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NM OIL CONSERVATION
ARTESIA DISTRICT

APR 06 2015

RECEIVED

OXY

Eddy County, NM (NAD 27 NME)

Cedar Canyon 16 State 11H

CC 16 S 11H

OH

Design: OH

Standard Survey Report

12 January, 2015

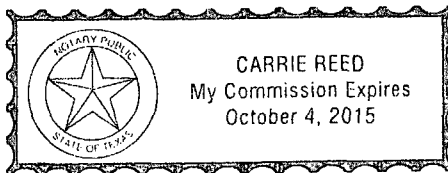
This survey is correct to the best of my knowledge and is supported by actual field data.

Carrie Reed

Notarized this date 4th of March, 2015.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling

www.scientificdrilling.com

Survey Report

Company:	OXY	Local Co-ordinate Reference:	Well CC 16 S 11H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB @ 2952.00usft
Site:	Cedar Canyon 16 State 11H	MD Reference:	KB @ 2952.00usft
Well:	CC 16 S 11H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Project	Eddy County, NM (NAD 27 NME), New Mexico		
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 State 11H				
Site Position:		Northing:	445,388.50 usft	Latitude:	32° 13' 26.494 N
From:	Map	Easting:	605,898.20 usft	Longitude:	103° 59' 27.190 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.18 °

Well	CC 16 S 11H					
Well Position	+N/-S	0.00 usft	Northing:	445,388.50 usft	Latitude:	32° 13' 26.494 N
	+E/-W	0.00 usft	Easting:	605,898.20 usft	Longitude:	103° 59' 27.190 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	2,927.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	12/16/2014	7.52	60.02	48,173

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (bearing)	
	0.00	0.00	0.00	180.64	

Survey Program	Date 1/12/2015				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
453.00	9,882.00	SDI MWD (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
453.00	0.73	284.78	452.99	0.74	-2.79	-0.71	0.16	0.16	0.00	
546.00	0.44	262.32	545.98	0.84	-3.72	-0.80	0.39	-0.31	-24.15	
639.00	0.29	248.67	638.98	0.71	-4.29	-0.66	0.19	-0.16	-14.68	
731.00	0.11	246.66	730.98	0.59	-4.59	-0.54	0.20	-0.20	-2.18	
824.00	0.15	243.28	823.98	0.50	-4.78	-0.44	0.04	0.04	-3.63	
916.00	0.26	197.46	915.98	0.24	-4.95	-0.19	0.21	0.12	-49.80	
1,009.00	0.14	144.26	1,008.98	-0.05	-4.95	0.11	0.22	-0.13	-57.20	
1,103.00	0.18	150.36	1,102.98	-0.27	-4.81	0.33	0.05	0.04	6.49	
1,197.00	0.14	215.40	1,196.98	-0.49	-4.80	0.55	0.19	-0.04	69.19	

