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

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

NM OIL CONSERVATION
ARTESIA DISTRICT
SEP 22 2016
RECEIVED

Form C-101
Revised July 18, 2013

☑ AMENDED REPORT

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

1. Operator Name and Address	2. OGRID Number
OXY USA Inc. P.O. Box 50250 Midland, TX 79710	16696
	3. API Number: 30-015-43643

4. Property Code	5. Property Name	6. Well No.
	Cedar Canyon 16 State	34H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
A	16	24S	29E		402	N	1093	E	Eddy

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
P	16	24S	29E		180	S	380	E	Eddy

9. Pool Information

Pool Name	Pool Code
Pierce Crossing Wolfcamp	50373

*This well was originally permitted in the Pierce Crossing Bone Spring, E. 96473

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
N - A	O	R	S	2927.3'
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
S	14981'M 10075'V	Wolfcamp	H&P	10/1/16
Depth to Ground water	Distance from nearest fresh water well		Distance to nearest surface water	

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

GCP on file

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	14 3/4"	10 3/4"	40.5	400'	265	Surface
Prod.	9 7/8"	7 5/8"	26.4-29.7	9473'	1841	Surface
Liner	6 3/4"	4 1/2"	11.6	9373-14981'	548	9373'

Casing/Cement Program: Additional Comments

See attached for additional information.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Ram	5000	5000	

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

Printed name: David Stewart
Title: Sr. Regulatory Advisor
E-mail Address: david_stewart@oxy.com
Date: 9/20/16 Phone: 432-685-5717

OIL CONSERVATION DIVISION

Approved By: Karen Sharp
Title: BusOperSpec-Adv
Approved Date: 9-22-16 Expiration Date: 9-22-18
Conditions of Approval Attached ✓

NM OIL CONSERVATION
ARTESIA DISTRICT
SEP 22 2016
RECEIVED

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

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

☑ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-43843	50373	Pierce Crossing Wolfcamp

Property Code	Property Name	Well Number
	CEDAR CANYON "16" STATE	34H

OGRID No.	Operator Name	Elevation
16696	OXY USA INC.	2927.3'

Surface Location

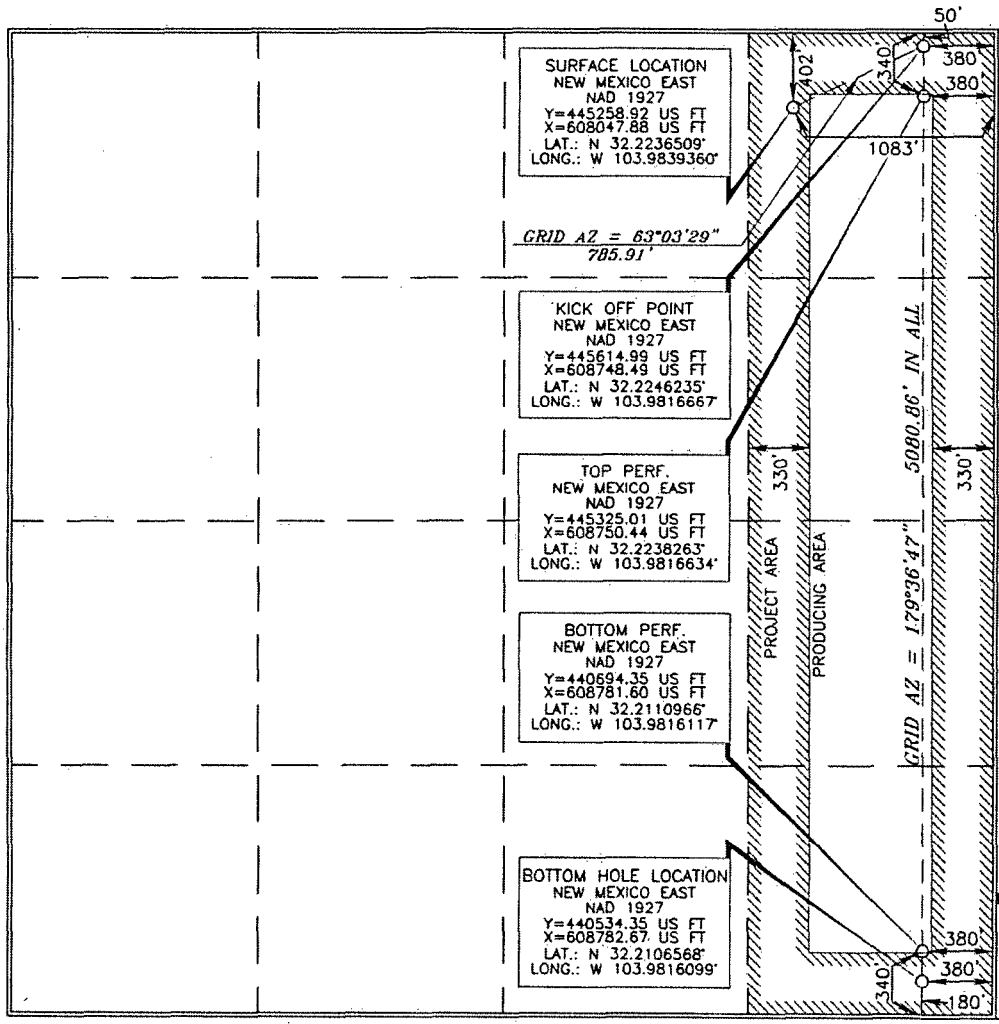
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	16	24 SOUTH	29 EAST, N.M.P.M.		402'	NORTH	1083'	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	16	24 SOUTH	29 EAST, N.M.P.M.		180'	SOUTH	380'	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160	N		

