

OXY Permian

Eddy County, NM (NAD 27 NME)

Cedar Canyon 15 SWD #1

CC 15 SWD #1

OH - Job #320115-MPH-0047

NM OIL CONSERVATION
ARTESIA DISTRICT
MAY 11 2015
RECEIVED

30-015-42797

Design: OH

Regulatory Report (Grid North)

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

W. Hart

Notarized this date 1st of may, 2015.

Sherry Stewart

Notary Signature
County of Midland
State of Texas



Regulatory Report (Grid North)

Company:	OXY Permian	Local Co-ordinate Reference:	Well CC 15 SWD #1
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB @ 2952.5usft
Site:	Cedar Canyon 15 SWD #1	MD Reference:	KB @ 2952.5usft
Well:	CC 15 SWD #1	North Reference:	Grid
Wellbore:	OH - Job #320115-MPH-0047	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	MID_Regulatory

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 15 SWD #1		
Site Position:		Northing:	442,855.60 usft
From:	Map	Easting:	610,547.10 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 13' 1.278 N
		Longitude:	103° 58' 33.169 W
		Grid Convergence:	0.19 °

Well	CC 15 SWD #1		
Well Position	+N/-S	0.0 usft	Northing: 442,855.60 usft
	+E/-W	0.0 usft	Easting: 610,547.10 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 13' 1.278 N
		Longitude:	103° 58' 33.169 W
		Ground Level:	2,927.8 usft

Wellbore	OH - Job #320115-MPH-0047				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	1/8/2015	7.38	60.08	48,382

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	0.00	

Survey Program	Date 3/17/2015				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
330.0	15,107.0	SDI MWD (OH - Job #320115-MPH-0047)	SDI MWD	SDI MWD - Standard ver 1.0.1	
15,204.0	16,014.0	Gyro (OH - Job #320115-MPH-0047)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	

Survey								
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0	
330.0	0.67	178.11	330.0	-1.9	0.1	178.11	1.9	
608.0	0.18	171.05	608.0	-4.0	0.2	177.34	4.0	
887.0	0.46	338.21	887.0	-3.4	-0.2	182.75	3.4	
1,163.0	0.69	349.80	1,163.0	-0.7	-0.9	230.60	1.1	
1,439.0	0.78	319.34	1,438.9	2.3	-2.4	314.53	3.3	
1,721.0	1.60	273.17	1,720.9	4.0	-7.6	297.99	8.6	
2,005.0	3.61	296.18	2,004.6	8.2	-19.6	292.72	21.2	
2,100.0	3.79	296.34	2,099.4	10.9	-25.0	293.51	27.3	
2,289.0	1.21	299.87	2,288.2	14.7	-32.4	294.37	35.5	
2,573.0	2.54	114.15	2,572.1	13.6	-29.2	294.92	32.2	

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Site:	Cedar Canyon 15 SWD #1	MD Reference:	KB @ 2952.5usft
Well:	CC 15 SWD #1	North Reference:	Grid
Wellbore:	OH - Job #320115-MPH-0047	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	MID_Regulatory