Survey Report

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Site:	Cedar Canyon 16 State 11H	MD Reference:	KB @ 2952.00usft
Well:	CC 16 S 11H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,291.00	0.21	240.51	1,290.98	-0.67	-5.02	0.73	0.11	0.07	26.71
1,386.00	0.20	236.74	1,385.98	-0.85	-5.31	0.91	0.02	-0.01	-3.97
1,480.00	0.27	199.18	1,479.98	-1.15	-5.52	1.21	0.18	0.07	-39.96
1,575.00	0.17	218.06	1,574.98	-1.47	-5.68	1.53	0.13	-0.11	19.87
1,669.00	0.29	159.04	1,668.98	-1.80	-5.68	1.87	0.27	0.13	-62.79
1,763.00	0.29	149.81	1,762.97	-2.23	-5.47	2.29	0.05	0.00	-9.82
1,857.00	0.30	117.12	1,856.97	-2.55	-5.13	2.60	0.18	0.01	-34.78
1,951.00	0.60	143.36	1,950.97	-3.06	-4.62	3.11	0.38	0.32	27.91
2,046.00	0.78	115.33	2,045.96	-3.73	-3.74	3.77	0.40	0.19	-29.51
2,140.00	1.37	117.87	2,139.95	-4.53	-2.17	4.55	0.63	0.63	2.70
2,234.00	0.98	116.83	2,233.93	-5.42	-0.46	5.42	0.42	-0.41	-1.11
2,328.00	0.24	259.65	2,327.92	-5.82	0.07	5.82	1.26	-0.79	151.94
2,422.00	0.20	190.98	2,421.92	-6.01	-0.16	6.01	0.27	-0.04	-73.05
2,516.00	1.20	128.82	2,515.91	-6.79	0.58	6.78	1.19	1.06	-66.13
2,611.00	1.59	128.54	2,610.89	-8.24	2.38	8.21	0.41	0.41	-0.29
2,705.00	0.41	119.41	2,704.87	-9.21	3.70	9.17	1.26	-1.26	-9.71
2,799.00	0.12	289.31	2,798.87	-9.35	3.90	9.30	0.56	-0.31	180.74
2,894.00	0.20	357.56	2,893.87	-9.15	3.80	9.10	0.20	0.08	71.84
2,964.00	0.26	289.82	2,963.87	-8.97	3.64	8.93	0.37	0.09	-96.77
3,044.00	0.67	316.17	3,043.87	-8.57	3.15	8.54	0.56	0.51	32.94
3,138.00	0.85	310.55	3,137.86	-7.72	2.24	7.70	0.21	0.19	-5.98
3,233.00	0.74	314.80	3,232.85	-6.83	1.26	6.82	0.13	-0.12	4.47
3,327.00	0.81	322.59	3,326.84	-5.88	0.43	5.87	0.13	0.07	8.29
3,421.00	3.12	18.95	3,420.78	-2.93	0.86	2.92	2.93	2.46	59.96
3,515.00	3.27	17.80	3,514.64	2.04	2.51	-2.07	0.17	0.16	-1.22
3,609.00	5.05	11.37	3,608.39	8.65	4.14	-8.70	1.95	1.89	-6.84
3,703.00	6.66	3.80	3,701.89	18.15	5.32	-18.21	1.90	1.71	-8.05
3,798.00	5.86	1.63	3,796.33	28.49	5.82	-28.56	0.88	-0.84	-2.28
3,892.00	5.94	0.29	3,889.83	38.15	5.98	-38.22	0.17	0.09	-1.43
3,986.00	4.44	357.41	3,983.44	46.65	5.84	-46.71	1.62	-1.60	-3.06
4,080.00	2.68	355.04	4,077.26	52.48	5.49	-52.53	1.88	-1.87	-2.52
4,175.00	0.62	286.70	4,172.22	54.84	4.81	-54.89	2.65	-2.17	-71.94
4,269.00	0.65	268.30	4,266.21	54.97	3.79	-55.01	0.22	0.03	-19.57
4,364.00	0.65	266.87	4,361.21	54.92	2.71	-54.95	0.02	0.00	-1.51
4,458.00	0.61	268.97	4,455.20	54.88	1.68	-54.90	0.05	-0.04	2.23
4,552.00	0.59	257.27	4,549.19	54.77	0.70	-54.77	0.13	-0.02	-12.45
4,603.00	0.97	222.00	4,600.19	54.39	0.16	-54.39	1.17	0.75	-69.16
4,634.00	3.73	198.24	4,631.16	53.24	-0.33	-53.23	9.25	8.90	-76.65
4,665.00	7.65	187.07	4,662.00	50.23	-0.90	-50.22	13.08	12.65	-36.03
4,697.00	9.32	182.94	4,693.65	45.53	-1.30	-45.51	5.55	5.22	-12.91
4,728.00	11.52	181.27	4,724.14	39.93	-1.49	-39.91	7.16	7.10	-5.39
4,759.00	13.05	182.60	4,754.43	33.33	-1.72	-33.31	5.02	4.94	4.29
4,791.00	16.01	181.25	4,785.40	25.31	-1.98	-25.29	9.31	9.25	-4.22
4,822.00	18.60	179.15	4,815.00	16.09	-2.00	-16.07	8.59	8.35	-6.77

