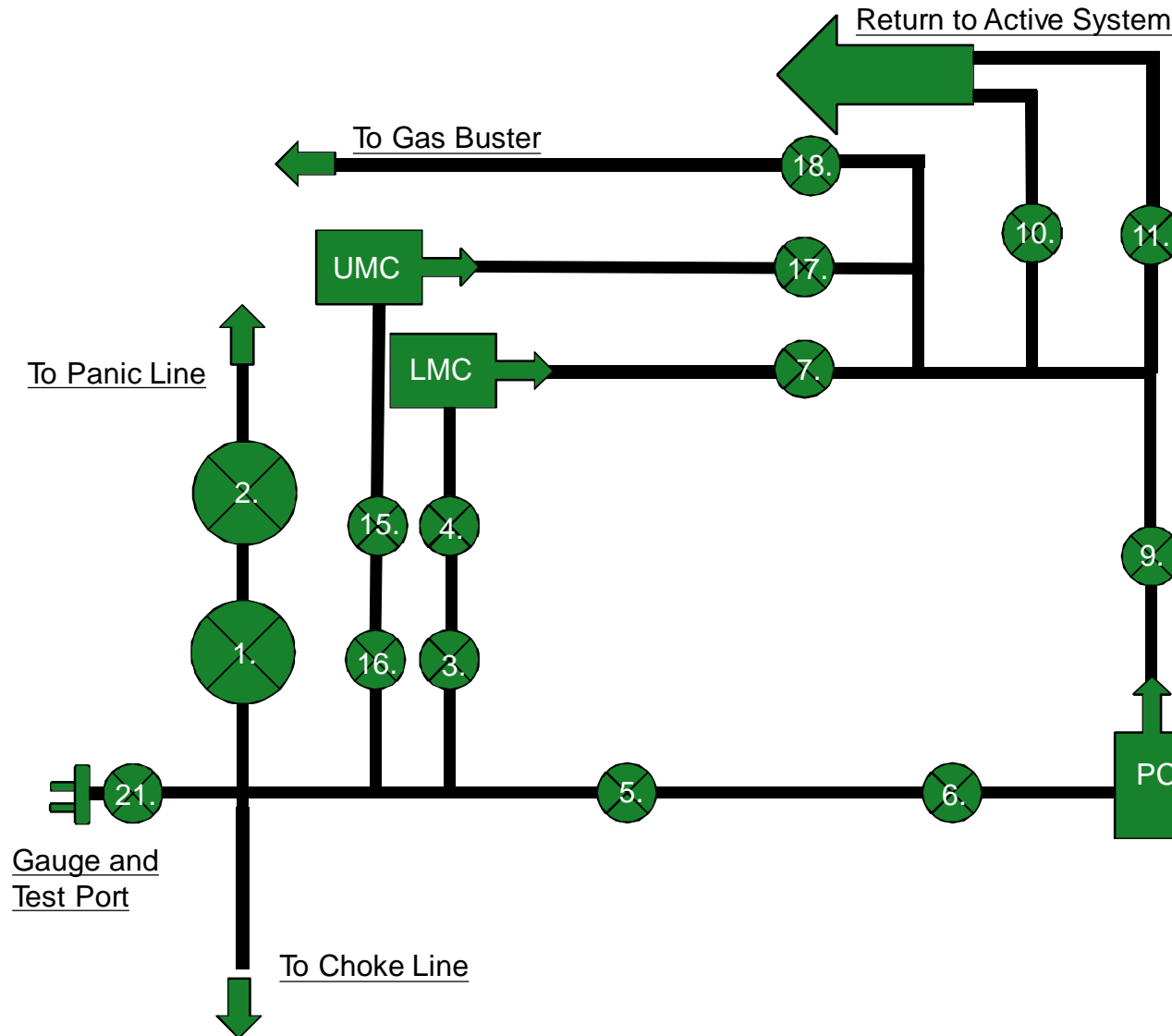
5/10M BOP Stack





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

10M Choke Panel



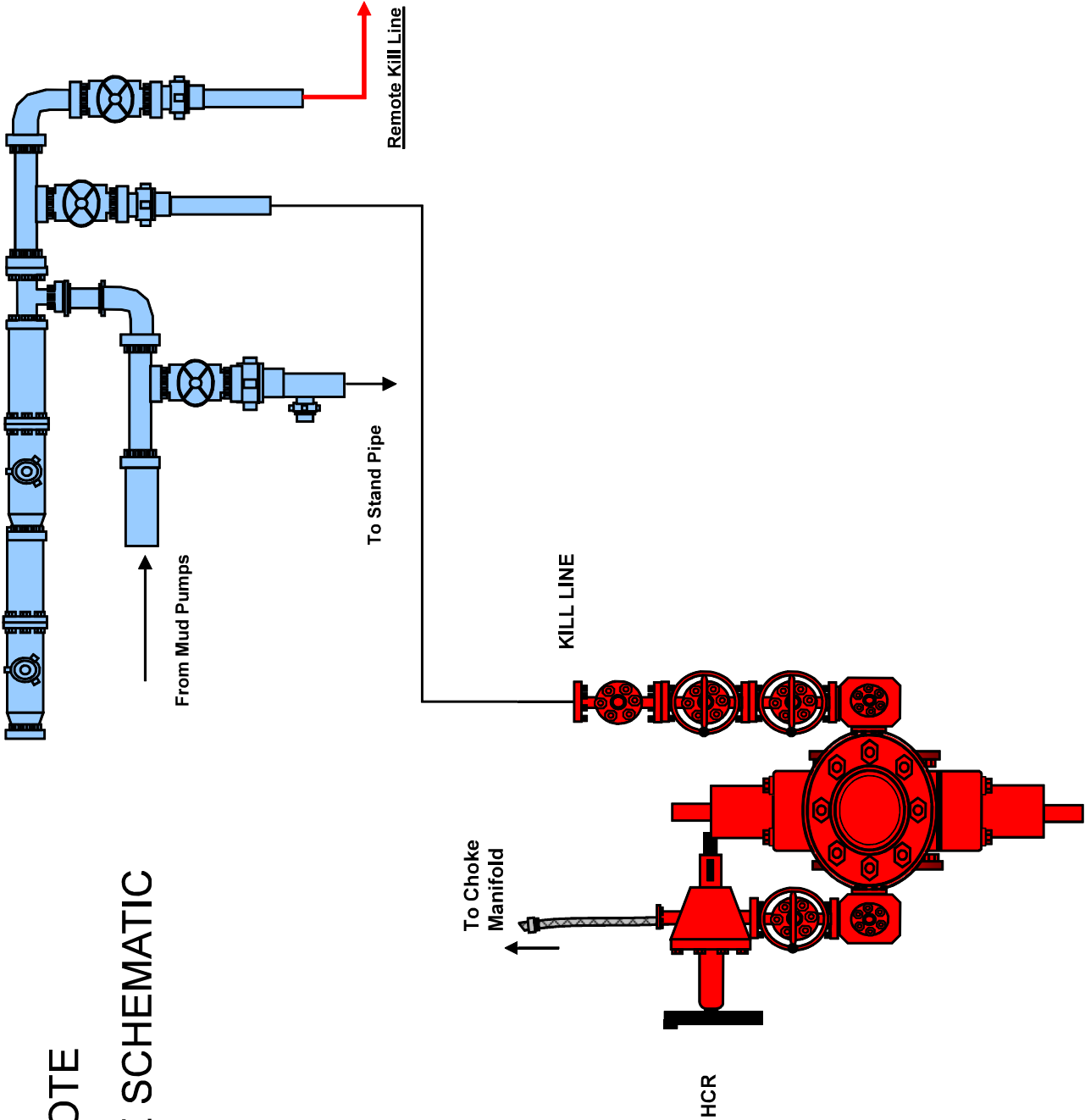
1. Choke Manifold Valve
2. Choke Manifold Valve
3. Choke Manifold Valve
4. Choke Manifold Valve
5. Choke Manifold Valve
6. Choke Manifold Valve
7. Choke Manifold Valve
8. PC – Power Choke
9. Choke Manifold Valve
10. Choke Manifold Valve
11. Choke Manifold Valve
12. LMC – Lower Manual Choke
13. UMC –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

