

Form 3160-3
(June 2015)

OCD – HOBBS

12/03/2020

RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No.
1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No.
		8. Lease Name and Well No. [329746]
2. Name of Operator [16696]		9. API Well No. 30-025-48168
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory [5695]
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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 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). | 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 12/03/2020

SL

(Continued on page 2)

APPROVED WITH CONDITIONS
Approval Date: 11/13/2020

KZ
12/14/2020

*(Instructions on page 2)

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

OCD – HOBBS
12/03/2020
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12 7

BOTTOM HOLE LOCATION
 NEW MEXICO EAST
 NAD 1983
 Y=514642.25 US FT
 X=734119.10 US FT
 LAT.: N 32.4132700"
 LONG.: W 103.7086202"

LAST TAKE POINT
 NEW MEXICO EAST
 NAD 1983
 Y=514562.25 US FT
 X=734119.66 US FT
 LAT.: N 32.4130501"
 LONG.: W 103.7086199"

12 7
13 18

FIRST TAKE POINT
 NEW MEXICO EAST
 NAD 1983
 Y=504205.43 US FT
 X=734192.69 US FT
 LAT.: N 32.3845815"
 LONG.: W 103.7085793"

KICK OFF POINT
 NEW MEXICO EAST
 NAD 1983
 Y=504155.43 US FT
 X=734193.05 US FT
 LAT.: N 32.3844441"
 LONG.: W 103.7085792"

GRID AZ = 106°15'36"
412.29'

SURFACE LOCATION
 NEW MEXICO EAST
 NAD 1983
 Y=504270.88 US FT
 X=733797.25 US FT
 LAT.: N 32.3847677"
 LONG.: W 103.7098591"

13 18

10487.08' IN ALL

GRID AZ = 350°35'46"

HORIZONTAL SPACING UNIT

20'
100'
1000'
1000'
170'
100'
50'

8
7 8
18 17

OPERATOR CERTIFICATION

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

Roni Mathew

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.

Date of Survey

Signature and Seal of
Professional Surveyor

COPY 1
 15079
 JULY 30, 2019
 REGISTERED PROFESSIONAL LAND SURVEYOR

Tony J. Asel 10/10/2019

Certificate Number 15079

WO# 190730WL-e (AS)

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

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12/03/2020
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Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 02-12-2020

☒ 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, recomple 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 or Vented	Comments
I PREFER PI 18_7 FED COM 1H	Pending	N-18-22S-32E	490 FSL 1660 FWL	1,728	0	
I PREFER PI 18_7 FED COM 2H	Pending	N-18-22S-32E	490 FSL 1695 FWL	1,728	0	
I PREFER PI 18_7 FED COM 3H	Pending	P-18-22S-32E	744 FSL 768 FEL	1,728	0	
I PREFER PI 18_7 FED COM 4H	Pending	P-18-22S-32E	749 FSL 733 FEL	1,728	0	
I PREFER PI 18_7 FED COM 11H	Pending	4-18-22S-32E	490 FSL 1350 FWL	2,760	0	
I PREFER PI 18_7 FED COM 12H	Pending	4-18-22S-32E	490 FSL 1385 FWL	2,760	0	
I PREFER PI 18_7 FED COM 13H	Pending	4-18-22S-32E	490 FSL 1490 FWL	2,760	0	
I PREFER PI 18_7 FED COM 14H	Pending	P-18-22S-32E	700 FSL 1075 FEL	2,760	0	
I PREFER PI 18_7 FED COM 15H	Pending	P-18-22S-32E	705 FSL 1040 FEL	2,760	0	
I PREFER PI 18_7 FED COM 16H	Pending	P-18-22S-32E	710 FSL 1005 FEL	2,760	0	
I PREFER PI 18_7 FED COM 21H	Pending	4-18-22S-32E	490 FSL 835 FWL	2,375	0	
I PREFER PI 18_7 FED COM 22H	Pending	4-18-22S-32E	490 FSL 870 FWL	2,375	0	
I PREFER PI 18_7 FED COM 23H	Pending	4-18-22S-32E	490 FSL 905 FWL	2,375	0	
I PREFER PI 18_7 FED COM 24H	Pending	P-18-22S-32E	170 FSL 1120 FEL	2,375	0	
I PREFER PI 18_7 FED COM 25H	Pending	P-18-22S-32E	170 FSL 1085 FEL	2,375	0	
I PREFER PI 18_7 FED COM 26H	Pending	P-18-22S-32E	170 FSL 1050 FEL	2,375	0	

[illegible]

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 DCP Midstream, LP ("DCP") and will be connected to DCP's low/high pressure gathering system located in Lea County, New Mexico. OXY USA INC. ("OXY") provides (periodically) to DCP a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, OXY and DCP have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at DCP's Zia Processing Plant located in Sec. 19, Twn. 19S, Rng. 32E, Lea 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 DCP's system at that time. Based on current information, it is OXY's belief the system can take this gas upon completion of the well(s).

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

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

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1. Geologic Formations

TVD of target	11668'	Pilot Hole Depth	N/A
MD at TD:	22496'	Deepest Expected fresh water:	397'

Delaware Basin

Formation	TVD - RKB	Expected Fluids
Rustler	884	
Salado	1,178	Salt
Castile	2,850	Salt
Lamar/Delaware	4,710	Oil/Gas/Brine
Bell Canyon	4,755	Oil/Gas/Brine
Cherry Canyon	5,618	Oil/Gas/Brine
Brushy Canyon	6,818	Losses
Bone Spring	8,579	Oil/Gas
1st Bone Spring	9,661	Oil/Gas
2nd Bone Spring	10,311	Oil/Gas
3rd Bone Spring	11,317	Oil/Gas

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

2. Casing Program

Primary Plan:

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight	Grade	Conn.	SF	SF Burst	Buoyant	Buoyant
				(lbs)			Collapse		Body SF	Joint SF
	From (ft)	To (ft)	Tension	Tension						
17.5	0	934	13.375	54.5	J-55	BTC	1.125	1.2	1.4	1.4
12.25	0	5668	7.625	26.4	L-80 HC	BTC	1.125	1.2	1.4	1.4
9.875	5668	10971	7.625	26.4	L-80 HC	BTC	1.125	1.2	1.4	1.4
6.75	0	22496	5.5	20	P-110	DQX	1.125	1.2	1.4	1.4
							SF Values will meet or Exceed			

SF Values will meet or Exceed

Contingency Plan:

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF	SF Burst	Buoyant	Buoyant
	From (ft)	To (ft)					Collapse		Body SF	Joint SF
			Tension	Tension						
17.5	0	934	13.375	54.5	J-55	BTC	1.125	1.2	1.4	1.4
12.25	0	6000	9.625	40	L-80	BTC	1.125	1.2	1.4	1.4
8.5	0	10971	7.625	26.4	L-80 HC	SF (0 ft to 6000 ft) FJ (6000 ft to 10971 ft)	1.125	1.2	1.4	1.4
6.75	0	22496	5.5	20	P-110	DQX	1.125	1.2	1.4	1.4
							SF Values will meet or Exceed			

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

*Note: Plan is to drill 12.25" hole past the deepest offset injector. If flow is mild or nonexistent, then when ROP diminishes we will swap to 9.875" hole size and drill to TD of the section. 7-5/8" CSG will be run from surface to TD of the section. If high flow is encountered then 9-5/8" CSG will be set as a 1st intermediate string as shown below.

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

Annular Clearance Variance Request

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

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

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd 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**Primary Plan:**

Casing String	# Sks	Wt. (lb/gal)	Yld (ft ³ /sack)	H2O (gal/sk)	500# Comp. Strength (hours)	Slurry Description
Surface (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Surface (Tail)	987	14.8	1.33	6.365	5:26	Class C Cement, Accelerator
Intermediate 1st Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate 1st Stage (Tail)	541	13.2	1.65	8.640	11:54	Class H Cement, Retarder, Dispersant, Salt
Intermediate 2nd Stage (Tail Slurry) to be pumped as Bradenhead Squeeze from surface, down the Intermediate annulus						
Intermediate 2nd Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate 2nd Stage (Tail)	1802	12.9	1.92	10.41	23:10	Class C Cement, Accelerator
Production (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Production (Tail)	881	13.2	1.38	6.686	3:39	Class H Cement, Retarder, Dispersant, Salt

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Casing String	Top (ft)	Bottom (ft)	% Excess
Surface (Lead)	N/A	N/A	N/A
Surface (Tail)	0	934	100%
Intermediate 1st Stage (Lead)	N/A	N/A	N/A
Intermediate 1st Stage (Tail)	7068	10971	5%
Intermediate 2nd Stage (Lead)	N/A	N/A	N/A
Intermediate 2nd Stage (Tail)	0	7068	10%
Production (Lead)	N/A	N/A	N/A
Production (Tail)	10471	22496	20%

Contingency Plan:

Casing String	# Sks	Wt. (lb/gal)	Yld (ft3/sack)	H2O (gal/sk)	500# Comp. Strength (hours)	Slurry Description
Surface (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Surface (Tail)	987	14.8	1.33	6.365	5:26	Class C Cement, Accelerator
Intermediate (Lead)	1322	12.9	1.88	10.130	14:22	Pozzolan Cement, Retarder
Intermediate (Tail)	155	14.8	1.33	6.370	12:45	Class C Cement, Accelerator
Intermediate II 1st Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate II 1st Stage (Tail)	192	13.2	1.65	8.640	11:54	Class H Cement, Retarder, Dispersant, Salt
Intermediate II 2nd Stage (Tail Slurry) to be pumped as Bradenhead Squeeze from surface, down the Intermediate annulus						
Intermediate II 2nd Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate II 2nd Stage (Tail)	399	12.9	1.92	10.410	23:10	Class C Cement, Accelerator
Production (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Production (Tail)	881	13.2	1.38	6.686	3:49	Class H Cement, Retarder, Dispersant, Salt

Casing String	Top (ft)	Bottom (ft)	% Excess
Surface (Lead)	N/A	N/A	N/A
Surface (Tail)	0	934	100%
Intermediate (Lead)	0	5500	50%
Intermediate (Tail)	5500	6000	20%
Intermediate II 1st Stage (Lead)	N/A	N/A	N/A
Intermediate II 1st Stage (Tail)	7068	10971	5%
Intermediate II 2nd Stage (Lead)	N/A	N/A	N/A
Intermediate II 2nd Stage (Tail)	0	7068	25%
Production (Lead)	N/A	N/A	N/A
Production (Tail)	10471	22496	20%

*Contingency design will only be employed if Oxy elects to run 9.625" Intermediate I string.

