Form 3160-3
(June 2015)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☐ DRILL ☐ REENTER

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

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

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

8. Lease Name and Well No.

[320828]

2. Name of Operator **[16696]**

9. API Well No. **30-025-48817**

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory **[96229]**

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

At surface

At proposed prod. zone

11. Sec., T. R. M. or Blk. and Survey or Area

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration

24. Attachments

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

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

25. Signature	Name *(Printed/Typed)*	Date

Title

Approved by *(Signature)*	Name *(Printed/Typed)*	Date

Title	Office

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

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

GCP Rec 04/21/2021

SL

KZ
05/07/2021

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 04/21/2021

Additional Operator Remarks

Location of Well

0. SHL: SWSW / 635 FSL / 865 FWL / TWSP: 24S / RANGE: 32E / SECTION: 16 / LAT: 32.2120085 / LONG: -103.6853901 (TVD: 0 feet, MD: 0 feet)

PPP: SWSW / 9 FSL / 376 FWL / TWSP: 24S / RANGE: 32E / SECTION: 9 / LAT: 32.224752 / LONG: -103.686966 (TVD: 9900 feet, MD: 15534 feet)

PPP: SWSW / 100 FSL / 380 FWL / TWSP: 24S / RANGE: 32E / SECTION: 16 / LAT: 32.2105351 / LONG: -103.6869589 (TVD: 9900 feet, MD: 10362 feet)

BHL: NWNW / 20 FNL / 380 FWL / TWSP: 24S / RANGE: 32E / SECTION: 9 / LAT: 32.2392431 / LONG: -103.6869737 (TVD: 9900 feet, MD: 20807 feet)

BLM Point of Contact

Name: TENILLE ORTIZ

Title: Legal Instruments Examiner

Phone: (575) 234-2224

Email: tortiz@blm.gov

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OXY USA INC.
LEASE NO.:	NMNM055953
LOCATION:	SECTION 16, T24S, R32E, NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	MESA VERDE BS UNIT/ 59H
SURFACE HOLE FOOTAGE:	635'/S & 865'/W
BOTTOM HOLE FOOTAGE	20'/N & 380'/W

WELL NAME & NO.:	MESA VERDE BS UNIT/ 60H
SURFACE HOLE FOOTAGE:	635'/S & 900'/W
BOTTOM HOLE FOOTAGE	20'/N & 1700'/W

COA

H2S	(•) Yes	( ) No	
Potash	(•) None	( ) Secretary	( ) R-111-P
Cave/Karst Potential	(•) Low	( ) Medium	( ) High
Cave/Karst Potential	( ) Critical		
Variance	( ) None	(•) Flex Hose	( ) Other
Wellhead	( ) Conventional	( ) Multibowl	(•) Both
Other	[ ] 4 String Area	[ ] Capitan Reef	[ ] WIPP
Other	[ ] Fluid Filled	[x] Cement Squeeze	[ ] Pilot Hole
Special Requirements	[ ] Water Disposal	[ ] COM	[x] Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Double X** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

Casing Design:

1. The **13-3/8** inch surface casing shall be set at approximately **954** feet (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.

Approval Date: 04/21/2021

a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The **9-5/8** inch intermediate casing shall be set at approximately **4743** feet. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

Option 1 (Single Stage):

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

Option 2:

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

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

b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

Option 1 (Single Stage):

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

Option 2:

Approval Date: 04/21/2021

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

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

b. Second stage above DV tool:

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

Operator has proposed to pump down 9-5/8" X 5-1/2" annulus. Operator must run a CBL or ECHO-METER from TD of the 5-1/2" casing to 200 feet into previous casing. Submit results to BLM.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'

2.

Option 1:

a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.

b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **3000 (3M)** psi.

Option 2:

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.

   a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
   b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.

c. Manufacturer representative shall install the test plug for the initial BOP test.
d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Unit Wells

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

Commercial Well Determination

A commercial well determination shall be submitted after production has been established for at least six months.

Offline Cementing

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

BOPE Break Testing Variance

- BOPE Break Testing is ONLY permitted for 5M BOPE or less.
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required.
- The BLM is to be contacted **(575-393-3612 Lea County)** 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at 21-day intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per Onshore Oil and Gas Order No. 2.

GENERAL REQUIREMENTS

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

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

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

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

Approval Date: 04/21/2021

A. CASING

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

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

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

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

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

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

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

Approval Date: 04/21/2021

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

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

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

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

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

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including

Approval Date: 04/21/2021

lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. The results of the test shall be reported to the appropriate BLM office.

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

NMK04062021

Approval Date: 04/21/2021

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

Application Data Report
04/21/2021

APD ID: 10400052168
Submission Date: 12/11/2019
Operator Name: OXY USA INCORPORATED
Well Name: MESA VERDE BS UNIT
Well Number: 59H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400052168
Tie to previous NOS? N
Submission Date: 12/11/2019
BLM Office: CARLSBAD
User: LESLIE REEVES
Title: Advisor Regulatory
Federal/Indian APD: FED
Is the first lease penetrated for production Federal or Indian? FED
Lease number: NMNM055953
Lease Acres:
Surface access agreement in place?
Allotted?
Reservation:
Agreement in place? NO
Federal or Indian agreement:
Agreement number:
Agreement name:
Keep application confidential? NO
Permitting Agent? NO
APD Operator: OXY USA INCORPORATED
Operator letter of designation:

Operator Info

Operator Organization Name: OXY USA INCORPORATED
Operator Address: 5 Greenway Plaza, Suite 110
Zip: 77046
Operator PO Box:
Operator City: Houston
State: TX
Operator Phone: (713)366-5716
Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO
Master Development Plan name:
Well in Master SUPO? NO
Master SUPO name:
Well in Master Drilling Plan? NO
Master Drilling Plan name:
Well Name: MESA VERDE BS UNIT
Well Number: 59H
Well API Number:
Field/Pool or Exploratory? Field and Pool
Field Name: MESA VERDE WOLFCAMP
Pool Name: BONE SPRING
Is the proposed well in an area containing other mineral resources? NATURAL GAS,OIL

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

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

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** MESA VERDE BS UNIT **Number:** 44H, 45H, 46H, 59H, 60H

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

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 24 Miles **Distance to nearest well:** 35 FT **Distance to lease line:** 20 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: MesaVerdeBSUnit59H_C102_20191211074248.pdf

MesaVerdeBSUnit59H_Supplemental_20191211074326.pdf

MesaVerdeBSUnit59H_SitePlan_20191211074336.pdf

Well work start Date: 03/02/2021 **Duration:** 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

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

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
SHL Leg #1	635	FSL	865	FWL	24S	32E	16	Aliquot SWSW	32.2120085	-103.6853901	LEA	NEW MEXICO	NEW MEXICO	F	FEE	3569	0	0	N
KOP Leg #1	50	FSL	380	FWL	24S	32E	16	Aliquot SWSW	32.2103976	-103.6869588	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-6329	10316	9898	N

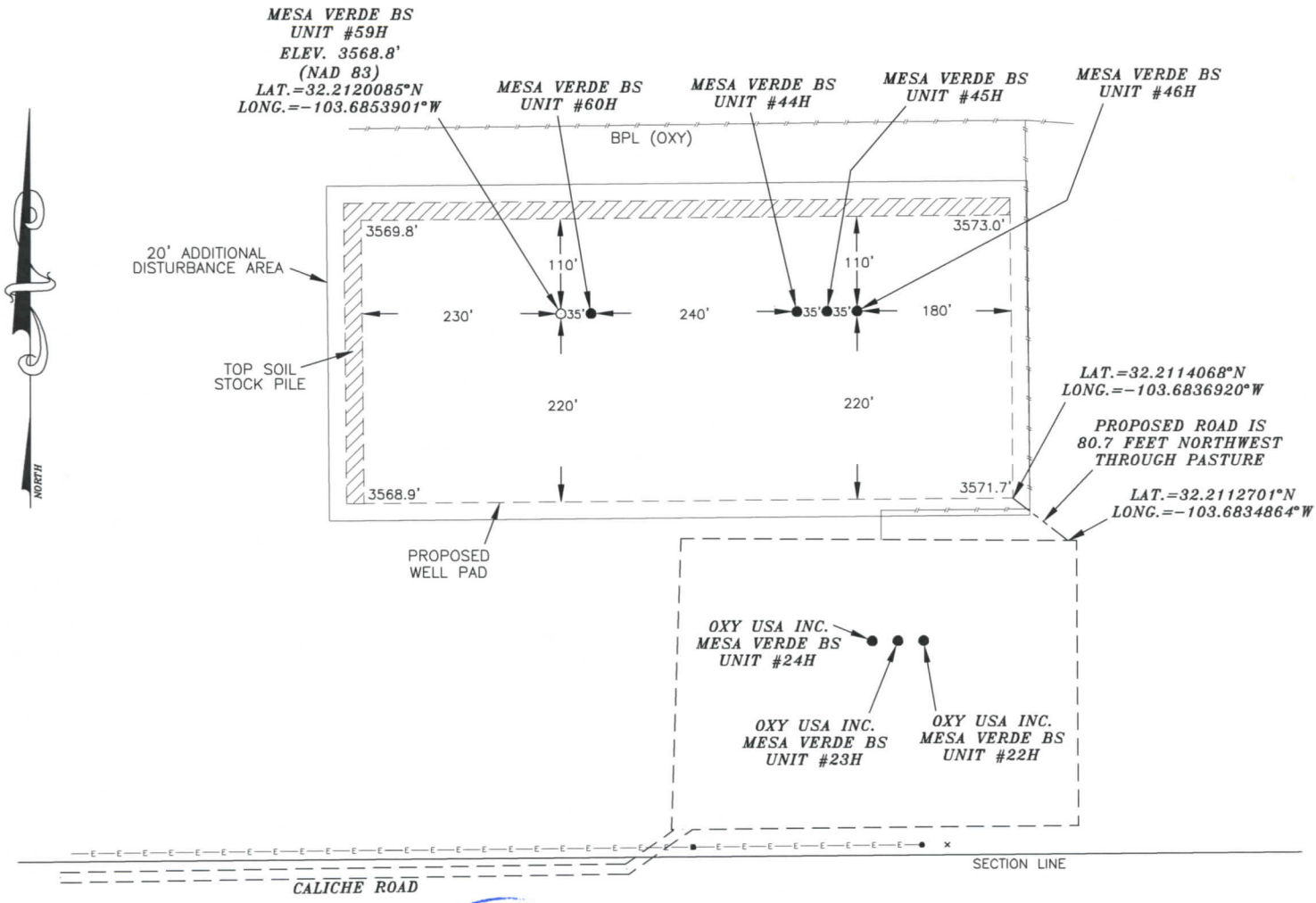
Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
PPP Leg #1-1	100	FSL	380	FWL	24S	32E	16	Aliquot SWSW	32.2105351	-103.6869589	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-6331	10362	9900	Y
PPP Leg #1-2	9	FSL	376	FWL	24S	32E	9	Aliquot SWSW	32.224752	-103.686966	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 55953	-6331	15534	9900	Y
EXIT Leg #1	100	FNL	380	FWL	24S	32E	9	Aliquot NWNW	32.2390232	-103.6869735	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 55953	-6331	20726	9900	Y
BHL Leg #1	20	FNL	380	FWL	24S	32E	9	Aliquot NWNW	32.2392431	-103.6869737	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 55953	-6331	20807	9900	N

OXY USA INC.
MESA VERDE BS UNIT #59H
SITE PLAN

FAA PERMIT: NO



TERRY J ASEL NEW MEXICO 15079 REGISTERED PROFESSIONAL LAND SURVEYOR

LEGEND

- – – – – DENOTES PROPOSED WELL PAD
- —— - —— DENOTES PROPOSED ROAD
- ▨ – DENOTES STOCK PILE AREA

200' 0 200' 400' FEET

SCALE: 1"=200'

SURVEYORS CERTIFICATE

I, TERRY J. ASEL, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND MEETS THE "MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

Terry J. Asel 7/12/2019

Terry J. Asel N.M. R.P.L.S. No. 15079

Asel Surveying
P.O. BOX 393 – 310 W. TAYLOR
HOBBS, NEW MEXICO – 575-393-9146

OXY USA INC.

