

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMNM89819

6. If Indian, Allottee or Tribe Name

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

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other8. Well Name and No.
PATTON MDP1 18 FEDERAL 73H2. Name of Operator
OXY USA INCORPORATEDContact: DAVID STEWART
E-Mail: david_stewart@oxy.com9. API Well No.
30-015-44318-00-X13a. Address
5 GREENWAY PLAZA SUITE 110
HOUSTON, TX 77046-05213b. Phone No. (include area code)
Ph: 432.685.571710. Field and Pool or Exploratory Area
COTTON DRAW-BONE SPRING

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 18 T24S R31E NWNE 335FNL 2092FEL
32.223671 N Lat, 103.815155 W Lon

11. County or Parish, State

EDDY COUNTY, NM

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

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

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

OXY USA Inc. respectfully requests approval for the following changes from the approved permit:

NM OIL CONSERVATION
ARTESIA DISTRICT

SEP 11 2017

1. Change to the Casing Design - To achieve the desired objectives for this well, the following changes will be made to the casing program:

a. An extra string was added due to our most recent data in the area and will be set at 10510' MD.

b. To accommodate the extra string, the surface casing was changed to 16" 75# J55 BTC, the intermediate casing was changed to 10-3/4" 45.5# J55 BTC, the production casing was changed to 7-5/8" 29.7# L80/HCL80, and the final string was changed to a production liner 4-1/2" 13.5# P110 DQX.

c. The liner will be set 100' above the production casing point (10510') at 10410' MD.

RECEIVED
SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Accepted for record - NMOCD

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #383290 verified by the BLM Well Information System
For OXY USA INCORPORATED, sent to the Carlsbad
Committed to AFMSS for processing by TENILLE ORTIZ on 08/08/2017 (17T00035SE)

Name (Printed/Typed) DAVID STEWART

Title REGULATORY ADVISOR

Signature (Electronic Submission)