21. Vertical Choke Manifold Valve

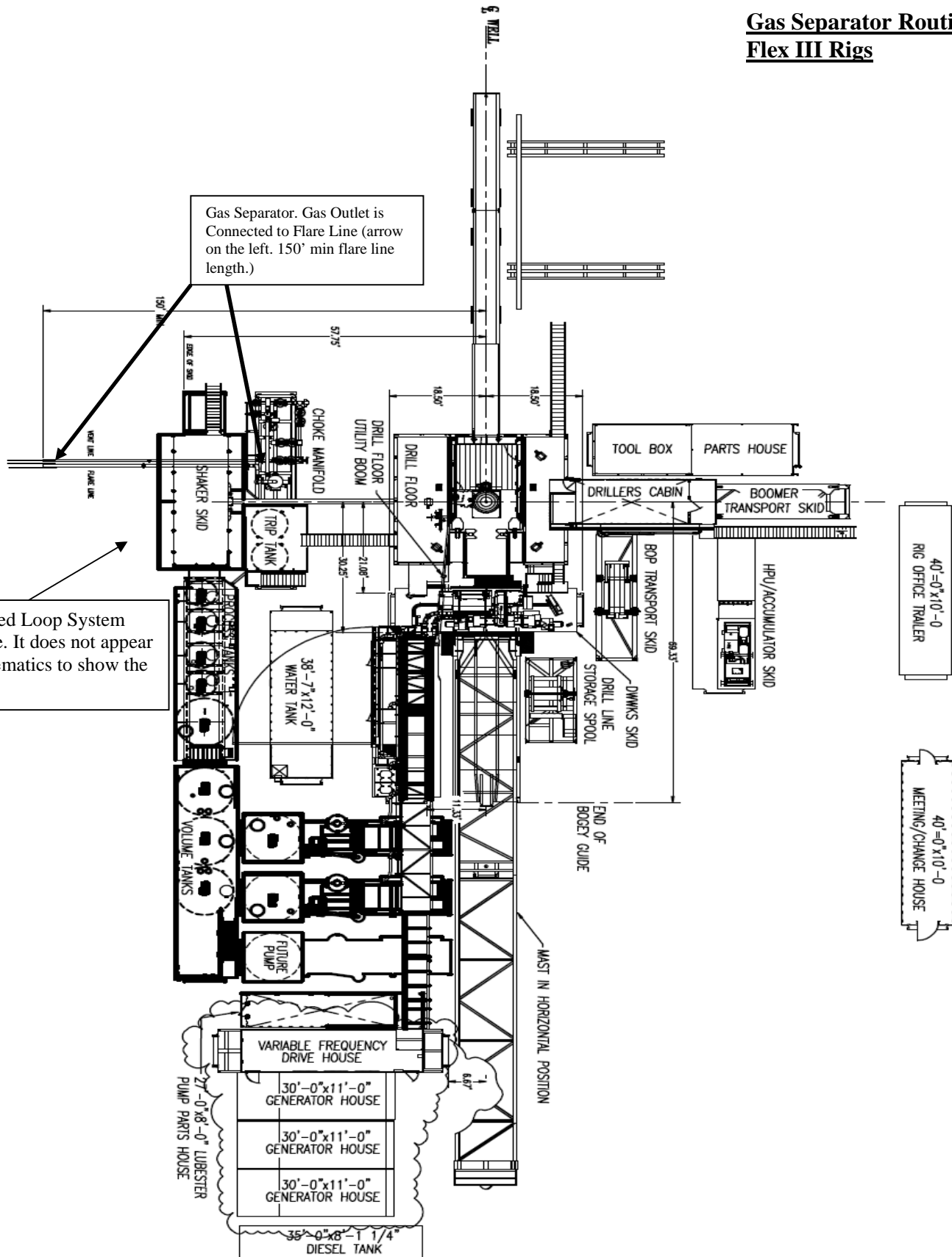
***All Valves 3" minimum**



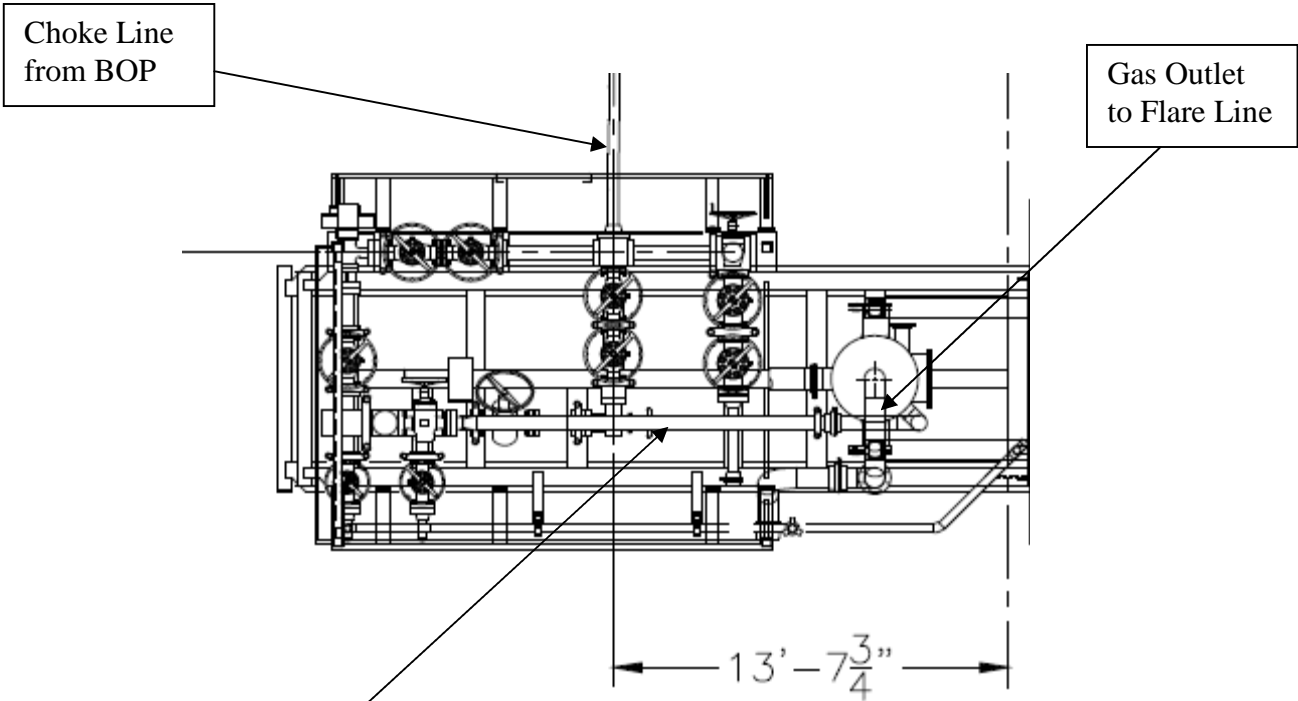
10M REMOTE
KILL LINE SCHEMATIC



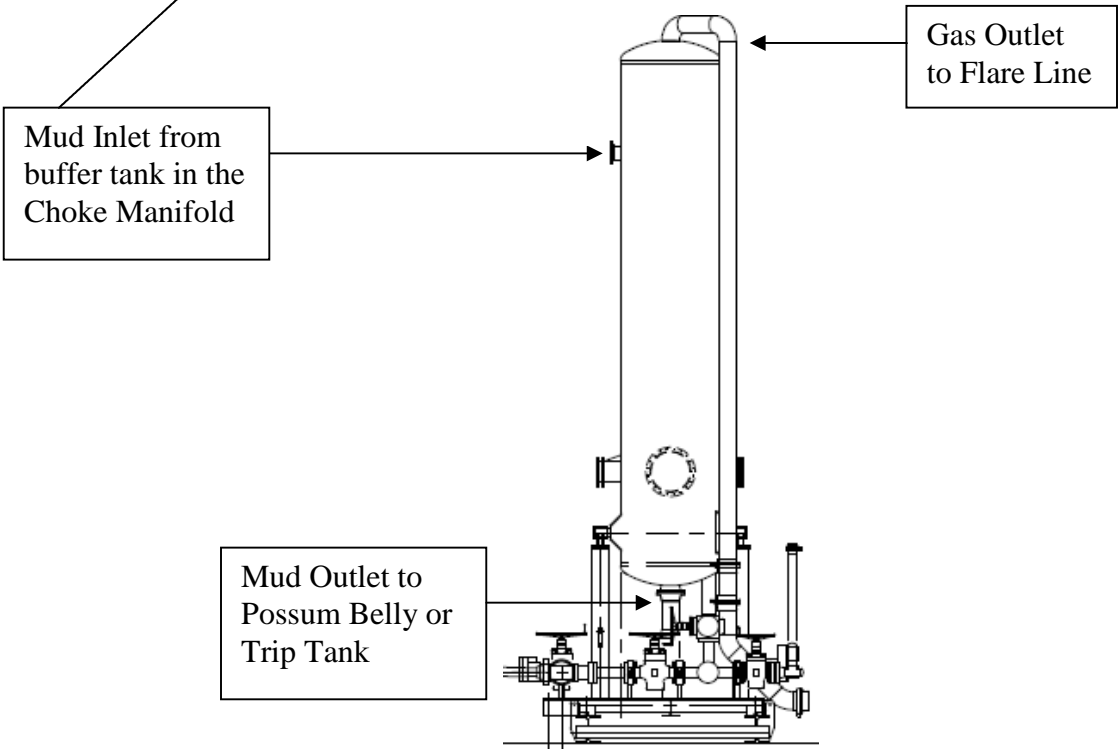
Gas Separator Routing Flex III Rigs



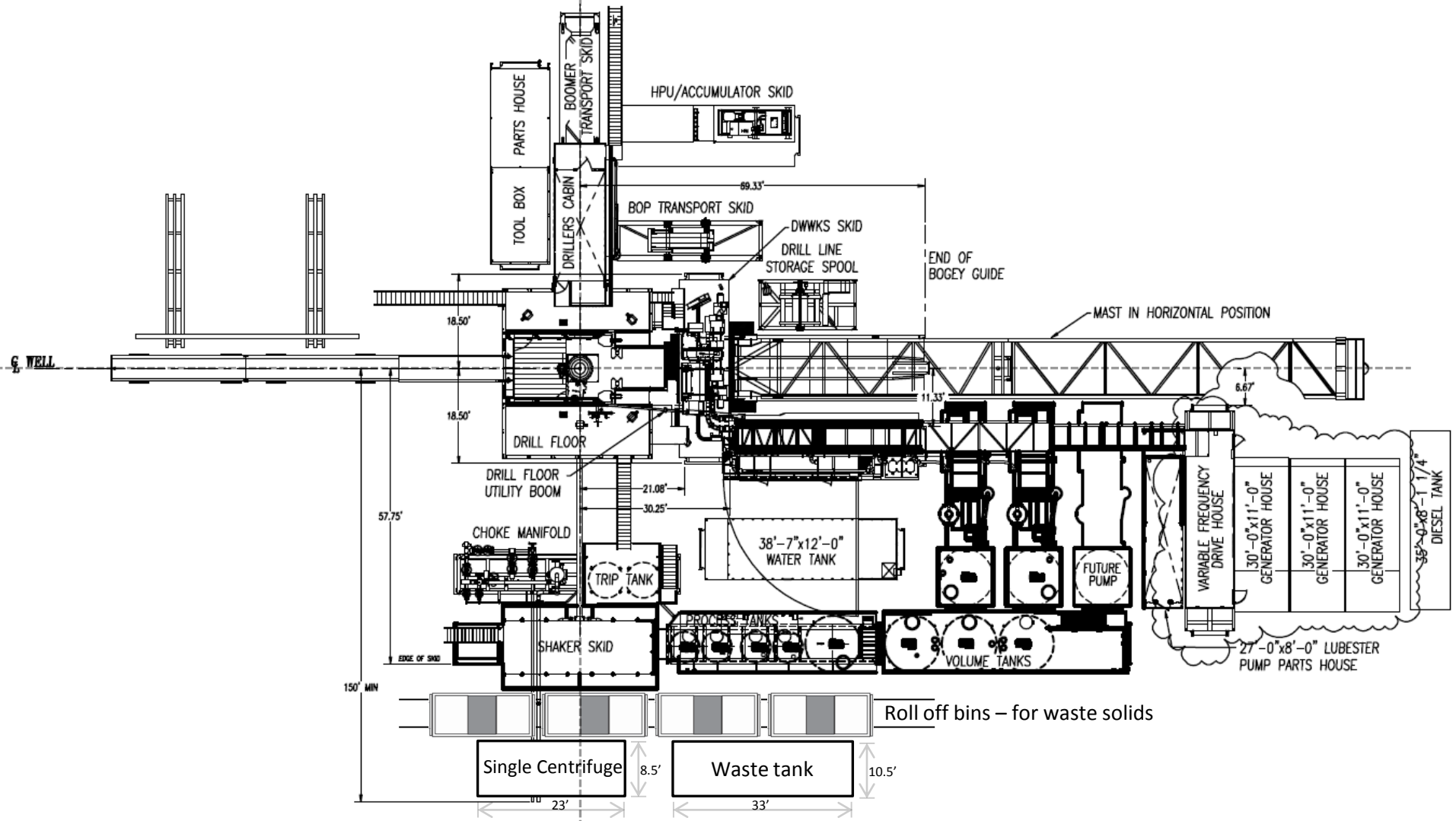
Choke Manifold – Gas Separator (Top View)



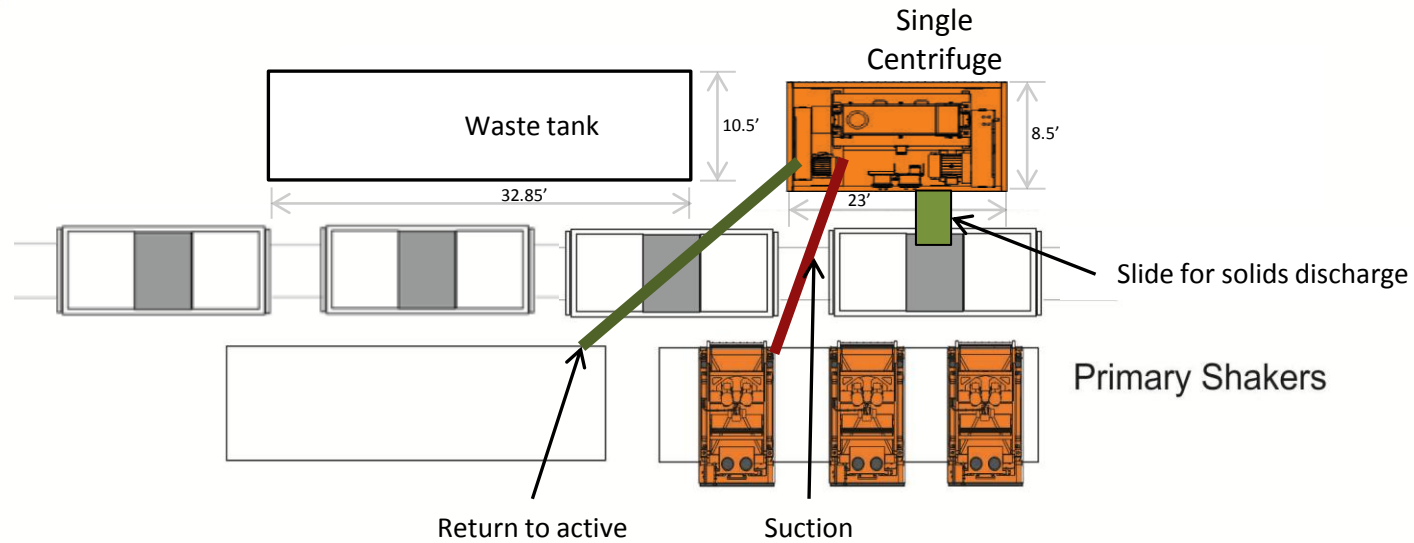
Choke Manifold – Gas Separator (Side View)



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



Oxy



Well Head



Oxy Single Centrifuge
Closed Loop System – New
Mexico Flex III

May 28, 2013

OXY's Minimum Design Criteria

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

1) Casing Design Assumptions

a) Burst Loads

CSG Test (Surface)

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

CSG Test (Intermediate)

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

CSG Test (Production)

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

Gas Column (Surface)

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

Bullheading (Surface / Intermediate)

- Internal: The string must be designed to withstand a pressure profile based on the fracture pressure at the casing shoe with a column of water above the shoe plus an additional surface pressure (in psi) of $0.02 \times MD$ 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.

Project: PRD NM DIRECTIONAL PLANS (NAD 1983)