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION

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

Signature — Date: 9/20/16

David Stewart — Sr. Reg Adv.
Printed Name

david_stewart@oxy.com
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.

APRIL 19, 2016
Date of Survey

Signature and Seal of Professional Surveyor:

JERRY J. ASE — NEW MEXICO — 15079 — REGISTERED PROFESSIONAL LAND SURVEYOR

5/23/2016
Certificate Number 15079

WO# 160419WL-b (KA)

OXY USA Inc. - Cedar Canyon 16 State #34H – 30-015-43843

1. Geologic Formations

TVD of target	10080'	Pilot Hole Depth	N/A
MD at TD:	14981'	Deepest Expected fresh water:	193'

Delaware Basin

Formation	TVD - RKB	Expected Fluids
Rustler	193	
Salado	615	
Lamar/Delaware	2913	Oil/Gas
Bell Canyon*	2961	Water/Oil/Gas
Cherry Canyon*	3645	Oil/Gas
Brushy Canyon*	5051	Oil/Gas
1st Bone Spring	6630	Oil/Gas
2nd Bone Spring	7915	Oil/Gas
3rd Bone Spring	8838	Oil/Gas
Wolfcamp	**9977**	**Oil/Gas**

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

2. Casing Program

Hole Size (in)	Casing Interval From (ft)	Casing Interval To (ft)	Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	Buoyant SF Tension	Buoyant Joint SF Tension
14.75	0	400	10.75	40.5	J55	BTC	7.6	1.54	2.89	3.23
9.875	0	7900	7.625	26.4	L80	BTC	1.19	1.29	1.88	1.86
9.875	7900	9473	7.625	29.7	L80	BTC	1.13	1.43	3.43	4.32
6.75	9373	14981	4.5	11.6	P-110	DQX	1.64	1.2	1.91	2.05

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
*Oxy requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower and a DV tool will be run in case a contingency second stage is required for cement to reach surface. If cement circulated to surface during first stage we will drop a cancelation cone and not pump the second stage.

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

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H20 gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	265	14.8	1.35	6.53	6:50	Premium Plus Cement 2% Calcium Chloride – Flake (Accelerator)
Production Casing	1026	10.2	3.05	15.63	15:07	TUNED LIGHT (TM) SYSTEM 0.80% HR-601(Retarder), 3 lbm/sk Kol-Seal (Lost Circulation Additive), 0.125 lbm/sk Poly-E-Flake (Lost Circulation Additive)
	163	13.2	1.65	8.45	12:57	Super H Cement, 0.1 % HR-800 (Retarder), 0.5 % Halad(R)-344 (Low Fluid Loss Control), 0.3 % CFR-3 (Dispersant), 2 lbm Kol-Seal (Lost Circulation Additive), 3 lbm Salt (Salt)
DV/ECP Tool @ 2963' (We request the option to cancel the second stage if cement is circulated to surface during the first stage of cement operations)						
2nd Stage	470	12.9	1.85	9.86	12:44	Halliburton Light Premium Plus Cement with 5% Salt (Accelerator), 0.125 lbs/sk Poly-E-Flake (Lost Circulation Additive), 5 lbs/sk Kol-Seal (Lost Circulation Additive), 0.35% HR-800 (Retarder)
	182	14.8	1.33	6.34	6:31	Premium Plus cement
Production Liner	548	13.2	1.631	8.37	15:15	Super H Cement, 0.1 % HR-800 (Retarder), 0.5 % Halad(R)-344 (Low Fluid Loss Control), 0.4 % CFR-3 (Dispersant), 3 lbm Salt (Salt)