Date 07/31/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

Date

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

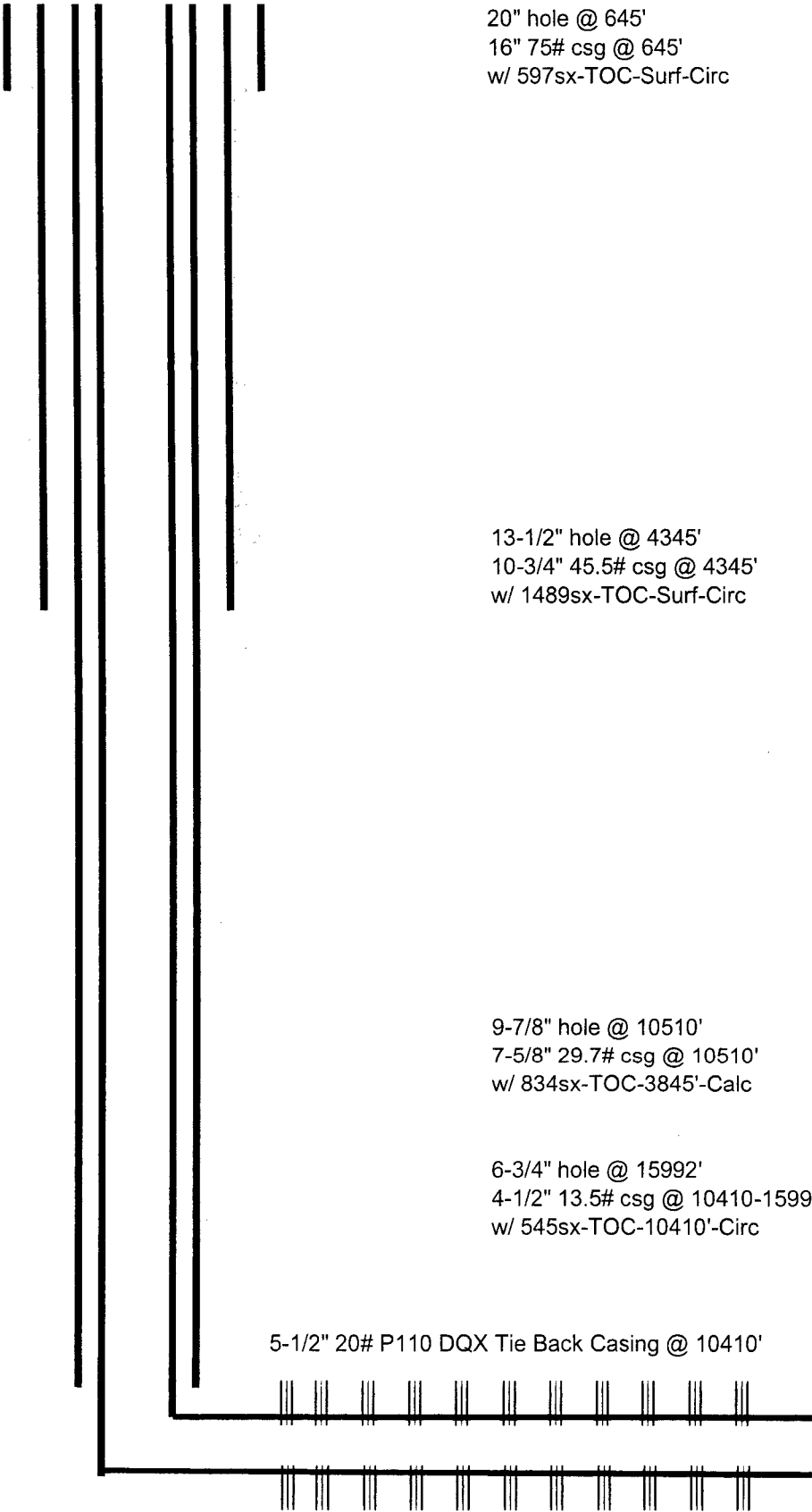
Office

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

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

OXY USA Inc.
Patton MDP1-18 Federal #73H
API No. 30-015-44138



20" hole @ 645'
16" 75# csg @ 645'
w/ 597sx-TOC-Surf-Circ

13-1/2" hole @ 4345'
10-3/4" 45.5# csg @ 4345'
w/ 1489sx-TOC-Surf-Circ

9-7/8" hole @ 10510'
7-5/8" 29.7# csg @ 10510'
w/ 834sx-TOC-3845'-Calc

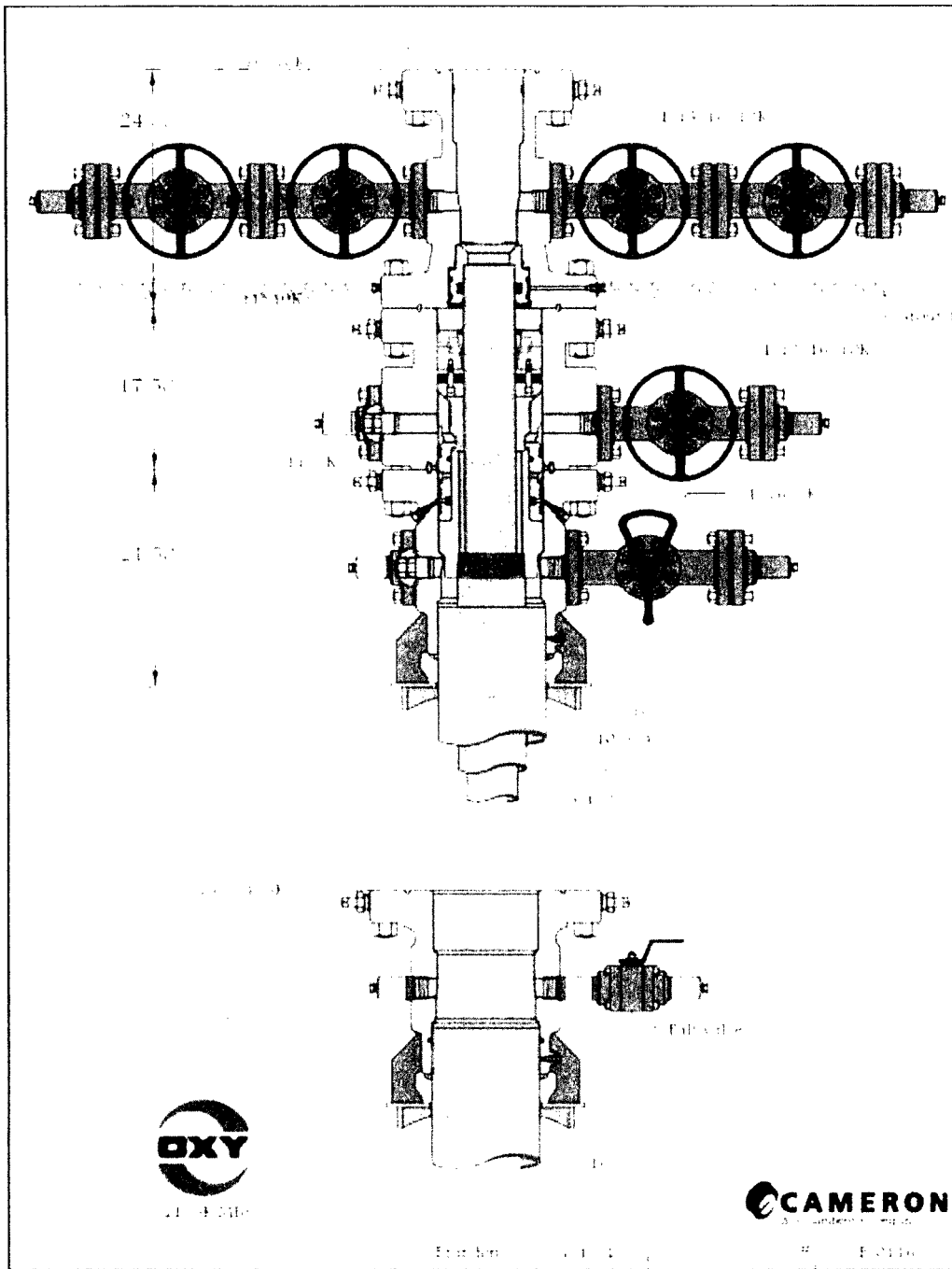
6-3/4" hole @ 15992'
4-1/2" 13.5# csg @ 10410-1599;
w/ 545sx-TOC-10410'-Circ

5-1/2" 20# P110 DQX Tie Back Casing @ 10410'

Perfs @ Pending

TD-15992'M 11175'V

OXY USA Inc. – Patton MDP1 18 Federal #73H



OXY USA Inc. – Patton MDP1 18 Federal #73H

Oxy respectfully requests approval for the following changes from the approved permit:

1. Change to the Casing Design

To achieve the desired objectives for this well, the following changes will be made to the casing program:

- An extra string was added due to our most recent data in the area and will be set at 10510' MD.
- To accommodate the extra string, the surface casing was changed to 16" 75# J55 BTC, the intermediate casing was changed to 10.75" 45.5# J55 BTC, the production casing was changed to 7.625" 29.7# L80/HCL80, and the final string was changed to a production liner (4.5" 13.5# P110 DQX).
- The liner will be set 100' above the production casing point (10510') at 10410' MD.

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	Buoyant Buoyant			
							SF	SF	Body SF	Joint SF
	From (ft)	To (ft)					Collapse	Burst	Tension	Tension
20	0	645	16	75	J55	BTC	3.01	1.27	2.73	2.8
13.5	0	4345	10.75	45.5	J55	BTC	2.11	1.26	2.14	2.39
9.875	0	7500	7.625	29.7	L80	BTC	1.21	1.22	1.6	1.84
9.875	7500	10510	7.625	29.7	HC L80	BTC	1.13	1.22	2.97	3.58
6.75	10410	15992	4.5	13.5	P110	DQX	1.72	1.21	2.45	2.38

2. Change to Cement Program

To achieve the desired objectives for this well, the following changes will be made to the cement program: The cement volumes were adjusted to reflect the updated hole sizes and casing design.