MESA VERDE BS UNIT #59H LOCATED AT 635' FSL & 865' FWL IN SECTION 16, TOWNSHIP 24 SOUTH, RANGE 32 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO

Survey Date: 06/26/19	Sheet 1 of 1 Sheets	
W.O. Number: 190626WL-b	Drawn By: KA	Rev:
Date: 07/10/19	190626WL-b	Scale:1"=200'

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

Drilling Plan Data Report
04/21/2021

APD ID: 10400052168
Submission Date: 12/11/2019
Operator Name: OXY USA INCORPORATED
Well Name: MESA VERDE BS UNIT
Well Number: 59H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
605680	RUSTLER	3569	904	904	ANHYDRITE, DOLOMITE, SHALE	USEABLE WATER	N
605681	SALADO	2352	1217	1217	ANHYDRITE, DOLOMITE, HALITE, SHALE	OTHER : SALT	N
605678	CASTILE	440	3129	3129	ANHYDRITE	OTHER : salt	N
605682	LAMAR	-1148	4717	4730	LIMESTONE, SANDSTONE, SILTSTONE	NATURAL GAS, OIL, OTHER : BRINE	N
605683	BELL CANYON	-1172	4741	4755	SANDSTONE, SILTSTONE	NATURAL GAS, OIL, OTHER : BRINE	N
605684	CHERRY CANYON	-2059	5628	5665	SANDSTONE, SILTSTONE	NATURAL GAS, OIL, OTHER : BRINE	N
605685	BRUSHY CANYON	-3371	6940	7012	LIMESTONE, SANDSTONE, SILTSTONE	NATURAL GAS, OIL, OTHER : BRINE	N
605679	BONE SPRING	-5082	8651	8768	LIMESTONE, SANDSTONE, SILTSTONE	NATURAL GAS, OIL	Y
606851	BONE SPRING 1ST	-6169	9738	9921	LIMESTONE, SANDSTONE, SILTSTONE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M
Rating Depth: 9900

Equipment: 13-5/8" 3M Annular, Blind Ram, Double Ram

Requesting Variance? YES

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

Testing Procedure: Oxy will utilize a 5M annular with a 10M BOPE stack. The BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested. Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. A multibowl wellhead or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system will be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

October 8, 2015. BOP Break Testing Request Oxy requests permission to adjust the BOP break testing requirements as per the agreement reached in the OXY/BLM meeting on September 5, 2019. A separate sundry will be sent prior to spud that reflects the pad based break testing plan. BOP break test under the following conditions: After a full BOP test is conducted - When skidding to drill an intermediate section where ICP is set into the third Bone Spring or shallower. - When skidding to drill a production section that does not penetrate into the third Bone Spring or deeper. If the kill line is broken prior to skid, two tests will be performed. 1) Wellhead flange, co-flex hose, kill line connections and upper pipe rams 2) Wellhead flange, HCR valve, check valve, upper pipe rams If the kill line is not broken prior to skid, only one test will be performed. 1) Wellhead flange, co-flex hose, check valve, upper pipe rams

Choke Diagram Attachment:

MesaVerdeBSUnit59H_ChokeManifold_20191211082305.pdf

BOP Diagram Attachment:

MesaVerdeBSUnit59H_BOP_20191211082312.pdf

MesaVerdeBSUnit59H_FlexHoseCert_20191211082321.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	954	0	954	3569	2615	954	J-55	54.5	BUTT	1.125	1.2	BUOY	1.4	BUOY	1.4
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	4767	0	4753		-1184	4767	L-80	40	BUTT	1.125	1.2	BUOY	1.4	BUOY	1.4
3	PRODUCTION	8.5	5.5	NEW	API	N	0	20806	0	9900	3569	-6331	20806	P-110	20	OTHER - DQX/DQW/SFTORQ	1.125	1.2	BUOY	1.4	BUOY	1.4

Casing Attachments

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

MesaVerdeBSUnit59H_CsgCriteria_20191211080257.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

MesaVerdeBSUnit59H_BOP_20191211080404.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

MesaVerdeBSUnit59H_CsgCriteria_20191211080459.pdf

MesaVerdeBSUnit59H_5.500in_x_20_20191211080504.00

MesaVerdeBSUnit59H_5.500in_x_20_20191211080509.00

MesaVerdeBSUnit59H_5.500in_x_20_20191211080515.00

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	954	1008	1.33	14.8	1341	100	Cl C	Accelerator
INTERMEDIATE	Lead		0	4267	1100	1.73	12.9	1903	50	Pozzolan C	Retarder
INTERMEDIATE	Tail		4267	4767	155	1.33	14.8	206	20	Cl C	Accelerator
PRODUCTION	Lead	2	4267	7190	441	1.87	12.9	826	25	Cl C	Accelerator
PRODUCTION	Lead	2	7190	8651	255	1.38	13.2	352	5	Cl H	Retarder, Dispersant, Salt
PRODUCTION	Tail		8651	20806	2127	1.38	13.2	2935	5	Cl H	Retarder, Dispersant, Salt

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements 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.
Describe the mud monitoring system utilized: PVT/MD Totco/Visual Monitoring

Circulating Medium Table

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	954	WATER-BASED MUD	8.6	8.8							
4767	20806	OTHER : Water-Based and/or Oil-Based Mud	8	9.6							
954	4767	OTHER : Saturated Brine-Based Mud	9.8	10							

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

GR from TD to surface (horizontal well – vertical portion of hole). Mud Log from intermediate shoe to TD.

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

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

Coring operation description for the well:

No coring is planned at this time.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4943 **Anticipated Surface Pressure:** 2765

Anticipated Bottom Hole Temperature(F): 160

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

MesaVerdeBSUnit59H_H2S1_20191211081617.pdf
MesaVerdeBSUnit59H_H2S2_20191211081629.pdf
MesaVerdeBSUnit59H_H2SEmerCont_20191211081637.pdf

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

MesaVerdeBSUnit59H_DirectPlan_20191211082714.pdf

MesaVerdeBSUnit59H_DirectPlot_20191211082729.pdf

Other proposed operations facets description:

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

Well will be drilled with a walking/skidding operation. Plan to drill the multiple well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the rig is not over the well.

OXY requests the option to contract a Surface Rig to drill, set surface casing, and cement for this well. If the timing between rigs is such that OXY would not be able to preset surface, the Primary Rig will MIRU and drill the well in its entirety per the APD. Please see the attached document for information on the spudder rig.

Bradenhead Squeeze
OXY requests to pump a two stage production casing cement job with the first stage being pumped conventionally with the calculated TOC @ the Bone Spring and the second stage performed as a bradenhead squeeze with planned cement from the top of the Bone Spring to Surface.

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

Offline cementing variance request in drill plan.

Other proposed operations facets attachment:

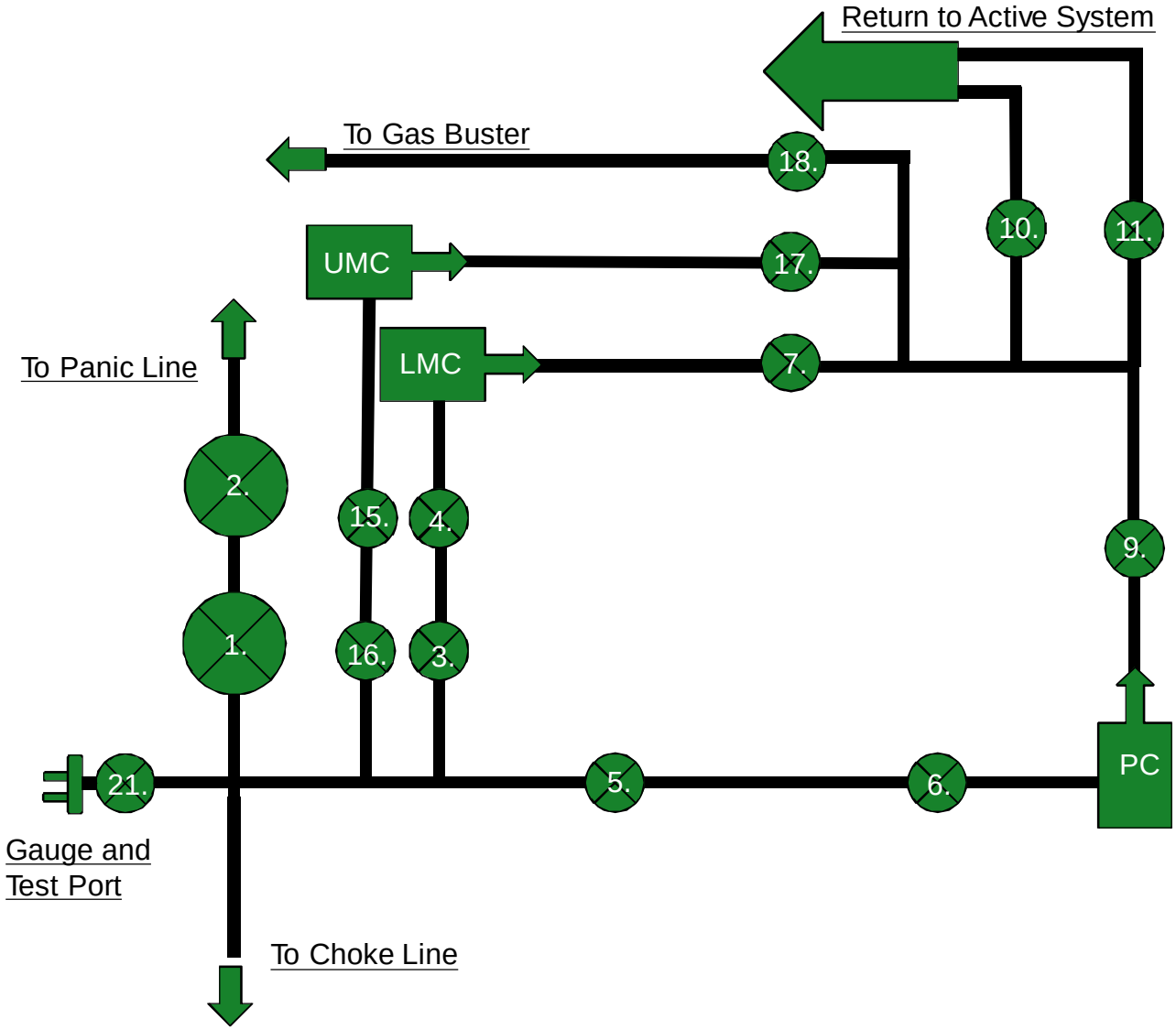
MesaVerdeBSUnit59H_GasCapPlan_20191211082743.pdf

MesaVerdeBSUnit59H_DrillPlan_20191211082750.pdf

MesaVerdeBSUnit59H_SpudRigData_20191211082759.pdf

Other Variance attachment:

10M Choke Panel



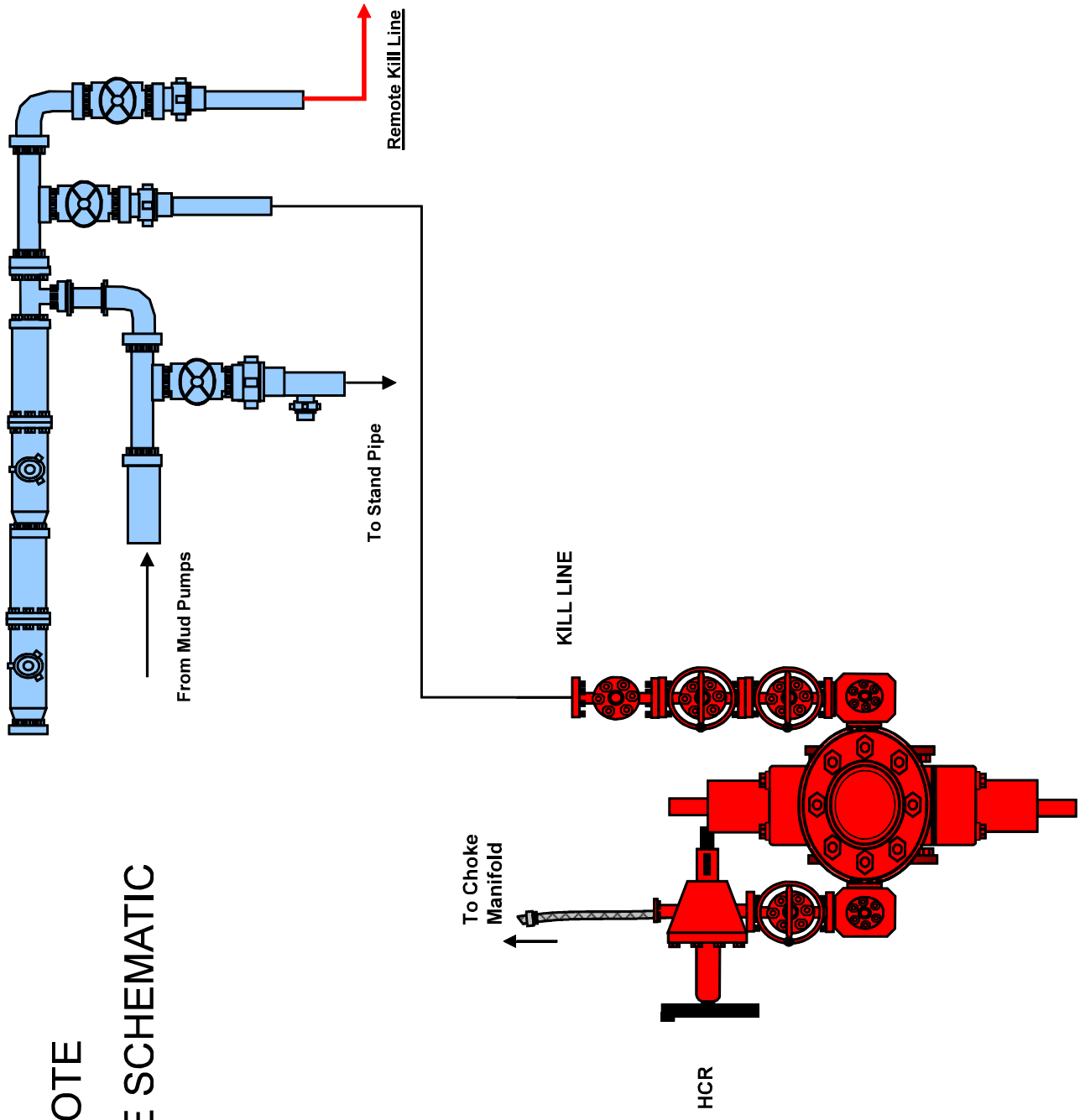
1. Choke Manifold Valve
2. Choke Manifold Valve
3. Choke Manifold Valve
4. Choke Manifold Valve
5. Choke Manifold Valve
6. Choke Manifold Valve
7. Choke Manifold Valve
8. PC – Power Choke
9. Choke Manifold Valve
10. Choke Manifold Valve
11. Choke Manifold Valve
12. LMC – Lower Manual Choke
13. UMC –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