Casing String	Lead To (ft)	Lead From (ft)	Tail To (ft)	Tail From (ft)	% Excess Lead	% Excess Tail
Surface	N/A	N/A	0	400		50%
Production Casing	0	8473	8473	9473	75%	20%
2nd Stage Prodution Casing	0	2463	2463	2963	75%	125%
Production Liner	N/A	N/A	9373	14981		15%

4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
9.875" Intermediate	13-5/8"	5M	Annular	✓	70% of working pressure
			Blind Ram	✓	250/5000psi
			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. 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 wellhead is being used. 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. See attached schematic. 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.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From (ft)	To (ft)				
0	400	EnerSeal (MMH)	8.4-8.6	40-60	N/C
400	2963	Brine	9.8-10.0	35-45	N/C
2963	9473	EnerSeal (MMH)	8.8-9.6	38-50	N/C
9473	14981	Oil-Based Mud	8.8-9.6	35-50	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

Oxy proposes to drill out the " surface casing shoe with a saturated brine system from 400' - 2963', which is the base of the salt system. At this point we will swap fluid systems to a high viscosity mixed metal hydroxide system. We will drill with this system to the intermediate TD @ 9473'.

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	Intermediate Shoe - TD
No	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4928 psi
Abnormal Temperature	No

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

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

8. Other facets of operation

	Yes/No
Will the well be drilled with a walking/skidding operation? If yes, describe. • We plan to drill the two well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the rig is not over the well.	Yes
Will more than one drilling rig be used for drilling operations? If yes, describe.	No

Attachments
_x__ Directional Plan

9. Company Personnel

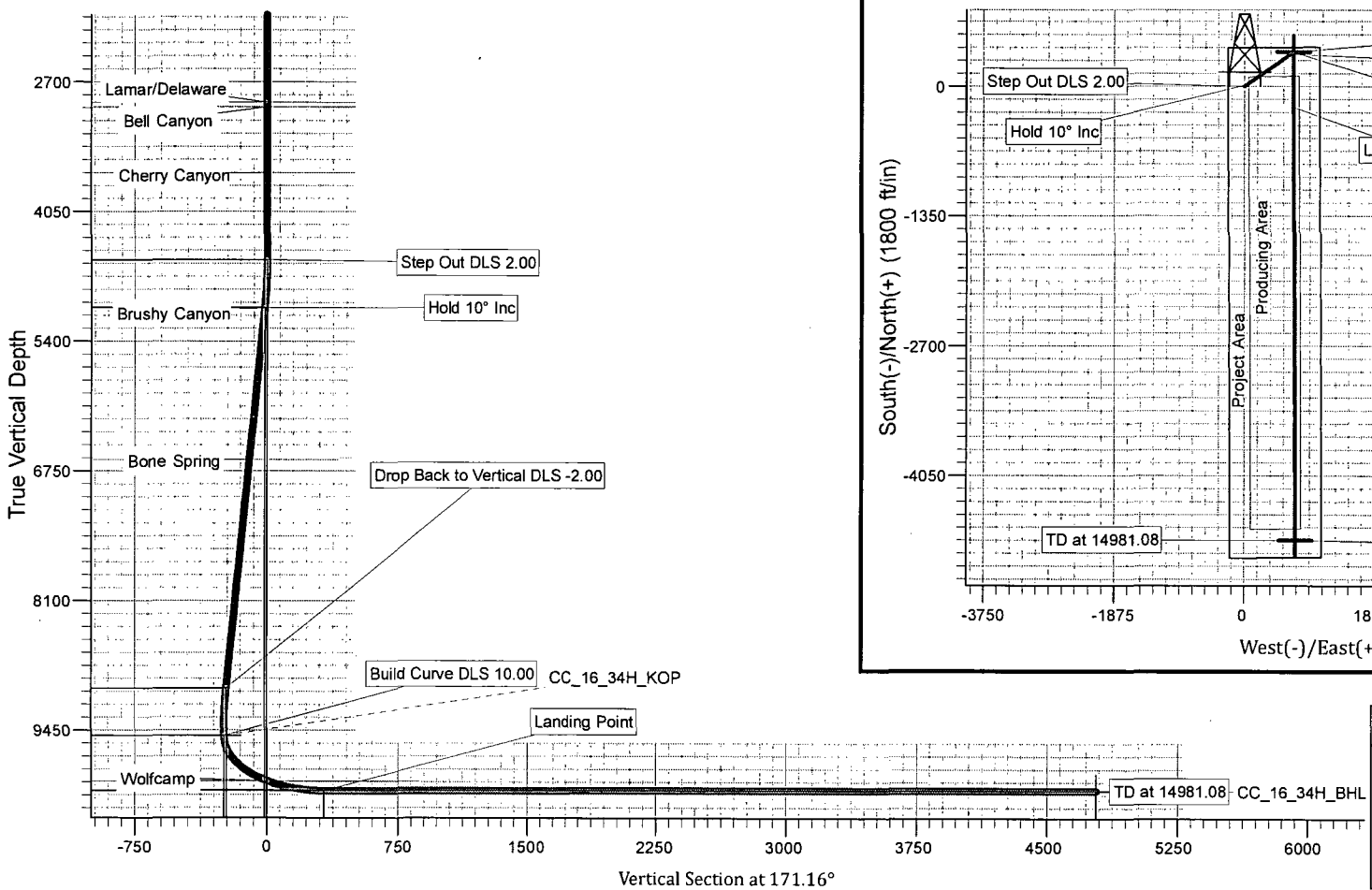
Name	Title	Office Phone	Mobile Phone
Ludwing Franco	Drilling Engineer	713-366-5174	832-523-6392
Tim Barnard	Drilling Engineer Team Lead	713-366-5706	281-740-3084
Amrut Athavale	Drilling Engineer Supervisor	713-350-4747	281-740-4448
Simon Benavides	Drilling Superintendent	713-522-8652	281-684-6897
Angie Contreras	Drilling & Completions Manager	713-497-2012	832-605-4882
Daniel Holderman	Drilling Manager	713-497-2006	832-525-9029