Offline Cementing

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

The summarized operational sequence will be as follows:

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.

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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 nipples down until after the cement job is completed.
6. Skid rig to next well on pad.
7. Confirm well is static before removing cap flange.
8. If well is not static notify BLM and kill well prior to cementing or nipping up for further remediation.
9. Install offline cement tool.
10. Rig up cement equipment.
 - a. Notify BLM prior to cement job.
11. Perform cement job.
12. Confirm well is static and floats are holding after cement job.
13. Remove cement equipment, offline cement tools and install night cap with pressure gauge for monitoring.

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

Primary Plan:**Three string wells:**

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

Contingency Plan:**Four string wells:**

- CBL is not required
- If the pumped volume of cement is less than permitted in the APD, BLM will be notified and a CBL may be run
- Echometer will be used after bradenhead cement job to determine TOC before pumping top-out cement

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4. Pressure Control Equipment

Primary Plan:

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

Contingency Plan:

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"	5M	Annular	✓	70% of working pressure
		5M	Blind Ram	✓	250 psi / 5000 psi
			Pipe Ram		
			Double Ram	✓	
			Other*		
6.75" Hole	13-5/8"	5M	Annular	✓	70% of working pressure
		5M	Blind Ram	✓	250 psi / 5000 psi
			Pipe Ram		
			Double Ram	✓	
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per 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.
--

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	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	934	Water-Based Mud	8.6-8.8	40-60	N/C
934	10971	Saturated Brine-Based or Oil-Based Mud	8.0-10.0	35-45	N/C
10971	22496	Water-Based or Oil-Based Mud	9.5-12.0	38-50	N/C

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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
No	PEX

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	7281 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	174°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.	Yes

Oxy USA Inc. - I Prefer Pi 18_7 Fed Com 313H

<ul style="list-style-type: none"> We plan to drill the four 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. 	
<p>Will more than one drilling rig be used for drilling operations? If yes, describe.</p> <ul style="list-style-type: none"> 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: 1980.4 bbls.

9. Company Personnel

<u>Name</u>	<u>Title</u>	<u>Office Phone</u>	<u>Mobile Phone</u>
Garrett Granier	Drilling Engineer	713-513-6633	832-265-0581
William Turner	Drilling Engineer Supervisor	713-350-4951	661-817-4586
Simon Benavides	Drilling Superintendent	713-522-8652	281-684-6897
Diego Tellez	Drilling Manager	713-350-4602	713-303-4932

OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)

I Prefer Pi 18_7 Federal Com

I Prefer Pi 18_7 Fed Com 313H

Wellbore #1

Plan: Permitting Plan

Standard Planning Report

29 October, 2019

Oxy Inc.

Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well I Prefer Pi 18_7 Fed Com 313H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=26.5' @ 3691.00ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=26.5' @ 3691.00ft
Site:	I Prefer Pi 18_7 Federal Com	North Reference:	Grid
Well:	I Prefer Pi 18_7 Fed Com 313H	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	I Prefer Pi 18_7 Federal Com		
Site Position:		Northing:	504,515.55 usft
From:	Map	Easting:	730,590.36 usft
Position Uncertainty:	1.00 ft	Slot Radius:	13.200 in
		Latitude:	32° 23' 7.768414 N
		Longitude:	103° 43' 12.873943 W
		Grid Convergence:	0.33 °

Well	I Prefer Pi 18_7 Fed Com 313H					
Well Position	+N/-S	-244.39 ft	Northing:	504,271.17 usft	Latitude:	32° 23' 5.166788 N
	+E/-W	3,207.28 ft	Easting:	733,797.47 usft	Longitude:	103° 42' 35.490123 W
Position Uncertainty		2.00 ft	Wellhead Elevation:		Ground Level:	3,664.50 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	10/29/2019	6.72	60.10	48,029.60000000

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	1.77

Plan Survey Tool Program	Date	10/29/2019		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,496.51	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	
6,675.00	0.00	0.00	6,675.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,174.79	10.00	151.38	7,172.26	-38.17	20.83	2.00	2.00	0.00	151.38	
11,071.36	10.00	151.38	11,009.69	-631.89	344.79	0.00	0.00	0.00	0.00	
12,059.35	90.00	359.59	11,668.00	-65.29	395.60	10.00	8.10	-15.36	-151.42	FTP (I Prefer Pi
22,496.51	90.00	359.59	11,668.00	10,371.60	321.19	0.00	0.00	0.00	0.00	PBHL (I Prefer Pi

Oxy Inc.

Planning Report

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Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=26.5' @ 3691.00ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=26.5' @ 3691.00ft
Site:	I Prefer Pi 18_7 Federal Com	North Reference:	Grid
Well:	I Prefer Pi 18_7 Fed Com 313H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

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

Oxy Inc.

Planning Report

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Site:	I Prefer Pi 18_7 Federal Com	North Reference:	Grid
Well:	I Prefer Pi 18_7 Fed Com 313H	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)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,675.00	0.00	0.00	6,675.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.50	151.38	6,700.00	-0.10	0.05	-0.09	2.00	2.00	0.00
6,800.00	2.50	151.38	6,799.96	-2.39	1.31	-2.35	2.00	2.00	0.00
6,900.00	4.50	151.38	6,899.77	-7.75	4.23	-7.62	2.00	2.00	0.00
7,000.00	6.50	151.38	6,999.30	-16.17	8.82	-15.88	2.00	2.00	0.00
7,100.00	8.50	151.38	7,098.44	-27.62	15.07	-27.14	2.00	2.00	0.00
7,174.79	10.00	151.38	7,172.26	-38.17	20.83	-37.51	2.00	2.00	0.00
7,200.00	10.00	151.38	7,197.09	-42.01	22.93	-41.28	0.00	0.00	0.00
7,300.00	10.00	151.38	7,295.57	-57.25	31.24	-56.26	0.00	0.00	0.00
7,400.00	10.00	151.38	7,394.05	-72.49	39.55	-71.23	0.00	0.00	0.00
7,500.00	10.00	151.38	7,492.53	-87.72	47.87	-86.20	0.00	0.00	0.00
7,600.00	10.00	151.38	7,591.01	-102.96	56.18	-101.17	0.00	0.00	0.00
7,700.00	10.00	151.38	7,689.50	-118.20	64.50	-116.15	0.00	0.00	0.00
7,800.00	10.00	151.38	7,787.98	-133.43	72.81	-131.12	0.00	0.00	0.00
7,900.00	10.00	151.38	7,886.46	-148.67	81.12	-146.09	0.00	0.00	0.00
8,000.00	10.00	151.38	7,984.94	-163.91	89.44	-161.06	0.00	0.00	0.00
8,100.00	10.00	151.38	8,083.42	-179.15	97.75	-176.03	0.00	0.00	0.00
8,200.00	10.00	151.38	8,181.91	-194.38	106.07	-191.01	0.00	0.00	0.00
8,300.00	10.00	151.38	8,280.39	-209.62	114.38	-205.98	0.00	0.00	0.00
8,400.00	10.00	151.38	8,378.87	-224.86	122.69	-220.95	0.00	0.00	0.00
8,500.00	10.00	151.38	8,477.35	-240.09	131.01	-235.92	0.00	0.00	0.00
8,600.00	10.00	151.38	8,575.84	-255.33	139.32	-250.89	0.00	0.00	0.00
8,700.00	10.00	151.38	8,674.32	-270.57	147.64	-265.87	0.00	0.00	0.00
8,800.00	10.00	151.38	8,772.80	-285.80	155.95	-280.84	0.00	0.00	0.00
8,900.00	10.00	151.38	8,871.28	-301.04	164.26	-295.81	0.00	0.00	0.00
9,000.00	10.00	151.38	8,969.76	-316.28	172.58	-310.78	0.00	0.00	0.00
9,100.00	10.00	151.38	9,068.25	-331.51	180.89	-325.76	0.00	0.00	0.00
9,200.00	10.00	151.38	9,166.73	-346.75	189.21	-340.73	0.00	0.00	0.00
9,300.00	10.00	151.38	9,265.21	-361.99	197.52	-355.70	0.00	0.00	0.00
9,400.00	10.00	151.38	9,363.69	-377.22	205.83	-370.67	0.00	0.00	0.00
9,500.00	10.00	151.38	9,462.17	-392.46	214.15	-385.64	0.00	0.00	0.00
9,600.00	10.00	151.38	9,560.66	-407.70	222.46	-400.62	0.00	0.00	0.00
9,700.00	10.00	151.38	9,659.14	-422.93	230.77	-415.59	0.00	0.00	0.00
9,800.00	10.00	151.38	9,757.62	-438.17	239.09	-430.56	0.00	0.00	0.00
9,900.00	10.00	151.38	9,856.10	-453.41	247.40	-445.53	0.00	0.00	0.00
10,000.00	10.00	151.38	9,954.58	-468.64	255.72	-460.50	0.00	0.00	0.00
10,100.00	10.00	151.38	10,053.07	-483.88	264.03	-475.48	0.00	0.00	0.00
10,200.00	10.00	151.38	10,151.55	-499.12	272.34	-490.45	0.00	0.00	0.00
10,300.00	10.00	151.38	10,250.03	-514.35	280.66	-505.42	0.00	0.00	0.00
10,400.00	10.00	151.38	10,348.51	-529.59	288.97	-520.39	0.00	0.00	0.00
10,500.00	10.00	151.38	10,446.99	-544.83	297.29	-535.37	0.00	0.00	0.00

Oxy Inc.