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H2O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	597	14.2	1.36	6.55	6:30	Class C Cement, Accelerator
1st	1144	12.9	1.85	9.84	12:22	Pozzolan Cement, Retarder
Intermediate	345	14.8	1.33	6.34	7:19	Class C Cement, Retarder, Dispersant, Salt
Production	672	10.3	3.05	15.63	15:07	Class C Cement
Casing	162	13.2	1.65	8.45	12:57	Class H Cement, Retarder, Dispersant, Salt
Production Liner	545	13.2	1.63	8.37	15:15	Class H Cement, Retarder, Dispersant, Salt

Casing String	Top of Lead (ft)	Bottom of Lead (ft)	Top of Tail (ft)	Bottom of Tail (ft)	% Excess Lead	% Excess Tail
Surface	N/A	N/A	0	645	N/A	50%
Intermediate Casing	0	3345	3345	4345	75%	20%
Production Casing	3845	9510	9510	10510	75%	20%
Production Liner	N/A	N/A	10410	15992	N/A	15%

Cement Top and Liner Overlap

- a. Oxy is requesting permission to have minimum fill of cement behind the 4-1/2" production liner to be 100 ft into previous casing string. The reason for this is so that we can come back and develop shallower benches from the same 7.625" mainbore in the future
- b. Our plan is to use a whipstock for our exit through the mainbore. Based on our future lateral target, we are planning a whipstock cased/hole exit so that kick-off point will allow for roughly 10deg/100' doglegs needed for the curve.
- c. Cement will be brought to the top of this liner hanger.

See attached for additional casing tie-back information

3. Change in the Pressure Control Equipment

To achieve the desired objectives for this well, the following changes will be made to the pressure control equipment: The pressure control equipment program was adjusted to reflect the updated hole sizes and casing design.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
13.5" Intermediate	13-5/8"	2M	Annular	✓	70% of working pressure
			Blind Ram	✓	250/2000psi
			Pipe Ram		
			Double Ram	✓	
			Lower Pipe Ram		
9.875" Production	13-5/8"	5M	Annular	✓	70% of working pressure
			Blind Ram	✓	250/5000psi
			Upper Pipe Ram	✓	
			Double Ram		
			Lower Pipe Ram	✓	
6.75" Production	13-5/8"	5M	Annular	✓	70% of working pressure
			Blind Ram	✓	250/5000psi
			Pipe Ram	✓	
			Double Ram		
			Lower Pipe Ram	✓	

• **BOP Pressure Test**

- Because it is not possible to land a 16-3/4" test plug through 13-5/8" BOP, Oxy is requesting permission to test the BOP against the lower pipe rams after N/U BOP on 16-3/4" wellhead. The lower pipe rams will serve as a test plug
- A 2M, 10 minute test will be performed on all BOP components. Maximum Anticipated Surface Pressure for drilling the 13-1/2" hole section is: $(4345' \times 10 \text{ ppg} \times 0.052) - (0.1 \text{ psi/ft} \times 4345') = 1825 \text{ psi}$
- Upper pipe rams will be tested against lower pipe rams. Annular will also against the lower pipe rams. Blind rams will be tested against casing with nothing in the hole. This will be a 30 minute test. Lower pipe rams will be tested against casing after running the BHA in the hole. Test pressure will not exceed 70% burst of 16" casing. This test will also serve as a casing test, and will be held for 30 minutes. After cementing the 10-3/4" casing, subsequent tests on BOP will be performed using a traditional test plug

OXY USA Inc. – Patton MDP1 18 Federal #73H

4. Change in the Estimated Cuttings Volume

Due to the change in the hole sizes and casing program, the cuttings volumes must be edited to reflect this change.