Project: NM DIRECTIONAL PLANS
Site: Cedar Canyon 16
Well: Cedar Canyon 16 State 34H
Wellbore: WB00
Design: Permitting Plan

WELL DETAILS: Cedar Canyon 16 State 34H

Ground Level: 2927.30 WELL @ 2953.80ft (Original Well Elev)

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude
0.00	0.00	445258.92	608047.88	32° 13' 25.143397 N	103° 59' 2.169618 W



PROJECT DETAILS: NM DIRECTIONAL PLANS

Geodetic System:	US State Plane 1927 (Exact solution)
Datum:	NAD 1927 (NADCON CONUS)
Ellipsoid:	Clarke 1866
Zone:	New Mexico East 3001
System Datum:	Mean Sea Level

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Departure	Annotation
4550.00	4550.00	0.00	0.00	0.00	0.00	0.00	0.00	Step Out DLS 2.00
5047.62	5050.16	10.00	63.06	19.73	38.82	-13.53	43.55	Hold 10° Inc
9009.42	9073.11	10.00	63.06	336.34	661.79	-230.66	742.35	Drop Back to Vertical DLS -2.00
9507.04	9573.27	0.00	179.61	356.07	700.61	-244.19	785.90	Build Curve DLS 10.00
10080.00	10473.87	90.06	179.61	-217.47	704.47	323.14	1359.46	Landing Point
10075.00	14981.08	90.07	179.61	-4724.58	734.79	4781.38	5866.67	TD at 14981.08

Oxy
Planning Report

Database:	HOPSPP	**Local Co-ordinate Reference:**	Site Cedar Canyon 16
Company:	OXY	**TVD Reference:**	WELL @ 2953.80ft (Original Well Elev)
Project:	NM DIRECTIONAL PLANS	**MD Reference:**	WELL @ 2953.80ft (Original Well Elev)
Site:	Cedar Canyon 16	**North Reference:**	Grid
Well:	Cedar Canyon 16 State 34H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Project NM DIRECTIONAL PLANS

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Cedar Canyon 16

Site Position:		**Northing:**	445,258.92 usft	**Latitude:**	32° 13' 25.143397 N
From:	Map	**Easting:**	608,047.88 usft	**Longitude:**	103° 59' 2.169618 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.19 °

Well Cedar Canyon 16 State 34H

Well Position	**+N/-S**	0.00 ft	**Northing:**	445,258.92 usft	**Latitude:**	32° 13' 25.143397 N
	+E/-W	0.00 ft	**Easting:**	608,047.88 usft	**Longitude:**	103° 59' 2.169618 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	2,927.30 ft	**Ground Level:**	2,927.30 ft