Survey

MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	EW (usft)	Closure Azimuth (°)	Closure Distance (usft)
2,857.0	4.84	131.64	2,855.5	3.0	-14.5	281.83	14.9
3,028.0	4.20	136.90	3,026.0	-6.3	-4.9	217.61	8.0
3,143.0	4.38	138.12	3,140.7	-12.7	0.9	175.75	12.7
3,238.0	3.70	139.11	3,235.4	-17.7	5.4	163.11	18.5
3,332.0	3.31	139.71	3,329.3	-22.0	9.1	157.55	23.9
3,427.0	2.89	140.26	3,424.1	-26.0	12.4	154.46	28.8
3,522.0	2.66	139.64	3,519.0	-29.5	15.4	152.48	33.3
3,617.0	2.47	141.49	3,613.9	-32.8	18.1	151.13	37.4
3,711.0	2.01	150.30	3,707.8	-35.8	20.2	150.62	41.1
3,806.0	2.04	154.02	3,802.8	-38.8	21.7	150.74	44.4
3,901.0	1.72	169.40	3,897.7	-41.7	22.7	151.41	47.5
3,995.0	1.82	202.68	3,991.7	-44.5	22.4	153.25	49.8
4,279.0	0.33	38.54	4,275.6	-48.0	21.2	156.18	52.4
4,374.0	1.69	299.15	4,370.6	-47.1	20.1	156.86	51.2
4,469.0	1.65	287.27	4,465.6	-46.0	17.6	159.06	49.2
4,753.0	1.93	291.68	4,749.5	-43.0	9.2	167.87	44.0
5,037.0	1.80	288.76	5,033.3	-39.8	0.6	179.17	39.8
5,321.0	3.07	298.96	5,317.0	-34.7	-10.3	196.54	36.2
5,604.0	1.97	255.57	5,599.8	-32.2	-21.6	213.88	38.8
5,888.0	3.13	287.54	5,883.5	-31.1	-33.8	227.34	45.9
6,172.0	1.85	316.20	6,167.3	-25.5	-44.3	240.12	51.1
6,455.0	4.75	345.94	6,449.8	-10.8	-50.3	257.89	51.5
6,739.0	3.61	14.32	6,733.0	9.3	-51.0	280.31	51.8
7,023.0	3.20	7.14	7,016.5	25.8	-47.8	298.37	54.3
7,307.0	2.12	33.15	7,300.2	38.1	-43.9	310.91	58.1
7,586.0	2.87	46.01	7,579.0	47.2	-36.1	322.62	59.4
7,871.0	3.74	58.70	7,863.5	57.0	-23.0	338.03	61.5
8,156.0	3.75	93.44	8,147.9	61.3	-5.8	354.63	61.6
8,440.0	4.41	109.46	8,431.2	57.1	13.8	13.59	58.7
8,724.0	6.36	123.03	8,714.0	44.9	37.3	39.72	58.4
9,007.0	6.37	160.43	8,995.3	21.5	55.7	68.86	59.7
9,291.0	2.46	195.89	9,278.5	0.8	59.3	89.21	59.3
9,574.0	1.55	262.57	9,561.3	-5.5	53.9	95.85	54.1
9,669.0	1.46	260.65	9,656.3	-5.9	51.4	96.53	51.7
9,763.0	1.46	261.49	9,750.3	-6.3	49.0	97.27	49.4
9,952.0	1.85	258.70	9,939.2	-7.2	43.6	99.37	44.2
10,099.0	2.14	257.74	10,086.1	-8.3	38.6	102.06	39.5
10,232.0	2.68	254.64	10,219.0	-9.6	33.2	106.13	34.6
10,327.0	1.07	261.36	10,313.9	-10.3	30.2	108.88	31.9
10,610.0	0.92	237.26	10,596.9	-12.0	25.7	114.97	28.3
10,893.0	0.53	235.82	10,879.9	-13.9	22.7	121.54	26.6
11,177.0	0.36	201.95	11,163.9	-15.5	21.3	126.07	26.3
11,461.0	0.79	166.25	11,447.8	-18.2	21.4	130.41	28.1
11,701.0	0.92	191.62	11,687.8	-21.7	21.4	135.42	30.5

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Site:	Cedar Canyon 15 SWD #1	MD Reference:	KB @ 2952.5usft
Well:	CC 15 SWD #1	North Reference:	Grid
Wellbore:	OH - Job #320115-MPH-0047	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	MID_Regulatory

