



NM OIL CONSERVATION
ARTESIA DISTRICT

SEP 25 2015

RECEIVED

OXY

30-015-42061

Eddy County, NM (NAD 27 NME)
Cedar Canyon 16 State 9H
Cedar Canyon 16 State 9H
OH

Survey: SDI MWD#1

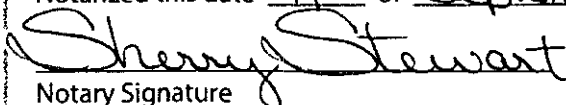
Regulatory Report (Grid North)

11 September, 2015

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



Notarized this date 11th of September, 2015.



Notary Signature
County of Midland
State of Texas



Scientific Drilling

Company:	OXY	Local Co-ordinate Reference:	Well Cedar Canyon 16 State 9H
Project:	Eddy County, NM (NAD 27, NME)	TVD Reference:	KB= 17.5' @ 2944.5usft (Canelson 46)
Site:	Cedar Canyon 16 State 9H	MD Reference:	KB= 17.5' @ 2944.5usft (Canelson 46)
Well:	Cedar Canyon 16 State 9H	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 9H		
Site Position:	From:	Map	
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
Northing:	445,414.50 usft	Latitude:	32° 13' 26.805 N
Easting:	604,188.40 usft	Longitude:	103° 59' 47.093 W
Grid Convergence:	0.18 °		

Well:	Cedar Canyon 16 State 9H					
Well Position	+N/-S	0.0 usft	Northing:	445,414.50 usft	Latitude:	32° 13' 26.805 N
	+E/-W	0.0 usft	Easting:	604,188.40 usft	Longitude:	103° 59' 47.093 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	2,927.0 usft

Wellbore:	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/15/2015	7.38	60.08	48,336

Design:	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	179.31	

Survey Program	Date: 8/3/2015				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
25.0	442.0	MS Gyro (OH)	Magnetic Multi Shot	Camera Based Magnetic Multi Shot	
502.0	14,485.0	SDI MWD#1 (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
442.0	0.73	300.60	442.0	1.7	-2.3	307.07	2.9
502.0	0.97	299.17	502.0	2.2	-3.1	305.34	3.7
923.0	0.44	156.79	923.0	2.4	-5.5	293.61	6.0
1,371.0	0.01	252.50	1,371.0	0.8	-4.9	279.57	5.0
1,809.0	1.85	112.23	1,808.9	-1.9	1.6	138.97	2.5
2,281.0	2.90	126.47	2,280.5	-11.8	18.3	122.94	21.8
2,779.0	0.53	8.25	2,778.3	-17.1	28.7	120.68	33.4
3,279.0	0.18	64.77	3,278.3	-14.4	29.8	115.85	33.1
3,719.0	0.18	26.18	3,718.3	-13.5	30.7	113.75	33.6
4,219.0	0.44	9.13	4,218.3	-10.9	31.4	109.19	33.2
4,658.0	0.44	249.08	4,657.2	-9.9	30.1	108.15	31.8