Wellbore WB00

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	9/20/2016	7.22	60.07	48,227

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	171.16

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,550.00	0.00	0.00	4,550.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,050.16	10.00	63.06	5,047.62	19.73	38.82	2.00	2.00	0.00	63.06	
9,073.11	10.00	63.06	9,009.42	336.34	661.79	0.00	0.00	0.00	0.00	
9,573.27	0.00	179.61	9,507.04	356.07	700.61	2.00	-2.00	0.00	180.00	CC_16_34H_KOP
10,473.87	90.06	179.61	10,080.00	-217.47	704.47	10.00	10.00	0.00	179.61	
14,981.08	90.07	179.61	10,075.00	-4,724.58	734.79	0.00	0.00	0.00	0.00	CC_16_34H_BHL

Database:	HOPSPP	**Local Co-ordinate Reference:**	Site Cedar Canyon 16
Company:	OXY	**TVD Reference:**	WELL @ 2953.80ft (Original Well Elev)
Project:	NM DIRECTIONAL PLANS	**MD Reference:**	WELL @ 2953.80ft (Original Well Elev)
Site:	Cedar Canyon 16	**North Reference:**	Grid
Well:	Cedar Canyon 16 State 34H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	WB00		
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
193.00	0.00	0.00	193.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
615.00	0.00	0.00	615.00	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
1,299.00	0.00	0.00	1,299.00	0.00	0.00	0.00	0.00	0.00	0.00
Castile (Anhydrite)									
2,913.00	0.00	0.00	2,913.00	0.00	0.00	0.00	0.00	0.00	0.00
Lamar/Delaware									
2,961.00	0.00	0.00	2,961.00	0.00	0.00	0.00	0.00	0.00	0.00
Bell Canyon									
3,645.00	0.00	0.00	3,645.00	0.00	0.00	0.00	0.00	0.00	0.00
Cherry Canyon									
4,550.00	0.00	0.00	4,550.00	0.00	0.00	0.00	0.00	0.00	0.00
Step Out DLS 2.00									
4,600.00	1.00	63.06	4,600.00	0.20	0.39	-0.14	2.00	2.00	0.00
4,700.00	3.00	63.06	4,699.93	1.78	3.50	-1.22	2.00	2.00	0.00
4,800.00	5.00	63.06	4,799.68	4.94	9.72	-3.39	2.00	2.00	0.00
4,900.00	7.00	63.06	4,899.13	9.67	19.04	-6.63	2.00	2.00	0.00
5,000.00	9.00	63.06	4,998.15	15.98	31.44	-10.96	2.00	2.00	0.00
5,050.16	10.00	63.06	5,047.62	19.73	38.82	-13.53	2.00	2.00	0.00
Hold 10° Inc									
5,053.59	10.00	63.06	5,051.00	20.00	39.36	-13.72	0.00	0.00	0.00
Brushy Canyon									
5,100.00	10.00	63.06	5,096.71	23.65	46.54	-16.22	0.00	0.00	0.00
5,200.00	10.00	63.06	5,195.19	31.52	62.03	-21.62	0.00	0.00	0.00
5,300.00	10.00	63.06	5,293.66	39.39	77.51	-27.02	0.00	0.00	0.00
5,400.00	10.00	63.06	5,392.14	47.26	93.00	-32.41	0.00	0.00	0.00
5,500.00	10.00	63.06	5,490.62	55.13	108.48	-37.81	0.00	0.00	0.00
5,600.00	10.00	63.06	5,589.10	63.00	123.97	-43.21	0.00	0.00	0.00
5,700.00	10.00	63.06	5,687.58	70.87	139.45	-48.60	0.00	0.00	0.00
5,800.00	10.00	63.06	5,786.06	78.74	154.94	-54.00	0.00	0.00	0.00
5,900.00	10.00	63.06	5,884.54	86.61	170.42	-59.40	0.00	0.00	0.00
6,000.00	10.00	63.06	5,983.02	94.48	185.91	-64.80	0.00	0.00	0.00
6,100.00	10.00	63.06	6,081.50	102.35	201.39	-70.19	0.00	0.00	0.00
6,200.00	10.00	63.06	6,179.98	110.22	216.88	-75.59	0.00	0.00	0.00
6,300.00	10.00	63.06	6,278.46	118.09	232.36	-80.99	0.00	0.00	0.00
6,400.00	10.00	63.06	6,376.94	125.96	247.85	-86.39	0.00	0.00	0.00
6,500.00	10.00	63.06	6,475.42	133.83	263.34	-91.78	0.00	0.00	0.00
6,600.00	10.00	63.06	6,573.90	141.70	278.82	-97.18	0.00	0.00	0.00
6,656.96	10.00	63.06	6,630.00	146.19	287.64	-100.25	0.00	0.00	0.00
Bone Spring									
6,700.00	10.00	63.06	6,672.38	149.57	294.31	-102.58	0.00	0.00	0.00
6,800.00	10.00	63.06	6,770.86	157.44	309.79	-107.97	0.00	0.00	0.00
6,900.00	10.00	63.06	6,869.34	165.31	325.28	-113.37	0.00	0.00	0.00
7,000.00	10.00	63.06	6,967.82	173.18	340.76	-118.77	0.00	0.00	0.00
7,100.00	10.00	63.06	7,066.30	181.05	356.25	-124.17	0.00	0.00	0.00
7,200.00	10.00	63.06	7,164.78	188.92	371.73	-129.56	0.00	0.00	0.00
7,300.00	10.00	63.06	7,263.26	196.79	387.22	-134.96	0.00	0.00	0.00
7,400.00	10.00	63.06	7,361.74	204.66	402.70	-140.36	0.00	0.00	0.00
7,500.00	10.00	63.06	7,460.22	212.53	418.19	-145.75	0.00	0.00	0.00
7,600.00	10.00	63.06	7,558.70	220.40	433.67	-151.15	0.00	0.00	0.00
7,700.00	10.00	63.06	7,657.18	228.27	449.16	-156.55	0.00	0.00	0.00