Planning Report

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Site:	I Prefer Pi 18_7 Federal Com	North Reference:	Grid
Well:	I Prefer Pi 18_7 Fed Com 313H	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)
10,600.00	10.00	151.38	10,545.48	-560.06	305.60	-550.34	0.00	0.00	0.00
10,700.00	10.00	151.38	10,643.96	-575.30	313.91	-565.31	0.00	0.00	0.00
10,800.00	10.00	151.38	10,742.44	-590.54	322.23	-580.28	0.00	0.00	0.00
10,900.00	10.00	151.38	10,840.92	-605.78	330.54	-595.25	0.00	0.00	0.00
11,000.00	10.00	151.38	10,939.40	-621.01	338.86	-610.23	0.00	0.00	0.00
11,071.36	10.00	151.38	11,009.69	-631.89	344.79	-620.91	0.00	0.00	0.00
11,100.00	7.60	140.98	11,037.98	-635.54	347.17	-624.49	10.00	-8.35	-36.33
11,200.00	6.26	49.03	11,137.50	-637.11	355.48	-625.80	10.00	-1.35	-91.95
11,300.00	14.83	17.93	11,235.78	-621.32	363.55	-609.77	10.00	8.58	-31.10
11,400.00	24.50	10.12	11,329.85	-588.64	371.16	-576.87	10.00	9.67	-7.80
11,500.00	34.36	6.59	11,416.85	-540.07	378.06	-528.11	10.00	9.85	-3.53
11,600.00	44.27	4.49	11,494.12	-477.08	384.05	-464.97	10.00	9.91	-2.10
11,700.00	54.21	3.04	11,559.33	-401.60	388.94	-389.37	10.00	9.94	-1.46
11,800.00	64.16	1.90	11,610.50	-315.90	392.60	-303.60	10.00	9.95	-1.13
11,900.00	74.12	0.95	11,646.06	-222.60	394.89	-210.27	10.00	9.96	-0.95
12,000.00	84.09	0.09	11,664.94	-124.53	395.77	-112.22	10.00	9.96	-0.86
12,059.35	90.00	359.59	11,668.00	-65.29	395.60	-53.02	10.00	9.97	-0.83
12,100.00	90.00	359.59	11,668.00	-24.64	395.31	-12.39	0.00	0.00	0.00
12,200.00	90.00	359.59	11,668.00	75.36	394.60	87.53	0.00	0.00	0.00
12,300.00	90.00	359.59	11,668.00	175.35	393.88	187.46	0.00	0.00	0.00
12,400.00	90.00	359.59	11,668.00	275.35	393.17	287.39	0.00	0.00	0.00
12,500.00	90.00	359.59	11,668.00	375.35	392.46	387.32	0.00	0.00	0.00
12,600.00	90.00	359.59	11,668.00	475.35	391.75	487.24	0.00	0.00	0.00
12,700.00	90.00	359.59	11,668.00	575.34	391.03	587.17	0.00	0.00	0.00
12,800.00	90.00	359.59	11,668.00	675.34	390.32	687.10	0.00	0.00	0.00
12,900.00	90.00	359.59	11,668.00	775.34	389.61	787.03	0.00	0.00	0.00
13,000.00	90.00	359.59	11,668.00	875.34	388.89	886.95	0.00	0.00	0.00
13,100.00	90.00	359.59	11,668.00	975.33	388.18	986.88	0.00	0.00	0.00
13,200.00	90.00	359.59	11,668.00	1,075.33	387.47	1,086.81	0.00	0.00	0.00
13,300.00	90.00	359.59	11,668.00	1,175.33	386.75	1,186.74	0.00	0.00	0.00
13,400.00	90.00	359.59	11,668.00	1,275.33	386.04	1,286.66	0.00	0.00	0.00
13,500.00	90.00	359.59	11,668.00	1,375.32	385.33	1,386.59	0.00	0.00	0.00
13,600.00	90.00	359.59	11,668.00	1,475.32	384.62	1,486.52	0.00	0.00	0.00
13,700.00	90.00	359.59	11,668.00	1,575.32	383.90	1,586.45	0.00	0.00	0.00
13,800.00	90.00	359.59	11,668.00	1,675.32	383.19	1,686.37	0.00	0.00	0.00
13,900.00	90.00	359.59	11,668.00	1,775.31	382.48	1,786.30	0.00	0.00	0.00
14,000.00	90.00	359.59	11,668.00	1,875.31	381.76	1,886.23	0.00	0.00	0.00
14,100.00	90.00	359.59	11,668.00	1,975.31	381.05	1,986.16	0.00	0.00	0.00
14,200.00	90.00	359.59	11,668.00	2,075.31	380.34	2,086.08	0.00	0.00	0.00
14,300.00	90.00	359.59	11,668.00	2,175.30	379.62	2,186.01	0.00	0.00	0.00
14,400.00	90.00	359.59	11,668.00	2,275.30	378.91	2,285.94	0.00	0.00	0.00
14,500.00	90.00	359.59	11,668.00	2,375.30	378.20	2,385.87	0.00	0.00	0.00
14,600.00	90.00	359.59	11,668.00	2,475.29	377.49	2,485.79	0.00	0.00	0.00
14,700.00	90.00	359.59	11,668.00	2,575.29	376.77	2,585.72	0.00	0.00	0.00
14,800.00	90.00	359.59	11,668.00	2,675.29	376.06	2,685.65	0.00	0.00	0.00
14,900.00	90.00	359.59	11,668.00	2,775.29	375.35	2,785.58	0.00	0.00	0.00
15,000.00	90.00	359.59	11,668.00	2,875.28	374.63	2,885.50	0.00	0.00	0.00
15,100.00	90.00	359.59	11,668.00	2,975.28	373.92	2,985.43	0.00	0.00	0.00
15,200.00	90.00	359.59	11,668.00	3,075.28	373.21	3,085.36	0.00	0.00	0.00
15,300.00	90.00	359.59	11,668.00	3,175.28	372.50	3,185.29	0.00	0.00	0.00
15,400.00	90.00	359.59	11,668.00	3,275.27	371.78	3,285.21	0.00	0.00	0.00
15,500.00	90.00	359.59	11,668.00	3,375.27	371.07	3,385.14	0.00	0.00	0.00
15,600.00	90.00	359.59	11,668.00	3,475.27	370.36	3,485.07	0.00	0.00	0.00
15,700.00	90.00	359.59	11,668.00	3,575.27	369.64	3,585.00	0.00	0.00	0.00

Oxy Inc.

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well I Prefer Pi 18_7 Fed Com 313H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=26.5' @ 3691.00ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=26.5' @ 3691.00ft
Site:	I Prefer Pi 18_7 Federal Com	North Reference:	Grid
Well:	I Prefer Pi 18_7 Fed Com 313H	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	359.59	11,668.00	3,675.26	368.93	3,684.92	0.00	0.00	0.00
15,900.00	90.00	359.59	11,668.00	3,775.26	368.22	3,784.85	0.00	0.00	0.00
16,000.00	90.00	359.59	11,668.00	3,875.26	367.50	3,884.78	0.00	0.00	0.00
16,100.00	90.00	359.59	11,668.00	3,975.26	366.79	3,984.71	0.00	0.00	0.00
16,200.00	90.00	359.59	11,668.00	4,075.25	366.08	4,084.63	0.00	0.00	0.00
16,300.00	90.00	359.59	11,668.00	4,175.25	365.37	4,184.56	0.00	0.00	0.00
16,400.00	90.00	359.59	11,668.00	4,275.25	364.65	4,284.49	0.00	0.00	0.00
16,500.00	90.00	359.59	11,668.00	4,375.25	363.94	4,384.42	0.00	0.00	0.00
16,600.00	90.00	359.59	11,668.00	4,475.24	363.23	4,484.34	0.00	0.00	0.00
16,700.00	90.00	359.59	11,668.00	4,575.24	362.51	4,584.27	0.00	0.00	0.00
16,800.00	90.00	359.59	11,668.00	4,675.24	361.80	4,684.20	0.00	0.00	0.00
16,900.00	90.00	359.59	11,668.00	4,775.24	361.09	4,784.13	0.00	0.00	0.00
17,000.00	90.00	359.59	11,668.00	4,875.23	360.37	4,884.05	0.00	0.00	0.00
17,100.00	90.00	359.59	11,668.00	4,975.23	359.66	4,983.98	0.00	0.00	0.00
17,200.00	90.00	359.59	11,668.00	5,075.23	358.95	5,083.91	0.00	0.00	0.00
17,300.00	90.00	359.59	11,668.00	5,175.23	358.24	5,183.84	0.00	0.00	0.00
17,400.00	90.00	359.59	11,668.00	5,275.22	357.52	5,283.76	0.00	0.00	0.00
17,500.00	90.00	359.59	11,668.00	5,375.22	356.81	5,383.69	0.00	0.00	0.00
17,600.00	90.00	359.59	11,668.00	5,475.22	356.10	5,483.62	0.00	0.00	0.00
17,700.00	90.00	359.59	11,668.00	5,575.22	355.38	5,583.54	0.00	0.00	0.00
17,800.00	90.00	359.59	11,668.00	5,675.21	354.67	5,683.47	0.00	0.00	0.00
17,900.00	90.00	359.59	11,668.00	5,775.21	353.96	5,783.40	0.00	0.00	0.00
18,000.00	90.00	359.59	11,668.00	5,875.21	353.24	5,883.33	0.00	0.00	0.00
18,100.00	90.00	359.59	11,668.00	5,975.21	352.53	5,983.25	0.00	0.00	0.00
18,200.00	90.00	359.59	11,668.00	6,075.20	351.82	6,083.18	0.00	0.00	0.00
18,300.00	90.00	359.59	11,668.00	6,175.20	351.11	6,183.11	0.00	0.00	0.00
18,400.00	90.00	359.59	11,668.00	6,275.20	350.39	6,283.04	0.00	0.00	0.00
18,500.00	90.00	359.59	11,668.00	6,375.20	349.68	6,382.96	0.00	0.00	0.00
18,600.00	90.00	359.59	11,668.00	6,475.19	348.97	6,482.89	0.00	0.00	0.00
18,700.00	90.00	359.59	11,668.00	6,575.19	348.25	6,582.82	0.00	0.00	0.00
18,800.00	90.00	359.59	11,668.00	6,675.19	347.54	6,682.75	0.00	0.00	0.00
18,900.00	90.00	359.59	11,668.00	6,775.19	346.83	6,782.67	0.00	0.00	0.00
19,000.00	90.00	359.59	11,668.00	6,875.18	346.12	6,882.60	0.00	0.00	0.00
19,100.00	90.00	359.59	11,668.00	6,975.18	345.40	6,982.53	0.00	0.00	0.00
19,200.00	90.00	359.59	11,668.00	7,075.18	344.69	7,082.46	0.00	0.00	0.00
19,300.00	90.00	359.59	11,668.00	7,175.18	343.98	7,182.38	0.00	0.00	0.00
19,400.00	90.00	359.59	11,668.00	7,275.17	343.26	7,282.31	0.00	0.00	0.00
19,500.00	90.00	359.59	11,668.00	7,375.17	342.55	7,382.24	0.00	0.00	0.00
19,600.00	90.00	359.59	11,668.00	7,475.17	341.84	7,482.17	0.00	0.00	0.00
19,700.00	90.00	359.59	11,668.00	7,575.17	341.12	7,582.09	0.00	0.00	0.00
19,800.00	90.00	359.59	11,668.00	7,675.16	340.41	7,682.02	0.00	0.00	0.00
19,900.00	90.00	359.59	11,668.00	7,775.16	339.70	7,781.95	0.00	0.00	0.00
20,000.00	90.00	359.59	11,668.00	7,875.16	338.99	7,881.88	0.00	0.00	0.00
20,100.00	90.00	359.59	11,668.00	7,975.16	338.27	7,981.80	0.00	0.00	0.00
20,200.00	90.00	359.59	11,668.00	8,075.15	337.56	8,081.73	0.00	0.00	0.00
20,300.00	90.00	359.59	11,668.00	8,175.15	336.85	8,181.66	0.00	0.00	0.00
20,400.00	90.00	359.59	11,668.00	8,275.15	336.13	8,281.59	0.00	0.00	0.00
20,500.00	90.00	359.59	11,668.00	8,375.15	335.42	8,381.51	0.00	0.00	0.00
20,600.00	90.00	359.59	11,668.00	8,475.14	334.71	8,481.44	0.00	0.00	0.00
20,700.00	90.00	359.59	11,668.00	8,575.14	333.99	8,581.37	0.00	0.00	0.00
20,800.00	90.00	359.59	11,668.00	8,675.14	333.28	8,681.30	0.00	0.00	0.00
20,900.00	90.00	359.59	11,668.00	8,775.13	332.57	8,781.22	0.00	0.00	0.00
21,000.00	90.00	359.59	11,668.00	8,875.13	331.86	8,881.15	0.00	0.00	0.00
21,100.00	90.00	359.59	11,668.00	8,975.13	331.14	8,981.08	0.00	0.00	0.00