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Well:	Cedar Canyon 16 State 9H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
5,097.0	1.14	230.97	5,096.2	-13.2	25.1	117.76	28.4	
5,536.0	0.70	191.07	5,535.2	-18.6	21.2	131.26	28.2	
5,976.0	1.58	178.24	5,975.1	-27.3	20.9	142.61	34.3	
6,415.0	1.23	160.74	6,413.9	-37.8	22.6	149.12	44.0	
6,855.0	1.58	132.36	6,853.8	-46.3	28.6	148.28	54.5	
7,295.0	3.43	68.81	7,293.4	-45.7	45.4	135.17	64.4	
7,735.0	1.67	209.79	7,733.2	-46.5	54.5	130.46	71.6	
8,230.0	4.04	241.25	8,227.6	-61.1	35.6	149.77	70.7	
8,670.0	2.81	232.55	8,666.8	-75.1	13.5	169.85	76.3	
8,908.0	3.98	266.61	8,904.4	-79.2	0.6	179.58	79.2	
8,949.0	2.90	320.53	8,945.3	-78.4	-1.5	181.10	78.5	
8,980.0	2.55	2.28	8,976.3	-77.2	-2.0	181.47	77.2	
9,012.0	2.29	20.21	9,008.3	-75.8	-1.7	181.30	75.9	
9,043.0	1.76	27.68	9,039.2	-74.8	-1.3	180.99	74.9	
9,075.0	1.32	31.99	9,071.2	-74.1	-0.9	180.67	74.1	
9,106.0	1.49	27.24	9,102.2	-73.4	-0.5	180.38	73.4	
9,138.0	1.41	9.66	9,134.2	-72.7	-0.2	180.19	72.7	
9,200.0	0.88	319.65	9,196.2	-71.6	-0.4	180.33	71.6	
9,232.0	1.23	198.36	9,228.2	-71.7	-0.7	180.55	71.7	
9,263.0	3.52	175.51	9,259.2	-73.0	-0.7	180.56	73.0	
9,295.0	5.72	169.45	9,291.1	-75.5	-0.3	180.26	75.5	
9,325.0	7.74	169.09	9,320.9	-79.0	0.3	179.77	79.0	
9,357.0	10.20	169.27	9,352.5	-83.9	1.2	179.15	83.9	
9,388.0	12.22	169.89	9,382.9	-89.8	2.3	178.51	89.8	
9,415.0	13.89	168.30	9,409.2	-95.8	3.5	177.91	95.8	
9,446.0	16.53	165.40	9,439.1	-103.7	5.4	177.04	103.8	
9,478.0	19.79	164.61	9,469.5	-113.3	7.9	175.99	113.6	
9,509.0	22.60	165.75	9,498.4	-124.2	10.8	175.03	124.6	
9,541.0	25.76	168.39	9,527.6	-136.9	13.7	174.28	137.6	
9,572.0	29.72	169.71	9,555.0	-151.1	16.4	173.79	152.0	
9,603.0	33.19	173.57	9,581.5	-167.1	18.8	173.59	168.1	
9,634.0	36.84	175.16	9,606.8	-184.8	20.5	173.67	185.9	
9,666.0	41.14	174.75	9,631.7	-204.8	22.3	173.79	206.1	
9,696.0	44.82	177.12	9,653.6	-225.2	23.7	173.99	226.5	
9,727.0	47.59	178.70	9,675.1	-247.6	24.5	174.34	248.8	
9,759.0	49.86	179.91	9,696.2	-271.6	24.8	174.78	272.8	
9,822.0	57.77	180.61	9,733.4	-322.4	24.6	175.64	323.4	
9,853.0	61.73	181.58	9,749.0	-349.2	24.0	176.06	350.0	
9,885.0	64.37	181.22	9,763.5	-377.7	23.4	176.46	378.5	
9,916.0	67.45	181.40	9,776.1	-406.0	22.7	176.80	406.7	
9,947.0	69.91	181.84	9,787.4	-434.9	21.9	177.12	435.4	
9,978.0	72.63	181.40	9,797.4	-464.2	21.1	177.40	464.7	
10,010.0	74.13	181.66	9,806.5	-494.9	20.2	177.66	495.3	
10,040.0	76.50	180.61	9,814.1	-523.9	19.7	177.85	524.3	