Database:	HOPSPP	**Local Co-ordinate Reference:**	Site Cedar Canyon 16
Company:	OXY	**TVD Reference:**	WELL @ 2953.80ft (Original Well Elev)
Project:	NM DIRECTIONAL PLANS	**MD Reference:**	WELL @ 2953.80ft (Original Well Elev)
Site:	Cedar Canyon 16	**North Reference:**	Grid
Well:	Cedar Canyon 16 State 34H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	WB00		
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)
7,800.00	10.00	63.06	7,755.66	236.14	464.64	-161.95	0.00	0.00	0.00
7,900.00	10.00	63.06	7,854.14	244.01	480.13	-167.34	0.00	0.00	0.00
8,000.00	10.00	63.06	7,952.62	251.88	495.61	-172.74	0.00	0.00	0.00
8,100.00	10.00	63.06	8,051.10	259.76	511.10	-178.14	0.00	0.00	0.00
8,200.00	10.00	63.06	8,149.58	267.63	526.58	-183.53	0.00	0.00	0.00
8,300.00	10.00	63.06	8,248.06	275.50	542.07	-188.93	0.00	0.00	0.00
8,400.00	10.00	63.06	8,346.54	283.37	557.55	-194.33	0.00	0.00	0.00
8,500.00	10.00	63.06	8,445.02	291.24	573.04	-199.73	0.00	0.00	0.00
8,600.00	10.00	63.06	8,543.50	299.11	588.53	-205.12	0.00	0.00	0.00
8,700.00	10.00	63.06	8,641.98	306.98	604.01	-210.52	0.00	0.00	0.00
8,800.00	10.00	63.06	8,740.46	314.85	619.50	-215.92	0.00	0.00	0.00
8,900.00	10.00	63.06	8,838.94	322.72	634.98	-221.32	0.00	0.00	0.00
9,000.00	10.00	63.06	8,937.42	330.59	650.47	-226.71	0.00	0.00	0.00
9,073.11	10.00	63.06	9,009.42	336.34	661.79	-230.66	0.00	0.00	0.00
Drop Back to Vertical DLS -2.00									
9,100.00	9.47	63.06	9,035.92	338.40	665.84	-232.07	2.00	-2.00	0.00
9,200.00	7.47	63.06	9,134.82	345.07	678.96	-236.65	2.00	-2.00	0.00
9,300.00	5.47	63.06	9,234.18	350.17	689.00	-240.14	2.00	-2.00	0.00
9,400.00	3.47	63.06	9,333.87	353.70	695.94	-242.56	2.00	-2.00	0.00
9,500.00	1.47	63.06	9,433.78	355.65	699.78	-243.90	2.00	-2.00	0.00
9,573.27	0.00	179.61	9,507.04	356.07	700.61	-244.19	2.00	-2.00	0.00
Build Curve DLS 10.00									
9,600.00	2.67	179.61	9,533.76	355.45	700.62	-243.57	10.00	10.00	0.00
9,700.00	12.67	179.61	9,632.74	342.11	700.71	-230.38	10.00	10.00	0.00
9,800.00	22.67	179.61	9,727.90	311.79	700.91	-200.39	10.00	10.00	0.00
9,900.00	32.67	179.61	9,816.35	265.41	701.22	-154.51	10.00	10.00	0.00
10,000.00	42.67	179.61	9,895.40	204.38	701.63	-94.14	10.00	10.00	0.00
10,100.00	52.67	179.61	9,962.65	130.54	702.13	-21.10	10.00	10.00	0.00
10,124.35	55.11	179.61	9,977.00	110.87	702.26	-1.64	10.00	10.00	0.00
Wolfcamp									
10,200.00	62.67	179.61	10,016.06	46.15	702.70	62.37	10.00	10.00	0.00
10,300.00	72.67	179.61	10,054.00	-46.24	703.32	153.75	10.00	10.00	0.00
10,400.00	82.67	179.61	10,075.32	-143.80	703.97	250.27	10.00	10.00	0.00
10,473.87	90.06	179.61	10,080.00	-217.47	704.47	323.14	10.00	10.00	0.00
Landing Point									
10,500.00	90.06	179.61	10,079.97	-243.60	704.65	348.98	0.00	0.00	0.00
10,600.00	90.06	179.61	10,079.87	-343.60	705.32	447.89	0.00	0.00	0.00
10,700.00	90.06	179.61	10,079.76	-443.60	705.99	546.81	0.00	0.00	0.00
10,800.00	90.06	179.61	10,079.65	-543.60	706.66	645.72	0.00	0.00	0.00
10,900.00	90.06	179.61	10,079.55	-643.59	707.34	744.64	0.00	0.00	0.00
11,000.00	90.06	179.61	10,079.44	-743.59	708.01	843.55	0.00	0.00	0.00
11,100.00	90.06	179.61	10,079.34	-843.59	708.68	942.46	0.00	0.00	0.00
11,200.00	90.06	179.61	10,079.23	-943.59	709.35	1,041.38	0.00	0.00	0.00
11,300.00	90.06	179.61	10,079.12	-1,043.58	710.03	1,140.29	0.00	0.00	0.00
11,400.00	90.06	179.61	10,079.02	-1,143.58	710.70	1,239.20	0.00	0.00	0.00
11,500.00	90.06	179.61	10,078.91	-1,243.58	711.37	1,338.12	0.00	0.00	0.00
11,600.00	90.06	179.61	10,078.80	-1,343.58	712.05	1,437.03	0.00	0.00	0.00
11,700.00	90.06	179.61	10,078.69	-1,443.57	712.72	1,535.94	0.00	0.00	0.00
11,800.00	90.06	179.61	10,078.58	-1,543.57	713.39	1,634.86	0.00	0.00	0.00
11,900.00	90.06	179.61	10,078.48	-1,643.57	714.06	1,733.77	0.00	0.00	0.00
12,000.00	90.06	179.61	10,078.37	-1,743.57	714.74	1,832.68	0.00	0.00	0.00
12,100.00	90.06	179.61	10,078.26	-1,843.57	715.41	1,931.60	0.00	0.00	0.00
12,200.00	90.06	179.61	10,078.15	-1,943.56	716.08	2,030.51	0.00	0.00	0.00