Total estimated cuttings volume: 1783.5 bbls

5. Request a variance from the 0.422" clearance requirement on each side of the casing.

- Run 5-1/2" 20# P-110 DQX with a Connection OD of 6.05" inside of our 7-5/8" casing (Nominal ID: 6-7/8" and Drift ID: 6-3/4").
- The 5-1/2" string will be used as a tie-back above the 4-1/2" liner and will remain un-cemented. The only cemented portion of the well will be the liner, which will be cemented a minimum of 100' back into the 7-5/8" casing.
-

6. Change to the wellhead design due to availability and cost.

- a. Due to the casing design change and adding another casing string to the well, a 16" 3K sacrificial wellhead will be used to drill the 13-1/2" Intermediate Hole. Upon completion of drilling and cementing operations on the 13-1/2" Intermediate Hole section (along with proper WOC time), the wellhead will be cut off and salvaged. At this point, the 11" 5x10x10 will be welded onto the 10-3/4" casing for the remainder of drilling operations on the pad.



Walls, Christopher <cwalls@blm.gov>

Patton 73H Deep INT-TwoStg_Opt_254542v1

Randall_Neel@oxy.com <Randall_Neel@oxy.com>
To: cwalls@blm.gov

Fri, Sep 1, 2017 at 8:44 AM

Chris,

As per our conversation, we are seeking to change the Patton MDP1 18 Fed 73H 7-5/8" casing to a two stage cement job due to some intermittent losses. We are proposing to have the DV tool set at ~6000'MD as we already have a casing string set to isolate the salts. Enclosed is our cement proposal. The slurries are in line with Oxy's standard slurry designs.

Regards,

Randy

Randall Neel | Drilling Engineer | Permian Resources – Delaware Basin | [T] 713 215 7987 [M] 713 517 5544 |
Randall_Neel@oxy.com



Patton 73H Deep INT-TwoStg_Opt_254542v1.pdf
176K

2.2 Job Volume Estimates Casing

Two Stage - 7-5/8" Intermediate

Stage 1

Fluid 1: Water Spacer

Fresh water

0.05 lbm/bbl Rhodamine Red Dye No. 2

Fluid Density:

8.3 lbm/gal

Volume:

5 bbl

Fluid 2: Water Based Spacer

9.7 lb/gal Tuned Spacer III

38.77 gal/bbl FRESH WATER

0 lbm/bbl FE-2

42.50 lbm/bbl Barite

Fluid Density:

9.7 lbm/gal

Volume:

40 bbl

Fluid 3: Lead Slurry

Premium Plus Cement

0.1250 lbm/sk Poly-E-Flake

1 lbm/sk Kol-Seal

0.30 lbm/sk HR-800

19.09 Gal/sk FRESH WATER

Fluid Weight:

10.2 lbm/gal

Slurry Yield:

3.341 ft3/sack

Total Mixing Fluid:

19.09 Gal/sack

Calculated Volume:

383.5 bbl

Proposed Volume:

383.5 bbl

Top Of Fluid:

6000 ft

Calculated Fill:

4010 ft

Calculated sack:

644.40 sack

Proposed sack:

645 sack

Fluid 4: Tail Slurry

Super H Cement

0.50 % Halad(R)-344

0.30 % CFR-3

2 lbm/sk Kol-Seal

3 lbm/sk Salt

8.47 Gal/sk FRESH WATER

Fluid Weight:

13.2 lbm/gal

Slurry Yield:

1.652 ft3/sack

Total Mixing Fluid:

8.47 Gal/sack

Calculated Volume:

24.8 bbl

Proposed Volume:

24.8 bbl

Top Of Fluid:

10010 ft

Calculated Fill:

500 ft

Calculated sack:

84.24 sack

Proposed sack:

85 sack

Fluid 5: Brine

Displacement Fluid

Fluid Density:

10 lbm/gal

Volume:

480.7 bbl

Multiple Stage Cementer

6000 ft(MD)

Stage 2

Fluid 1: Water Based Spacer

9.7 lb/gal Tuned Spacer III
38.77 gal/bbl FRESH WATER
0 lbm/bbl FE-2
42.50 lbm/bbl Barite