Site: Vanadium 32

Well: Vanadium 32 State 176H

Wellbore: Wellbore #1

Design: Permitting Plan

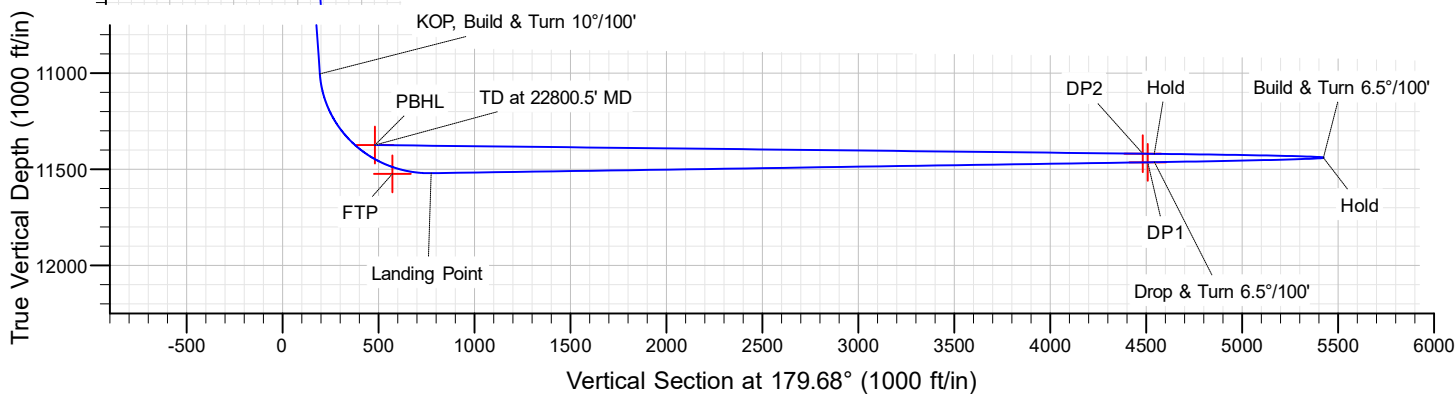
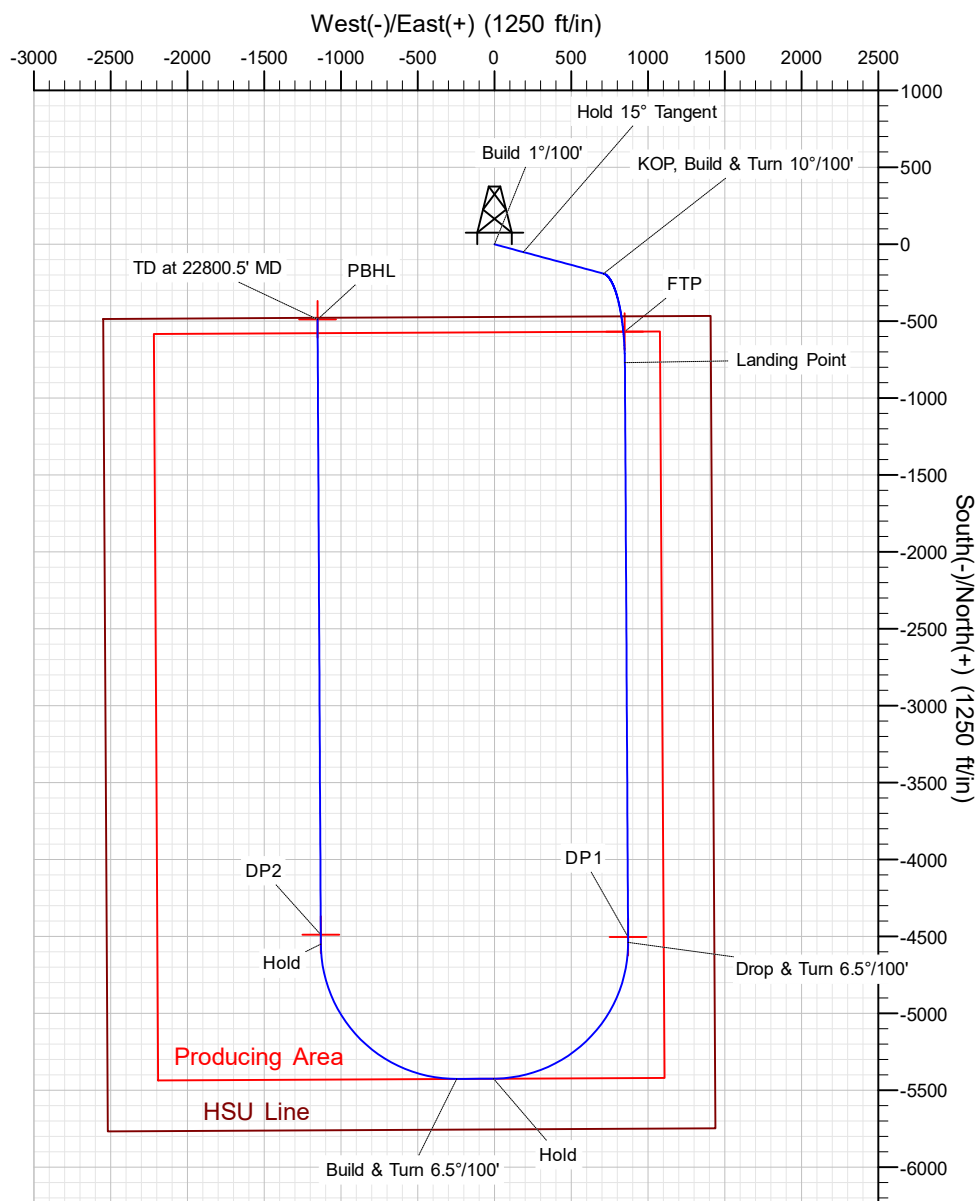
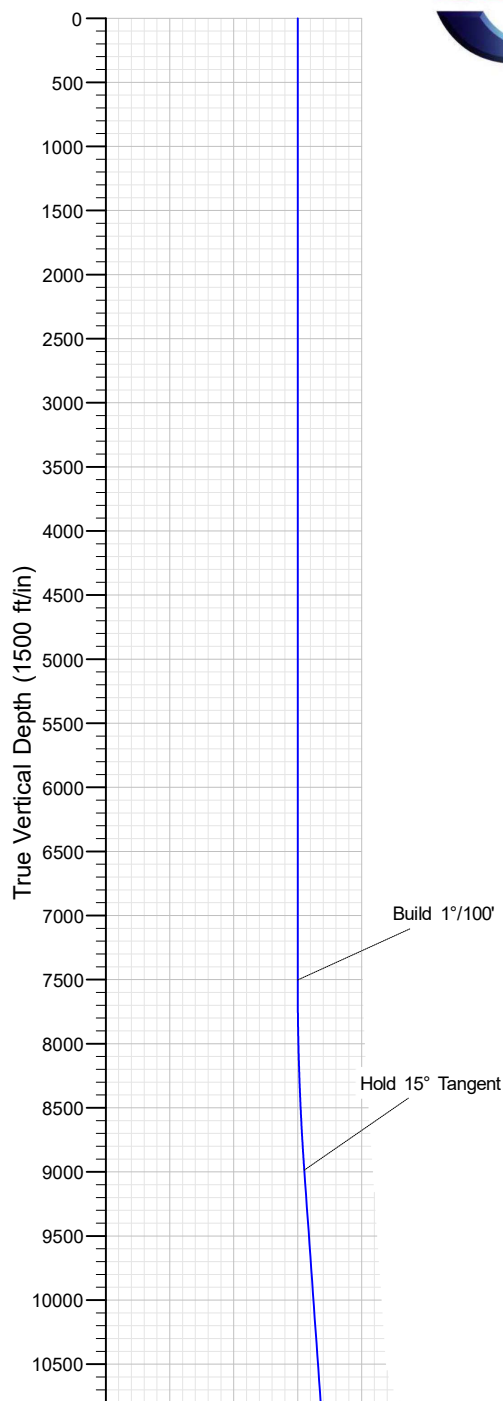


WELL DETAILS: Vanadium 32 State 176H

+N/-S	+E/-W	Northing	Ground Level: Easting	3359.70 Latitude	Longitude
0.00	0.00	462184.62	707467.08	32.269477	-103.795836

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7503.00	0.00	0.00	7503.00	0.00	0.00	0.00	0.00	0.00	Build 1°/100'
9003.00	15.00	105.00	8985.92	-50.53	188.58	1.00	105.00	51.58	Hold 15° Tangent
11093.00	15.00	105.00	11004.71	-190.53	711.08	0.00	0.00	194.50	KOP, Build & Turn 10°/100'
11962.22	90.87	179.68	11520.94	-769.81	849.84	10.00	74.96	774.54	Landing Point
15731.22	90.87	179.68	11463.71	-4538.31	870.79	0.00	0.00	4543.11	Drop & Turn 6.5°/100'
17116.13	90.58	269.71	11441.39	-5424.44	-6.03	6.50	89.42	5424.32	Hold
17355.13	90.58	269.71	11438.97	-5425.65	-245.02	0.00	0.00	5424.19	Build & Turn 6.5°/100'
18739.51	90.64	359.70	11420.18	-4548.94	-1130.79	6.50	89.36	4542.55	Hold
22800.50	90.64	359.70	11374.70	-488.26	-1151.97	0.00	0.00	481.82	TD at 22800.5' MD



OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)

Vanadium 32

Vanadium 32 State 176H

Wellbore #1

Plan: Permitting Plan

Standard Planning Report

30 November, 2022

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Vanadium 32 State 176H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 3384.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 3384.70ft
Site:	Vanadium 32	North Reference:	Grid
Well:	Vanadium 32 State 176H	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		Vanadium 32			
Site Position:		Northing:	461,451.09 usft	Latitude:	32.267517
From:	Map	Easting:	703,295.81 usft	Longitude:	-103.809343
Position Uncertainty:		2.00 ft	Slot Radius:	13.200 in	

Well	Vanadium 32 State 176H					
Well Position	+N/-S	0.00 ft	Northing:	462,184.62 usf	Latitude:	32.269477
	+E/-W	0.00 ft	Easting:	707,467.08 usf	Longitude:	-103.795837
Position Uncertainty		2.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	3,359.70 ft
Grid Convergence:		0.29 °				

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	7/29/2019	6.77	59.97	47,945.10000000

Design	Permitting Plan			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	179.68

Plan Survey Tool Program	Date	11/30/2022		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,800.50	Permitting Plan (Wellbore #1)	B001Mb_MWD+HRGM OWSG MWD + HRGM

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Vanadium 32 State 176H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 3384.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 3384.70ft
Site:	Vanadium 32	North Reference:	Grid
Well:	Vanadium 32 State 176H	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	
7,503.00	0.00	0.00	7,503.00	0.00	0.00	0.00	0.00	0.00	0.00	
9,003.00	15.00	105.00	8,985.92	-50.53	188.58	1.00	1.00	0.00	105.00	
11,093.00	15.00	105.00	11,004.71	-190.53	711.08	0.00	0.00	0.00	0.00	
11,962.22	90.87	179.68	11,520.94	-769.81	849.84	10.00	8.73	8.59	74.96	DP1 (Vanadium 32
15,731.22	90.87	179.68	11,463.71	-4,538.31	870.79	0.00	0.00	0.00	0.00	
17,116.13	90.58	269.71	11,441.39	-5,424.44	-6.03	6.50	-0.02	6.50	89.42	
17,355.13	90.58	269.71	11,438.97	-5,425.65	-245.02	0.00	0.00	0.00	0.00	
18,739.51	90.64	359.70	11,420.18	-4,548.94	-1,130.79	6.50	0.00	6.50	89.36	
22,800.50	90.64	359.70	11,374.70	-488.26	-1,151.97	0.00	0.00	0.00	0.00	PBHL (Vanadium 32

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Vanadium 32 State 176H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 3384.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 3384.70ft
Site:	Vanadium 32	North Reference:	Grid
Well:	Vanadium 32 State 176H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Vanadium 32 State 176H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 3384.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 3384.70ft
Site:	Vanadium 32	North Reference:	Grid
Well:	Vanadium 32 State 176H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,503.00	0.00	0.00	7,503.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.97	105.00	7,600.00	-0.21	0.79	0.22	1.00	1.00	0.00
7,700.00	1.97	105.00	7,699.96	-0.88	3.27	0.89	1.00	1.00	0.00
7,800.00	2.97	105.00	7,799.87	-1.99	7.43	2.03	1.00	1.00	0.00
7,900.00	3.97	105.00	7,899.68	-3.56	13.28	3.63	1.00	1.00	0.00
8,000.00	4.97	105.00	7,999.38	-5.58	20.81	5.69	1.00	1.00	0.00
8,100.00	5.97	105.00	8,098.92	-8.04	30.02	8.21	1.00	1.00	0.00
8,200.00	6.97	105.00	8,198.28	-10.96	40.90	11.19	1.00	1.00	0.00
8,300.00	7.97	105.00	8,297.43	-14.32	53.46	14.62	1.00	1.00	0.00
8,400.00	8.97	105.00	8,396.34	-18.14	67.68	18.51	1.00	1.00	0.00
8,500.00	9.97	105.00	8,494.98	-22.39	83.58	22.86	1.00	1.00	0.00
8,600.00	10.97	105.00	8,593.31	-27.10	101.13	27.66	1.00	1.00	0.00
8,700.00	11.97	105.00	8,691.31	-32.24	120.34	32.92	1.00	1.00	0.00
8,800.00	12.97	105.00	8,788.95	-37.83	141.19	38.62	1.00	1.00	0.00
8,900.00	13.97	105.00	8,886.20	-43.86	163.69	44.78	1.00	1.00	0.00
9,000.00	14.97	105.00	8,983.03	-50.33	187.83	51.38	1.00	1.00	0.00
9,003.00	15.00	105.00	8,985.92	-50.53	188.58	51.58	1.00	1.00	0.00
9,100.00	15.00	105.00	9,079.62	-57.03	212.83	58.21	0.00	0.00	0.00
9,200.00	15.00	105.00	9,176.21	-63.73	237.83	65.05	0.00	0.00	0.00
9,300.00	15.00	105.00	9,272.80	-70.42	262.83	71.89	0.00	0.00	0.00
9,400.00	15.00	105.00	9,369.40	-77.12	287.83	78.73	0.00	0.00	0.00
9,500.00	15.00	105.00	9,465.99	-83.82	312.83	85.57	0.00	0.00	0.00
9,600.00	15.00	105.00	9,562.58	-90.52	337.83	92.41	0.00	0.00	0.00
9,700.00	15.00	105.00	9,659.17	-97.22	362.83	99.24	0.00	0.00	0.00
9,800.00	15.00	105.00	9,755.77	-103.92	387.83	106.08	0.00	0.00	0.00
9,900.00	15.00	105.00	9,852.36	-110.62	412.83	112.92	0.00	0.00	0.00
10,000.00	15.00	105.00	9,948.95	-117.32	437.83	119.76	0.00	0.00	0.00
10,100.00	15.00	105.00	10,045.54	-124.01	462.83	126.60	0.00	0.00	0.00
10,200.00	15.00	105.00	10,142.14	-130.71	487.83	133.44	0.00	0.00	0.00
10,300.00	15.00	105.00	10,238.73	-137.41	512.83	140.27	0.00	0.00	0.00
10,400.00	15.00	105.00	10,335.32	-144.11	537.83	147.11	0.00	0.00	0.00
10,500.00	15.00	105.00	10,431.92	-150.81	562.83	153.95	0.00	0.00	0.00
10,600.00	15.00	105.00	10,528.51	-157.51	587.83	160.79	0.00	0.00	0.00
10,700.00	15.00	105.00	10,625.10	-164.21	612.83	167.63	0.00	0.00	0.00