Oxy Inc.

Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well I Prefer Pi 18_7 Fed Com 313H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=26.5' @ 3691.00ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=26.5' @ 3691.00ft
Site:	I Prefer Pi 18_7 Federal Com	North Reference:	Grid
Well:	I Prefer Pi 18_7 Fed Com 313H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
21,200.00	90.00	359.59	11,668.00	9,075.13	330.43	9,081.01	0.00	0.00	0.00
21,300.00	90.00	359.59	11,668.00	9,175.12	329.72	9,180.93	0.00	0.00	0.00
21,400.00	90.00	359.59	11,668.00	9,275.12	329.00	9,280.86	0.00	0.00	0.00
21,500.00	90.00	359.59	11,668.00	9,375.12	328.29	9,380.79	0.00	0.00	0.00
21,600.00	90.00	359.59	11,668.00	9,475.12	327.58	9,480.72	0.00	0.00	0.00
21,700.00	90.00	359.59	11,668.00	9,575.11	326.87	9,580.64	0.00	0.00	0.00
21,800.00	90.00	359.59	11,668.00	9,675.11	326.15	9,680.57	0.00	0.00	0.00
21,900.00	90.00	359.59	11,668.00	9,775.11	325.44	9,780.50	0.00	0.00	0.00
22,000.00	90.00	359.59	11,668.00	9,875.11	324.73	9,880.43	0.00	0.00	0.00
22,100.00	90.00	359.59	11,668.00	9,975.10	324.01	9,980.35	0.00	0.00	0.00
22,200.00	90.00	359.59	11,668.00	10,075.10	323.30	10,080.28	0.00	0.00	0.00
22,300.00	90.00	359.59	11,668.00	10,175.10	322.59	10,180.21	0.00	0.00	0.00
22,400.00	90.00	359.59	11,668.00	10,275.10	321.87	10,280.14	0.00	0.00	0.00
22,496.51	90.00	359.59	11,668.00	10,371.60	321.19	10,376.58	0.00	0.00	0.00

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP (I Prefer Pi 18_7 - plan hits target center - Point	0.00	0.00	11,668.00	-65.29	395.60	504,205.88	734,193.05	32° 23' 4.497891 N	103° 42' 30.881465
PBHL (I Prefer Pi 18_7 - plan hits target center - Point	0.00	0.00	11,668.00	10,371.60	321.19	514,642.25	734,118.64	32° 24' 47.772164 N	103° 42' 31.038166

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,675.00	6,675.00	0.00	0.00	Build 2°/100'
7,174.79	7,172.26	-38.17	20.83	Hold 10° Tangent
11,071.36	11,009.69	-631.89	344.79	KOP, Build & Turn 10°/100'
12,059.35	11,668.00	-65.29	395.60	Landing Point
22,496.51	11,668.00	10,371.60	321.19	TD at 22496.51' MD



Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
 Site: I Prefer Pi 18_7 Federal Com
 Well: I Prefer Pi 18_7 Fed Com 313H
 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

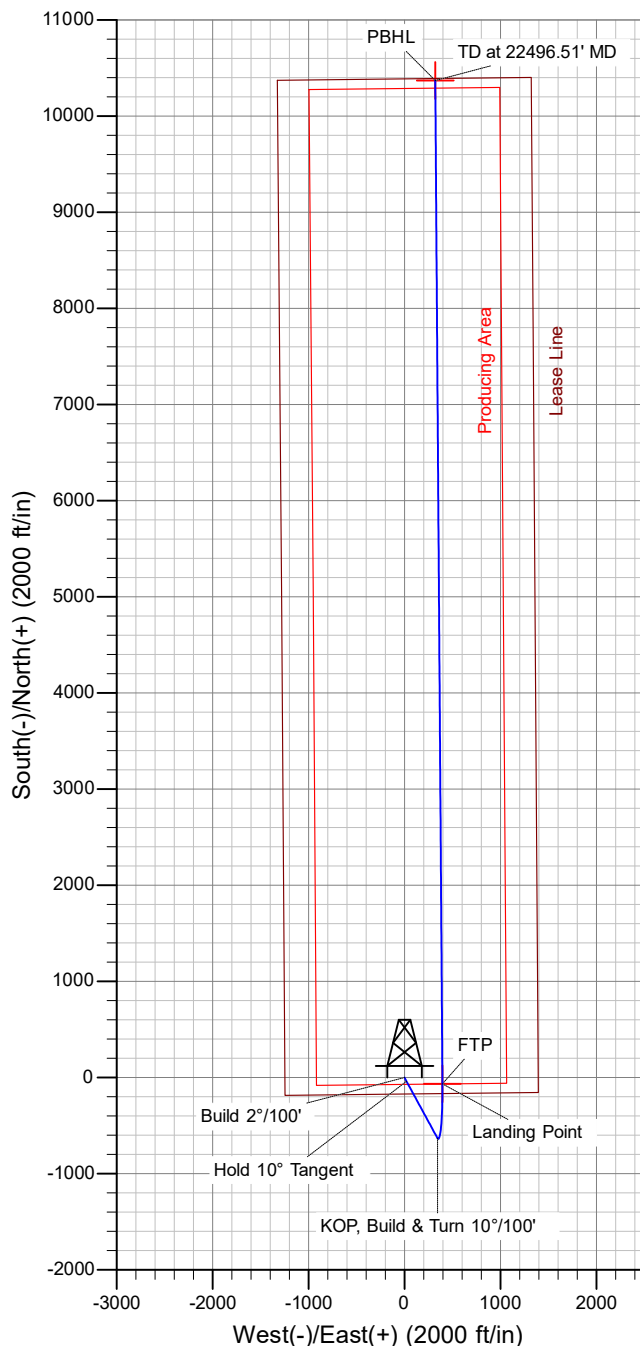
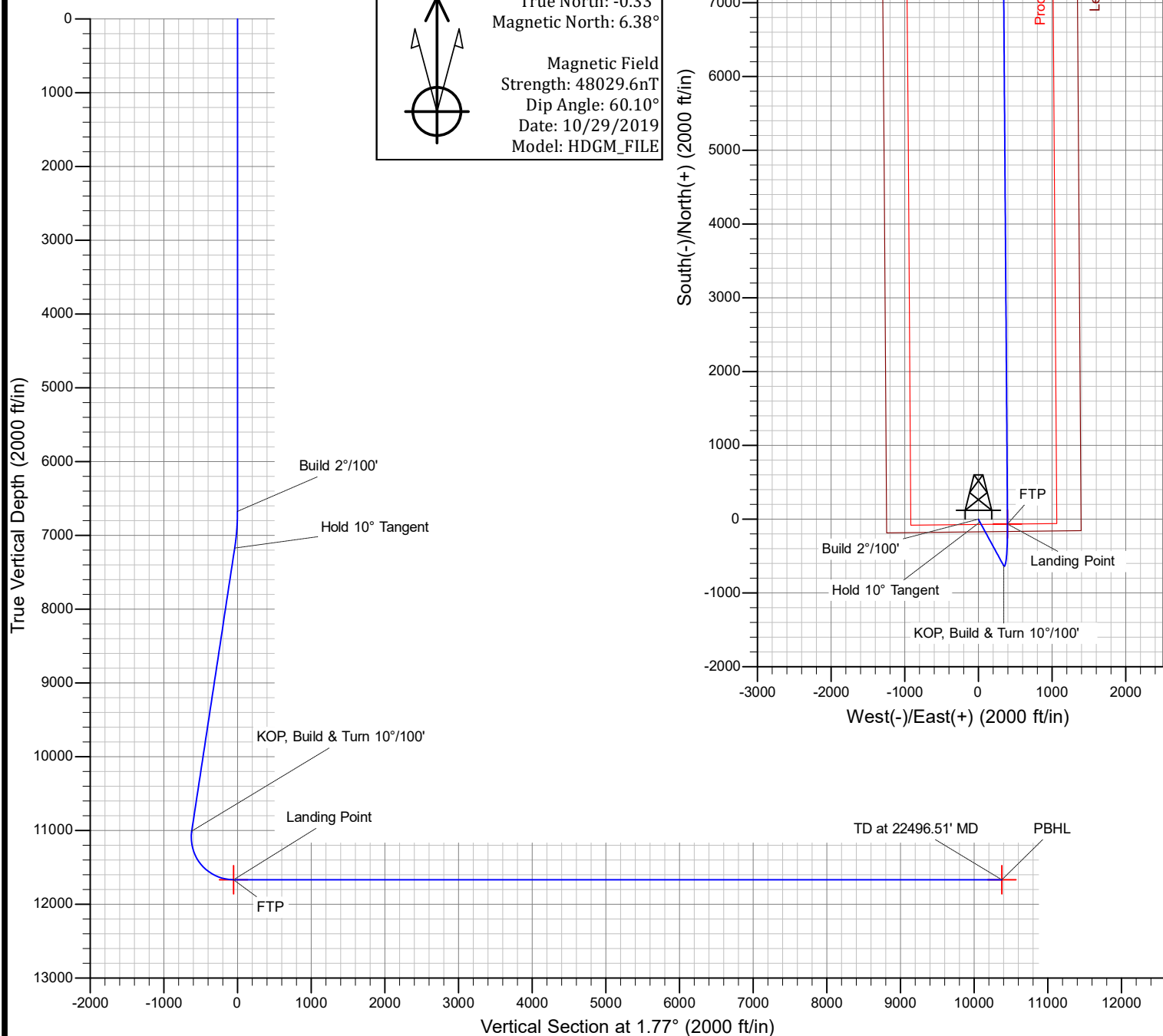
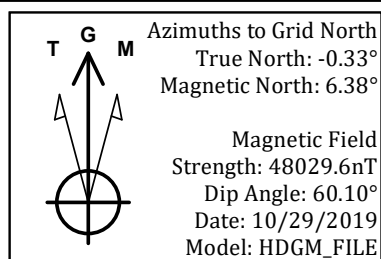
System Datum: Mean Sea Level