Fluid Density: 9.7 lbm/gal
Volume: 40 bbl

Fluid 2: Lead Slurry

Premium Plus Cement
0.1250 lbm/sk Poly-E-Flake
1 lbm/sk Kol-Seal
0.30 lbm/sk HR-800
19.09 Gal/sk FRESH WATER

Fluid Weight: 10.2 lbm/gal
Slurry Yield: 3.341 ft³/sack
Total Mixing Fluid: 19.09 Gal/sack
Calculated Volume: 129.7 bbl
Proposed Volume: **129.7 bbl**
Top Of Fluid: 3860 ft
Calculated Fill: 1640 ft
Calculated sack: 217.96 sack
Proposed sack: 220 sack

Fluid 3: Tail Slurry

Super H Cement
0.50 % Halad(R)-344
0.30 % CFR-3
2 lbm/sk Kol-Seal
3 lbm/sk Salt
8.47 Gal/sk FRESH WATER

Fluid Weight: 13.2 lbm/gal
Slurry Yield: 1.652 ft³/sack
Total Mixing Fluid: 8.47 Gal/sack
Calculated Volume: 22.9 bbl
Proposed Volume: **22.9 bbl**
Top Of Fluid: 5500 ft
Calculated Fill: 500 ft
Calculated sack: 78 sack
Proposed sack: 80 sack

Fluid 4: Brine

Displacement Fluid

Fluid Density: 10 lbm/gal
Volume: 275.5 bbl

SEP 11 2017

**PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL**

RECEIVED

OPERATOR'S NAME:	OXY USA INC.
LEASE NO.:	NMNM89819
WELL NAME & NO.:	73H – Patton MDP1 18 Federal
SURFACE HOLE FOOTAGE:	335'/N & 2092'/E
BOTTOM HOLE FOOTAGE:	180'/S & 2261'/E
LOCATION:	Section 18 T.24 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

A. DRILLING OPERATIONS 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

1. **Although there are no measured amounts of Hydrogen Sulfide reported, it is always a potential hazard. It is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide. If H₂S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, report measured amounts and formations to the BLM.**
2. **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)**
3. 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 is located, this does not include the dog house or stairway area.

4. 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.

B. CASING

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.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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.

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.

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

Secretary's Potash

Possible water flows in the Castile and Salado.

Possible lost circulation in the Rustler, Red Beds, and Delaware.

1. The 16 inch surface casing shall be set at approximately 645 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. If salt is encountered, set casing at least 25 feet above the salt.
 - 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 is to include the lead cement slurry.**
- 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.

Formation below the 13-3/8" shoe to be tested according to Onshore Order

2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

2. The minimum required fill of cement behind the 10-3/4 inch intermediate casing, is:

- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash.**

Formation below the 10-3/4" shoe to be tested according to Onshore Order

2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

3. The minimum required fill of cement behind the 7-5/8 inch production casing, is:

Option #1: Single stage

- ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification.

Option #2: Multi-stage

Operator has proposed DV tool at depth of 6500'. Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.

- a. First stage to DV tool:

- ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve approved top of cement on the next stage.

b. Second stage above DV tool:

- ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification.

Formation below the 7-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

4. The minimum required fill of cement behind the 4-1/2 inch production Liner is:

- ☒ Cement should tie-back to the top of the liner. Operator shall provide method of verification.

5. 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.

C. 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 53.
2. Variance approved to use flex line from BOP to choke manifold. 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.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 2000 (2M) psi.

- a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
- 4. **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 intermediate shoe shall be 5000 (5M) psi.**
 - a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
 - b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
 - c. **Manufacturer representative shall install the test plug for the initial BOP test.**
 - d. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
 - 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.**

5M 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.

- 5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. 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.
 - b. The tests shall be done by an independent service company utilizing a test plug.
 - c. 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.
 - d. The results of the test shall be reported to the appropriate BLM office.

- e. 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.**
- f. 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.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. 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.

CRW 090117