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Vanadium 32 State 176H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 3384.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 3384.70ft
Site:	Vanadium 32	North Reference:	Grid
Well:	Vanadium 32 State 176H	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)
10,800.00	15.00	105.00	10,721.69	-170.91	637.83	174.47	0.00	0.00	0.00
10,900.00	15.00	105.00	10,818.29	-177.60	662.83	181.30	0.00	0.00	0.00
11,000.00	15.00	105.00	10,914.88	-184.30	687.83	188.14	0.00	0.00	0.00
11,093.00	15.00	105.00	11,004.71	-190.53	711.08	194.50	0.00	0.00	0.00
11,100.00	15.20	107.58	11,011.47	-191.04	712.83	195.02	10.00	2.80	36.85
11,200.00	20.50	135.80	11,106.79	-207.60	737.59	211.71	10.00	5.31	28.22
11,300.00	28.38	150.91	11,197.85	-241.00	761.42	245.25	10.00	7.88	15.11
11,400.00	37.22	159.59	11,281.87	-290.24	783.58	294.61	10.00	8.85	8.68
11,500.00	46.49	165.27	11,356.30	-353.82	803.39	358.30	10.00	9.26	5.68
11,600.00	55.96	169.41	11,418.87	-429.81	820.27	434.38	10.00	9.47	4.14
11,700.00	65.53	172.71	11,467.70	-515.90	833.69	520.54	10.00	9.58	3.30
11,800.00	75.17	175.54	11,501.28	-609.47	843.25	614.17	10.00	9.64	2.83
11,900.00	84.85	178.12	11,518.61	-707.68	848.65	712.40	10.00	9.67	2.58
11,962.22	90.87	179.68	11,520.94	-769.81	849.84	774.54	10.00	9.68	2.51
12,000.00	90.87	179.68	11,520.36	-807.59	850.05	812.32	0.00	0.00	0.00
12,100.00	90.87	179.68	11,518.84	-907.57	850.61	912.31	0.00	0.00	0.00
12,200.00	90.87	179.68	11,517.33	-1,007.56	851.16	1,012.30	0.00	0.00	0.00
12,300.00	90.87	179.68	11,515.81	-1,107.55	851.72	1,112.29	0.00	0.00	0.00
12,400.00	90.87	179.68	11,514.29	-1,207.53	852.27	1,212.27	0.00	0.00	0.00
12,500.00	90.87	179.68	11,512.77	-1,307.52	852.83	1,312.26	0.00	0.00	0.00
12,600.00	90.87	179.68	11,511.25	-1,407.51	853.38	1,412.25	0.00	0.00	0.00
12,700.00	90.87	179.68	11,509.73	-1,507.49	853.94	1,512.24	0.00	0.00	0.00
12,800.00	90.87	179.68	11,508.22	-1,607.48	854.50	1,612.23	0.00	0.00	0.00
12,900.00	90.87	179.68	11,506.70	-1,707.47	855.05	1,712.22	0.00	0.00	0.00
13,000.00	90.87	179.68	11,505.18	-1,807.45	855.61	1,812.21	0.00	0.00	0.00
13,100.00	90.87	179.68	11,503.66	-1,907.44	856.16	1,912.19	0.00	0.00	0.00
13,200.00	90.87	179.68	11,502.14	-2,007.43	856.72	2,012.18	0.00	0.00	0.00
13,300.00	90.87	179.68	11,500.62	-2,107.42	857.27	2,112.17	0.00	0.00	0.00
13,400.00	90.87	179.68	11,499.10	-2,207.40	857.83	2,212.16	0.00	0.00	0.00
13,500.00	90.87	179.68	11,497.59	-2,307.39	858.39	2,312.15	0.00	0.00	0.00
13,600.00	90.87	179.68	11,496.07	-2,407.38	858.94	2,412.14	0.00	0.00	0.00
13,700.00	90.87	179.68	11,494.55	-2,507.36	859.50	2,512.12	0.00	0.00	0.00
13,800.00	90.87	179.68	11,493.03	-2,607.35	860.05	2,612.11	0.00	0.00	0.00
13,900.00	90.87	179.68	11,491.51	-2,707.34	860.61	2,712.10	0.00	0.00	0.00
14,000.00	90.87	179.68	11,489.99	-2,807.32	861.17	2,812.09	0.00	0.00	0.00
14,100.00	90.87	179.68	11,488.48	-2,907.31	861.72	2,912.08	0.00	0.00	0.00
14,200.00	90.87	179.68	11,486.96	-3,007.30	862.28	3,012.07	0.00	0.00	0.00
14,300.00	90.87	179.68	11,485.44	-3,107.28	862.83	3,112.06	0.00	0.00	0.00
14,400.00	90.87	179.68	11,483.92	-3,207.27	863.39	3,212.04	0.00	0.00	0.00
14,500.00	90.87	179.68	11,482.40	-3,307.26	863.94	3,312.03	0.00	0.00	0.00
14,600.00	90.87	179.68	11,480.88	-3,407.25	864.50	3,412.02	0.00	0.00	0.00
14,700.00	90.87	179.68	11,479.37	-3,507.23	865.06	3,512.01	0.00	0.00	0.00
14,800.00	90.87	179.68	11,477.85	-3,607.22	865.61	3,612.00	0.00	0.00	0.00
14,900.00	90.87	179.68	11,476.33	-3,707.21	866.17	3,711.99	0.00	0.00	0.00
15,000.00	90.87	179.68	11,474.81	-3,807.19	866.72	3,811.97	0.00	0.00	0.00
15,100.00	90.87	179.68	11,473.29	-3,907.18	867.28	3,911.96	0.00	0.00	0.00
15,200.00	90.87	179.68	11,471.77	-4,007.17	867.84	4,011.95	0.00	0.00	0.00
15,300.00	90.87	179.68	11,470.26	-4,107.15	868.39	4,111.94	0.00	0.00	0.00
15,400.00	90.87	179.68	11,468.74	-4,207.14	868.95	4,211.93	0.00	0.00	0.00
15,500.00	90.87	179.68	11,467.22	-4,307.13	869.50	4,311.92	0.00	0.00	0.00
15,600.00	90.87	179.68	11,465.70	-4,407.11	870.06	4,411.91	0.00	0.00	0.00
15,700.00	90.87	179.68	11,464.18	-4,507.10	870.61	4,511.89	0.00	0.00	0.00
15,731.22	90.87	179.68	11,463.71	-4,538.31	870.79	4,543.11	0.00	0.00	0.00
15,800.00	90.91	184.15	11,462.64	-4,607.03	868.49	4,611.81	6.50	0.06	6.50
15,900.00	90.96	190.65	11,461.00	-4,706.13	855.61	4,710.84	6.50	0.05	6.50

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Vanadium 32 State 176H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 3384.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 3384.70ft
Site:	Vanadium 32	North Reference:	Grid
Well:	Vanadium 32 State 176H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
16,000.00	91.00	197.15	11,459.28	-4,803.14	831.60	4,807.71	6.50	0.04	6.50
16,100.00	91.03	203.66	11,457.50	-4,896.80	796.76	4,901.17	6.50	0.03	6.50
16,200.00	91.04	210.16	11,455.69	-4,985.91	751.54	4,990.03	6.50	0.01	6.50
16,300.00	91.04	216.66	11,453.86	-5,069.33	696.52	5,073.14	6.50	0.00	6.50
16,400.00	91.03	223.16	11,452.05	-5,145.98	632.41	5,149.44	6.50	-0.01	6.50
16,500.00	91.00	229.66	11,450.27	-5,214.89	560.03	5,217.93	6.50	-0.03	6.50
16,600.00	90.96	236.16	11,448.55	-5,275.15	480.31	5,277.75	6.50	-0.04	6.50
16,700.00	90.91	242.66	11,446.92	-5,326.01	394.29	5,328.13	6.50	-0.05	6.50
16,800.00	90.85	249.16	11,445.38	-5,366.79	303.06	5,368.40	6.50	-0.06	6.50
16,900.00	90.77	255.66	11,443.96	-5,396.99	207.79	5,398.07	6.50	-0.07	6.50
17,000.00	90.69	262.16	11,442.68	-5,416.21	109.72	5,416.74	6.50	-0.08	6.50
17,100.00	90.60	268.66	11,441.56	-5,424.21	10.10	5,424.18	6.50	-0.09	6.50
17,116.13	90.58	269.71	11,441.39	-5,424.44	-6.03	5,424.32	6.50	-0.10	6.50
17,200.00	90.58	269.71	11,440.54	-5,424.86	-89.89	5,424.28	0.00	0.00	0.00
17,300.00	90.58	269.71	11,439.53	-5,425.37	-189.88	5,424.22	0.00	0.00	0.00
17,355.13	90.58	269.71	11,438.97	-5,425.65	-245.02	5,424.19	0.00	0.00	0.00
17,400.00	90.61	272.63	11,438.51	-5,424.73	-289.86	5,423.03	6.50	0.07	6.50
17,500.00	90.68	279.13	11,437.38	-5,414.50	-389.28	5,412.24	6.50	0.07	6.50
17,600.00	90.73	285.63	11,436.15	-5,393.08	-486.90	5,390.28	6.50	0.06	6.50
17,700.00	90.78	292.13	11,434.83	-5,360.75	-581.46	5,357.42	6.50	0.05	6.50
17,800.00	90.82	298.63	11,433.43	-5,317.92	-671.75	5,314.08	6.50	0.04	6.50
17,900.00	90.84	305.13	11,431.98	-5,265.14	-756.61	5,260.83	6.50	0.03	6.50
18,000.00	90.86	311.63	11,430.49	-5,203.10	-834.96	5,198.35	6.50	0.02	6.50
18,100.00	90.86	318.13	11,428.98	-5,132.58	-905.77	5,127.44	6.50	0.00	6.50
18,200.00	90.86	324.63	11,427.48	-5,054.50	-968.15	5,049.01	6.50	-0.01	6.50
18,300.00	90.84	331.13	11,425.99	-4,969.86	-1,021.28	4,964.08	6.50	-0.02	6.50
18,400.00	90.81	337.63	11,424.55	-4,879.75	-1,064.49	4,873.73	6.50	-0.03	6.50
18,500.00	90.77	344.13	11,423.16	-4,785.32	-1,097.22	4,779.12	6.50	-0.04	6.50
18,600.00	90.73	350.63	11,421.85	-4,687.80	-1,119.05	4,681.48	6.50	-0.05	6.50
18,700.00	90.67	357.13	11,420.64	-4,588.43	-1,129.70	4,582.05	6.50	-0.06	6.50
18,739.51	90.64	359.70	11,420.18	-4,548.94	-1,130.79	4,542.55	6.50	-0.06	6.50
18,800.00	90.64	359.70	11,419.51	-4,488.46	-1,131.11	4,482.07	0.00	0.00	0.00
18,900.00	90.64	359.70	11,418.39	-4,388.46	-1,131.63	4,382.07	0.00	0.00	0.00
19,000.00	90.64	359.70	11,417.27	-4,288.47	-1,132.15	4,282.08	0.00	0.00	0.00
19,100.00	90.64	359.70	11,416.15	-4,188.48	-1,132.67	4,182.09	0.00	0.00	0.00
19,200.00	90.64	359.70	11,415.03	-4,088.49	-1,133.19	4,082.09	0.00	0.00	0.00
19,300.00	90.64	359.70	11,413.91	-3,988.49	-1,133.72	3,982.10	0.00	0.00	0.00
19,400.00	90.64	359.70	11,412.79	-3,888.50	-1,134.24	3,882.11	0.00	0.00	0.00
19,500.00	90.64	359.70	11,411.67	-3,788.51	-1,134.76	3,782.11	0.00	0.00	0.00
19,600.00	90.64	359.70	11,410.55	-3,688.52	-1,135.28	3,682.12	0.00	0.00	0.00
19,700.00	90.64	359.70	11,409.43	-3,588.52	-1,135.80	3,582.13	0.00	0.00	0.00
19,800.00	90.64	359.70	11,408.31	-3,488.53	-1,136.32	3,482.13	0.00	0.00	0.00
19,900.00	90.64	359.70	11,407.19	-3,388.54	-1,136.84	3,382.14	0.00	0.00	0.00
20,000.00	90.64	359.70	11,406.07	-3,288.55	-1,137.37	3,282.14	0.00	0.00	0.00
20,100.00	90.64	359.70	11,404.95	-3,188.56	-1,137.89	3,182.15	0.00	0.00	0.00
20,200.00	90.64	359.70	11,403.83	-3,088.56	-1,138.41	3,082.16	0.00	0.00	0.00
20,300.00	90.64	359.70	11,402.71	-2,988.57	-1,138.93	2,982.16	0.00	0.00	0.00
20,400.00	90.64	359.70	11,401.59	-2,888.58	-1,139.45	2,882.17	0.00	0.00	0.00
20,500.00	90.64	359.70	11,400.47	-2,788.59	-1,139.97	2,782.18	0.00	0.00	0.00
20,600.00	90.64	359.70	11,399.35	-2,688.59	-1,140.50	2,682.18	0.00	0.00	0.00
20,700.00	90.64	359.70	11,398.23	-2,588.60	-1,141.02	2,582.19	0.00	0.00	0.00
20,800.00	90.64	359.70	11,397.11	-2,488.61	-1,141.54	2,482.19	0.00	0.00	0.00
20,900.00	90.64	359.70	11,395.99	-2,388.62	-1,142.06	2,382.20	0.00	0.00	0.00
21,000.00	90.64	359.70	11,394.87	-2,288.62	-1,142.58	2,282.21	0.00	0.00	0.00
21,100.00	90.64	359.70	11,393.75	-2,188.63	-1,143.10	2,182.21	0.00	0.00	0.00

OXY Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Vanadium 32 State 176H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 3384.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 3384.70ft
Site:	Vanadium 32	North Reference:	Grid
Well:	Vanadium 32 State 176H	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)
21,200.00	90.64	359.70	11,392.63	-2,088.64	-1,143.62	2,082.22	0.00	0.00	0.00
21,300.00	90.64	359.70	11,391.51	-1,988.65	-1,144.15	1,982.23	0.00	0.00	0.00
21,400.00	90.64	359.70	11,390.39	-1,888.65	-1,144.67	1,882.23	0.00	0.00	0.00
21,500.00	90.64	359.70	11,389.27	-1,788.66	-1,145.19	1,782.24	0.00	0.00	0.00
21,600.00	90.64	359.70	11,388.15	-1,688.67	-1,145.71	1,682.24	0.00	0.00	0.00
21,700.00	90.64	359.70	11,387.03	-1,588.68	-1,146.23	1,582.25	0.00	0.00	0.00
21,800.00	90.64	359.70	11,385.91	-1,488.68	-1,146.75	1,482.26	0.00	0.00	0.00
21,900.00	90.64	359.70	11,384.79	-1,388.69	-1,147.27	1,382.26	0.00	0.00	0.00
22,000.00	90.64	359.70	11,383.67	-1,288.70	-1,147.80	1,282.27	0.00	0.00	0.00
22,100.00	90.64	359.70	11,382.55	-1,188.71	-1,148.32	1,182.28	0.00	0.00	0.00
22,200.00	90.64	359.70	11,381.43	-1,088.72	-1,148.84	1,082.28	0.00	0.00	0.00
22,300.00	90.64	359.70	11,380.31	-988.72	-1,149.36	982.29	0.00	0.00	0.00
22,400.00	90.64	359.70	11,379.19	-888.73	-1,149.88	882.29	0.00	0.00	0.00
22,500.00	90.64	359.70	11,378.07	-788.74	-1,150.40	782.30	0.00	0.00	0.00
22,600.00	90.64	359.70	11,376.95	-688.75	-1,150.93	682.31	0.00	0.00	0.00
22,700.00	90.64	359.70	11,375.83	-588.75	-1,151.45	582.31	0.00	0.00	0.00
22,800.00	90.64	359.70	11,374.71	-488.76	-1,151.97	482.32	0.00	0.00	0.00
22,800.50	90.64	359.70	11,374.70	-488.26	-1,151.97	481.82	0.00	0.00	0.00