Database:	HOPSPP	**Local Co-ordinate Reference:**	Site Cedar Canyon 16
Company:	OXY	**TVD Reference:**	WELL @ 2953.80ft (Original Well Elev)
Project:	NM DIRECTIONAL PLANS	**MD Reference:**	WELL @ 2953.80ft (Original Well Elev)
Site:	Cedar Canyon 16	**North Reference:**	Grid
Well:	Cedar Canyon 16 State 34H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	WB00		
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)
12,300.00	90.06	179.61	10,078.04	-2,043.56	716.75	2,129.43	0.00	0.00	0.00
12,400.00	90.06	179.61	10,077.93	-2,143.56	717.43	2,228.34	0.00	0.00	0.00
12,500.00	90.06	179.61	10,077.82	-2,243.56	718.10	2,327.25	0.00	0.00	0.00
12,600.00	90.06	179.61	10,077.71	-2,343.55	718.77	2,426.17	0.00	0.00	0.00
12,700.00	90.06	179.61	10,077.60	-2,443.55	719.45	2,525.08	0.00	0.00	0.00
12,800.00	90.06	179.61	10,077.49	-2,543.55	720.12	2,623.99	0.00	0.00	0.00
12,900.00	90.06	179.61	10,077.38	-2,643.55	720.79	2,722.91	0.00	0.00	0.00
13,000.00	90.06	179.61	10,077.27	-2,743.54	721.46	2,821.82	0.00	0.00	0.00
13,100.00	90.06	179.61	10,077.15	-2,843.54	722.14	2,920.73	0.00	0.00	0.00
13,200.00	90.06	179.61	10,077.04	-2,943.54	722.81	3,019.65	0.00	0.00	0.00
13,300.00	90.06	179.61	10,076.93	-3,043.54	723.48	3,118.56	0.00	0.00	0.00
13,400.00	90.06	179.61	10,076.82	-3,143.53	724.16	3,217.47	0.00	0.00	0.00
13,500.00	90.06	179.61	10,076.70	-3,243.53	724.83	3,316.39	0.00	0.00	0.00
13,600.00	90.06	179.61	10,076.59	-3,343.53	725.50	3,415.30	0.00	0.00	0.00
13,700.00	90.07	179.61	10,076.48	-3,443.53	726.17	3,514.21	0.00	0.00	0.00
13,800.00	90.07	179.61	10,076.36	-3,543.53	726.85	3,613.13	0.00	0.00	0.00
13,900.00	90.07	179.61	10,076.25	-3,643.52	727.52	3,712.04	0.00	0.00	0.00
14,000.00	90.07	179.61	10,076.14	-3,743.52	728.19	3,810.96	0.00	0.00	0.00
14,100.00	90.07	179.61	10,076.02	-3,843.52	728.86	3,909.87	0.00	0.00	0.00
14,200.00	90.07	179.61	10,075.91	-3,943.52	729.54	4,008.78	0.00	0.00	0.00
14,300.00	90.07	179.61	10,075.79	-4,043.51	730.21	4,107.70	0.00	0.00	0.00
14,400.00	90.07	179.61	10,075.68	-4,143.51	730.88	4,206.61	0.00	0.00	0.00
14,500.00	90.07	179.61	10,075.56	-4,243.51	731.56	4,305.52	0.00	0.00	0.00
14,600.00	90.07	179.61	10,075.44	-4,343.51	732.23	4,404.44	0.00	0.00	0.00
14,700.00	90.07	179.61	10,075.33	-4,443.50	732.90	4,503.35	0.00	0.00	0.00
14,800.00	90.07	179.61	10,075.21	-4,543.50	733.57	4,602.26	0.00	0.00	0.00
14,900.00	90.07	179.61	10,075.10	-4,643.50	734.25	4,701.18	0.00	0.00	0.00
14,981.08	90.07	179.61	10,075.00	-4,724.58	734.79	4,781.38	0.00	0.00	0.00
TD at 14981.08									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
193.00	208.90	Rustler			
615.00	630.90	Salado			
1,299.00	1,314.90	Castile (Anhydrite)			
2,913.00	2,928.90	Lamar/Delaware			
2,961.00	2,976.90	Bell Canyon			
3,645.00	3,660.90	Cherry Canyon			
5,053.59	5,066.90	Brushy Canyon			
6,656.96	6,645.90	Bone Spring			
10,124.35	9,992.90	Wolfcamp		0.00	