Survey Report

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Site:	Cedar Canyon 16 State 11H	MD Reference:	KB @ 2952.00usft
Well:	CC 16 S 11H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,854.00	21.86	177.39	4,845.02	5.04	-1.66	-5.02	10.36	10.19	-5.50
4,885.00	25.57	177.65	4,873.40	-7.42	-1.12	7.43	11.97	11.97	0.84
4,917.00	28.42	178.57	4,901.91	-21.93	-0.64	21.94	9.00	8.91	2.88
4,948.00	30.96	180.81	4,928.84	-37.28	-0.57	37.29	8.94	8.19	7.23
4,979.00	34.29	181.01	4,954.94	-53.99	-0.84	54.00	10.75	10.74	0.65
5,042.00	39.39	184.26	5,005.35	-91.70	-2.64	91.72	8.66	8.10	5.16
5,136.00	43.77	179.91	5,075.66	-154.00	-4.81	154.04	5.58	4.66	-4.63
5,229.00	52.20	181.36	5,137.85	-223.03	-5.63	223.07	9.14	9.06	1.56
5,321.00	63.84	181.62	5,186.50	-300.90	-7.67	300.97	12.65	12.65	0.28
5,414.00	75.33	178.67	5,218.89	-387.90	-7.80	387.97	12.71	12.35	-3.17
5,506.00	86.07	177.00	5,233.73	-478.49	-4.36	478.51	11.81	11.67	-1.82
5,599.00	91.28	177.82	5,235.88	-571.34	-0.16	571.31	5.67	5.60	0.88
5,691.00	93.02	180.15	5,232.43	-663.25	1.47	663.19	3.16	1.89	2.53
5,784.00	92.29	180.67	5,228.12	-756.15	0.81	756.09	0.96	-0.78	0.56
5,877.00	91.18	182.91	5,225.31	-849.05	-2.10	849.02	2.69	-1.19	2.41
5,970.00	91.92	183.00	5,222.79	-941.89	-6.89	941.91	0.80	0.80	0.10
6,063.00	92.08	182.42	5,219.55	-1,034.73	-11.28	1,034.79	0.65	0.17	-0.62
6,157.00	89.36	181.59	5,218.37	-1,128.66	-14.57	1,128.75	3.03	-2.89	-0.88
6,251.00	89.83	181.60	5,219.03	-1,222.62	-17.19	1,222.73	0.50	0.50	0.01
6,346.00	90.47	182.41	5,218.78	-1,317.56	-20.51	1,317.71	1.09	0.67	0.85
6,440.00	90.80	181.81	5,217.74	-1,411.49	-23.97	1,411.67	0.73	0.35	-0.64
6,535.00	90.74	178.66	5,216.46	-1,506.47	-24.36	1,506.65	3.32	-0.06	-3.32
6,629.00	91.04	178.85	5,215.00	-1,600.43	-22.32	1,600.58	0.38	0.32	0.20
6,723.00	90.97	178.37	5,213.35	-1,694.39	-20.04	1,694.51	0.52	-0.07	-0.51
6,818.00	91.08	177.71	5,211.65	-1,789.32	-16.79	1,789.40	0.70	0.12	-0.69
6,912.00	91.04	178.39	5,209.92	-1,883.25	-13.59	1,883.28	0.72	-0.04	0.72
7,006.00	90.94	178.48	5,208.29	-1,977.20	-11.03	1,977.20	0.14	-0.11	0.10
7,100.00	89.56	181.73	5,207.88	-2,071.18	-11.20	2,071.18	3.76	-1.47	3.46
7,195.00	89.76	182.65	5,208.45	-2,166.11	-14.83	2,166.14	0.99	0.21	0.97
7,289.00	89.93	182.53	5,208.70	-2,260.02	-19.08	2,260.09	0.22	0.18	-0.13
7,383.00	90.61	182.42	5,208.26	-2,353.93	-23.14	2,354.04	0.73	0.72	-0.12
7,478.00	90.84	182.39	5,207.05	-2,448.83	-27.12	2,448.98	0.24	0.24	-0.03
7,572.00	91.14	181.95	5,205.43	-2,542.75	-30.68	2,542.94	0.57	0.32	-0.47
7,665.00	90.03	180.87	5,204.48	-2,635.72	-32.97	2,635.92	1.67	-1.19	-1.16
7,760.00	90.20	180.48	5,204.29	-2,730.71	-34.09	2,730.92	0.45	0.18	-0.41
7,854.00	88.22	181.09	5,205.59	-2,824.69	-35.38	2,824.91	2.20	-2.11	0.65
7,949.00	88.49	180.80	5,208.31	-2,919.63	-36.94	2,919.87	0.42	0.28	-0.31
8,043.00	88.86	180.42	5,210.49	-3,013.60	-37.94	3,013.84	0.56	0.39	-0.40
8,137.00	89.06	179.72	5,212.19	-3,107.59	-38.06	3,107.82	0.77	0.21	-0.74
8,232.00	89.16	179.48	5,213.67	-3,202.57	-37.39	3,202.79	0.27	0.11	-0.25
8,326.00	89.23	178.22	5,214.99	-3,296.54	-35.51	3,296.73	1.34	0.07	-1.34
8,420.00	90.40	177.96	5,215.29	-3,390.49	-32.37	3,390.64	1.28	1.24	-0.28
8,514.00	90.84	177.37	5,214.28	-3,484.41	-28.54	3,484.51	0.78	0.47	-0.63