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL (Vanadium 32 - plan hits target center - Point	0.00	0.00	11,374.70	-488.26	-1,151.97	461,696.39	706,315.18	32.268150	-103.799571
DP2 (Vanadium 32 - plan misses target center by 0.19ft at 18800.05ft MD (11419.51 TVD, -4488.41 N, -1131.11 E) - Point	0.00	0.01	11,419.70	-4,488.41	-1,131.11	457,696.49	706,336.04	32.257155	-103.799568
DP1 (Vanadium 32 - plan misses target center by 0.46ft at 15696.24ft MD (11464.24 TVD, -4503.34 N, 870.59 E) - Point	0.00	0.00	11,464.70	-4,503.35	870.59	457,681.55	708,337.62	32.257087	-103.793093
FTP (Vanadium 32 - plan misses target center by 35.10ft at 11769.40ft MD (11492.69 TVD, -580.21 N, 840.75 E) - Point	0.00	0.00	11,524.70	-567.92	848.29	461,616.73	708,315.32	32.267904	-103.793101

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Vanadium 32 State 176H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 3384.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 3384.70ft
Site:	Vanadium 32	North Reference:	Grid
Well:	Vanadium 32 State 176H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
400.70	400.70	RUSTLER			
747.70	747.70	SALADO			
2,698.70	2,698.70	CASTILE			
4,157.70	4,157.70	DELAWARE			
4,183.70	4,183.70	BELL CANYON			
5,067.70	5,067.70	CHERRY CANYON			
6,380.70	6,380.70	BRUSHY CANYON			
7,982.26	7,981.70	BONE SPRING			
9,044.18	9,025.70	BONE SPRING 1ST			
9,726.43	9,684.70	BONE SPRING 2ND			
10,914.92	10,832.70	BONE SPRING 3RD			
11,427.90	11,303.70	WOLFCAMP			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,503.00	7,503.00	0.00	0.00	Build 1°/100'
9,003.00	8,985.92	-50.53	188.58	Hold 15° Tangent
11,093.00	11,004.71	-190.53	711.08	KOP, Build & Turn 10°/100'
11,962.22	11,520.94	-769.81	849.84	Landing Point
15,731.22	11,463.71	-4,538.32	870.79	Drop & Turn 6.5°/100'
17,116.13	11,441.39	-5,424.44	-6.03	Hold
17,355.13	11,438.97	-5,425.65	-245.01	Build & Turn 6.5°/100'
18,739.51	11,420.18	-4,548.94	-1,130.79	Hold
22,800.50	11,374.70	-488.26	-1,151.97	TD at 22800.5' MD

Oxy USA Inc. - Vanadium 32 State 176H

Drill Plan

1. Geologic Formations

TVD of Target (ft):	11521	Pilot Hole Depth (ft):	
Total Measured Depth (ft):	22800	Deepest Expected Fresh Water (ft):	403

Delaware Basin

Formation	MD-RKB (ft)	TVD-RKB (ft)	Expected Fluids
Rustler	403	403	
Salado	750	750	Salt
Castile	2699	2699	Salt
Delaware	4160	4160	Oil/Gas/Brine
Bell Canyon	4186	4186	Oil/Gas/Brine
Cherry Canyon	5068	5068	Oil/Gas/Brine
Brushy Canyon	6383	6383	Losses
Bone Spring	7984	7984	Oil/Gas
Bone Spring 1st	9046	9028	Oil/Gas
Bone Spring 2nd	9726	9685	Oil/Gas
Bone Spring 3rd	10915	10833	Oil/Gas
Wolfcamp	11430	11306	Oil/Gas
Penn			Oil/Gas
Strawn			Oil/Gas

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

2. Casing Program

Section	Hole Size (in)	MD		TVD		Csg. OD (in)	Csg Wt. (ppf)	Grade	Conn.
		From (ft)	To (ft)	From (ft)	To (ft)				
Surface	17.5	0	463	0	463	13.375	54.5	J-55	BTC
Salt	12.25	0	4260	0	4260	9.625	40	L-80 HC	BTC
Intermediate	8.75	0	10993	0	10905	7.625	26.4	L-80 HC	Wedge 425
Production	6.75	0	22800	0	11521	5.5	20	P-110	Wedge 461

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

*Oxy requests the option to run production casing with DQX, TORQ DQW, Wedge 425, Wedge 461, and/or Wedge 441 connections to accommodate hole conditions or drilling operations.

All Casing SF Values will meet or exceed those below			
SF Collapse	SF Burst	Body SF Tension	Joint SF Tension
1.125	1.2	1.4	1.4

Annular Clearance Variance Request

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

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

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	Y
If yes, are the first three strings cemented to surface?	Y
Is 2 nd string set 100' to 600' below the base of salt?	Y
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	484	1.33	14.8	100%	-	Circulate	Class C+Accel.
Int.1	1	Intermediate - Tail	141	1.33	14.8	20%	3,760	Circulate	Class C+Accel.
Int.1	1	Intermediate - Lead	992	1.73	12.9	50%	-	Circulate	Class Pozz+Ret.
Int. 2	1	Intermediate 1S - Tail	279	1.65	13.2	5%	6,633	Circulate	Class H+Accel., Disper., Salt
Int. 2	2	Intermediate 2S - Tail BH	445	1.71	13.3	25%	-	Bradenhead Post-Frac	Class C+Accel.
Prod.	1	Production - Tail	929	1.38	13.2	25%	10,493	Circulate	Class H+Ret., Disper., Salt

Offline Cementing

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

The summarized operational sequence will be as follows:

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

Land casing.

Fill pipe with kill weight fluid, and confirm well is static.

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

The summarized operational sequence will be as follows:

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

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

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

4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type		✓	Tested to:	TVD Depth (ft) per Section:
12.25" Hole	13-5/8"	3M	Annular		✓	70% of working pressure	4260
		3M	Blind Ram		✓	250 psi / 3000 psi	
			Pipe Ram				
			Double Ram		✓		
			Other*				
8.75" Hole	13-5/8"	5M	Annular		✓	70% of working pressure	10905
		5M	Blind Ram		✓	250 psi / 5000 psi	
			Pipe Ram				
			Double Ram		✓		
			Other*				
6.75" Hole	13-5/8"	5M	Annular		✓	100% of working pressure	11521
		10M	Blind Ram		✓	250 psi / 10000 psi	
			Pipe Ram				
			Double Ram		✓		
			Other*				

*Specify if additional ram is utilized

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 attached Well Control Plan.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

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

	Formation integrity test will be performed per Onshore Order #2.
	On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
	A multibowl or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on October 8, 2015. See attached schematics.

BOP Break Testing Request

Oxy requests permission to adjust the BOP break testing requirements as per the agreement reached in the OXY/BLM meeting on September 5, 2019.

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.

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

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

5. Mud Program

Section	Depth		Depth - TVD		Type	Weight (ppg)	Viscosity	Water Loss
	From (ft)	To (ft)	From (ft)	To (ft)				
Surface	0	463	0	463	Water-Based Mud	8.6 - 8.8	40-60	N/C
Intermediate 1	463	4260	463	4260	Saturated Brine-Based or Oil-Based Mud	8.0 - 10.0	35-45	N/C
Intermediate 2	4260	10993	4260	10905	Water-Based or Oil-Based Mud	8.0 - 10.0	38-50	N/C
Production	10993	22800	10905	11521	Water-Based or Oil-Based Mud	9.5 - 12.5	38-50	N/C

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

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

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
Yes	Mud log
No	PEX

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	7489 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	173°F

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

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

	Yes/No
Will the well be drilled with a walking/skidding operation? If yes, describe. We plan to drill the 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: 1715 bbls

Attachments

- ☒ Directional Plan
- ☒ H2S Contingency Plan
- ☒ Flex III Attachments
- ☒ Spudder Rig Attachment
- ☒ Premium Connection Specs

9. Company Personnel

Name	Title	Office Phone	Mobile Phone
Garrett Granier	Drilling Engineer	713-513-6633	832-265-0581
Derek Adam	Drilling Engineer Supervisor	713-366-5170	916-802-8873
Casey Martin	Drilling Superintendent	713-497-2530	337-764-4278
Kevin Threadgill	Drilling Manager	713-366-5958	361-815-0788



Fluid Technology

Quality Document

CERTIFICATE OF CONFORMITY

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

STATEMENT OF CONFORMITY

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

COUNTRY OF ORIGIN HUNGARY/EU

Signed :

A handwritten signature in black ink, appearing to read "Jack Q. Manager".

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

Date: 04. April. 2008

Position: Q.C. Manager

Coflex Hose Certification

Page: 1/1

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

Coflex Hose Certification

[illegible]

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

05/23/08

Coflex Hose Certification

Form No 100/12

**Phoenix Beattie Corp**

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

Delivery Note

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

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

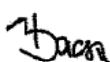
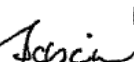
Item No	Beattie Part Number / Description	Qty Ordered	Qty Sent	Qty To Follow
1	HP10CK3A-35-4F1 3" 10K 16C C&K HOSE x 35ft OAL CW 4.1/16" API SPEC FLANGE E/ End 1: 4.1/16" 10Kpsi API Spec 6A Type 6BX Flange End 2: 4.1/16" 10Kpsi API Spec 6A Type 6BX Flange c/w BX155 Standard ring groove at each end Suitable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

Continued...

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

Continental CONTITECH

Quality Document

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

Coflex Hose Certification

Form No 100/12

**Phoenix Beattie Corp**

11535 Brittmoore Park Drive
Houston, TX 77041
Tel: (832) 327-0141
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Customer Acc No	Phoenix Beattie Contract Manager	Phoenix Beattie Reference	Date
H01	JJL	006330	05/23/2008

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

Phoenix Beattie Inspection Signature :

Received In Good Condition : Signature

Print Name

Date

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



Permian Drilling Hydrogen Sulfide Drilling Operations Plan

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

1. Escape

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





Permian Drilling Hydrogen Sulfide Drilling Operations Plan New Mexico

Scope

This contingency plan establishes guidelines for the public, all company employees, and contract employees who's work activities may involve exposure to hydrogen sulfide (H₂S) gas.

While drilling this well, it is possible to encounter H₂S bearing formations. At all times, the first barrier to control H₂S emissions will be the drilling fluid, which will have a density high enough to control influx.

Objective

1. Provide an immediate and predetermined response plan to any condition when H₂S is detected. All H₂S detections in excess of 10 parts per million (ppm) concentration are considered an Emergency.
2. Prevent any and all accidents, and prevent the uncontrolled release of hydrogen sulfide into the atmosphere.
3. Provide proper evacuation procedures to cope with emergencies.
4. Provide immediate and adequate medical attention should an injury occur.

Discussion

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

Hydrogen Sulfide Training

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

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

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

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

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

Service company and visiting personnel

- A. Each service company that will be on this well will be notified if the zone contains H₂S.
- B. Each service company must provide for the training and equipment of their employees before they arrive at the well site.
- C. Each service company will be expected to attend a well site briefing

Emergency Equipment Requirements

1. Well control equipment

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

Special control equipment:

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

2. Protective equipment for personnel

- A. Four (4) 30-minute positive pressure air packs (2 at each briefing area) on location.
- B. Adequate fire extinguishers shall be located at strategic locations.
- C. Radio / cell telephone communication will be available at the rig.
 - Rig floor and trailers.
 - Vehicle.

3. Hydrogen sulfide sensors and alarms

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

4. Visual Warning Systems

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

Caution – potential poison gas
Hydrogen sulfide
No admittance without authorization

Wind sock – wind streamers:

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

Condition flags

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

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

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

5. Mud Program

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

Mud inspection devices:

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

6. Metallurgy

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

7. Well Testing

No drill stem test will be performed on this well.

8. Evacuation plan

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

9. Designated area

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

Emergency procedures

- A. In the event of any evidence of H₂S level above 10 ppm, take the following steps:
 - 1. The Driller will pick up off bottom, shut down the pumps, slow down the pipe rotation.
 - 2. Secure and don escape breathing equipment, report to the upwind designated safe briefing / muster area.
 - 3. All personnel on location will be accounted for and emergency search should begin for any missing, the Buddy System will be implemented.
 - 4. Order non-essential personnel to leave the well site, order all essential personnel out of the danger zone and upwind to the nearest designated safe briefing / muster area.
 - 5. Entrance to the location will be secured to a higher level than our usual "Meet and Greet" requirement, and the proper condition flag will be displayed at the entrance to the location.
 - 6. Take steps to determine if the H₂S level can be corrected or suppressed and, if so, proceed as required.
- B. If uncontrollable conditions occur:
 - 1. Take steps to protect and/or remove any public in the down-wind area from the rig – partial evacuation and isolation. Notify necessary public safety personnel and appropriate regulatory entities (i.e. BLM) of the situation.

2. Remove all personnel to the nearest upwind designated safe briefing / muster area or off location.
3. Notify public safety personnel of safe briefing / muster area.
4. An assigned crew member will blockade the entrance to the location. No unauthorized personnel will be allowed entry to the location.
5. Proceed with best plan (at the time) to regain control of the well. Maintain tight security and safety procedures.

C. Responsibility:

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

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

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

Taking a kick

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

Open-hole logging

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

Running casing or plugging

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

Ignition procedures

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

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

Instructions for igniting the well

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

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

Status check list

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

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

Checked by:_____ Date:_____

Procedural check list during H2S events

Perform each tour:

1. Check fire extinguishers to see that they have the proper charge.
2. Check breathing equipment to ensure that it is in proper working order.
3. Make sure all the H2S detection system is operative.