WELL DETAILS: I Prefer Pi 18_7 Fed Com 313H

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	504271.17	3664.50 733797.47	32° 23' 5.166788 N	103° 42' 35.490123 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	
6675.00	0.00	0.00	6675.00	0.00	0.00	0.00	0.00	0.00	Build 2°/100'
7174.79	10.00	151.38	7172.26	-38.17	20.83	2.00	151.38	-37.51	Hold 10° Tangent
11071.36	10.00	151.38	11009.69	-631.89	344.79	0.00	0.00	-620.91	KOP, Build & Turn 10°/100'
12059.35	90.00	359.59	11668.00	-65.29	395.60	10.00	-151.42	-53.02	Landing Point
22496.51	90.00	359.59	11668.00	10371.60	321.19	0.00	0.00	10376.58	TD at 22496.51' MD



PECOS DISTRICT SURFACE USE CONDITIONS OF APPROVAL

Proposed Well Name	Surface Hole Location	Legal Location*	Surface Ownership
I Prefer Pi 18-7 Federal Com 1H	490 FSL and 1,660 FWL	Section 18, Township 22 South, Range 32 East	BLM
I Prefer Pi 18-7 Federal Com 2H	490 FSL and 1,695 FWL		
I Prefer Pi 18-7 Federal Com 3H	744 FSL and 768 FEL		
I Prefer Pi 18-7 Federal Com 4H	749 FSL and 733 FEL		
I Prefer Pi 18-7 Federal Com 11H	490 FSL and 1,350 FWL		
I Prefer Pi 18-7 Federal Com 12H	490 FSL and 1,385 FWL		
I Prefer Pi 18-7 Federal Com 13H	490 FSL and 1,420 FWL		
I Prefer Pi 18-7 Federal Com 14H	700 FSL and 1,075 FEL		
I Prefer Pi 18-7 Federal Com 15H	705 FSL and 1,040 FEL		
I Prefer Pi 18-7 Federal Com 16H	710 FSL and 1,005 FEL		
I Prefer Pi 18-7 Federal Com 21H	450 FSL and 835 FWL		
I Prefer Pi 18-7 Federal Com 22H	449 FSL and 870 FWL		
I Prefer Pi 18-7 Federal Com 23H	490 FSL and 905 FWL		
I Prefer Pi 18-7 Federal Com 24H	170 FSL and 1,120 FEL		
I Prefer Pi 18-7 Federal Com 25H	170 FSL and 1,085 FEL		
I Prefer Pi 18-7 Federal Com 26H	170 FSL and 1,050 FEL		
I Prefer Pi 18-7 Federal Com 31H	310 FSL and 1,625 FWL		
I Prefer Pi 18-7 Federal Com 32H	310 FSL and 1,690 FWL		
I Prefer Pi 18-7 Federal Com 33H	310 FSL and 1,725 FWL		
I Prefer Pi 18-7 Federal Com 34H	170 FSL and 1,430 FEL		
I Prefer Pi 18-7 Federal Com 35H	170 FSL and 1,360 FEL		
I Prefer Pi 18-7 Federal Com 41H	310 FSL and 835 FWL		
I Prefer Pi 18-7 Federal Com 42H	310 FSL and 870 FWL		
I Prefer Pi 18-7 Federal Com 43H	170 FSL and 810 FEL		
I Prefer Pi 18-7 Federal Com 44H	170 FSL and 775 FEL		
I Prefer Pi 18-7 Federal Com 71H	310 FSL and 1,350 FWL		
I Prefer Pi 18-7 Federal Com 72H	310 FSL and 1,385 FWL		
I Prefer Pi 18-7 Federal Com 73H	170 FSL and 535 FEL		
I Prefer Pi 18-7 Federal Com 74H	170 FSL and 500 FEL		
I Prefer Pi 18-7 Federal Com 311H	310 FSL and 1,655 FWL		
I Prefer Pi 18-7 Federal Com 312H	170 FSL and 1,460 FEL		

Proposed Well Name	Surface Hole Location	Legal Location*	Surface Ownership
I Prefer Pi 18-7 Federal Com 313H	170 FSL and 1,395 FEL		

FSL = feet from south line; FWL = feet from west line; FEL = feet from east line

*NMPM

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**

Lesser Prairie-Chicken Timing Stipulations
Ground-level Abandoned Well Marker

- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Timing Limitation Exceptions:

The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS**Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

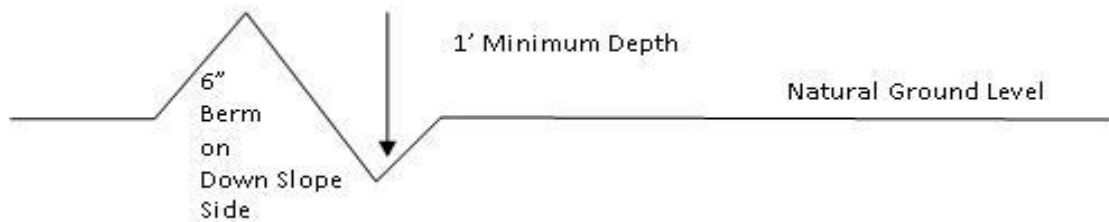
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes



Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.
6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.
7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:
 - Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
 - Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
 - The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)
8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.
9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.
11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- | | |
|--|--|
| <input type="checkbox"/> seed mixture 1 | <input type="checkbox"/> seed mixture 3 |
| <input checked="" type="checkbox"/> seed mixture 2 | <input type="checkbox"/> seed mixture 4 |
| <input type="checkbox"/> seed mixture 2/LPC | <input type="checkbox"/> Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or

other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Timing Limitation Exceptions:

The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the application (Grant, Sundry Notice, APD) and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.
4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:
 - a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
 - b. Activities of other parties including, but not limited to:
 - (1) Land clearing.
 - (2) Earth-disturbing and earth-moving work.
 - (3) Blasting.
 - (4) Vandalism and sabotage.
 - c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 20 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil

conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

16. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, powerline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

18. Special Stipulations:

- a. **Lesser Prairie-Chicken:** Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am

to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted.

Timing Limitation Exceptions:

The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

C. ELECTRIC LINES

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 *et seq.* (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the

Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

11. Special Stipulations:

- For reclamation remove poles, lines, transformer, etc. and dispose of properly.
- Fill in any holes from the poles removed.

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

Timing Limitation Exceptions:

The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species

	<u>lb/acre</u>
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sand love grass (<i>Eragrostis trichodes</i>)	1.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OXY USA INCORPORATED
LEASE NO.:	NMNM032411
WELL NAME & NO.:	I PREFER PI 18_7 FEDERAL COM 313H
SURFACE HOLE FOOTAGE:	170'S & 1395'E
BOTTOM HOLE FOOTAGE:	20'N & 1000'E
LOCATION:	Section 18, T.22 S., R.32 E., NMPM
COUNTY:	Lea County, New Mexico

COA

H2S	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input checked="" type="radio"/> Low	<input type="radio"/> Medium	<input type="radio"/> High
Cave/Karst Potential	<input type="radio"/> Critical		
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input type="checkbox"/> Fluid Filled	<input checked="" type="checkbox"/> Cement Squeeze	<input type="checkbox"/> Pilot Hole
Special Requirements	<input type="checkbox"/> Water Disposal	<input checked="" type="checkbox"/> COM	<input type="checkbox"/> Unit

Break Testing	<input checked="" type="radio"/> Yes	<input type="radio"/> No
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A. HYDROGEN SULFIDE

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. 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, provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **934 feet** (a minimum of 25 feet (Lea County) into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after

- completing the cement job.
- b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The **7-5/8** inch Tapered Intermediate casing will be set at approximately **4650 feet** and **10971 feet** respectively. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

Option 1 (Single Stage):

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

Option 2: (Multi-Stage):

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. Excess Cement calculates to less than 25% ; More cement may be needed.
- b. Second stage above DV tool:
 - Operator will perform bradenhead squeeze. Cement to surface. If cement does not circulate see B.1.a, c-d above.
 - **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**
 - Excess Cement calculates to less than 25% ; More cement may be needed.

❖ Operator has proposed to pump down 13-3/8" X 7-5/8" annulus.

Four string wells:

- CBL is not required
- If the pumped volume of cement is less than permitted in the APD, BLM will be notified and a CBL may be run.
- Echometer will be used after bradenhead cement job to determine TOC before pumping top-out cement.

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.
- Excess Cement calculates to less than 25% ; More cement may be needed.

C. PRESSURE CONTROL

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).'

1. BOP REQUIREMENTS

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 **2000 (2M)** psi.
- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **10,000 (10M)** psi.

Option 2:

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 **10,000 (10M) psi. Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**

Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.

- a. 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.
- b. Manufacturer representative shall install the test plug for the initial BOP test.
- c. 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.
- d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

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

BOPE Break Testing Variance (Note: For 5M BOPE or less)

- 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.

A separate sundry will be sent prior to spud that reflects the pad based break testing plan.