Database:	HOPSPP	**Local Co-ordinate Reference:**	Site Cedar Canyon 16
Company:	OXY	**TVD Reference:**	WELL @ 2953.80ft (Original Well Elev)
Project:	NM DIRECTIONAL PLANS	**MD Reference:**	WELL @ 2953.80ft (Original Well Elev)
Site:	Cedar Canyon 16	**North Reference:**	Grid
Well:	Cedar Canyon 16 State 34H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
4,550.00	4,550.00	0.00	0.00	Step Out DLS 2.00
5,050.16	5,047.62	19.73	38.82	Hold 10° Inc
9,073.11	9,009.42	336.34	661.79	Drop Back to Vertical DLS -2.00
9,573.27	9,507.04	356.07	700.61	Build Curve DLS 10.00
10,473.87	10,080.00	-217.47	704.47	Landing Point
14,981.08	10,075.00	-4,724.58	734.79	TD at 14981.08

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONVERVATION DIVISION

PERMIT CONDITIONS OF APPROVAL

Operator Name Oxy USA

API Number 30-015-43843

Well Name and Number Cedar Canyon 16 State #34H

☑ Will require a Directional Survey and "As Drilled" C-102 with the C-104

☑ 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.

☑ If cement does not circulate to surface, must run temperature survey or other log to determine top of cement.