Perform each week:

1. Check each piece of breathing equipment to make sure that demand or forced air regulator is working. This requires that the bottle be opened and the mask assembly be put on tight enough so that when you inhale, you receive air or feel air flow.
2. BOP skills (well control drills).
3. Check supply pressure on BOP accumulator stand by source.
4. Check breathing equipment mask assembly to see that straps are loosened and turned back, ready to put on.
5. Check pressure on breathing equipment air bottles to make sure they are charged to full volume. (Air quality checked for proper air grade “D” before bringing to location)
6. Confirm pressure on all supply air bottles.
7. Perform breathing equipment drills with on-site personnel.
8. Check the following supplies for availability.
 - A. Emergency telephone list.
 - B. Hand operated H2S detectors and tubes.

General evacuation plan

1. When the company approved supervisor (Drill Site Manager, consultant, rig pusher, or driller) determines the H₂S gas cannot be limited to the well location and the public will be involved, he will activate the evacuation plan.
2. Drill Site Manager or designee will notify local government agency that a hazardous condition exists and evacuation needs to be implemented.
3. Company or contractor safety personnel that have been trained in the use of H₂S detection equipment and self-contained breathing equipment will monitor H₂S concentrations, wind directions, and area of exposure. They will delineate the outer perimeter of the hazardous gas area. Extension to the evacuation area will be determined from information gathered.
4. Law enforcement personnel (state police, police dept., fire dept., and sheriff's dept.) Will be called to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.
5. After the discharge of gas has been controlled, company safety personnel will determine when the area is safe for re-entry.

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

Emergency actions

Well blowout – if emergency

1. Evacuate all personnel to “Safe Briefing / Muster Areas” or off location if needed.
2. If sour gas – evacuate rig personnel.
3. If sour gas – evacuate public within 3000 ft radius of exposure.
4. Don SCBA and shut well in if possible using the buddy system.
5. Notify Drilling Superintendent and call 911 for emergency help (fire dept and ambulance) if needed.
6. Implement the Blowout Contingency Plan, and Drilling Emergency Action Plan.
6. Give first aid as needed.

Person down location/facility

1. If immediately possible, contact 911. Give location and wait for confirmation.
2. Don SCBA and perform rescue operation using buddy system.

Toxic effects of hydrogen sulfide

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

Table i
Toxicity of various gases

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

- 1) threshold limit – concentration at which it is believed that all workers may be repeatedly exposed day after day without adverse effects.
- 2) hazardous limit – concentration that will cause death with short-term exposure.
- 3) lethal concentration – concentration that will cause death with short-term exposure.

Toxic effects of hydrogen sulfide

Table ii
Physical effects of hydrogen sulfide

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

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

*at 15.00 psia and 60'f.

Use of self-contained breathing equipment (SCBA)

1. Written procedures shall be prepared covering safe use of SCBA's in dangerous atmosphere, which might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available SCBA.
2. SCBA's shall be inspected frequently at random to insure that they are properly used, cleaned, and maintained.
3. Anyone who may use the SCBA's shall be trained in how to insure proper face-piece to face seal. They shall wear SCBA's in normal air and then wear them in a test atmosphere. (note: such items as facial hair {beard or sideburns} and eyeglasses will not allow proper seal.) Anyone that may be reasonably expected to wear SCBA's should have these items removed before entering a toxic atmosphere. A special mask must be obtained for anyone who must wear eyeglasses or contact lenses.
4. Maintenance and care of SCBA's:
 - a. A program for maintenance and care of SCBA's shall include the following:
 1. Inspection for defects, including leak checks.
 2. Cleaning and disinfecting.
 3. Repair.
 4. Storage.
 - b. Inspection, self-contained breathing apparatus for emergency use shall be inspected monthly.
 1. Fully charged cylinders.
 2. Regulator and warning device operation.
 3. Condition of face piece and connections.
 4. Rubber parts shall be maintained to keep them pliable and prevent deterioration.
 - c. Routinely used SCBA's shall be collected, cleaned and disinfected as frequently as necessary to insure proper protection is provided.
5. Persons assigned tasks that requires use of self-contained breathing equipment shall be certified physically fit (medically cleared) for breathing equipment usage at least annually.
6. SCBA's should be worn when:
 - A. Any employee works near the top or on top of any tank unless test reveals less than 10 ppm of H₂S.

- B. When breaking out any line where H₂S can reasonably be expected.
- C. When sampling air in areas to determine if toxic concentrations of H₂S exists.
- D. When working in areas where over 10 ppm H₂S has been detected.
- E. At any time there is a doubt as to the H₂S level in the area to be entered.

Rescue
First aid for H₂S poisoning

Do not panic!

Remain calm – think!

1. Don SCBA breathing equipment.
2. Remove victim(s) utilizing buddy system to fresh air as quickly as possible. (go up-wind from source or at right angle to the wind. Not down wind.)
3. Briefly apply chest pressure – arm lift method of artificial respiration to clean the victim's lungs and to avoid inhaling any toxic gas directly from the victim's lungs.
4. Provide for prompt transportation to the hospital, and continue giving artificial respiration if needed.
5. Hospital(s) or medical facilities need to be informed, before-hand, of the possibility of H₂S gas poisoning – no matter how remote the possibility is.
6. Notify emergency room personnel that the victim(s) has been exposed to H₂S gas.

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

Revised CM 6/27/2012

OXY Permian Delaware NM Basin Drilling & Completions Incident Reporting
OXY Permian Crisis Team Hotline Notification

Person	Location	Office Phone	Cell/Mobile Phone
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Drilling & Completions Department			
Drilling & Completions Manager: John Willis	Houston	(713) 366-5556	(713) 259-1417
Drilling Superintendent: Simon Benavides	Houston	(713) 215-7403	(832) 528-3547
Completions Superintendent: Chris Winter	Houston	(713) 366-5212	(806) 239-8774
Drilling Eng. Supervisor: Diego Tellez	Houston	(713) 350-4602	(713) 303-4932
Drilling Eng. Supervisor: Randy Neel	Houston	(713) 215-7987	(713) 517-5544
Completions Eng. Supervisor: Evan Hinkel	Houston	(713) 366-5436	(281) 236-6153
Drilling & Completions HES Lead. Ryan Green	Houston	713-336-5753	281-520-5216
Drilling & Completions HES Advisor:Kenny Williams	Carlsbad	(432) 686-1434	(337) 208-0911
Drilling & Completions HES Advisor:Kyle Holden	Carlsbad	(432) 686-1435	(661) 369-5328
Drilling & Completions HES Advisor Sr:Dave Schmidt	Carlsbad		(559) 310-8572
Drilling & Completions HES Advisor. :Seth Doyle	Carlsbad		(337) 499-0756

HES / Enviromental & Regulatory Department	Location	Office	Cell Phone
Jon Hamil-HES Manager	Houston	(713) 497-2494	(832) 537-9885
Mark Birk-HES Manager	Houston	(713) 350-4615	(949) 413-3127
Austin Tramell	Midland	(432) 699-4208	(575) 499-4919
Rico Munoz	Midland	(432) 699-8366	(432) 803-4116
Amber DuckWorth	Midland		(832) 966-1879
Kelley Montgomery- Regulatory Manager	Houston	(713) 366-5716	(832) 454-8137
Sandra Musallam -Regulatory Lead	Houston	+1 (713) 366-5106	+1 (713) 504-8577
Bishop, Steve-DOT Pipeline Coordinator	Midland	432-685-5614	
Wilson, Dusty-Safety Advisor	Midland	432-685-5771	(432) 254-2336
John W Dittrich Eniromental Advisor	Midland		(575) 390-2828
William (Jack) Calhoun-Environmental Lead	Houston	+713 (350) 4906	(281) 917-8571
Robert Barrow-Risk Engineer Manager	Houston	(713) 366-5611	(832) 867-5336
Sarah Holmes-HSE Cordinator	Midland	432-685-5758	
Administrative	Location	Office	
Sarah Holmes	Midland	432-685-5830	
Robertson, Debbie	Midland	432-685-5812	
Laci Hollaway	Midland	(432) 685-5716	(432) 631-6341
Administrative	Location	Office	
Rosalinda Escajeda	Midland	432-685-5831	
Moreno, Leslie (contract)	Hobbs	575-397-8247	

Sehon, Angela (contractor)	Levelland	806-894-8347	
Vasquez, Claudia (contractor)	North Cowden	432-385-3120	
XstremeMD	Location	Office	
Medical Case Management	Orla, TX	(337) 205-9314	
Axiom Medical Consulting	Location	Office	
Medical Case Management		(877) 502-9466	
Regulatory Agencies			
Bureau of Land Management	Carlsbad, NM	(505) 887-6544	
Bureau of Land Management	Hobbs, NM	(505) 393-3612	
Bureau of Land Management	Roswell, NM	(505) 393-3612	
Bureau of Land Management	Santa Fe, NM	(505) 988-6030	
DOT Juisdictional Pipelines-Incident Reporting New Mexico Public Regulaion Commission	Santa Fe, NM	(505) 827-3549 (505) 490-2375	
DOT Juisdictional Pipelines-Incident Reporting Texas Railroad Commission	Austin, TX	(512) 463-6788	
EPA Hot Line	Dallas, Texas	(214) 665-6444	
Federal OSHA, Area Office	Lubbock, Texas	(806) 472-7681	
National Response Center	Washington, D. C.	(800) 424-8802	
National Infrastructure Coordinator Center		(202) 282-9201	
New Mexico Air Quality Bureau	Santa Fe, NM	(505) 827-1494	
New Mexico Oil Conservation Division	Artesia, NM	(505) 748-1283	After Hours (505) 370-7545
New Mexico Oil Conservation Division	Hobbs, NM	(505) 393-6161	
New Mexico Oil Conservation Division	Santa Fe, NM	(505) 471-1068	
New Mexico OCD Environmental Bureau	Santa Fe, NM	(505) 476-3470	
New Mexico Environmental Department	Hobbs, NM	(505) 827-9329	
NM State Emergency Response Center	Santa Fe, NM	(505) 827-9222	
Railroad Commission of TX	District 1 San Antonio, TX	(210) 227-1313	
Railroad Commission of TX	District 7C San Angelo, TX	(325) 657-7450	
Railroad Commission of TX	District 8, 8A Midland, TX	(432) 684-5581	
Texas Emergency Response Center	Austin, TX	(512) 463-7727	
TCEQ Air	Region 2 Lubbock, TX	(806) 796-3494	
TCEQ Water/Waste/Air	Region 3 Abilene, TX	(325) 698-9674	
TCEQ Water/Waste/Air	Region 7 Midland, TX	(432) 570-1359	
TCEQ Water/Waste/Air	Region 9 San Antonio, TX	(512) 734-7981	
TCEQ Water/Waste/Air	Region 8 San Angelo	(325) 655-9479	
Medical Facilities			
Abernathy Medical Clinic	Abernathy, TX	(806) 298-2524	
Alliance Hospital	Odessa, TX	(432) 550-1000	
Artesia General Hospital	Artesia, NM	(505) 748-3333	
Brownfield Regional Medical Center	Brownfield, TX	(806) 637-3551	
Cogdell Memorial Hospital	Snyder, TX	(325) 573-6374	
Covenant Hospital Levelland	Levelland, TX	(806) 894-4963	

Covenant Medical Center	Lubbock, TX	(806) 725-1011	
Covenant Medical Center Lakeside	Lubbock, TX	(806) 725-6000	
Covenant Family Health	Snyder, TX	(325) 573-1300	
Crockett County Hospital	Ozona, TX	(325) 392-2671	
Guadalupe Medical Center	Carlsbad, NM	(505) 887-6633	
Lea Regional Hospital	Hobbs, NM	(505) 492-5000	
McCamey Hospital	McCamey, TX	(432) 652-8626	
Medical Arts Hospital	Lamesa, TX	(806) 872-2183	
Medical Center Hospital	Odessa, TX	(432) 640-4000	
Medi Center Hospital	San Angelo, TX	(325) 653-6741	
Memorial Hospital	Ft. Stockton	(432) 336-2241	
Memorial Hospital	Seminole, TX	(432) 758-5811	
Midland Memorial Hospital	Midland, TX	(432) 685-1111	
Nor-Lea General Hospital	Lovington, NM	(505) 396-6611	
Odessa Regional Hospital	Odessa, TX	(432) 334-8200	
Permian General Hospital	Andrews, TX	(432) 523-2200	
Reagan County Hospital	Big Lake, TX	(325) 884-2561	
Reeves County Hospital	Pecos, TX	(432) 447-3551	
Shannon Medical Center	San Angelo, TX	(325) 653-6741	
Union County General Hospital	Clayton, NM	(505) 374-2585	
University Medical Center	Lubbock, TX	(806) 725-8200	
Val Verde Regional Medical Center	Del Rio, TX	(830) 775-8566	
Ward Memorial Hospital	Monahans, TX	(432) 943-2511	
Yoakum County Hospital	Denver City, TX	(806) 592-5484	
Law Enforcement - Sheriff			
Andrews Cty Sheriff's Department	Andrews County(Andrews)	(432) 523-5545	
Crane Cty Sheriff's Department	Crane, County (Crane)	(432) 558-3571	
Crockett Cty Sheriff's Department	Crockett County (Ozona)	(325) 392-2661	
Dawson Cty Sheriff's Department	Dawson County (Lamesa)	(806) 872-7560	
Ector Cty Sheriff's Department	Ector County (Odessa)	(432) 335-3050	
Eddy Cty Sheriff's Department	Eddy County (Artesia)	(505) 746-2704	
Eddy Cty Sheriff's Department	Eddy County (Carlsbad)	(505) 887-7551	
Gaines Cty Sheriff's Department	Gaines County (Seminole)	(432) 758-9871	
Hockley Cty Sheriff's Department	Hockley County(Levelland)	(806) 894-3126	
Kent Cty (Jayton City Sheriff's Dept.)	Kent County(Jayton)	(806) 237-3801	
Lea Cty Sheriff's Department	Lea County (Eunice)	(505) 384-2020	
Lea Cty Sheriff's Department	Lea County (Hobbs)	(505) 393-2515	
Lea Cty Sheriff's Department	Lea County (Lovington)	(505) 396-3611	
Lubbock Cty Sheriff's Department	Lubbock Cty (Abernathy)	(806) 296-2724	
Midland Cty Sheriff's Department	Midland County (Midland)	(432) 688-1277	
Pecos Cty Sheriff's Department	Pecos County (Iraan)	(432) 639-2251	
Reeves Cty Sheriff's Department	Reeves County (Pecos)	(432) 445-4901	
Scurry Cty Sheriff's Department	Scurry County (Snyder)	(325) 573-3551	