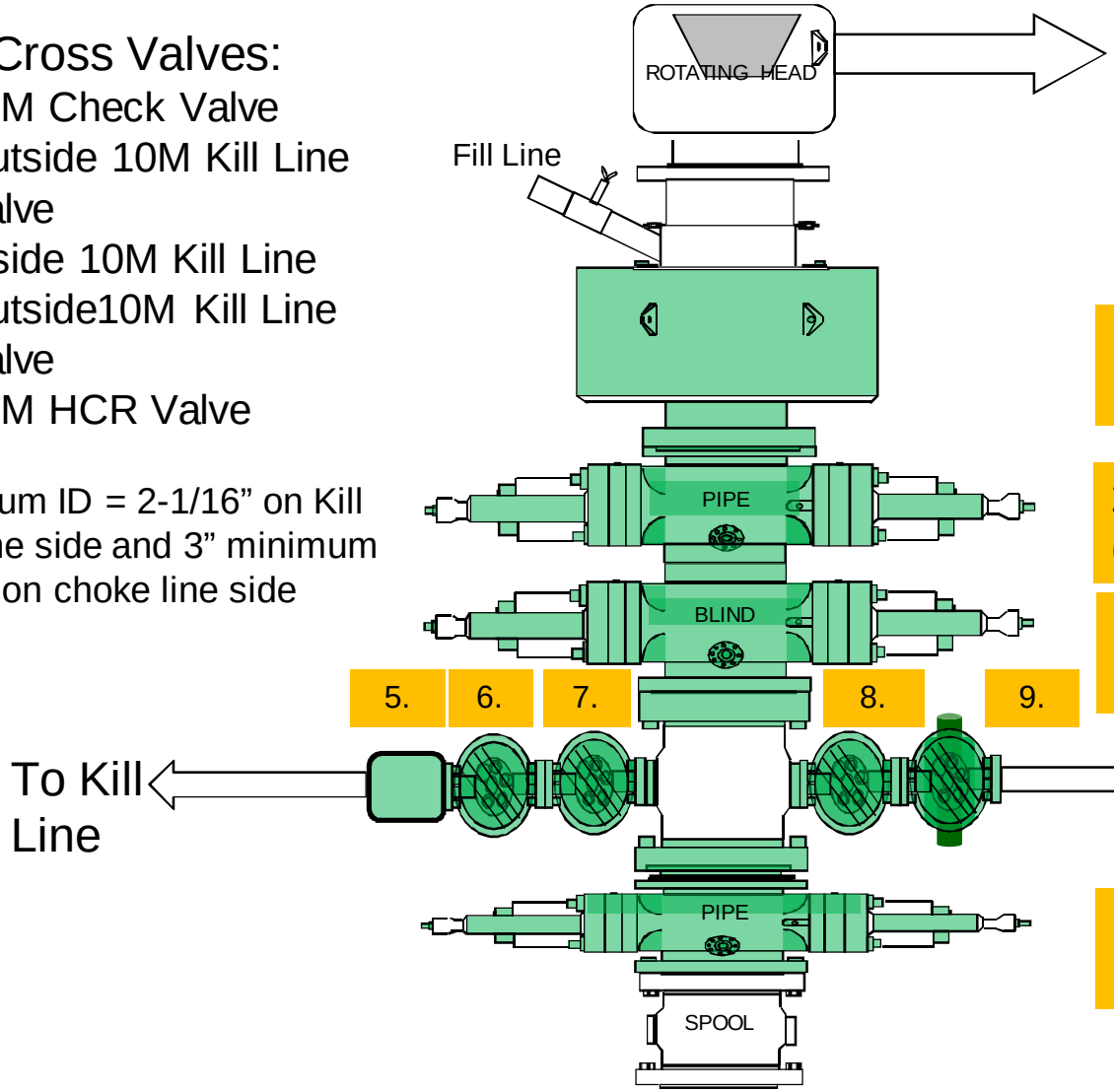


5/10M BOP Stack

Mud Cross Valves:

5. 10M Check Valve
6. Outside 10M Kill Line Valve
7. Inside 10M Kill Line
8. Outside10M Kill Line Valve
9. 10M HCR Valve

*Minimum ID = 2-1/16” on Kill Line side and 3” minimum ID on choke line side

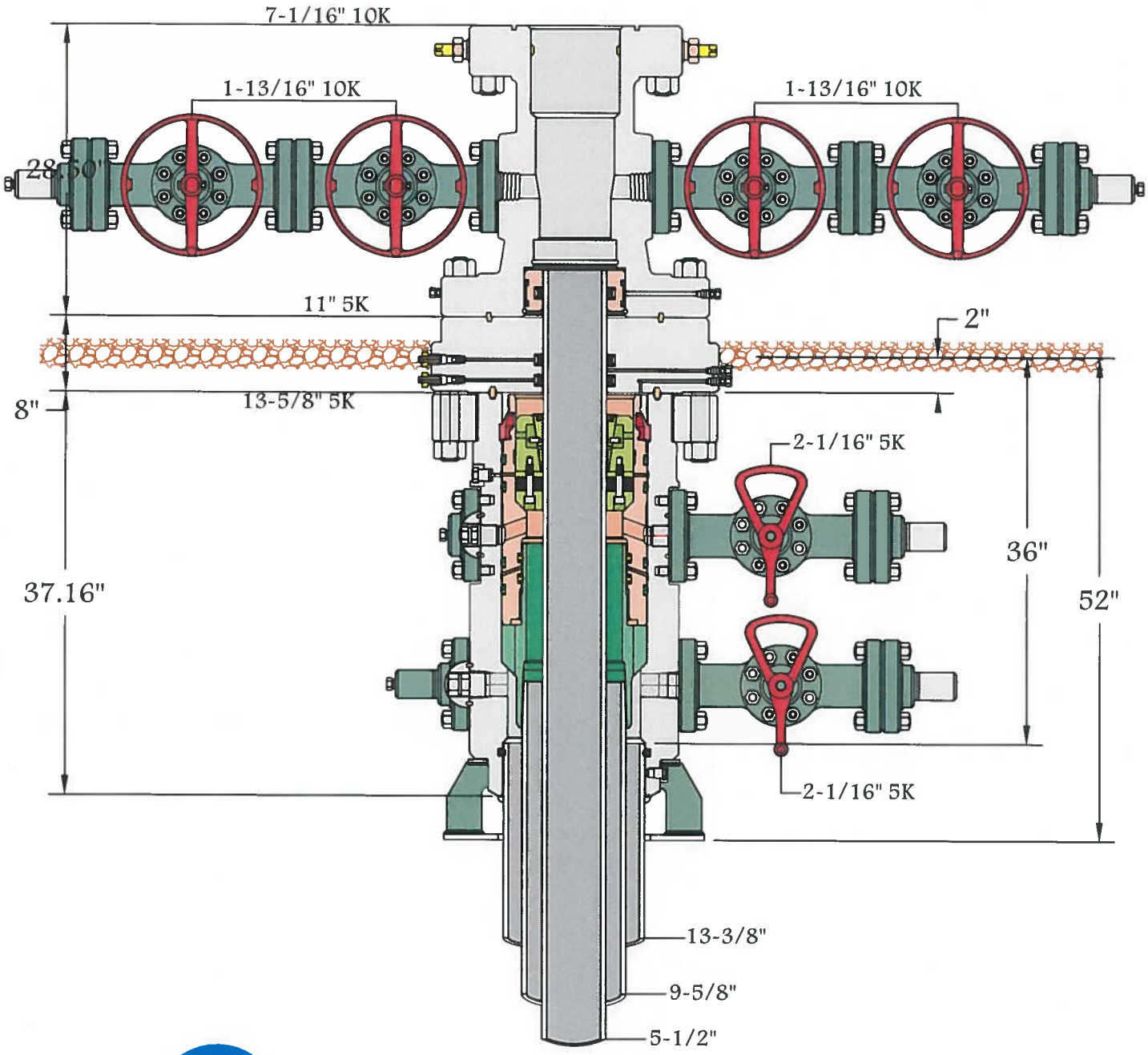


1. 5,000 psi Annular (13-5/8” ID)

2. 10,000 psi Upper Pipe Ram (13-5/8” ID)

3. 10,000 psi Blind Ram (13-5/8” ID)

4. 10,000 psi Lower Pipe Ram (13-5/8” ID)



13-5/8" 5K MN-DS

CAMERON
A Schlumberger Company

Name: Brandon	Date: 5-10-17	Working Pressure: #	1505172

Permian Drilling
Hydrogen Sulfide Drilling Operations Plan
Mesa Verde BS Unit 59H

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

1. Escape

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

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

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

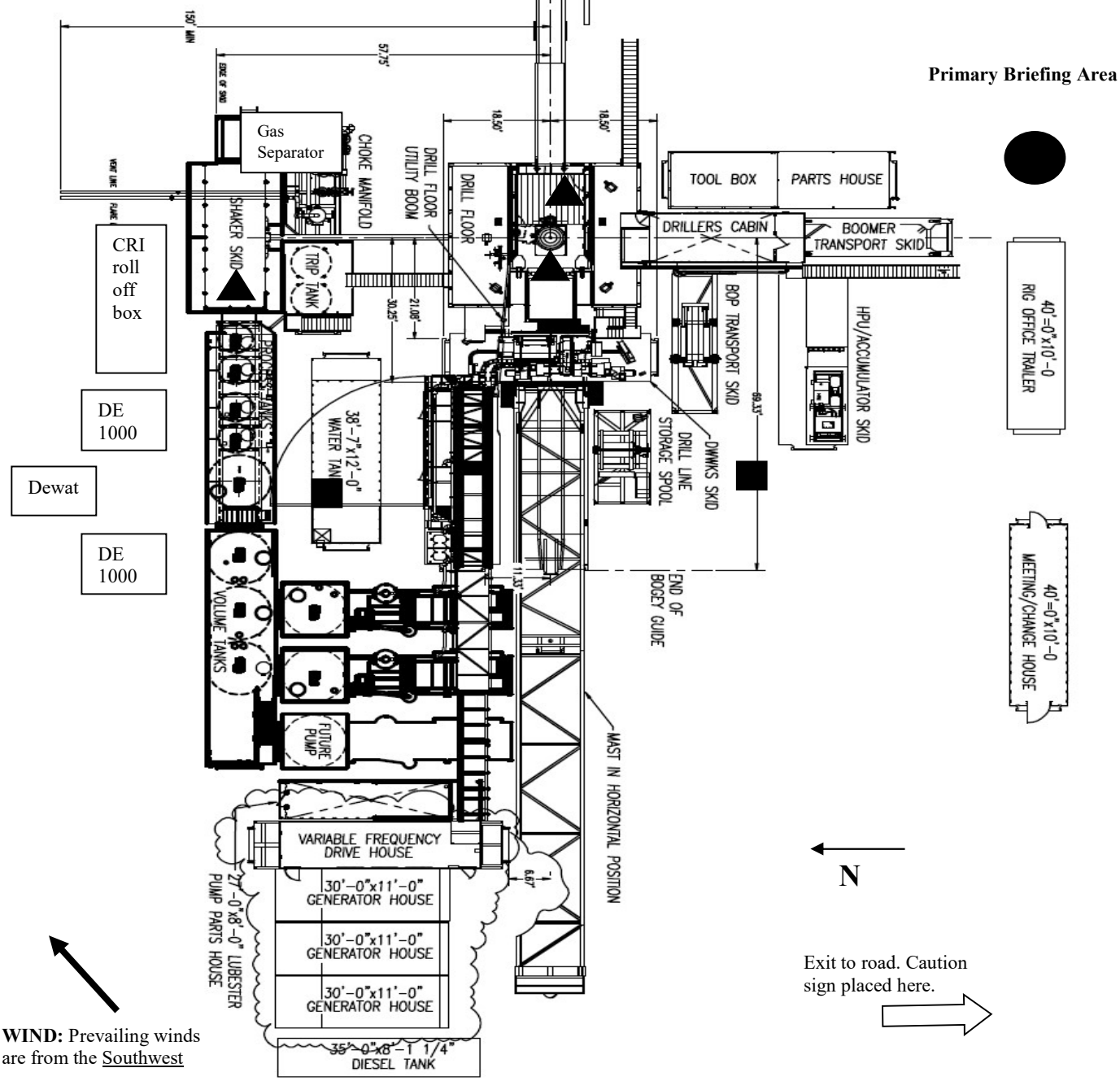
■ Wind direction indicators. Visible from rig floor and from the mud pits area.