Offline Cementing

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

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.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

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

- d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
 - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
- a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead 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.

RI11052020

OXY Permian Delaware NM Basin Drilling & Completions Incident Reporting OXY Permian Crisis Team Hotline Notification					
Person	Location	Office Phone	Cell/Mobile Phone	Home Phone	Pager Number
Drilling & Completions Department					
Drilling & Completions Manager: John Willis	Houston	(713) 366-5556	(713) 259-1417		
Drilling Superintendent: Simon Benavides	Houston	(713) 215-7403	(832) 528-3547		
Completions Superintendent: Chris Winter	Houston	(713) 366-5212	(806) 239-8774		
Drilling Eng. Supervisor: Diego Tellez	Houston	(713) 350-4602	(713) 303-4932		
Drilling Eng. Supervisor: Randy Neel	Houston	(713) 215-7987	(713) 517-5544		
Completions Eng. Supervisor: Evan Hinkel	Houston	(713) 366-5436	(281) 236-6153		
Drilling & Completions HES Lead: Ryan Green	Houston	713-336-5753	281-520-5216		
Drilling & Completions HES Advisor: Kenny Williams	Carlsbad	(432) 686-1434	(337) 208-0911		
Drilling & Completions HES Advisor: Kyle Holden	Carlsbad	(432) 686-1435	(661) 369-5328		
Drilling & Completions HES Advisor Sr: Dave Schmidt	Carlsbad		(559) 310-8572		
Drilling & Completions HES Advisor: Seth Doyle	Carlsbad		(337) 499-0756		
HES / Environmental & Regulatory Department					
	Location	Office	Cell Phone		
Jon Hamil-HES Manager	Houston	(713) 497-2494	(832) 537-9885		
Mark Birk-HES Manager	Houston	(713) 350-4615	(949) 413-3127		
Austin Tramell	Midland	(432) 699-4208	(575) 499-4919		
Rico Munoz	Midland	(432) 699-8366	(432) 803-4116		
Amber DuckWorth	Midland		(832) 966-1879		
Kelley Montgomery- Regulatory Manager	Houston	(713) 366-5716	(832) 454-8137		
Sandra Musallam -Regulatory Lead	Houston	+1 (713) 366-5106	+1 (713) 504-8577		
Bishop, Steve-DOT Pipeline Coordinator	Midland	432-685-5614			
Wilson, Dusty-Safety Advisor	Midland	432-685-5771	(432) 254-2336		
John W Dittrich Environmental Advisor	Midland		(575) 390-2828		
William (Jack) Calhoun-Environmental Lead	Houston	+713 (350) 4906	(281) 917-8571		
Robert Barrow-Risk Engineer Manager	Houston	(713) 366-5611	(832) 867-5336		
Sarah Holmes-HSE Coordinator	Midland	432-685-5758			
Administrative					
	Location	Office			
Sarah Holmes	Midland	432-685-5830			
Robertson, Debbie	Midland	432-685-5812			
Laci Hollaway	Midland	(432) 685-5716	(432) 631-6341		
Administrative					
	Location	Office			
Rosalinda Escajeda	Midland	432-685-5831			
Moreno, Leslie (contract)	Hobbs	575-397-8247			
Sehon, Angela (contractor)	Levelland	806-894-8347			
Vasquez, Claudia (contractor)	North Cowden	432-385-3120			
XstremeMD					
	Location	Office			
Medical Case Management	Orla, TX	(337) 205-9314			
Axiom Medical Consulting					
	Location	Office			
Medical Case Management		(877) 502-9466			
Regulatory Agencies					
Bureau of Land Management	Carlsbad, NM	(505) 887-6544			
Bureau of Land Management	Hobbs, NM	(505) 393-3612			
Bureau of Land Management	Roswell, NM	(505) 393-3612			
Bureau of Land Management	Santa Fe, NM	(505) 988-6030			

DOT Juisdictional Pipelines-Incident Reporting New Mexico Public Regulaion Commission	Santa Fe, NM	(505) 827-3549 (505) 490-2375			
DOT Juisdictional Pipelines-Incident Reporting Texas Railroad Commission	Austin, TX	(512) 463-6788			
EPA Hot Line	Dallas, Texas	(214) 665-6444			
Federal OSHA, Area Office	Lubbock, Texas	(806) 472-7681			
National Response Center	Washington, D. C.	(800) 424-8802			
National Infrastructure Coordinator Center		(202) 282-9201			
New Mexico Air Quality Bureau	Santa Fe, NM	(505) 827-1494			
New Mexico Oil Conservation Division	Artesia, NM	(505) 748-1283	After Hours (505) 370-7545		
New Mexico Oil Conservation Division	Hobbs, NM	(505) 393-6161			
New Mexico Oil Conservation Division	Santa Fe, NM	(505) 471-1068			
New Mexico OCD Environmental Bureau	Santa Fe, NM	(505) 476-3470			
New Mexico Environmental Department	Hobbs, NM	(505) 827-9329			
NM State Emergency Response Center	Santa Fe, NM	(505) 827-9222			
Railroad Commission of TX	District 1 San Antonio	(210) 227-1313			
Railroad Commission of TX	District 7C San Angelo	(325) 657-7450			
Railroad Commission of TX	District 8, 8A Midland	(432) 684-5581			
Texas Emergency Response Center	Austin, TX	(512) 463-7727			
TCEQ Air	Region 2 Lubbock, TX	(806) 796-3494			
TCEQ Water/Waste/Air	Region 3 Abilene, TX	(325) 698-9674			
TCEQ Water/Waste/Air	Region 7 Midland, TX	(432) 570-1359			
TCEQ Water/Waste/Air	Region 9 San Antonio	(512) 734-7981			
TCEQ Water/Waste/Air	Region 8 San Angelo	(325) 655-9479			
Medical Facilities					
Abernathy Medical Clinic	Abernathy, TX	(806) 298-2524			
Alliance Hospital	Odessa, TX	(432) 550-1000			
Artesia General Hospital	Artesia, NM	(505) 748-3333			
Brownfield Regional Medical Center	Brownfield, TX	(806) 637-3551			
Cogdell Memorial Hospital	Snyder, TX	(325) 573-6374			
Covenant Hospital Levelland	Levelland, TX	(806) 894-4963			
Covenant Medical Center	Lubbock, TX	(806) 725-1011			
Covenant Medical Center Lakeside	Lubbock, TX	(806) 725-6000			
Covenant Family Health	Synder, TX	(325) 573-1300			
Crockett County Hospital	Ozona, TX	(325) 392-2671			
Guadalupe Medical Center	Carlsbad, NM	(505) 887-6633			
Lea Regional Hospital	Hobbs, NM	(505) 492-5000			
McCamey Hospital	McCamey, TX	(432) 652-8626			
Medical Arts Hospital	Lamesa, TX	(806) 872-2183			
Medical Center Hospital	Odessa, TX	(432) 640-4000			
Medi Center Hospital	San Angelo, TX	(325) 653-6741			
Memorial Hospital	Ft. Stockton	(432) 336-2241			
Memorial Hospital	Seminole, TX	(432) 758-5811			
Midland Memorial Hospital	Midland, TX	(432) 685-1111			
Nor-Lea General Hospital	Lovington, NM	(505) 396-6611			
Odessa Regional Hospital	Odessa, TX	(432) 334-8200			
Permian General Hospital	Andrews, TX	(432) 523-2200			
Reagan County Hospital	Big Lake, TX	(325) 884-2561			
Reeves County Hospital	Pecos, TX	(432) 447-3551			
Shannon Medical Center	San Angelo, TX	(325) 653-6741			
Union County General Hospital	Clayton, NM	(505) 374-2585			
University Medical Center	Lubbock, TX	(806) 725-8200			
Val Verde Regional Medical Center	Del Rio, TX	(830) 775-8566			
Ward Memorial Hospital	Monahans, TX	(432) 943-2511			
Yoakum County Hospital	Denver City, TX	(806) 592-5484			

Law Enforcement - Sheriff					
Andrews Cty Sheriff's Department	Andrews County(Andr	(432) 523-5545			
Crane Cty Sheriff's Department	Crane, County (Crane)	(432) 558-3571			
Crockett Cty Sheriff's Department	Crockett County (Ozor	(325) 392-2661			
Dawson Cty Sheriff's Department	Dawson County (Lame	(806) 872-7560			
Ector Cty Sheriff's Department	Ector County (Odessa)	(432) 335-3050			
Eddy Cty Sheriff's Department	Eddy County (Artesia)	(505) 746-2704			
Eddy Cty Sheriff's Department	Eddy County (Carlsbad	(505) 887-7551			
Gaines Cty Sheriff's Department	Gaines County (Semin	(432) 758-9871			
Hockley Cty Sheriff's Department	Hockley County(Levell	(806) 894-3126			
Kent Cty (Jayton City Sheriff's Dept.)	Kent County(Jayton)	(806) 237-3801			
Lea Cty Sheriff's Department	Lea County (Eunice)	(505) 384-2020			
Lea Cty Sheriff's Department	Lea County (Hobbs)	(505) 393-2515			
Lea Cty Sheriff's Department	Lea County (Lovington)	(505) 396-3611			
Lubbock Cty Sheriff's Department	Lubbock Cty (Abernath	(806) 296-2724			
Midland Cty Sheriff's Department	Midland County (Midl	(432) 688-1277			
Pecos Cty Sheriff's Department	Pecos County (Iraan)	(432) 639-2251			
Reeves Cty Sheriff's Department	Reeves County (Pecos)	(432) 445-4901			
Scurry Cty Sheriff's Department	Scurry County (Snyder	(325) 573-3551			
Terry Cty Sheriff's Department	Terry County (Brownf	(806) 637-2212			
Union Cty Sheriff's Department	Union County (Clayton	(505) 374-2583			
Upton Cty Sheriff's Department	Upton County (Rankin	(432) 693-2422			
Ward Cty Sheriff's Department	Ward County (Monaha	(432) 943-3254			
Yoakum City Sheriff's Department	Yoakum Co. (Denever	(806) 456-2377			
Law Enforcement - Police					
Abernathy City Police	Abernathy, TX	(806) 298-2545			
Andrews City Police	Andrews, TX	(432) 523-5675			
Artesia City Police	Artesia, NM	(505) 746-2704			
Brownfield City Police	Brownfield, TX	(806) 637-2544			
Carlsbad City Police	Carlsbad, NM	(505) 885-2111			
Clayton City Police	Clayton, NM	(505) 374-2504			
Denver City Police	Denver City, TX	(806) 592-3516			
Eunice City Police	Eunice, NM	(505) 394-2112			
Hobbs City Police	Hobbs, NM	393-2677			
Jal City Police	Jal, NM	(505) 395-2501			
Jayton City Police	Jayton, TX	(806) 237-3801			
Lamesa City Police	Lamesa, TX	(806) 872-2121			
Levelland City Police	Levelland, TX	(806) 894-6164			
Lovington City Police	Lovington, NM	(505) 396-2811			
Midland City Police	Midland, TX	(432) 685-7113			
Monahans City Police	Monahans, TX	(432) 943-3254			
Odessa City Police	Odessa, TX	(432) 335-3378			
Seminole City Police	Seminole, TX	(432) 758-9871			
Snyder City Police	Snyder, TX	(325) 573-2611			
Sundown City Police	Sundown, TX	(806) 229-8241			
Law Enforcement - FBI					
FBI	Albuquerque, NM	(505) 224-2000			
FBI	Midland, TX	(432) 570-0255			
Law Enforcement - DPS					
NM State Police	Artesia, NM	(505) 746-2704			
NM State Police	Carlsbad, NM	(505) 885-3137			
NM State Police	Eunice, NM	(505) 392-5588			
NM State Police	Hobbs, NM	(505) 392-5588			
NM State Police	Clayton, NM	(505) 374-2473; 911			