Survey Report

Company:	OXY	Local Co-ordinate Reference:	Well CC 16 S 11H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB @ 2952.00usft
Site:	Cedar Canyon 16 State 11H	MD Reference:	KB @ 2952.00usft
Well:	CC 16 S 11H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

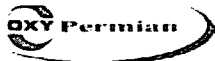
Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,609.00	90.03	175.88	5,213.55	-3,579.23	-22.95	3,579.27	1.79	-0.85	-1.57
8,703.00	89.02	176.84	5,214.33	-3,673.04	-16.98	3,673.00	1.48	-1.07	1.02
8,798.00	88.73	180.67	5,216.20	-3,767.98	-14.92	3,767.91	4.04	-0.31	4.03
8,892.00	89.09	180.45	5,217.99	-3,861.96	-15.84	3,861.90	0.45	0.38	-0.23
8,986.00	88.39	184.44	5,220.06	-3,955.83	-19.85	3,955.81	4.31	-0.74	4.24
9,081.00	89.29	184.10	5,221.98	-4,050.55	-26.92	4,050.60	1.01	0.95	-0.36
9,175.00	90.00	183.62	5,222.56	-4,144.33	-33.25	4,144.44	0.91	0.76	-0.51
9,269.00	90.30	182.90	5,222.32	-4,238.18	-38.59	4,238.34	0.83	0.32	-0.77
9,364.00	90.00	181.73	5,222.07	-4,333.10	-42.43	4,333.30	1.27	-0.32	-1.23
9,458.00	91.04	182.41	5,221.21	-4,427.03	-45.83	4,427.27	1.32	1.11	0.72
9,553.00	91.58	182.34	5,219.04	-4,521.92	-49.76	4,522.20	0.57	0.57	-0.07
9,647.00	91.92	181.49	5,216.17	-4,615.83	-52.90	4,616.13	0.97	0.36	-0.90
9,741.00	92.16	181.03	5,212.82	-4,709.74	-54.97	4,710.06	0.55	0.26	-0.49
9,750.79	92.21	181.04	5,212.45	-4,719.53	-55.14	4,719.85	0.56	0.56	0.07
CC 16 S 11H LTP									
9,836.00	92.69	181.10	5,208.81	-4,804.64	-56.73	4,804.98	0.56	0.56	0.07
MWD Survey									
9,882.00	92.69	181.10	5,206.65	-4,850.58	-57.61	4,850.92	0.00	0.00	0.00
Projection to Bit/TD - CC 16 S 11H BHL									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,836.00	5,208.81	-4,804.64	-56.73	MWD Survey
9,882.00	5,206.65	-4,850.58	-57.61	Projection to Bit/TD

Checked By: _____ Approved By: _____ Date: _____



CC 16 S 11H
Eddy County, NM (NAD 27 NME)
Northing: 445388.50
Easting: 605898.20
Plan #2



Azimuths to Grid North
True North: -0.18°
Magnetic North: 7.34°

Magnetic Field
Strength: 48173.5snT
Dip Angle: 60.02°
Date: 12/16/2014
Model: BGGM2014

To convert Magnetic North to Grid, Add 7.34°
To convert True North to Grid, Subtract 0.18°

KB @ 2952.00usft
Gr @ 2927.00