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

Secondary Briefing Area

Secondary Egress

Primary Briefing Area



WIND: Prevailing winds are from the Southwest

Exit to road. Caution sign placed here.

Permian Drilling
Hydrogen Sulfide Drilling Operations Plan
New Mexico

Scope

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

Objective

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

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

3. Provide proper evacuation procedures to cope with emergencies.

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

Discussion

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

Hydrogen Sulfide Training

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

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

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

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

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

Service company and visiting personnel

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

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

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

Emergency Equipment Requirements

1. Well control equipment

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

Special control equipment:

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

2. Protective equipment for personnel

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

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

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

- Rig floor and trailers.
- Vehicle.

3. Hydrogen sulfide sensors and alarms

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

4. Visual Warning Systems

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

Caution – potential poison gas
Hydrogen sulfide
No admittance without authorization

Wind sock – wind streamers:

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

Condition flags

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

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

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

5. Mud Program

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

Mud inspection devices:

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

6. Metallurgy

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

7. Well Testing

No drill stem test will be performed on this well.

8. Evacuation plan

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

9. Designated area

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

Emergency procedures

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

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

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

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

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

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

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

B. If uncontrollable conditions occur:

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

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

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

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

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

C. Responsibility:

1. Designated personnel.

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

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

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

Taking a kick

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

Open-hole logging

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

Running casing or plugging

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

Ignition procedures

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

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

Instructions for igniting the well

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

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

Status check list

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

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

Checked by:_____ Date:_____

Procedural check list during H2S events

Perform each tour:

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

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

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

Perform each week:

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

2. BOP skills (well control drills).

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

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

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

6. Confirm pressure on all supply air bottles.

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

8. Check the following supplies for availability.

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

General evacuation plan

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

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

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

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

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

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

Emergency actions

Well blowout – if emergency

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

Person down location/facility

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

Toxic effects of hydrogen sulfide

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

Table i
Toxicity of various gases

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

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

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

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

Toxic effects of hydrogen sulfide

Table ii
Physical effects of hydrogen sulfide

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

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

*at 15.00 psia and 60’f.

Use of self-contained breathing equipment (SCBA)

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

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

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

4. Maintenance and care of SCBA's:

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

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

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

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

6. SCBA's should be worn when:

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

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

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

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

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

Rescue
First aid for H2S poisoning

Do not panic!

Remain calm – think!

1. Don SCBA breathing equipment.

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

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

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

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

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

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

Revised CM 6/27/2012

OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)
Mesa Verde BS Unit
Mesa Verde BS Unit 59H

Wellbore #1

Plan: Permitting Plan

Standard Planning Report

24 September, 2019

Oxy Inc.

Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Mesa Verde BS Unit 59H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3595.30ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3595.30ft
Site:	Mesa Verde BS Unit	**North Reference:**	Grid
Well:	Mesa Verde BS Unit 59H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Project PRD NM DIRECTIONAL PLANS (NAD 1983)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site Mesa Verde BS Unit

Site Position:		**Northing:**	441,628.38 usft	**Latitude:**	32° 12' 45.728980 N
From:	Map	**Easting:**	726,045.01 usft	**Longitude:**	103° 44' 9.965609 W
Position Uncertainty:	50.00 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.32 °

Well Mesa Verde BS Unit 59H

Well Position	**+N/-S**	-161.63 ft	**Northing:**	441,466.76 usft	**Latitude:**	32° 12' 43.230575 N
	+E/-W	15,686.31 ft	**Easting:**	741,730.48 usft	**Longitude:**	103° 41' 7.404398 W
Position Uncertainty		1.00 ft	**Wellhead Elevation:**		**Ground Level:**	3,568.80 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	9/24/2019	6.63	59.87	47,845.70000000

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	356.83

Plan Survey Tool Program **Date** 9/24/2019

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	20,806.35	Permitting Plan (Wellbore #1)	B001Mb_MWD+HRGM	
				OWSG MWD + HRGM	

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,789.00	0.00	0.00	3,789.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,439.22	13.00	200.94	4,433.65	-68.62	-26.26	2.00	2.00	0.00	200.94	
9,340.94	13.00	200.94	9,209.65	-1,098.81	-420.42	0.00	0.00	0.00	0.00	
10,361.95	90.00	359.63	9,900.30	-538.97	-481.99	10.00	7.54	15.54	158.18	FTP (Mesa Verde
20,806.35	90.00	359.63	9,900.30	9,905.21	-549.39	0.00	0.00	0.00	0.00	PBHL (Mesa Verde

Oxy Inc.

Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Mesa Verde BS Unit 59H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3595.30ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3595.30ft
Site:	Mesa Verde BS Unit	**North Reference:**	Grid
Well:	Mesa Verde BS Unit 59H	**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
3,789.00	0.00	0.00	3,789.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.22	200.94	3,800.00	-0.02	-0.01	-0.02	2.00	2.00	0.00
3,900.00	2.22	200.94	3,899.97	-2.01	-0.77	-1.96	2.00	2.00	0.00
4,000.00	4.22	200.94	3,999.81	-7.25	-2.78	-7.09	2.00	2.00	0.00
4,100.00	6.22	200.94	4,099.39	-15.75	-6.03	-15.39	2.00	2.00	0.00
4,200.00	8.22	200.94	4,198.59	-27.49	-10.52	-26.86	2.00	2.00	0.00
4,300.00	10.22	200.94	4,297.29	-42.45	-16.24	-41.49	2.00	2.00	0.00
4,400.00	12.22	200.94	4,395.38	-60.62	-23.20	-59.25	2.00	2.00	0.00
4,439.22	13.00	200.94	4,433.65	-68.62	-26.26	-67.06	2.00	2.00	0.00
4,500.00	13.00	200.94	4,492.87	-81.40	-31.14	-79.55	0.00	0.00	0.00
4,600.00	13.00	200.94	4,590.31	-102.41	-39.18	-100.09	0.00	0.00	0.00
4,700.00	13.00	200.94	4,687.74	-123.43	-47.23	-120.63	0.00	0.00	0.00
4,800.00	13.00	200.94	4,785.18	-144.45	-55.27	-141.16	0.00	0.00	0.00
4,900.00	13.00	200.94	4,882.61	-165.46	-63.31	-161.70	0.00	0.00	0.00
5,000.00	13.00	200.94	4,980.05	-186.48	-71.35	-182.24	0.00	0.00	0.00
5,100.00	13.00	200.94	5,077.48	-207.50	-79.39	-202.78	0.00	0.00	0.00

Oxy Inc.

Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Mesa Verde BS Unit 59H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3595.30ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3595.30ft
Site:	Mesa Verde BS Unit	**North Reference:**	Grid
Well:	Mesa Verde BS Unit 59H	**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)
5,200.00	13.00	200.94	5,174.92	-228.51	-87.43	-223.32	0.00	0.00	0.00
5,300.00	13.00	200.94	5,272.36	-249.53	-95.47	-243.86	0.00	0.00	0.00
5,400.00	13.00	200.94	5,369.79	-270.55	-103.52	-264.40	0.00	0.00	0.00
5,500.00	13.00	200.94	5,467.23	-291.56	-111.56	-284.94	0.00	0.00	0.00
5,600.00	13.00	200.94	5,564.66	-312.58	-119.60	-305.48	0.00	0.00	0.00
5,700.00	13.00	200.94	5,662.10	-333.60	-127.64	-326.02	0.00	0.00	0.00
5,800.00	13.00	200.94	5,759.53	-354.61	-135.68	-346.56	0.00	0.00	0.00
5,900.00	13.00	200.94	5,856.97	-375.63	-143.72	-367.10	0.00	0.00	0.00
6,000.00	13.00	200.94	5,954.40	-396.65	-151.76	-387.63	0.00	0.00	0.00
6,100.00	13.00	200.94	6,051.84	-417.66	-159.80	-408.17	0.00	0.00	0.00
6,200.00	13.00	200.94	6,149.27	-438.68	-167.85	-428.71	0.00	0.00	0.00
6,300.00	13.00	200.94	6,246.71	-459.70	-175.89	-449.25	0.00	0.00	0.00
6,400.00	13.00	200.94	6,344.14	-480.72	-183.93	-469.79	0.00	0.00	0.00
6,500.00	13.00	200.94	6,441.58	-501.73	-191.97	-490.33	0.00	0.00	0.00
6,600.00	13.00	200.94	6,539.01	-522.75	-200.01	-510.87	0.00	0.00	0.00
6,700.00	13.00	200.94	6,636.45	-543.77	-208.05	-531.41	0.00	0.00	0.00
6,800.00	13.00	200.94	6,733.88	-564.78	-216.09	-551.95	0.00	0.00	0.00
6,900.00	13.00	200.94	6,831.32	-585.80	-224.14	-572.49	0.00	0.00	0.00
7,000.00	13.00	200.94	6,928.75	-606.82	-232.18	-593.03	0.00	0.00	0.00
7,100.00	13.00	200.94	7,026.19	-627.83	-240.22	-613.57	0.00	0.00	0.00
7,200.00	13.00	200.94	7,123.63	-648.85	-248.26	-634.11	0.00	0.00	0.00
7,300.00	13.00	200.94	7,221.06	-669.87	-256.30	-654.64	0.00	0.00	0.00
7,400.00	13.00	200.94	7,318.50	-690.88	-264.34	-675.18	0.00	0.00	0.00
7,500.00	13.00	200.94	7,415.93	-711.90	-272.38	-695.72	0.00	0.00	0.00
7,600.00	13.00	200.94	7,513.37	-732.92	-280.43	-716.26	0.00	0.00	0.00
7,700.00	13.00	200.94	7,610.80	-753.93	-288.47	-736.80	0.00	0.00	0.00
7,800.00	13.00	200.94	7,708.24	-774.95	-296.51	-757.34	0.00	0.00	0.00
7,900.00	13.00	200.94	7,805.67	-795.97	-304.55	-777.88	0.00	0.00	0.00
8,000.00	13.00	200.94	7,903.11	-816.98	-312.59	-798.42	0.00	0.00	0.00
8,100.00	13.00	200.94	8,000.54	-838.00	-320.63	-818.96	0.00	0.00	0.00
8,200.00	13.00	200.94	8,097.98	-859.02	-328.67	-839.50	0.00	0.00	0.00
8,300.00	13.00	200.94	8,195.41	-880.03	-336.71	-860.04	0.00	0.00	0.00
8,400.00	13.00	200.94	8,292.85	-901.05	-344.76	-880.58	0.00	0.00	0.00
8,500.00	13.00	200.94	8,390.28	-922.07	-352.80	-901.11	0.00	0.00	0.00
8,600.00	13.00	200.94	8,487.72	-943.08	-360.84	-921.65	0.00	0.00	0.00
8,700.00	13.00	200.94	8,585.15	-964.10	-368.88	-942.19	0.00	0.00	0.00
8,800.00	13.00	200.94	8,682.59	-985.12	-376.92	-962.73	0.00	0.00	0.00
8,900.00	13.00	200.94	8,780.02	-1,006.13	-384.96	-983.27	0.00	0.00	0.00
9,000.00	13.00	200.94	8,877.46	-1,027.15	-393.00	-1,003.81	0.00	0.00	0.00
9,100.00	13.00	200.94	8,974.90	-1,048.17	-401.05	-1,024.35	0.00	0.00	0.00
9,200.00	13.00	200.94	9,072.33	-1,069.18	-409.09	-1,044.89	0.00	0.00	0.00
9,300.00	13.00	200.94	9,169.77	-1,090.20	-417.13	-1,065.43	0.00	0.00	0.00
9,340.94	13.00	200.94	9,209.65	-1,098.81	-420.42	-1,073.84	0.00	0.00	0.00
9,400.00	7.83	217.24	9,267.73	-1,108.22	-425.23	-1,082.97	10.00	-8.76	27.60
9,500.00	6.12	308.12	9,367.24	-1,110.36	-433.57	-1,084.64	10.00	-1.71	90.88
9,600.00	14.60	340.83	9,465.59	-1,095.13	-441.92	-1,068.97	10.00	8.48	32.71
9,700.00	24.26	348.90	9,559.80	-1,062.98	-450.04	-1,036.43	10.00	9.66	8.06
9,800.00	34.10	352.51	9,647.01	-1,014.91	-457.66	-988.01	10.00	9.85	3.61
9,900.00	44.01	354.65	9,724.56	-952.37	-464.58	-925.18	10.00	9.91	2.14
10,000.00	53.95	356.13	9,790.11	-877.25	-470.56	-849.85	10.00	9.94	1.48
10,100.00	63.90	357.27	9,841.66	-791.85	-475.44	-764.30	10.00	9.95	1.15
10,200.00	73.86	358.24	9,877.64	-698.75	-479.06	-671.15	10.00	9.96	0.96
10,300.00	83.83	359.11	9,896.97	-600.79	-481.31	-573.22	10.00	9.96	0.87
10,361.95	90.00	359.63	9,900.30	-538.97	-481.99	-511.45	10.00	9.96	0.84

Oxy Inc.

Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Mesa Verde BS Unit 59H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3595.30ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3595.30ft
Site:	Mesa Verde BS Unit	**North Reference:**	Grid
Well:	Mesa Verde BS Unit 59H	**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)
10,400.00	90.00	359.63	9,900.30	-500.92	-482.24	-473.44	0.00	0.00	0.00
10,500.00	90.00	359.63	9,900.30	-400.92	-482.88	-373.56	0.00	0.00	0.00
10,600.00	90.00	359.63	9,900.30	-300.92	-483.53	-273.68	0.00	0.00	0.00
10,700.00	90.00	359.63	9,900.30	-200.92	-484.17	-173.80	0.00	0.00	0.00
10,800.00	90.00	359.63	9,900.30	-100.93	-484.82	-73.92	0.00	0.00	0.00
10,900.00	90.00	359.63	9,900.30	-0.93	-485.46	25.96	0.00	0.00	0.00
11,000.00	90.00	359.63	9,900.30	99.07	-486.11	125.84	0.00	0.00	0.00
11,100.00	90.00	359.63	9,900.30	199.07	-486.75	225.72	0.00	0.00	0.00
11,200.00	90.00	359.63	9,900.30	299.07	-487.40	325.60	0.00	0.00	0.00
11,300.00	90.00	359.63	9,900.30	399.06	-488.05	425.48	0.00	0.00	0.00
11,400.00	90.00	359.63	9,900.30	499.06	-488.69	525.36	0.00	0.00	0.00
11,500.00	90.00	359.63	9,900.30	599.06	-489.34	625.24	0.00	0.00	0.00
11,600.00	90.00	359.63	9,900.30	699.06	-489.98	725.12	0.00	0.00	0.00
11,700.00	90.00	359.63	9,900.30	799.06	-490.63	825.00	0.00	0.00	0.00
11,800.00	90.00	359.63	9,900.30	899.05	-491.27	924.88	0.00	0.00	0.00
11,900.00	90.00	359.63	9,900.30	999.05	-491.92	1,024.76	0.00	0.00	0.00
12,000.00	90.00	359.63	9,900.30	1,099.05	-492.56	1,124.64	0.00	0.00	0.00
12,100.00	90.00	359.63	9,900.30	1,199.05	-493.21	1,224.52	0.00	0.00	0.00
12,200.00	90.00	359.63	9,900.30	1,299.04	-493.85	1,324.40	0.00	0.00	0.00
12,300.00	90.00	359.63	9,900.30	1,399.04	-494.50	1,424.28	0.00	0.00	0.00
12,400.00	90.00	359.63	9,900.30	1,499.04	-495.14	1,524.16	0.00	0.00	0.00
12,500.00	90.00	359.63	9,900.30	1,599.04	-495.79	1,624.04	0.00	0.00	0.00
12,600.00	90.00	359.63	9,900.30	1,699.04	-496.43	1,723.92	0.00	0.00	0.00
12,700.00	90.00	359.63	9,900.30	1,799.03	-497.08	1,823.80	0.00	0.00	0.00
12,800.00	90.00	359.63	9,900.30	1,899.03	-497.72	1,923.68	0.00	0.00	0.00
12,900.00	90.00	359.63	9,900.30	1,999.03	-498.37	2,023.56	0.00	0.00	0.00
13,000.00	90.00	359.63	9,900.30	2,099.03	-499.01	2,123.44	0.00	0.00	0.00
13,100.00	90.00	359.63	9,900.30	2,199.03	-499.66	2,223.32	0.00	0.00	0.00
13,200.00	90.00	359.63	9,900.30	2,299.02	-500.31	2,323.20	0.00	0.00	0.00
13,300.00	90.00	359.63	9,900.30	2,399.02	-500.95	2,423.08	0.00	0.00	0.00
13,400.00	90.00	359.63	9,900.30	2,499.02	-501.60	2,522.96	0.00	0.00	0.00
13,500.00	90.00	359.63	9,900.30	2,599.02	-502.24	2,622.84	0.00	0.00	0.00
13,600.00	90.00	359.63	9,900.30	2,699.02	-502.89	2,722.72	0.00	0.00	0.00
13,700.00	90.00	359.63	9,900.30	2,799.01	-503.53	2,822.60	0.00	0.00	0.00
13,800.00	90.00	359.63	9,900.30	2,899.01	-504.18	2,922.48	0.00	0.00	0.00
13,900.00	90.00	359.63	9,900.30	2,999.01	-504.82	3,022.36	0.00	0.00	0.00
14,000.00	90.00	359.63	9,900.30	3,099.01	-505.47	3,122.24	0.00	0.00	0.00
14,100.00	90.00	359.63	9,900.30	3,199.01	-506.11	3,222.12	0.00	0.00	0.00
14,200.00	90.00	359.63	9,900.30	3,299.00	-506.76	3,322.00	0.00	0.00	0.00
14,300.00	90.00	359.63	9,900.30	3,399.00	-507.40	3,421.88	0.00	0.00	0.00
14,400.00	90.00	359.63	9,900.30	3,499.00	-508.05	3,521.76	0.00	0.00	0.00
14,500.00	90.00	359.63	9,900.30	3,599.00	-508.69	3,621.64	0.00	0.00	0.00
14,600.00	90.00	359.63	9,900.30	3,698.99	-509.34	3,721.53	0.00	0.00	0.00
14,700.00	90.00	359.63	9,900.30	3,798.99	-509.98	3,821.41	0.00	0.00	0.00
14,800.00	90.00	359.63	9,900.30	3,898.99	-510.63	3,921.29	0.00	0.00	0.00
14,900.00	90.00	359.63	9,900.30	3,998.99	-511.27	4,021.17	0.00	0.00	0.00
15,000.00	90.00	359.63	9,900.30	4,098.99	-511.92	4,121.05	0.00	0.00	0.00
15,100.00	90.00	359.63	9,900.30	4,198.98	-512.57	4,220.93	0.00	0.00	0.00
15,200.00	90.00	359.63	9,900.30	4,298.98	-513.21	4,320.81	0.00	0.00	0.00
15,300.00	90.00	359.63	9,900.30	4,398.98	-513.86	4,420.69	0.00	0.00	0.00
15,400.00	90.00	359.63	9,900.30	4,498.98	-514.50	4,520.57	0.00	0.00	0.00
15,500.00	90.00	359.63	9,900.30	4,598.98	-515.15	4,620.45	0.00	0.00	0.00
15,600.00	90.00	359.63	9,900.30	4,698.97	-515.79	4,720.33	0.00	0.00	0.00
15,700.00	90.00	359.63	9,900.30	4,798.97	-516.44	4,820.21	0.00	0.00	0.00

Oxy Inc.

Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Mesa Verde BS Unit 59H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3595.30ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3595.30ft
Site:	Mesa Verde BS Unit	**North Reference:**	Grid
Well:	Mesa Verde BS Unit 59H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,800.00	90.00	359.63	9,900.30	4,898.97	-517.08	4,920.09	0.00	0.00	0.00
15,900.00	90.00	359.63	9,900.30	4,998.97	-517.73	5,019.97	0.00	0.00	0.00
16,000.00	90.00	359.63	9,900.30	5,098.97	-518.37	5,119.85	0.00	0.00	0.00
16,100.00	90.00	359.63	9,900.30	5,198.96	-519.02	5,219.73	0.00	0.00	0.00
16,200.00	90.00	359.63	9,900.30	5,298.96	-519.66	5,319.61	0.00	0.00	0.00
16,300.00	90.00	359.63	9,900.30	5,398.96	-520.31	5,419.49	0.00	0.00	0.00
16,400.00	90.00	359.63	9,900.30	5,498.96	-520.95	5,519.37	0.00	0.00	0.00
16,500.00	90.00	359.63	9,900.30	5,598.96	-521.60	5,619.25	0.00	0.00	0.00
16,600.00	90.00	359.63	9,900.30	5,698.95	-522.24	5,719.13	0.00	0.00	0.00
16,700.00	90.00	359.63	9,900.30	5,798.95	-522.89	5,819.01	0.00	0.00	0.00
16,800.00	90.00	359.63	9,900.30	5,898.95	-523.53	5,918.89	0.00	0.00	0.00
16,900.00	90.00	359.63	9,900.30	5,998.95	-524.18	6,018.77	0.00	0.00	0.00
17,000.00	90.00	359.63	9,900.30	6,098.94	-524.83	6,118.65	0.00	0.00	0.00
17,100.00	90.00	359.63	9,900.30	6,198.94	-525.47	6,218.53	0.00	0.00	0.00
17,200.00	90.00	359.63	9,900.30	6,298.94	-526.12	6,318.41	0.00	0.00	0.00
17,300.00	90.00	359.63	9,900.30	6,398.94	-526.76	6,418.29	0.00	0.00	0.00
17,400.00	90.00	359.63	9,900.30	6,498.94	-527.41	6,518.17	0.00	0.00	0.00
17,500.00	90.00	359.63	9,900.30	6,598.93	-528.05	6,618.05	0.00	0.00	0.00
17,600.00	90.00	359.63	9,900.30	6,698.93	-528.70	6,717.93	0.00	0.00	0.00
17,700.00	90.00	359.63	9,900.30	6,798.93	-529.34	6,817.81	0.00	0.00	0.00
17,800.00	90.00	359.63	9,900.30	6,898.93	-529.99	6,917.69	0.00	0.00	0.00
17,900.00	90.00	359.63	9,900.30	6,998.93	-530.63	7,017.57	0.00	0.00	0.00
18,000.00	90.00	359.63	9,900.30	7,098.92	-531.28	7,117.45	0.00	0.00	0.00
18,100.00	90.00	359.63	9,900.30	7,198.92	-531.92	7,217.33	0.00	0.00	0.00
18,200.00	90.00	359.63	9,900.30	7,298.92	-532.57	7,317.21	0.00	0.00	0.00
18,300.00	90.00	359.63	9,900.30	7,398.92	-533.21	7,417.09	0.00	0.00	0.00
18,400.00	90.00	359.63	9,900.30	7,498.92	-533.86	7,516.97	0.00	0.00	0.00
18,500.00	90.00	359.63	9,900.30	7,598.91	-534.50	7,616.85	0.00	0.00	0.00
18,600.00	90.00	359.63	9,900.30	7,698.91	-535.15	7,716.73	0.00	0.00	0.00
18,700.00	90.00	359.63	9,900.30	7,798.91	-535.79	7,816.61	0.00	0.00	0.00
18,800.00	90.00	359.63	9,900.30	7,898.91	-536.44	7,916.49	0.00	0.00	0.00
18,900.00	90.00	359.63	9,900.30	7,998.91	-537.08	8,016.37	0.00	0.00	0.00
19,000.00	90.00	359.63	9,900.30	8,098.90	-537.73	8,116.25	0.00	0.00	0.00
19,100.00	90.00	359.63	9,900.30	8,198.90	-538.38	8,216.13	0.00	0.00	0.00
19,200.00	90.00	359.63	9,900.30	8,298.90	-539.02	8,316.01	0.00	0.00	0.00
19,300.00	90.00	359.63	9,900.30	8,398.90	-539.67	8,415.89	0.00	0.00	0.00
19,400.00	90.00	359.63	9,900.30	8,498.89	-540.31	8,515.77	0.00	0.00	0.00
19,500.00	90.00	359.63	9,900.30	8,598.89	-540.96	8,615.65	0.00	0.00	0.00
19,600.00	90.00	359.63	9,900.30	8,698.89	-541.60	8,715.53	0.00	0.00	0.00
19,700.00	90.00	359.63	9,900.30	8,798.89	-542.25	8,815.42	0.00	0.00	0.00
19,800.00	90.00	359.63	9,900.30	8,898.89	-542.89	8,915.30	0.00	0.00	0.00
19,900.00	90.00	359.63	9,900.30	8,998.88	-543.54	9,015.18	0.00	0.00	0.00
20,000.00	90.00	359.63	9,900.30	9,098.88	-544.18	9,115.06	0.00	0.00	0.00
20,100.00	90.00	359.63	9,900.30	9,198.88	-544.83	9,214.94	0.00	0.00	0.00
20,200.00	90.00	359.63	9,900.30	9,298.88	-545.47	9,314.82	0.00	0.00	0.00
20,300.00	90.00	359.63	9,900.30	9,398.88	-546.12	9,414.70	0.00	0.00	0.00
20,400.00	90.00	359.63	9,900.30	9,498.87	-546.76	9,514.58	0.00	0.00	0.00
20,500.00	90.00	359.63	9,900.30	9,598.87	-547.41	9,614.46	0.00	0.00	0.00
20,600.00	90.00	359.63	9,900.30	9,698.87	-548.05	9,714.34	0.00	0.00	0.00
20,700.00	90.00	359.63	9,900.30	9,798.87	-548.70	9,814.22	0.00	0.00	0.00
20,800.00	90.00	359.63	9,900.30	9,898.87	-549.34	9,914.10	0.00	0.00	0.00
20,806.35	90.00	359.63	9,900.30	9,905.21	-549.39	9,920.44	0.00	0.00	0.00

Oxy Inc.

Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well Mesa Verde BS Unit 59H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3595.30ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3595.30ft
Site:	Mesa Verde BS Unit	**North Reference:**	Grid
Well:	Mesa Verde BS Unit 59H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

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 (Mesa Verde BS - plan hits target center - Point	0.00	0.00	9,900.30	9,905.21	-549.39	451,371.51	741,181.12	32° 14' 21.275071 N	103° 41' 13.105101
FTP (Mesa Verde BS - plan hits target center - Point	0.00	0.00	9,900.30	-538.97	-481.99	440,927.82	741,248.51	32° 12' 37.926237 N	103° 41' 13.051998

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
3,789.00	3,789.00	0.00	0.00	Build 2.00°/100'
4,439.22	4,433.65	-68.62	-26.26	Hold 13.00° Tangent
9,340.94	9,209.65	-1,098.81	-420.42	KOP, Build & Turn 10.00°/100'
10,361.95	9,900.30	-538.97	-481.99	Landing Point
20,806.35	9,900.30	9,905.21	-549.39	TD at 20806.35' MD

Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde BS Unit
Well: Mesa Verde BS Unit 59H
Wellbore: Wellbore #1
Design: Permitting Plan

PROJECT DETAILS: NM DIRECTIONAL PLANS (NAD 1983)

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

System Datum: Mean Sea Level

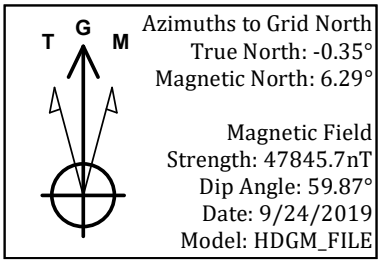
WELL DETAILS: Mesa Verde BS Unit 59H

3568.80

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	441466.76	741730.48	32° 12' 43.230575 N	103° 41' 7.404398 W

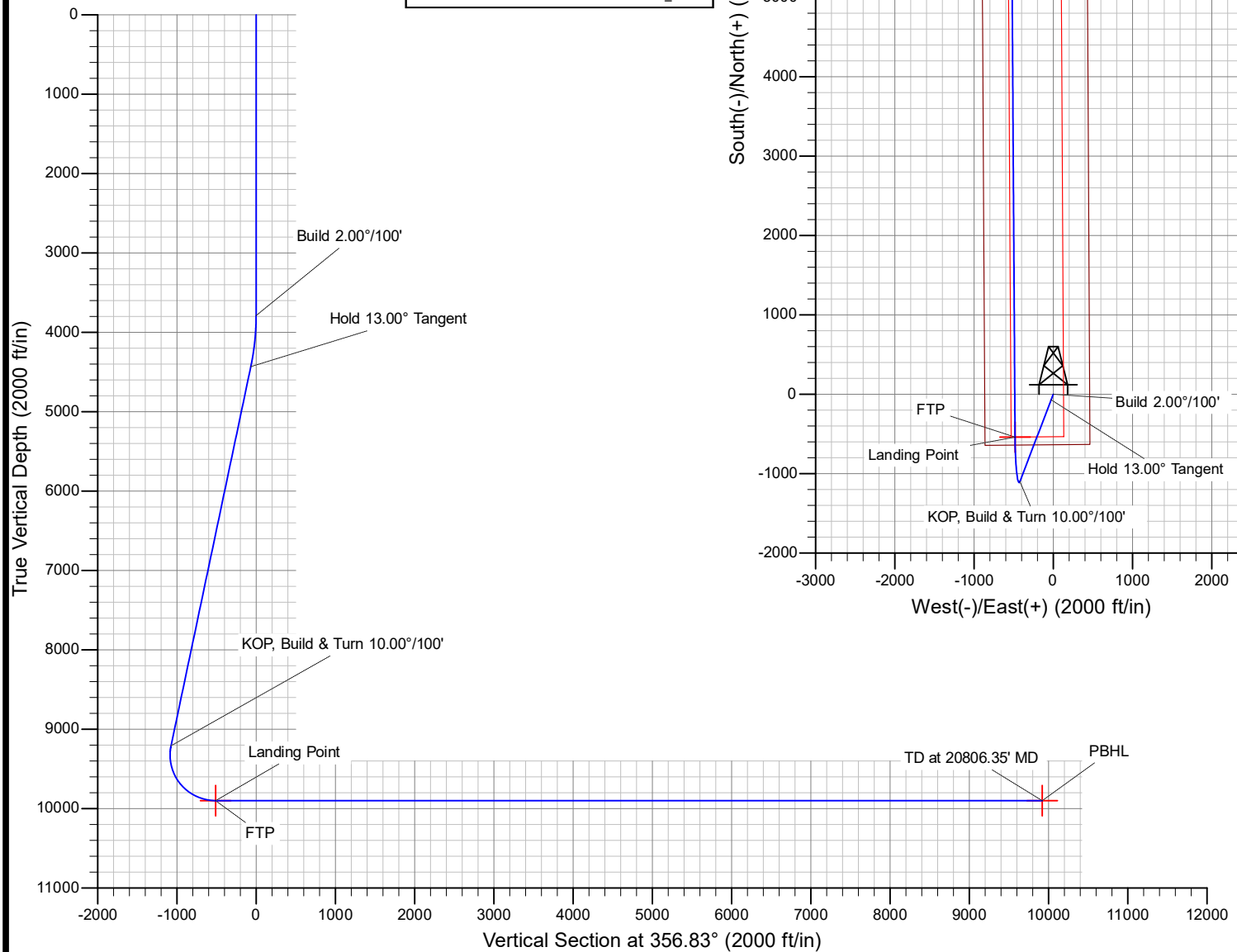
SECTION DETAILS

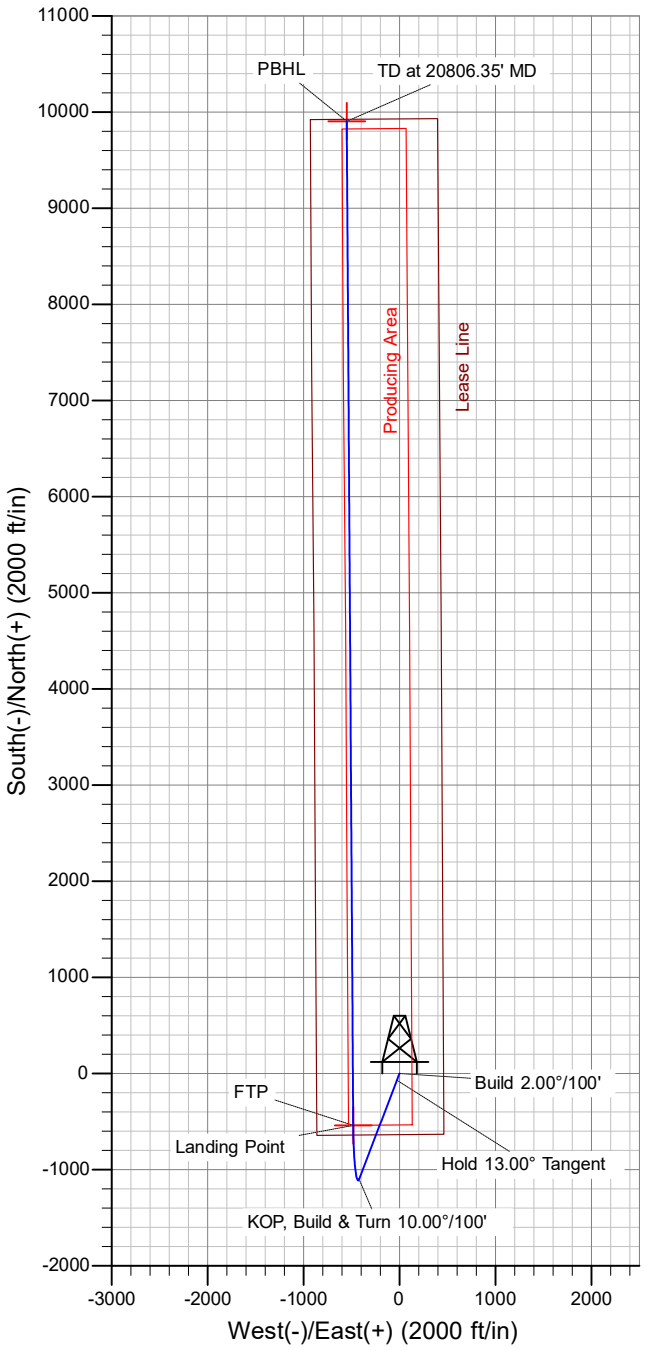
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3789.00	0.00	0.00	3789.00	0.00	0.00	0.00	0.00	0.00	Build 2.00°/100'
4439.22	13.00	200.94	4433.65	-68.62	-26.26	2.00	200.94	-67.06	Hold 13.00° Tangent
9340.94	13.00	200.94	9209.65	-1098.80	-420.42	0.00	0.00	-1073.84	KOP, Build & Turn 10.00°/100'
10361.95	90.00	359.63	9900.30	-538.97	-481.99	10.00	158.18	-511.45	Landing Point
20806.35	90.00	359.63	9900.30	9905.21	-549.39	0.00	0.00	9920.44	TD at 20806.35' MD



Azimuths to Grid North
True North: -0.35°
Magnetic North: 6.29°

Magnetic Field
Strength: 47845.7nT
Dip Angle: 59.87°
Date: 9/24/2019
Model: HDGM_FILE





Oxy USA Inc. - Mesa Verde BS Unit 59H APD_v1

1. Geologic Formations

TVD of target	9900'	Pilot Hole Depth	N/A
MD at TD:	20806'	Deepest Expected fresh water:	904'

Delaware Basin

Formation	TVD - RKB	Expected Fluids
Rustler	904	
Salado	1,217	Salt
Castile	3,129	Salt
Lamar/Delaware	4,717	Oil/Gas/Brine
Bell Canyon	4,741	Oil/Gas/Brine
Cherry Canyon	5,628	Oil/Gas/Brine
Brushy Canyon	6,940	Losses
Bone Spring	8,651	Oil/Gas
1st Bone Spring	**9,738**	**Oil/Gas**

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

2. Casing Program

Hole Size (in)	Casing Interval From (ft)	Casing Interval To (ft)	Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	Buoyant Body SF Tension	Buoyant Joint SF Tension
17.5	0	954	13.375	54.5	J-55	BTC	1.125	1.2	1.4	1.4
12.25	0	4767	9.625	40	L-80	BTC	1.125	1.2	1.4	1.4
8.5	0	20806	5.5	20	P-110	DQX	1.125	1.2	1.4	1.4
							SF Values will meet or Exceed			

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

*Oxy requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower and a DV tool may be run in case hole conditions merit pumping a second stage cement job to comply with permitted top of cement. If cement circulated to surface during first stage, we will drop a cancelation cone and not pump the second stage.

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

Annular Clearance Variance Request

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

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

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y

Oxy USA Inc. - Mesa Verde BS Unit 59H APD_v1

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 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Casing String	# Sks	Wt. (lb/gal)	Yld (ft3/sack)	H20 (gal/sk)	500# Comp. Strength (hours)	Slurry Description
Surface (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Surface (Tail)	1008	14.8	1.33	6.365	5:26	Class C Cement, Accelerator
Intermediate (Lead)	1100	12.9	1.73	8.784	15:26	Pozzolan Cement, Retarder
Intermediate (Tail)	155	14.8	1.33	6.368	7:11	Class C Cement, Accelerator
Production 1st Stage (Lead)	255	13.2	1.38	6.692	17:50	Class H Cement, Retarder, Dispersant, Salt
Production 1st Stage (Tail)	2127	13.2	1.38	6.686	3:49	Class H Cement, Retarder, Dispersant, Salt
2nd Stage Production Lead Slurry to be pumped as Bradenhead Squeeze from surface, down the Production annulus.						
Production 2nd Stage (Tail)	441	12.9	1.872	10.11	21:54	Class C Cement, Accelerator

Casing String	Top (ft)	Bottom (ft)	% Excess
Surface (Lead)	N/A	N/A	N/A
Surface (Tail)	0	954	100%
Intermediate (Lead)	0	4267	50%
Intermediate (Tail)	4267	4767	20%
Production 1st Stage (Lead)	7190	8651	5%
Production 1st Stage (Tail)	8651	20806	5%
Production 2nd Stage (Tail)	4267	7190	25%

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

The summarized operational sequence will be as follows:

1. Run casing as per normal operations. While running casing, conduct negative pressure test and confirm integrity of the float equipment (float collar and shoe).
2. Land casing.
3. Fill pipe with kill weight fluid, and confirm well is static.
    a. If well is not static notify BLM and kill well.
    b. Once well is static notify BLM with intent to proceed with nipple down and offline cementing.
4. Set and pressure test annular packoff.