TX Dept of Public Safety	Andrews, TX	(432) 524-1443			
TX Dept of Public Safety	Big Lake, TX	(325) 884-2301			
TX Dept of Public Safety	Brownfield, TX	(806) 637-2312			
TX Dept of Public Safety	Iraan, TX	(432) 639-3232			
TX Dept of Public Safety	Lamesa, TX	(806) 872-8675			
TX Dept of Public Safety	Levelland, TX	(806) 894-4385			
TX Dept of Public Safety	Lubbock, TX	(806) 747-4491			
TX Dept of Public Safety	Midland, TX	(432) 697-2211			
TX Dept of Public Safety	Monahans, TX	(432) 943-5857			
TX Dept of Public Safety	Odessa, TX	(432) 332-6100			
TX Dept of Public Safety	Ozona, TX	(325) 392-2621			
TX Dept of Public Safety	Pecos, TX	(432) 447-3533			
TX Dept of Public Safety	Seminole, TX	(432) 758-4041			
TX Dept of Public Safety	Snyder, TX	(325) 573-0113			
TX Dept of Public Safety	Terry County TX	(806) 637-8913			
TX Dept of Public Safety	Yoakum County TX	(806) 456-2377			
Firefighting & Rescue					
Abernathy	Abernathy, TX	(806) 298-2022			
Amistad/Rosebud	Amistad/Rosebud, NM	(505) 633-9113			
Andrews	Andrews, TX	523-3111			
Artesia	Artesia, NM	(505) 746-5051			
Big Lake	Big Lake, TX	(325) 884-3650			
Brownfield-Administrative & other calls	Brownfield, TX	(816) 637-4547			
Brownfield emergency only	Brownfield, TX	-911			
Carlsbad	Carlsbad, NM	(505) 885-3125			
Clayton	Clayton, NM	(505) 374-2435			
Cotton Center	Cotton Center, TX	(806) 879-2157			
Crane	Crane, TX	(432) 558-2361			
Del Rio	Del Rio, TX	(830) 774-8650			
Denver City	Denver City, TX	(806) 592-3516			
Eldorado	Eldorado, TX	(325) 853-2691			
Eunice	Eunice, NM	(505) 394-2111			
Garden City	Garden City, TX	(432) 354-2404			
Goldsmith	Goldsmith, TX	(432) 827-3445			
Hale Center	Hale Center, TX	(806) 839-2411			
Halfway	Halfway, TX				
Hobbs	Hobbs, NM	(505) 397-9308			
Jal	Jal, NM	(505) 395-2221			
Jayton	Jayton, TX	(806) 237-3801			
Kermit	Kermit, TX	(432) 586-3468			
Lamesa	Lamesa, TX	(806) 872-4352			
Levelland	Levelland, TX	(806) 894-3154			
Lovington	Lovington, NM	(505) 396-2359			
Maljamar	Maljamar, NM	(505) 676-4100			
McCamey	McCamey, TX	(432) 652-8232			
Midland	Midland, TX	(432) 685-7346			
Monahans	Monahans, TX	(432) 943-4343			
Nara Visa	Nara Visa, NM	(505) 461-3300			
Notrees	Notress, TX	(432) 827-3445			
Odessa	Odessa, TX	(432) 335-4659			
Ozona	Ozona, TX	(325) 392-2626			
Pecos	Pecos, TX	(432) 445-2421			
Petersburg	Petersburg, TX	(806) 667-3461			
Plains	Plains, TX	(806) 456-8067			
Plainview	Plainview, TX	(806) 296-1170			
Rankin	Rankin, TX	(432) 693-2252			

San Angelo	San Angelo, TX	(325) 657-4355			
Sanderson	Sanderson, TX	(432) 345-2525			
Seminole	Seminole, TX	758-9871			
Smyer	Smyer, TX	(806) 234-3861			
Snyder	Snyder, TX	(325) 573-6215			
Sundown	Sundown, TX	911			
Tucumcari	Tucumcari, NM	911			
West Odessa	Odessa, TX	(432) 381-3033			
Ambulance					
Abernathy Ambulance	Abernathy, TX	(806) 298-2241			
Amistad/Rosebud	Amistad/Rosebud, NM	(505) 633-9113			
Andrews Ambulance	Andrews, TX	(432) 523-5675			
Artesia Ambulance	Artesia, NM	(505) 746-2701			
Big Lake Ambulance	Big Lake, TX	(325) 884-2423			
Big Spring Ambulance	Big Spring, TX	(432) 264-2550			
Brownfield Ambulance	Brownfield, TX	(806) 637-2511			
Carlsbad Ambulance	Carlsbad, NM	(505) 885-2111; 911			
Clayton, NM	Clayton, NM	(505) 374-2501			
Denver City Ambulance	Denver City, TX	(806) 592-3516			
Eldorado Ambulance	Eldorado, TX	(325) 853-3456			
Eunice Ambulance	Eunice, NM	(505) 394-3258			
Goldsmith Ambulance	Goldsmith, TX	(432) 827-3445			
Hobbs, NM	Hobbs, NM	(505) 397-9308			
Jal, NM	Jal, NM	(505) 395-2501			
Jayton Ambulance	Jayton, TX	(806) 237-3801			
Lamesa Ambulance	Lamesa, TX	(806) 872-3464			
Levelland Ambulance	Levelland, TX	(806) 894-8855			
Lovington Ambulance	Lovington, NM	(505) 396-2811			
McCamey Hospital	McCamey, TX	(432) 652-8626			
Midland Ambulance	Midland, TX	(432) 685-7499			
Monahans Ambulance	Monahans, TX	3731			
Nara Visa, NM	Nara Visa, NM	(505) 461-3300			
Odessa Ambulance	Odessa, TX	(432) 335-3378			
Ozona Ambulance	Ozona, TX	(325) 392-2671			
Pecos Ambulance	Pecos, TX	(432) 445-4444			
Rankin Ambulance	Rankin, TX	(432) 693-2443			
San Angelo Ambulance	San Angelo, TX	(325) 657-4357			
Seminole Ambulance	Seminole, TX	758-9871			
Snyder Ambulance	Snyder, TX	(325) 573-1911			
Stanton Ambulance	Stanton, TX	(432) 756-2211			
Sundown Ambulance	Sundown, TX	911			
Tucumcari, NM	Tucumcari, NM	911			
Medical Air Ambulance Service					
AEROCARE - Methodist Hospital	Lubbock, TX	(800) 627-2376			
San Angelo Med-Vac Air Ambulance	San Angelo, TX	(800) 277-4354			
Southwest Air Ambulance Service	Stanford, TX	(800) 242-6199			
Southwest MediVac	Snyder, TX	(800) 242-6199			
Southwest MediVac	Hobbs, NM	(800) 242-6199			
Odessa Care Star	Odessa, TX	(888) 624-3571			
NWTH Medivac	Amarillo, TX	(800) 692-1331			



Permian Drilling Hydrogen Sulfide Drilling Operations Plan New Mexico

Scope

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

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

Objective

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

Discussion

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

Hydrogen Sulfide Training

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

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

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

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

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

Service company and visiting personnel

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

Emergency Equipment Requirements

1. Well control equipment

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

Special control equipment:

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

2. Protective equipment for personnel

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

3. Hydrogen sulfide sensors and alarms

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

4. Visual Warning Systems

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

**Caution – potential poison gas
Hydrogen sulfide
No admittance without authorization**

Wind sock – wind streamers:

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

Condition flags

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

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

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

5. Mud Program

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

Mud inspection devices:

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

6. Metallurgy

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

7. Well Testing

No drill stem test will be performed on this well.

8. Evacuation plan

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

9. Designated area

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

Emergency procedures

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

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

C. Responsibility:

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

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

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

Taking a kick

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

Open-hole logging

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

Running casing or plugging

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

Ignition procedures

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

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

Instructions for igniting the well

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

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

Status check list

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

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

Checked by:_____ Date:_____

Procedural check list during H2S events

Perform each tour:

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

Perform each week:

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

General evacuation plan

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

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

Emergency actions

Well blowout – if emergency

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

Person down location/facility

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

Toxic effects of hydrogen sulfide

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

Table i
Toxicity of various gases

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

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

Toxic effects of hydrogen sulfide

Table ii
Physical effects of hydrogen sulfide

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

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

*at 15.00 psia and 60'f.

Use of self-contained breathing equipment (SCBA)

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

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

Rescue
First aid for H₂S poisoning

Do not panic!

Remain calm – think!