Terry Cty Sheriff's Department	Terry County (Brownfield)	(806) 637-2212	
Union Cty Sheriff's Department	Union County (Clayton)	(505) 374-2583	
Upton Cty Sheriff's Department	Upton County (Rankin)	(432) 693-2422	
Ward Cty Sheriff's Department	Ward County (Monahans)	(432) 943-3254	
Yoakum City Sheriff's Department	Yoakum Co. (Denever City)	(806) 456-2377	
Law Enforcement - Police			
Abernathy City Police	Abernathy, TX	(806) 298-2545	
Andrews City Police	Andrews, TX	(432) 523-5675	
Artesia City Police	Artesia, NM	(505) 746-2704	
Brownfield City Police	Brownfield, TX	(806) 637-2544	
Carlsbad City Police	Carlsbad, NM	(505) 885-2111	
Clayton City Police	Clayton, NM	(505) 374-2504	
Denver City Police	Denver City, TX	(806) 592-3516	
Eunice City Police	Eunice, NM	(505) 394-2112	
Hobbs City Police	Hobbs, NM	(505) 397-9265 (505) 393-2677	
Jal City Police	Jal, NM	(505) 395-2501	
Jayton City Police	Jayton, TX	(806) 237-3801	
Lamesa City Police	Lamesa, TX	(806) 872-2121	
Levelland City Police	Levelland, TX	(806) 894-6164	
Lovington City Police	Lovington, NM	(505) 396-2811	
Midland City Police	Midland, TX	(432) 685-7113	
Monahans City Police	Monahans, TX	(432) 943-3254	
Odessa City Police	Odessa, TX	(432) 335-3378	
Seminole City Police	Seminole, TX	(432) 758-9871	
Snyder City Police	Snyder, TX	(325) 573-2611	
Sundown City Police	Sundown, TX	(806) 229-8241	
Law Enforcement - FBI			
FBI	Albuquerque, NM	(505) 224-2000	
FBI	Midland, TX	(432) 570-0255	
Law Enforcement - DPS			
NM State Police	Artesia, NM	(505) 746-2704	
NM State Police	Carlsbad, NM	(505) 885-3137	
NM State Police	Eunice, NM	(505) 392-5588	
NM State Police	Hobbs, NM	(505) 392-5588	
NM State Police	Clayton, NM	(505) 374-2473; 911	
TX Dept of Public Safety	Andrews, TX	(432) 524-1443	
TX Dept of Public Safety	Big Lake, TX	(325) 884-2301	
TX Dept of Public Safety	Brownfield, TX	(806) 637-2312	
TX Dept of Public Safety	Iraan, TX	(432) 639-3232	
TX Dept of Public Safety	Lamesa, TX	(806) 872-8675	
TX Dept of Public Safety	Levelland, TX	(806) 894-4385	

TX Dept of Public Safety	Lubbock, TX	(806) 747-4491	
TX Dept of Public Safety	Midland, TX	(432) 697-2211	
TX Dept of Public Safety	Monahans, TX	(432) 943-5857	
TX Dept of Public Safety	Odessa, TX	(432) 332-6100	
TX Dept of Public Safety	Ozona, TX	(325) 392-2621	
TX Dept of Public Safety	Pecos, TX	(432) 447-3533	
TX Dept of Public Safety	Seminole, TX	(432) 758-4041	
TX Dept of Public Safety	Snyder, TX	(325) 573-0113	
TX Dept of Public Safety	Terry County TX	(806) 637-8913	
TX Dept of Public Safety	Yoakum County TX	(806) 456-2377	
Firefighting & Rescue			
Abernathy	Abernathy, TX	(806) 298-2022	
Amistad/Rosebud	Amistad/Rosebud, NM	(505) 633-9113	
Andrews	Andrews, TX	(432) 523-4820; (432) 523-3111	
Artesia	Artesia, NM	(505) 746-5051	
Big Lake	Big Lake, TX	(325) 884-3650	
Brownfield-Administrative & other calls	Brownfield, TX	(816) 637-4547	
Brownfield emergency only	Brownfield, TX	-911	
Carlsbad	Carlsbad, NM	(505) 885-3125	
Clayton	Clayton, NM	(505) 374-2435	
Cotton Center	Cotton Center, TX	(806) 879-2157	
Crane	Crane, TX	(432) 558-2361	
Del Rio	Del Rio, TX	(830) 774-8650	
Denver City	Denver City, TX	(806) 592-3516	
Eldorado	Eldorado, TX	(325) 853-2691	
Eunice	Eunice, NM	(505) 394-2111	
Garden City	Garden City, TX	(432) 354-2404	
Goldsmith	Goldsmith, TX	(432) 827-3445	
Hale Center	Hale Center, TX	(806) 839-2411	
Halfway	Halfway, TX		
Hobbs	Hobbs, NM	(505) 397-9308	
Jal	Jal, NM	(505) 395-2221	
Jayton	Jayton, TX	(806) 237-3801	
Kermit	Kermit, TX	(432) 586-3468	
Lamesa	Lamesa, TX	(806) 872-4352	
Levelland	Levelland, TX	(806) 894-3154	
Lovington	Lovington, NM	(505) 396-2359	
Maljamar	Maljamar, NM	(505) 676-4100	
McCamey	McCamey, TX	(432) 652-8232	
Midland	Midland, TX	(432) 685-7346	
Monahans	Monahans, TX	(432) 943-4343	
Nara Visa	Nara Visa, NM	(505) 461-3300	
Notrees	Notress, TX	(432) 827-3445	

Odessa	Odessa, TX	(432) 335-4659	
Ozona	Ozona, TX	(325) 392-2626	
Pecos	Pecos, TX	(432) 445-2421	
Petersburg	Petersburg, TX	(806) 667-3461	
Plains	Plains, TX	(806) 456-8067	
Plainview	Plainview, TX	(806) 296-1170	
Rankin	Rankin, TX	(432) 693-2252	
San Angelo	San Angelo, TX	(325) 657-4355	
Sanderson	Sanderson, TX	(432) 345-2525	
		(432) 758-3676	
Seminole	Seminole, TX	(432) 758-9871	
Smyer	Smyer, TX	(806) 234-3861	
Snyder	Snyder, TX	(325) 573-6215	
Sundown	Sundown, TX	911	
Tucumcari	Tucumcari, NM	911	
West Odessa	Odessa, TX	(432) 381-3033	
Ambulance			
Abernathy Ambulance	Abernathy, TX	(806) 298-2241	
Amistad/Rosebud	Amistad/Rosebud, NM	(505) 633-9113	
Andrews Ambulance	Andrews, TX	(432) 523-5675	
Artesia Ambulance	Artesia, NM	(505) 746-2701	
Big Lake Ambulance	Big Lake, TX	(325) 884-2423	
Big Spring Ambulance	Big Spring, TX	(432) 264-2550	
Brownfield Ambulance	Brownfield, TX	(806) 637-2511	
Carlsbad Ambulance	Carlsbad, NM	(505) 885-2111; 911	
Clayton, NM	Clayton, NM	(505) 374-2501	
Denver City Ambulance	Denver City, TX	(806) 592-3516	
Eldorado Ambulance	Eldorado, TX	(325) 853-3456	
Eunice Ambulance	Eunice, NM	(505) 394-3258	
Goldsmith Ambulance	Goldsmith, TX	(432) 827-3445	
Hobbs, NM	Hobbs, NM	(505) 397-9308	
Jal, NM	Jal, NM	(505) 395-2501	
Jayton Ambulance	Jayton, TX	(806) 237-3801	
Lamesa Ambulance	Lamesa, TX	(806) 872-3464	
Levelland Ambulance	Levelland, TX	(806) 894-8855	
Lovington Ambulance	Lovington, NM	(505) 396-2811	
McCamey Hospital	McCamey, TX	(432) 652-8626	
Midland Ambulance	Midland, TX	(432) 685-7499	
		(432) 943-3385 or	
Monahans Ambulance	Monahans, TX	3731	
Nara Visa, NM	Nara Visa, NM	(505) 461-3300	
Odessa Ambulance	Odessa, TX	(432) 335-3378	
Ozona Ambulance	Ozona, TX	(325) 392-2671	
Pecos Ambulance	Pecos, TX	(432) 445-4444	

Rankin Ambulance	Rankin, TX	(432) 693-2443	
San Angelo Ambulance	San Angelo, TX	(325) 657-4357	
Seminole Ambulance	Seminole, TX	(432) 758-8816 (432) 758-9871	
Snyder Ambulance	Snyder, TX	(325) 573-1911	
Stanton Ambulance	Stanton, TX	(432) 756-2211	
Sundown Ambulance	Sundown, TX	911	
Tucumcari, NM	Tucumcari, NM	911	
Medical Air Ambulance Service			
AEROCARE - Methodist Hospital	Lubbock, TX	(800) 627-2376	
San Angelo Med-Vac Air Ambulance	San Angelo, TX	(800) 277-4354	
Southwest Air Ambulance Service	Stanford, TX	(800) 242-6199	
Southwest MediVac	Snyder, TX	(800) 242-6199	
Southwest MediVac	Hobbs, NM	(800) 242-6199	
Odessa Care Star	Odessa, TX	(888) 624-3571	
NWTH Medivac	Amarillo, TX	(800) 692-1331	

WORKING DRAFT ONLY – March 16, 2022

4-String Design – Open Int 1 x Int 2 Annulus

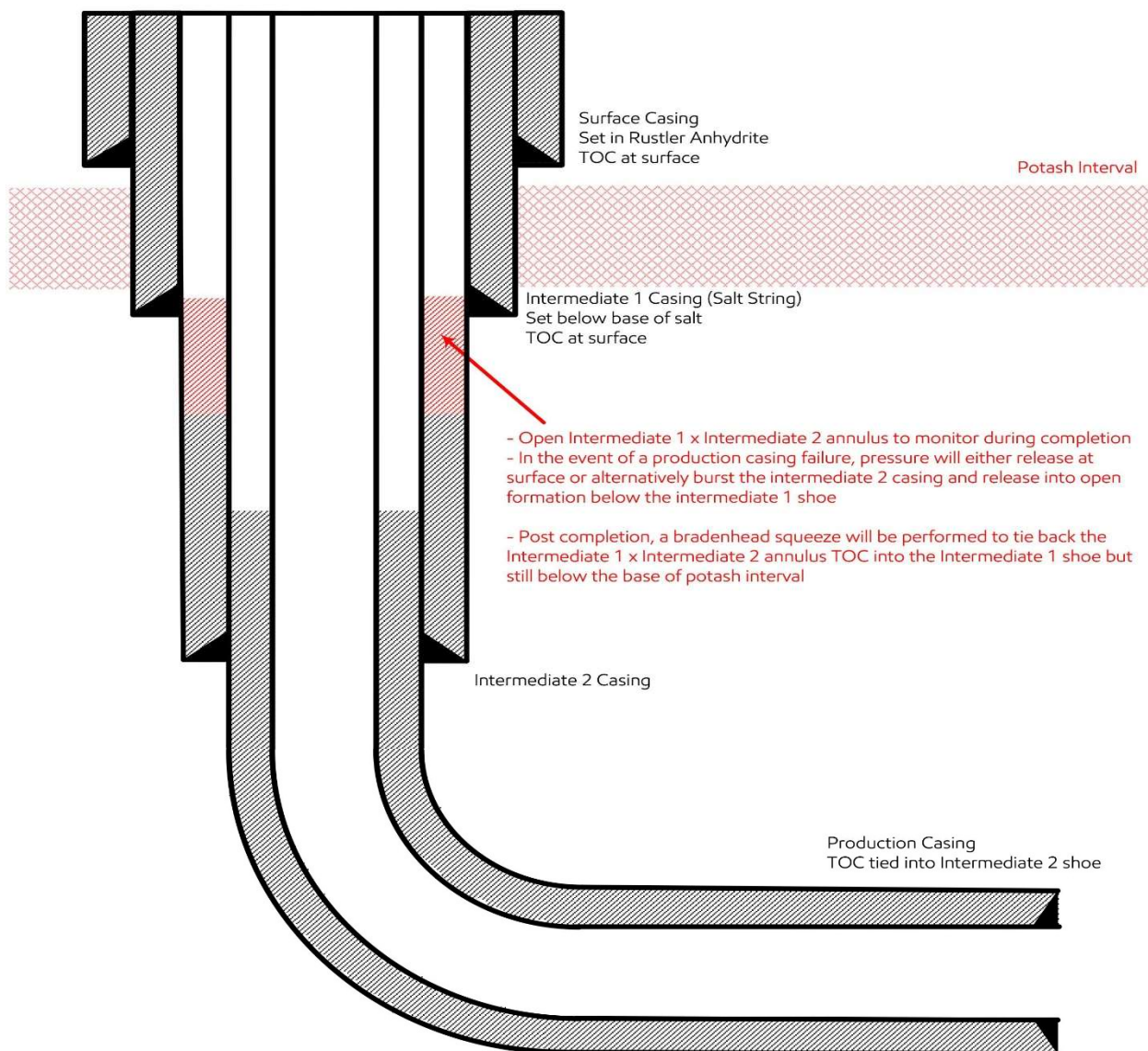


Figure C] 4 – String – Un Cemented Annulus

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

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

NATURAL GAS MANAGEMENT PLAN

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

Section 1 – Plan Description

Effective May 25, 2021

I. Operator: OXY USA INC. **OGRID:** 16696 **Date:** 1 2/ 0 8/ 2 2

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

If Other, please describe: _____

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

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

IV. Central Delivery Point Name: Pure Gold CTB [See 19.15.27.9(D)(1) NMAC]

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

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

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

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

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

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

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

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

IX. Anticipated Natural Gas Production:

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

X. Natural Gas Gathering System (NGGS):

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

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

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

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

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

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

Section 3 - Certifications

Effective May 25, 2021

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

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

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

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

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

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

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

Section 4 - Notices

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

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

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

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

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

Signature: <i>Leslie T. Reeves</i>
Printed Name: LESLIE REEVES
Title: REGULATORY MANAGER
E-mail Address: LESLIE_REEVES@OXY.COM
Date: 12/8/2022
Phone: 713-497-2492
OIL CONSERVATION DIVISION (Only applicable when submitted as a standalone form)
Approved By:
Title:
Approval Date:
Conditions of Approval:

III. Well(s)

Well Name	API	WELL LOCATION (ULSTR)	Footages	ANTICIPATED OIL BBL/D	ANTICIPATED GAS MCF/D	ANTICIPATED PROD WATER BBL/D
VANADIUM 32 STATE 4H	PENDING	O-29-T23S-R31E	620' FSL 2038' FEL	3200	4200	5000
VANADIUM 32 STATE 5H	PENDING	O-29-T23S-R31E	620' FSL 2008' FEL	3200	4200	5000
VANADIUM 32 STATE 175H	PENDING	O-29-T23S-R31E	500' FSL 1417' FEL	2000	4300	4600
VANADIUM 32 STATE 176H	PENDING	O-29-T23S-R31E	472' FSL 1405' FEL	2000	4300	4600

V. Anticipated Schedule

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
VANADIUM 32 STATE 4H	PENDING	3/1/2023	5/7/2023	5/7/2023	6/13/2023	6/14/2023
VANADIUM 32 STATE 5H	PENDING	3/1/2023	5/20/2023	5/27/2023	6/13/2023	6/14/2023
VANADIUM 32 STATE 175H	PENDING	3/1/2023	5/8/2023	5/20/2023	6/12/2023	6/13/2023
VANADIUM 32 STATE 176H	PENDING	3/1/2023	4/26/2023	5/20/2023	6/12/2023	6/13/2023

Part VI. Separation Equipment

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

VII. Operational Practices

Gathering System and Pipeline Notification

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

Flowback Strategy

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

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

VIII. Best Management Practices

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

- Power Generation – On lease

Only a portion of gas is consumed operating the generator, remainder of gas will be flared

- Compressed Natural Gas – On lease

Gas flared would be minimal, but might be uneconomical to operate when gas volume declines

- NGL Removal – On lease

Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

OXY USA Inc
APD ATTACHMENT: SPUDDER RIG DATA

OPERATOR NAME / NUMBER: OXY USA Inc

1. SUMMARY OF REQUEST:

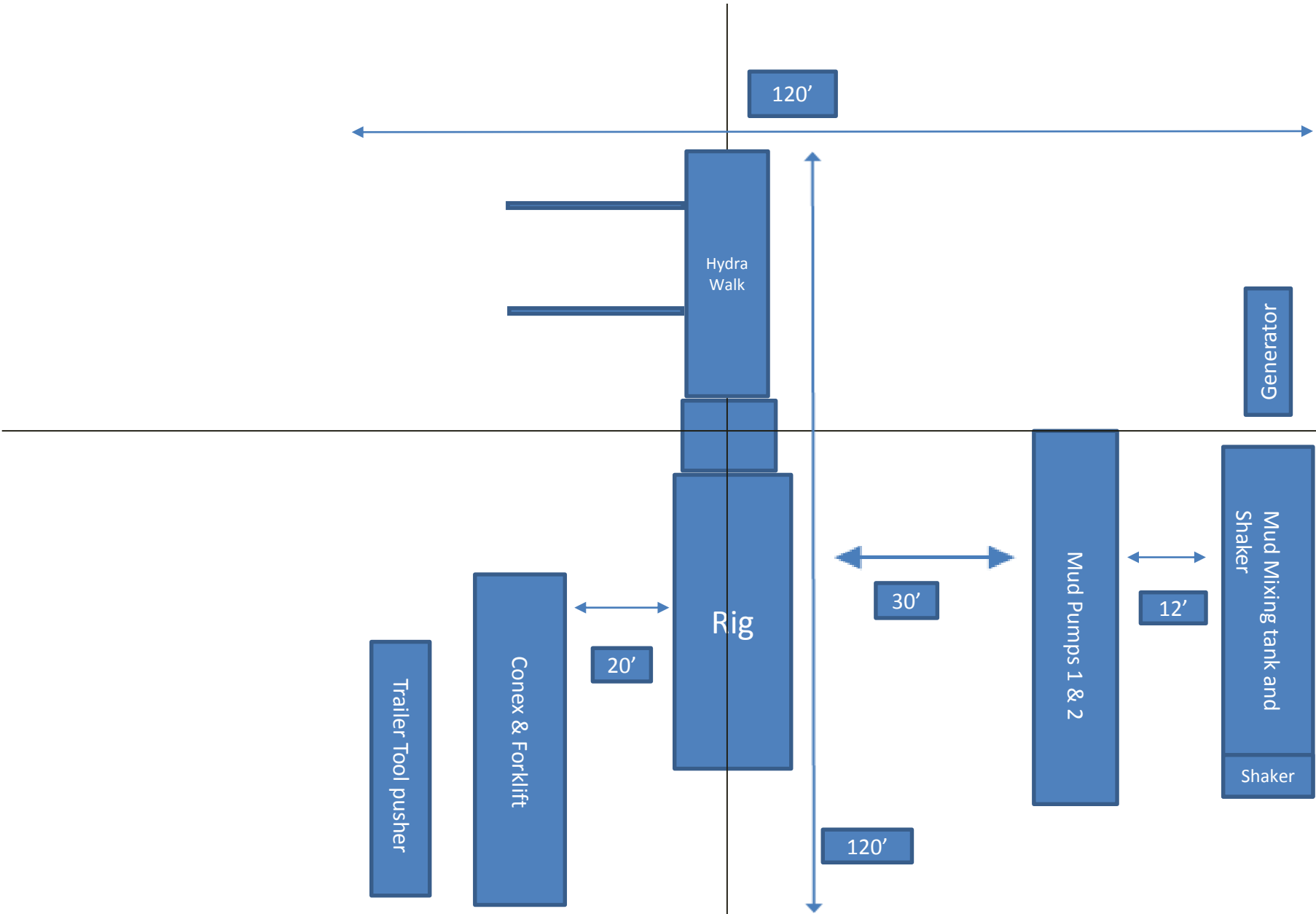
Oxy USA respectfully requests approval for the following operations for the surface hole in the drill plan:

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 (OnShore Order 2, 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



Intent ☒ As Drilled ☐

API # 30-015		
Operator Name: OXY USA INC.	Property Name: VANADIUM 32 STATE	Well Number 176H

Kick Off Point (KOP)

UL P	Section 29	Township 23S	Range 31E	Lot	Feet 300	From N/S FSL	Feet 560	From E/W FEL	County EDDY
Latitude 32.269003					Longitude -103.793103				NAD NAD83

First Take Point (FTP)

UL A	Section 32	Township 23S	Range 31E	Lot	Feet 100	From N/S FNL	Feet 560	From E/W FEL	County EDDY
Latitude 32.267904					Longitude -103.793101				NAD NAD83

Last Take Point (LTP)

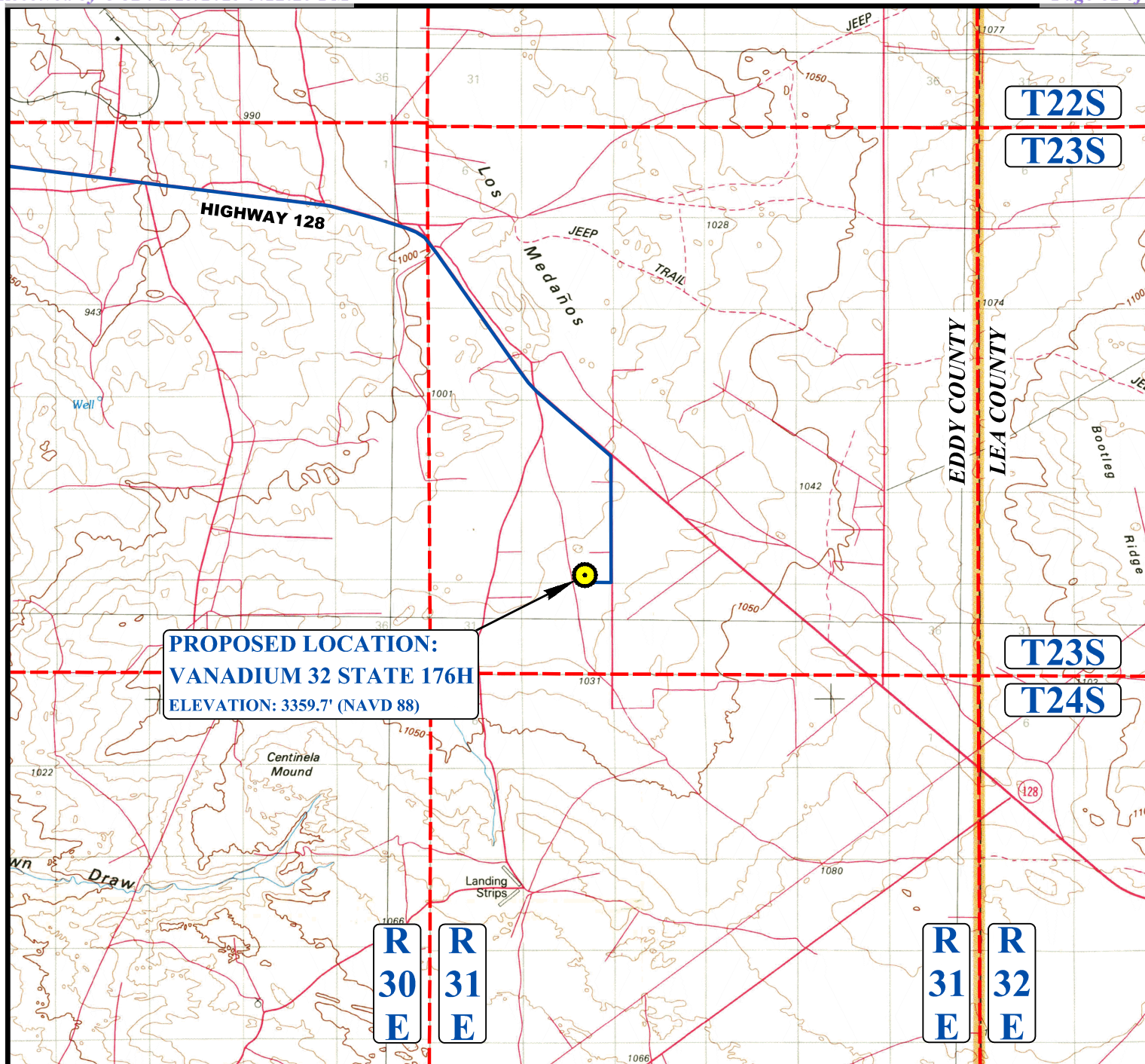
UL B	Section 32	Township 23S	Range 31E	Lot	Feet 100	From N/S FNL	Feet 2560	From E/W FEL	County EDDY
Latitude 32.267903					Longitude -103.799571				NAD NAD83

Is this well the defining well for the Horizontal Spacing Unit? ☐Is this well an infill well? ☐ YES

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API # 30-015		
Operator Name: OXY USA INC.	Property Name: VANADIUM 32 STATE	Well Number 175H

KZ 06/29/2018



PROCEED FROM THE JUNCTION OF JAYDERS ROAD AND U.S. HIGHWAY 285 IN LOVING, NEW MEXICO ALONG U.S. HIGHWAY 285 IN A NORTHERLY DIRECTION APPROXIMATELY 0.6 MILES TO THE JUNCTION OF THIS ROAD AND 8TH STREET TO THE NORTH; TURN RIGHT AND PROCEED IN A NORTHERLY DIRECTION APPROXIMATELY 1.4 MILES TO THE JUNCTION OF THIS ROAD AND HIGHWAY 31 TO THE EAST; TURN LEFT AND PROCEED IN AN EASTERLY, THEN NORTHEASTERLY DIRECTION APPROXIMATELY 6.5 MILES TO THE JUNCTION OF THIS ROAD AND HIGHWAY 128 TO THE SOUTHEAST; TURN RIGHT AND PROCEED IN A SOUTHEASTERLY, THEN NORTHEASTERLY, THEN SOUTHEASTERLY DIRECTION APPROXIMATELY 13.9 MILES TO THE JUNCTION OF THIS ROAD AND AN EXISTING ROAD TO THE SOUTH; TURN RIGHT AND PROCEED IN A SOUTHERLY DIRECTION APPROXIMATELY 1.4 MILES TO THE JUNCTION OF THIS ROAD AND AN EXISTING ROAD TO THE WEST; TURN RIGHT AND PROCEED IN A WESTERLY DIRECTION APPROXIMATELY 0.3 MILES TO THE BEGINNING OF THE PROPOSED ACCESS ROAD TO THE NORTHWEST; FOLLOW ROAD FLAGS IN A NORTHWESTERLY DIRECTION APPROXIMATELY 38' TO THE PROPOSED LOCATION.

TOTAL DISTANCE FROM LOVING, NEW MEXICO TO THE PROPOSED WELL LOCATION IS APPROXIMATELY 24.1 MILES.

LEGEND:

PROPOSED LOCATION



UELS, LLC
 Corporate Office * 85 South 200 East
 Vernal, UT 84078 * (435) 789-1017



OXY USA INC.

VANADIUM 32 STATE 176H
472' FSL 1405' FEL
SW 1/4 SE 1/4, SECTION 29, T23S, R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

SURVEYED BY	C.T., C.S.	11-09-22	SCALE
DRAWN BY	Z.T.	11-10-22	1 : 100,000
VICINITY MAP			