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

4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12.25" Hole	13-5/8"	3M	Annular	✓	70% of working pressure
		3M	Blind Ram	✓	250 psi / 3000 psi
			Pipe Ram		
			Double Ram	✓	
			Other*		
8.5" Hole	13-5/8"	3M	Annular	✓	70% of working pressure
		3M	Blind Ram	✓	250 psi / 3000 psi
			Pipe Ram		
			Double Ram	✓	
			Other*		

*Specify if additional ram is utilized.

Oxy will utilize a 5M annular with a 10M BOPE stack. The BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

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

	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
	A multibowl or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested

	per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on October 8, 2015. See attached schematics.

BOP Break Testing Request

Oxy requests permission to adjust the BOP break testing requirements as per the agreement reached in the OXY/BLM meeting on September 5, 2019. A separate sundry will be sent prior to spud that reflects the pad based break testing plan.

BOP break test under the following conditions:

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

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

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

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

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

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From (ft)	To (ft)				
0	954	Water-Based Mud	8.6-8.8	40-60	N/C
954	4767	Saturated Brine-Based Mud	9.8-10.0	35-45	N/C
4767	20806	Water-Based or Oil-Based Mud	8.0-9.6	38-50	N/C

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

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

6. Logging and Testing Procedures

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

Additional logs planned		Interval
No	Resistivity	
No	Density	

No	CBL	
Yes	Mud log	ICP - TD
No	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4943 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	160°F

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

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

8. Other facets of operation	**Yes/No**
Will the well be drilled with a walking/skidding operation? If yes, describe. • We plan to drill the three 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: 1965.4 bbls**.**

9. Company Personnel

Name	Title	Office Phone	Mobile Phone
Linsay Earle	Drilling Engineer	713-350-4921	832-596-5507
Margaret Giltner	Drilling Engineer Supervisor	713-366-5026	210-683-8480
Simon Benavides	Drilling Superintendent	713-522-8652	281-684-6897
Diego Tellez	Drilling Manager	713-350-4602	713-303-4932

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

SUPO Data Report
04/21/2021

APD ID: 10400052168
Submission Date: 12/11/2019
Operator Name: OXY USA INCORPORATED
Well Name: MESA VERDE BS UNIT
Well Number: 59H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

MesaVerdeBSUnit59H_ExistRoads_20191211083126.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

MesaVerdeBSUnit59H_NewRoads_20191211083204.pdf

New road type: LOCAL

Length: 1396.7 Feet **Width (ft.):** 30

Max slope (%): 0 **Max grade (%):** 0

Army Corp of Engineers (ACOE) permit required? N

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: Watershed Diversion every 200' if needed.

New road access plan or profile prepared? Y

New road access plan attachment:

MesaVerdeBSUnit59H_NewRoads_20191211083221.pdf

Access road engineering design? N

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Access road engineering design attachment:

Turnout? N

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: Caliche

Access onsite topsoil source depth: 0

Offsite topsoil source description:

Onsite topsoil removal process: If available

Access other construction information: None

Access miscellaneous information: a. A new access road will be built from the northeast corner of an existing pad. The access road will run 80.7 northwest through pasture to the southeast corner of the proposed new pad. A new access road to the Mesa Verde East Compressor Station will follow the surveyed route. Survey of a strip of land 30 wide and 1316 (0.249mi) in length crossing USA land in Sections 16 & 21, T24S, R32E, NMPM, Lea County, NM, and being 15 left and 15 right of centerline survey.

Number of access turnouts: **Access turnout map:**

Drainage Control

New road drainage crossing: CULVERT

Drainage Control comments: Watershed Diversion every 200' if needed.

Road Drainage Control Structures (DCS) description: Watershed Diversion every 200' if needed.

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

MesaVerdeBSUnit59H_ExistWells_20191211083451.pdf

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: a. In the event the well is found productive, an existing central tank battery will be utilized and the necessary production equipment will be installed at the well site. See proposed facilities layout diagram. b. All flow lines will adhere to API standards. They will consist of (3) surface 4 composite flowlines per well operating 75% MAWP, lines to follow surveyed route. Survey of a strip of land 30 wide and 31,808.3(6.024mi) in length crossing USA Land in Sections 13 & 24, T24S R31E, NMPM, Eddy County, and Sections 16, 17 & 18, T24S, R32E, NMPM, Lea County, NM and being 25 left and 25 right of the centerline survey, see attached. (2) buried 6 steel gas lines operating 1500psig branching off the 2 common 8 steel main lines, gas lift lines to follow surveyed route. Survey of a strip of land 30 wide and 2,611.5 (0.495mi) in

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

length crossing USA land in Sections 16, T24S, R32E, NMPM, Lea County, NM and being 15 left and 15 right of the centerline survey, see attached. c. Electric line (overhead) will follow a route approved by the BLM. Survey of a strip of land 50 wide and 2614.6 (0.495mi) in length crossing USA land in Sections 16, T24S R32E, NMPM, Lea County, NM and being 15 left and 15 right of the centerline survey, see attached.

Production Facilities map:

MesaVerdeBSUnit59H_LeaseFacilityInfo_20191211083529.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source type: GW WELL

Water source use type: SURFACE CASING

INTERMEDIATE/PRODUCTION CASING

OTHER **Describe use type:** Drilling

Source latitude: **Source longitude:**

Source datum:

Water source permit type: WATER WELL

Water source transport method: PIPELINE

TRUCKING

Source land ownership: COMMERCIAL

Source transportation land ownership: COMMERCIAL

Water source volume (barrels): 2000 **Source volume (acre-feet):** 0.25778618

Source volume (gal): 84000

Water source and transportation map:

MesaVerdeBSUnit59H_GRRWtrSrc_20191211083648.pdf

MesaVerdeBSUnit59H_MesqWtrSrc_20191211083657.pdf

Water source comments: This well will be drilled using a combination of water mud systems. It will be obtained from commercial water stations (Gregory Rockhouse, Mesquite) in the area and will be hauled to location by transport truck using existing and proposed roads.

New water well? N

New Water Well Info

Well latitude: **Well Longitude:** **Well datum:**

Well target aquifer:

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Est. depth to top of aquifer(ft): **Est thickness of aquifer:**

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Using any construction materials: YES

Construction Materials description: Primary - All caliche utilized for the drilling pad and proposed access road will be obtained from an existing BLM/State/Fee approved pit or from prevailing deposits found on the location. Will use BLM recommended extra caliche from other locations close by for roads, if available. Secondary - The secondary way of obtaining caliche to build locations and roads will be by “turning over” the location. This means, caliche will be obtained from the actual well site. A caliche permit will be obtained from BLM prior to pushing up any caliche. 2400 cubic yards is max amount of caliche needed for pad and roads. Amount will vary for each pad. The procedure below has been approved by BLM personnel: a. The top 6” of topsoil is pushed off and stockpiled along the side of the location. b. An approximate 120’ X 120’ area is used within the proposed well site to remove caliche. c. Subsoil is removed and piled alongside the 120’ X 120’ within the pad site. d. When caliche is found, material will be stockpiled within the pad site to build the location and road. e. Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road. f. Once the well is drilled the stockpiled top soil will be used for interim reclamation and spread along areas where caliche is picked up and the location size is reduced. Neither caliche nor subsoil will be stockpiled outside of the well pad. Topsoil will be stockpiled along the edge of the pad. Caliche will be provided from a pit located in Section 6 T24S R32E. Water will be provided from a frac pond located in Sections 18 T24S R32E.

Construction Materials source location attachment:

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Water-Based Cuttings, Water-Based Mud, Oil-Based Cuttings, Oil-Based Mud, Produced Water

Amount of waste: 1965.4 barrels

Waste disposal frequency : Daily

Safe containment description: Haul-Off Bins

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL **Disposal location ownership:** COMMERCIAL

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

FACILITY

Disposal type description:

Disposal location description: An approved facility that can process drill cuttings, drill fluids, flowback water, produced water, contaminated soils, and other non-hazardous wastes.

Reserve Pit

Reserve Pit being used? N

Temporary disposal of produced water into reserve pit? NO

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? Y

Description of cuttings location A closed loop system will be utilized consisting of above ground steel tanks and haul-off bins. Disposal of liquids, drilling fluids and cuttings will be disposed of at an approved facility.

Cuttings area length (ft.) **Cuttings area width (ft.)**

Cuttings area depth (ft.) **Cuttings area volume (cu. yd.)**

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: N

Ancillary Facilities attachment:

Comments:

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Section 9 - Well Site Layout

Well Site Layout Diagram:

MesaVerdeBSUnit59H_WellSiteCL_20191211083821.pdf

Comments: V-Door-East - CL Tanks-North - 330' X 755' - 5 well pad

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: MESA VERDE BS UNIT

Multiple Well Pad Number: 44H, 45H, 46H, 59H, 60H

Recontouring attachment:

Drainage/Erosion control construction: Reclamation to be wind rowed as needed to control erosion

Drainage/Erosion control reclamation: Reclamation to be wind rowed as needed to control erosion

Well pad proposed disturbance (acres): 5.72
Road proposed disturbance (acres): 0.96
Powerline proposed disturbance (acres): 1.8
Pipeline proposed disturbance (acres): 23.71
Other proposed disturbance (acres): 0

Total proposed disturbance: 32.19

Well pad interim reclamation (acres): 1.57
Road interim reclamation (acres): 0.51
Powerline interim reclamation (acres): 1.8
Pipeline interim reclamation (acres): 15.8
Other interim reclamation (acres): 0

Total interim reclamation: 19.68

Well pad long term disturbance (acres): 4.15
Road long term disturbance (acres): 0.45
Powerline long term disturbance (acres): 0
Pipeline long term disturbance (acres): 7.9
Other long term disturbance (acres): 0

Total long term disturbance: 12.5

Disturbance Comments: See Below

Reconstruction method: If the well is deemed commercially productive, caliche from the areas of the pad site not required for operations will be reclaimed. The original topsoil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography, and the area will be seeded with an approved BLM mixture to re-establish vegetation. After concluding the drilling and/or completion operations, if the well is found non-commercial, the caliche will be removed from the pad and transported to the original caliche pit or used for other drilling locations. The road will be reclaimed as directed by the BLM. The original topsoil will again be returned to the pad and contoured, as close as possible, to the original topography, and the area will be seeded with an approved BLM mixture to re-establish vegetation.
Topsoil redistribution: The original topsoil will be returned to the area of the drill pad not necessary to operate the well.

Soil treatment: To be determined by the BLM.

Existing Vegetation at the well pad: To be determined by the BLM at Onsite.

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: To be determined by the BLM at Onsite.

Existing Vegetation Community at the road attachment:

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Existing Vegetation Community at the pipeline: To be determined by the BLM at Onsite.

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: To be determined by the BLM at Onsite.

Existing Vegetation Community at other disturbances attachment:

Non native seed used? N

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? N

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? N

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed Summary

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Jim **Last Name:** Wilson

Phone: (575)631-2442 **Email:** Jim_Wilson@oxy.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? N

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Weed treatment plan description: To be determined by the BLM.

Weed treatment plan attachment:

Monitoring plan description: To be determined by the BLM.

Monitoring plan attachment:

Success standards: To be determined by the BLM.