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

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

Revised CM 6/27/2012

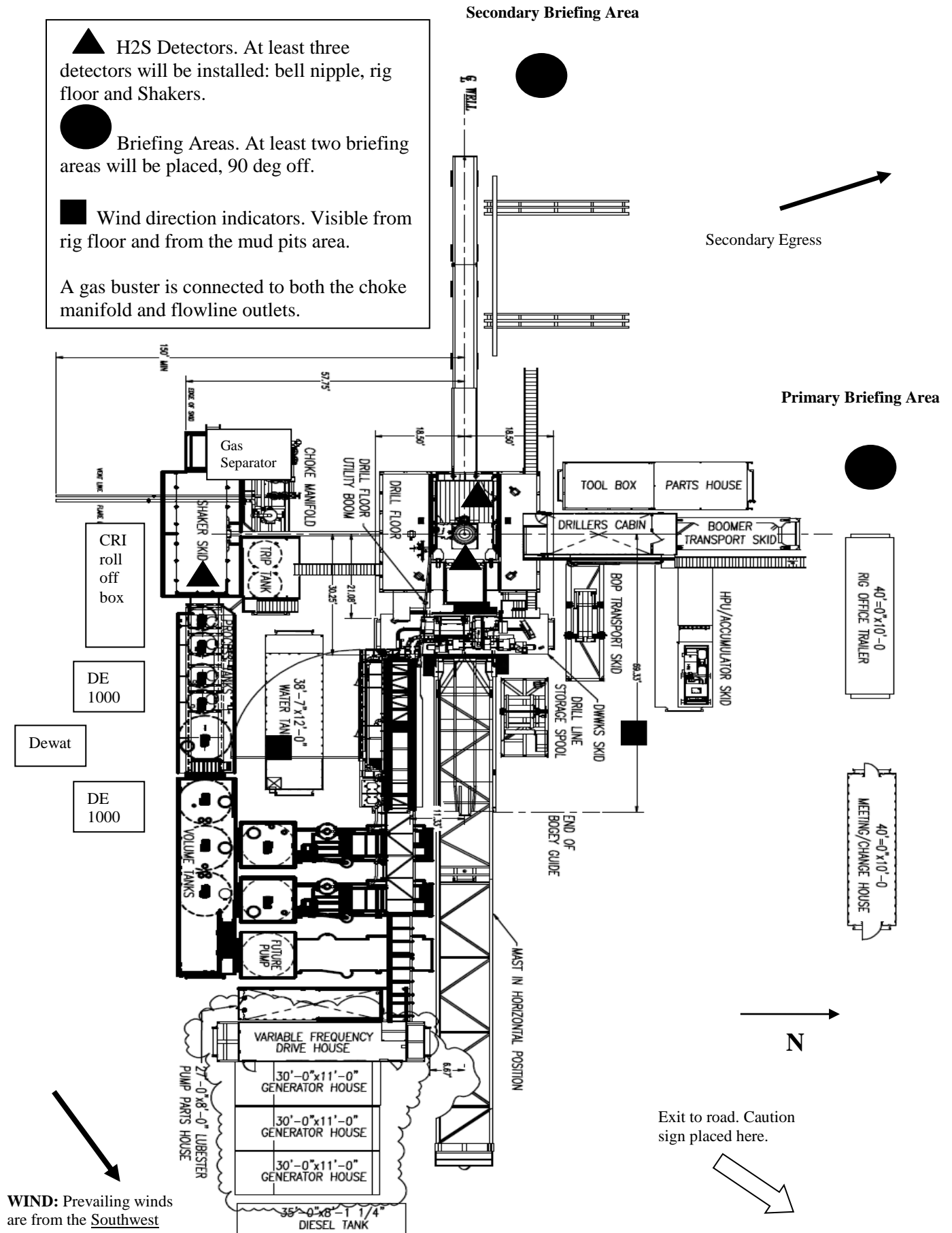


Permian Drilling Hydrogen Sulfide Drilling Operations Plan I Prefer Pi 18-07 Fed Com 313H

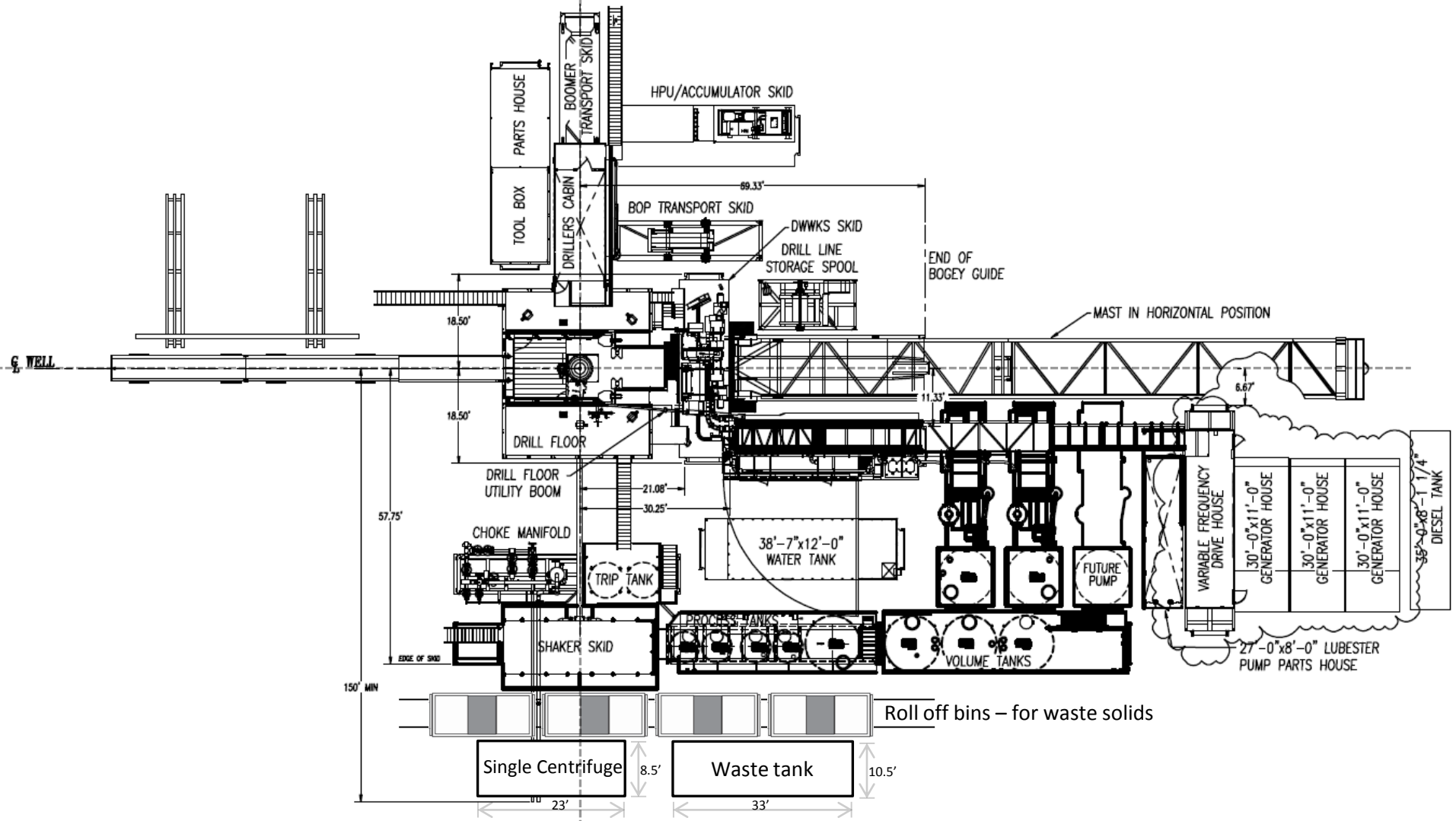
Open drill site. No homes or buildings are near the proposed location.

1. Escape

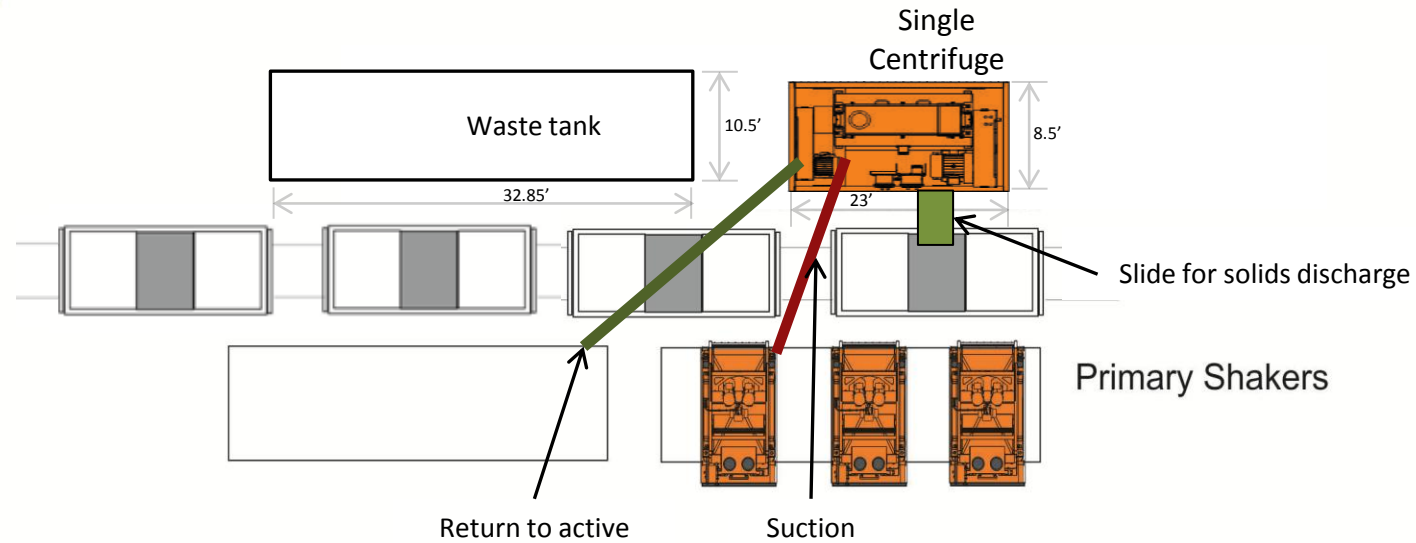
Personnel shall escape upwind of wellbore in the event of an emergency gas release. Escape can take place through the lease road on the Southeast side of the location. Personnel need to move to a safe distance and block the entrance to location. If the primary route is not an option due to the wind direction,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



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

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 12115

CONDITIONS OF APPROVAL

Operator:			OGRID:	Action Number:	Action Type:
OXY USA INC P.O. Box 4294 Houston, TX772104294			16696	12115	FORM 3160-3
OCD Reviewer	Condition				
pkautz	Will require 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				
pkautz	Oil base muds are not to be used until freshwater zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.				