Survey

MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
12,028.0	0.59	190.04	12,014.8	-25.9	20.6	141.58	33.1
12,312.0	0.29	164.46	12,298.8	-28.1	20.5	143.84	34.8
12,597.0	0.37	103.09	12,583.8	-29.0	21.6	143.29	36.1
12,880.0	0.30	47.32	12,866.8	-28.7	23.0	141.23	36.8
13,164.0	0.09	10.48	13,150.8	-27.9	23.6	139.80	36.6
13,447.0	0.69	356.41	13,433.8	-26.0	23.6	137.86	35.1
13,731.0	0.73	11.30	13,717.7	-22.5	23.8	133.46	32.8
14,014.0	0.63	341.09	14,000.7	-19.3	23.6	129.23	30.5
14,298.0	0.50	336.75	14,284.7	-16.7	22.7	126.39	28.1
14,393.0	0.35	21.99	14,379.7	-16.0	22.6	125.37	27.7
14,487.0	0.30	29.47	14,473.7	-15.6	22.8	124.29	27.6
14,582.0	0.48	340.09	14,568.7	-15.0	22.8	123.28	27.3
14,676.0	0.64	5.98	14,662.7	-14.1	22.7	121.77	26.7
14,771.0	0.31	3.65	14,757.7	-13.3	22.8	120.24	26.4
14,802.0	0.72	14.28	14,788.7	-13.0	22.9	119.67	26.3
15,107.0	0.80	4.00	15,093.7	-9.0	23.5	111.06	25.2
15,204.0	0.71	28.67	15,190.7	-7.8	23.8	108.22	25.1
15,298.5	0.76	21.87	15,285.1	-6.7	24.3	105.50	25.2
15,393.0	0.85	20.48	15,379.6	-5.5	24.8	102.52	25.4
15,487.5	0.67	11.25	15,474.1	-4.3	25.2	99.72	25.5
15,582.0	0.47	345.03	15,568.6	-3.4	25.2	97.68	25.4
15,676.5	0.79	339.71	15,663.1	-2.4	24.8	95.53	25.0
15,771.0	0.93	331.79	15,757.6	-1.1	24.3	92.64	24.3
15,865.0	0.80	322.62	15,851.6	0.1	23.5	89.82	23.5
Gyro Survey							
16,014.0	0.80	322.62	16,000.6	1.7	22.2	85.56	22.3
Projection to Bit/TD							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
15,865.0	15,851.6	0.1	23.5	Gyro Survey
16,014.0	16,000.6	1.7	22.2	Projection to Bit/TD

Checked By: _____ Approved By: _____ Date: _____



CC 15 SWD #1
Eddy County, NM (NAD 27 NME)
Northing: 442855.60
Easting: 610547.10
Plan #1



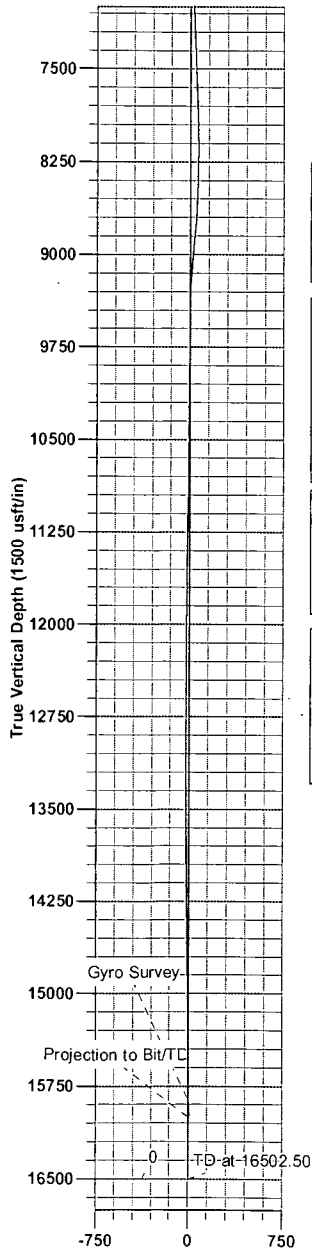
Azimuths to Grid North
True North: -0.19°
Magnetic North: 7.19°

Magnetic Field
Strength: 48350.9snT
Dip Angle: 60.08°
Date: 1/8/2015
Model: HDGM

To convert Magnetic North to Grid, Add 7.19°
To convert True North to Grid, Subtract 0.19°



KB @ 2952.50usft
Gr @ 2927.80



Vertical Section at 0.00bearing (1500 usft/in)

WELL DETAILS CC 15 SWD #1									
Ground Level: 2927.80									
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude				
0.00	0.00	442855.60	610547.10	32° 13' 1.278 N	103° 58' 33.169 W				

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
16502.50	0.00	0.00	16502.50	0.00	0.00	0.00	0.00	0.00	

DESIGN TARGET DETAILS	
No target data is available.	

SITE DETAILS:	
Cedar Canyon 15 SWD #1	
Site Centre Northing: 442855.60	
Easting: 610547.10	
Positional Uncertainty: 0.00	
Convergence: 0.19	
Local North: Grid	

PROJECT DETAILS:	
Eddy County, NM (NAD 27 NME)	
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	