Pit closure description: NA

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: OTHER

Describe: Electric Line

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Disturbance type: PIPELINE

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Section 12 - Other Information

Right of Way needed? Y **Use APD as ROW?** Y

ROW Type(s): 281001 ROW - ROADS,285003 ROW – POWER TRANS,288100 ROW – O&G Pipeline,288101 ROW – O&G Facility Sites,289001 ROW- O&G Well Pad

ROW Applications

SUPO Additional Information: Permian Basin MOA - To be submitted after APD acceptance. GIS Shapefiles available for BLM download from shared FTP site after APD submittal.
Use a previously conducted onsite? N

Previous Onsite information:

Other SUPO Attachment

MesaVerdeBSUnit59H_SUPO_20191211084259.pdf

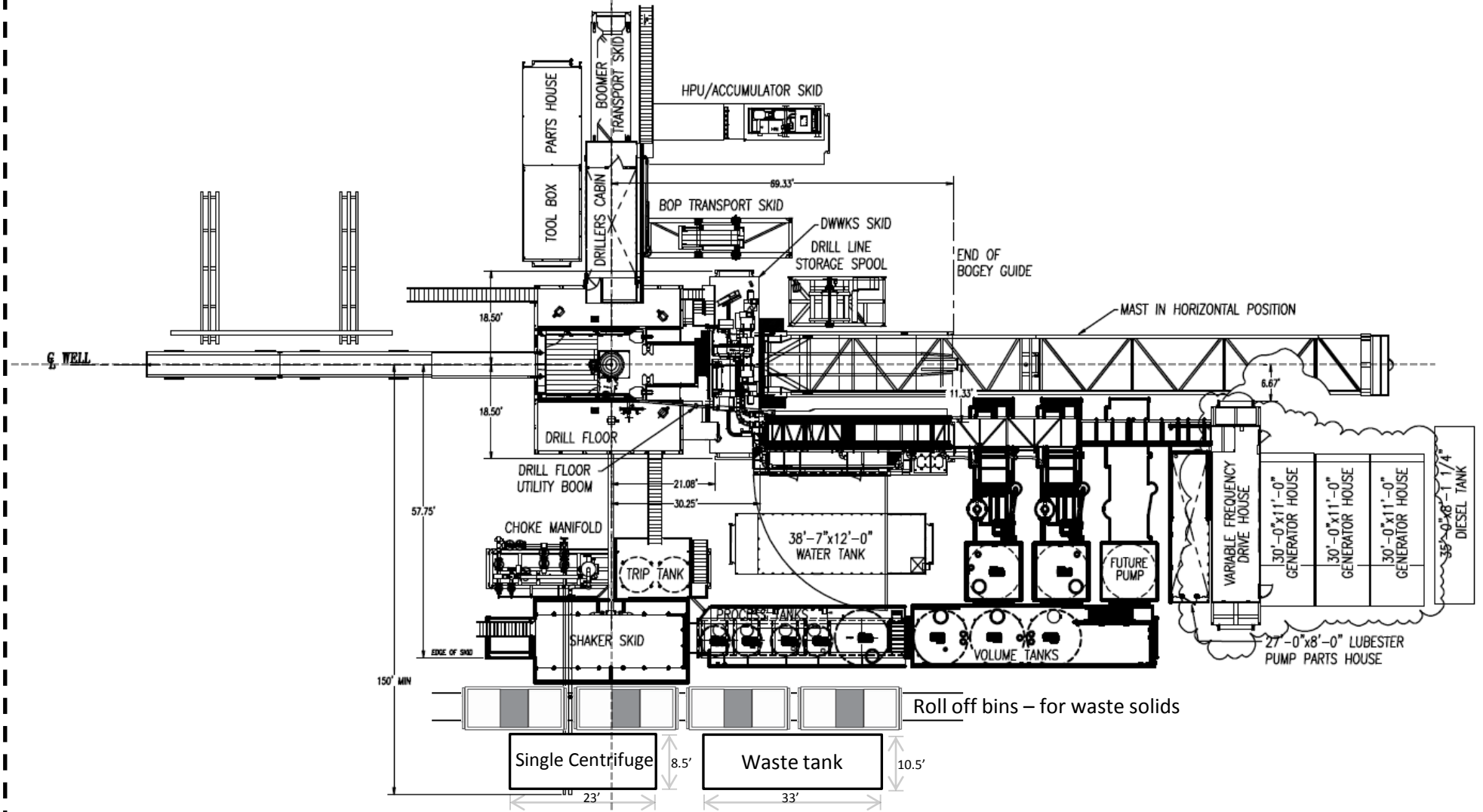
Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

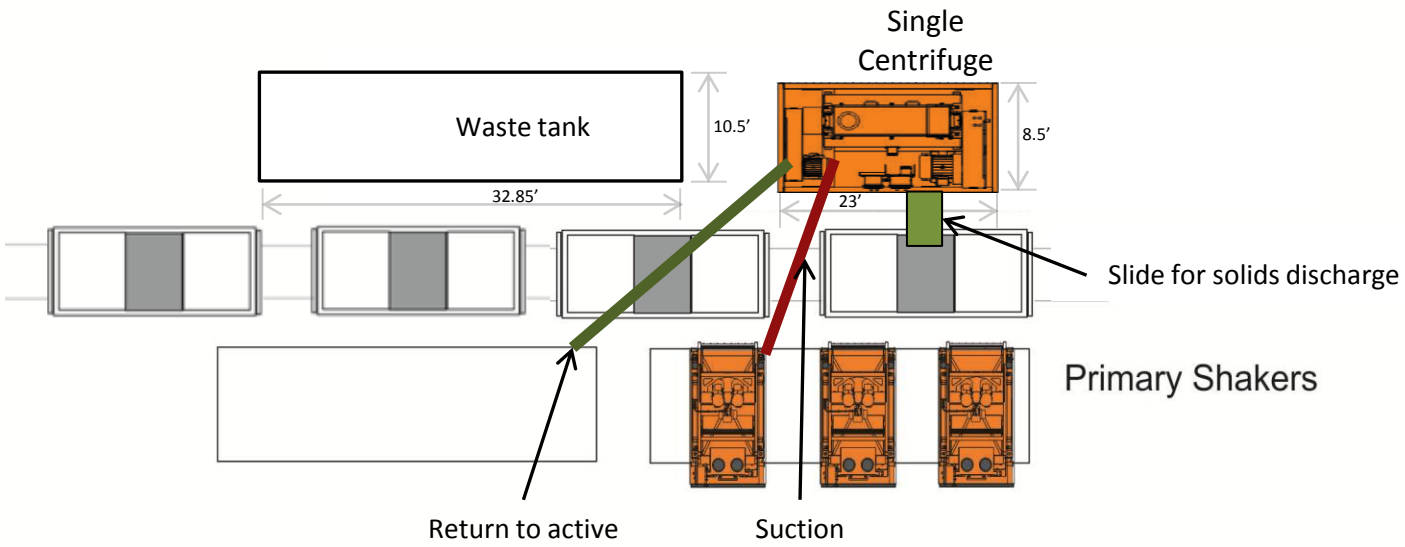
MesaVerdeBSUnit59H_GasCapPlan_20191211084309.pdf
MesaVerdeBSUnit59H_StakeForm_20191211084316.pdf
MesaVerdeBSUnit59H_AM_20191211084327.pdf
MesaVerdeBSUnit59H_Loc_20191211084342.pdf
MesaVerdeBSUnit59H_LVM_20191211084349.pdf

Oxy Single Centrifuge Closed Loop System – New Mexico Flex III

May 28, 2013



Oxy



Oxy Single Centrifuge Closed Loop System – New Mexico Flex III

May 28, 2013

AFMSS

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

PWD Data Report

04/21/2021

APD ID: 10400052168 **Submission Date:** 12/11/2019

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

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

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? N

Produced Water Disposal (PWD) Location:

PWD disturbance (acres): **PWD surface owner:**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Other PWD discharge volume (bbl/day):

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT **Well Number:** 59H

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

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

Bond Info Data Report

04/21/2021

APD ID: 10400052168

Submission Date: 12/11/2019

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE BS UNIT

Well Number: 59H

Well Type: OIL WELL

Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Bond Information

Federal/Indian APD: FED

BLM Bond number: ESB000226

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name

Property Code	Property Name	Well Number
	MESA VERDE BS UNIT	59H

OGRID No.	Operator Name	Elevation
	OXY USA INC.	3568.8'

Surface Location

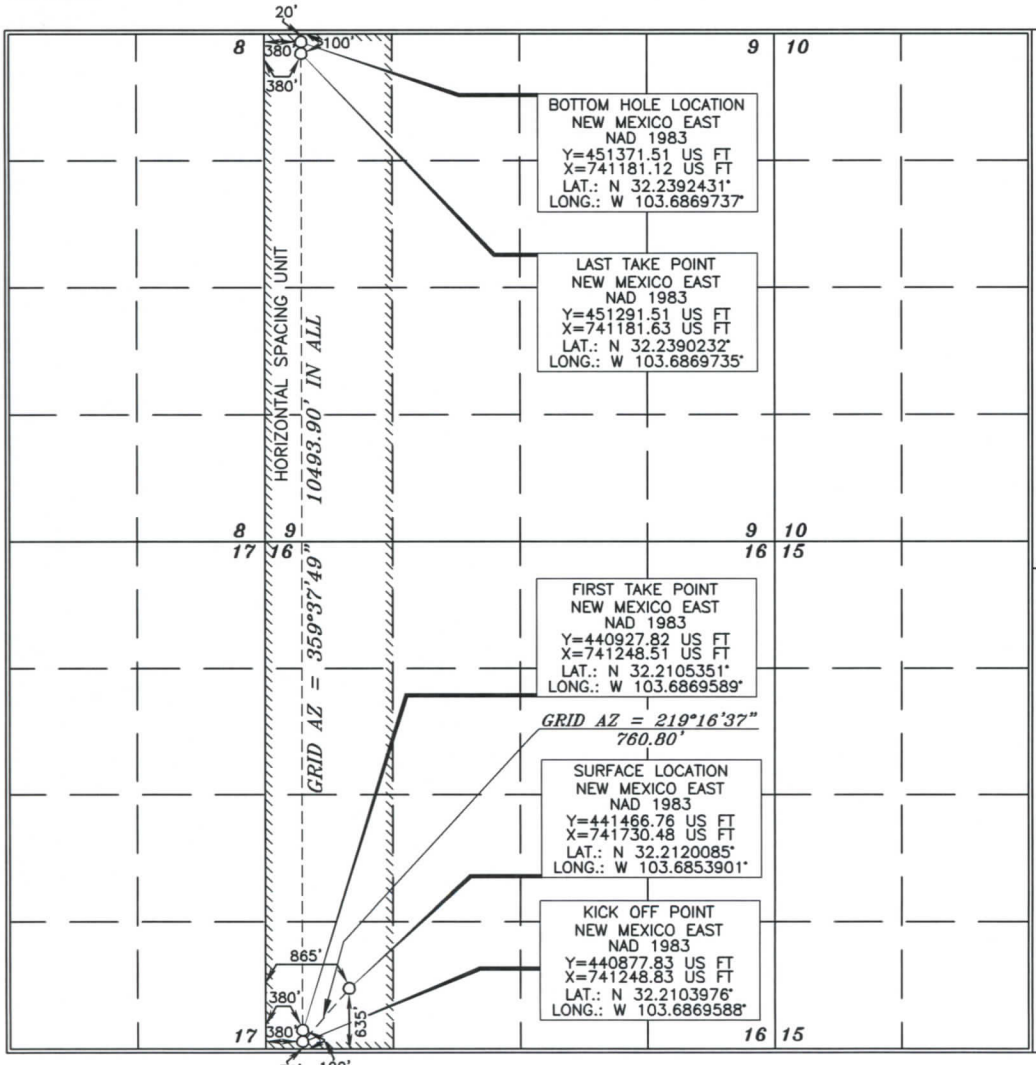
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	16	24 SOUTH	32 EAST, N.M.P.M.		635'	SOUTH	865'	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	9	24 SOUTH	32 EAST, N.M.P.M.		20'	NORTH	380'	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	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.



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.

Signature Date

Printed Name

E-mail Address

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.

JUNE 26, 2019
Date of Survey

Signature and Seal of Professional Surveyor:

TERRY J. ASEL NEW MEXICO 15079 REGISTERED PROFESSIONAL LAND SURVEYOR

Terry J. Asel 7/12/2019

Certificate Number 15079

WO# 190626WL-b (KA)

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

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 12-4-2019

☒ Original Operator & OGRID No.: OXY USA INC. - 16696
☐ Amended - Reason for Amendment: _____

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

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

Well(s)/Production Facility – Name of facility
The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared /Vent	Comments
MESA VERDE BS UNIT 44H	Pending	M-Sec.16-T24S-R32E	635 FSL 1140 FWL	5,500	0	
MESA VERDE BS UNIT 45H	Pending	M-Sec.16-T24S-R32E	635 FSL 1175 FWL	5,500	0	
MESA VERDE BS UNIT 46H	Pending	M-Sec.16-T24S-R32E	635 FSL 1210 FWL	5,500	0	
MESA VERDE BS UNIT 59H	Pending	M-Sec.16-T24S-R32E	635 FSL 865 FWL	2,500	0	
MESA VERDE BS UNIT 60H	Pending	M-Sec.16-T24S-R32E	635 FSL 900 FWL	2,500	0	
MESA VERDE BS UNIT 73H	Pending	M-Sec.16-T24S-R32E	250 FSL 500 FWL	3,000	0	
MESA VERDE BS UNIT 74H	Pending	M-Sec.16-T24S-R32E	250 FSL 535 FWL	3,000	0	
MESA VERDE WC UNIT 39H	Pending	N-Sec.16-T24S-R32E	250 FSL 1715 FWL	7,200	0	
MESA VERDE WC UNIT 40H	Pending	N-Sec.16-T24S-R32E	250 FSL 1750 FWL	7,200	0	
MESA VERDE WC UNIT 41H	Pending	N-Sec.16-T24S-R32E	250 FSL 1785 FWL	7,200	0	

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

Flowback Strategy
After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal

sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Enterprise system at that time. Based on current information, it is OXY's belief the system can take this gas upon completion of the well(s).

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

Alternatives to Reduce Flaring

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

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

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

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

CONDITIONS

Action 25024

CONDITIONS OF APPROVAL

Operator:	OGRID:	Action Number:	Action Type:
OXY USA INC P.O. Box 4294 Houston, TX772104294	16696	25024	FORM 3160-3

OCD Reviewer	Condition
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string