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Well:	Cedar Canyon 16 State 9H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
10,072.0	78.52	180.61	9,821.0	-555.1	19.3	178.01	555.5
10,103.0	80.54	178.78	9,826.7	-585.6	19.5	178.09	585.9
10,135.0	82.75	178.50	9,831.3	-617.3	20.2	178.12	617.6
10,166.0	85.47	177.44	9,834.5	-648.1	21.3	178.11	648.4
10,197.0	86.79	177.44	9,836.6	-679.0	22.7	178.08	679.4
10,228.0	88.55	177.00	9,837.9	-709.9	24.2	178.05	710.3
10,260.0	89.69	176.65	9,838.4	-741.9	26.0	177.99	742.3
10,329.0	91.89	176.65	9,837.4	-810.7	30.0	177.88	811.3
10,392.0	91.36	176.57	9,835.6	-873.6	33.8	177.79	874.2
10,455.0	92.07	177.27	9,833.7	-936.5	37.1	177.73	937.2
10,517.0	91.10	177.09	9,832.0	-998.4	40.2	177.69	999.2
10,580.0	89.87	177.00	9,831.5	-1,061.3	43.4	177.66	1,062.2
10,643.0	91.54	177.44	9,830.7	-1,124.2	46.5	177.63	1,125.2
10,706.0	92.15	177.36	9,828.7	-1,187.1	49.3	177.62	1,188.1
10,769.0	90.92	179.47	9,827.0	-1,250.1	51.1	177.66	1,251.1
10,832.0	88.99	180.17	9,827.0	-1,313.1	51.3	177.76	1,314.1
10,895.0	88.55	181.14	9,828.4	-1,376.0	50.6	177.90	1,377.0
10,958.0	89.60	181.22	9,829.4	-1,439.0	49.3	178.04	1,439.9
11,021.0	88.37	181.66	9,830.5	-1,502.0	47.7	178.18	1,502.7
11,084.0	87.41	181.14	9,832.8	-1,564.9	46.1	178.31	1,565.6
11,146.0	89.16	181.66	9,834.7	-1,626.9	44.6	178.43	1,627.5
11,209.0	90.40	181.75	9,834.9	-1,689.8	42.8	178.55	1,690.4
11,271.0	88.20	182.37	9,835.7	-1,751.8	40.5	178.67	1,752.3
11,333.0	87.67	182.45	9,837.9	-1,813.7	37.9	178.80	1,814.1
11,395.0	89.60	182.89	9,839.4	-1,875.6	35.0	178.93	1,875.9
11,458.0	90.92	182.81	9,839.1	-1,938.5	31.9	179.06	1,938.8
11,520.0	88.72	182.01	9,839.3	-2,000.5	29.3	179.16	2,000.7
11,582.0	88.20	181.58	9,841.0	-2,062.4	27.4	179.24	2,062.6
11,644.0	89.60	181.58	9,842.2	-2,124.4	25.6	179.31	2,124.5
11,707.0	89.08	181.14	9,842.9	-2,187.4	24.2	179.37	2,187.5
11,769.0	89.08	180.96	9,843.9	-2,249.3	23.0	179.41	2,249.5
11,831.0	90.13	181.31	9,844.3	-2,311.3	21.8	179.46	2,311.4
11,894.0	89.34	180.43	9,844.6	-2,374.3	20.8	179.50	2,374.4
11,956.0	88.55	179.55	9,845.8	-2,436.3	20.8	179.51	2,436.4
12,018.0	90.66	179.82	9,846.2	-2,498.3	21.2	179.51	2,498.4
12,081.0	92.07	179.91	9,844.7	-2,561.3	21.3	179.52	2,561.4
12,143.0	89.60	175.86	9,843.8	-2,623.2	23.6	179.48	2,623.3
12,206.0	89.16	176.13	9,844.5	-2,686.0	28.0	179.40	2,686.2
12,269.0	91.19	176.39	9,844.3	-2,748.9	32.1	179.33	2,749.1
12,331.0	91.80	176.13	9,842.7	-2,810.8	36.2	179.26	2,811.0
12,393.0	91.54	176.65	9,840.8	-2,872.6	40.1	179.20	2,872.9
12,456.0	91.01	178.67	9,839.4	-2,935.5	42.6	179.17	2,935.8
12,518.0	92.68	178.94	9,837.4	-2,997.5	43.9	179.16	2,997.8
12,580.0	90.74	179.63	9,835.6	-3,059.5	44.7	179.16	3,059.8
12,642.0	87.68	179.55	9,836.5	-3,121.4	45.2	179.17	3,121.8

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Site:	Cedar Canyon 16 State 9H	MD Reference:	KB= 17.5' @ 2944.5usft (Canelson 46)
Well:	Cedar Canyon 16 State 9H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	Closure Azimuth (°)	Closure Distance (usft)
12,705.0	86.70	179.38	9,839.6	-3,184.4	45.7	179.18	3,184.7
12,767.0	88.29	179.38	9,842.4	-3,246.3	46.4	179.18	3,246.6
12,829.0	91.10	180.26	9,842.7	-3,308.3	46.6	179.19	3,308.6
12,892.0	91.10	180.43	9,841.5	-3,371.3	46.2	179.21	3,371.6
12,955.0	90.13	180.61	9,840.8	-3,434.3	45.7	179.24	3,434.6
13,017.0	91.36	181.65	9,840.0	-3,496.2	44.4	179.27	3,496.5
13,079.0	92.59	180.95	9,837.9	-3,558.2	43.0	179.31	3,558.4
13,142.0	93.03	180.26	9,834.8	-3,621.1	42.3	179.33	3,621.4
13,204.0	90.31	179.91	9,833.0	-3,683.1	42.2	179.34	3,683.3
13,267.0	88.64	179.29	9,833.5	-3,746.1	42.7	179.35	3,746.3
13,330.0	88.46	179.73	9,835.1	-3,809.0	43.2	179.35	3,809.3
13,393.0	89.08	179.20	9,836.5	-3,872.0	43.8	179.35	3,872.3
13,454.0	88.11	179.64	9,838.0	-3,933.0	44.4	179.35	3,933.3
13,517.0	85.65	179.55	9,841.4	-3,995.9	44.9	179.36	3,996.2
13,579.0	84.94	180.17	9,846.5	-4,057.7	45.0	179.36	4,057.9
13,642.0	86.61	180.43	9,851.1	-4,120.5	44.7	179.38	4,120.8
13,704.0	87.49	180.61	9,854.3	-4,182.4	44.1	179.40	4,182.7
13,767.0	87.58	181.22	9,857.0	-4,245.4	43.1	179.42	4,245.6
13,829.0	87.41	181.31	9,859.7	-4,307.3	41.8	179.44	4,307.5
13,892.0	88.55	181.40	9,862.0	-4,370.2	40.3	179.47	4,370.4
13,954.0	89.25	181.75	9,863.2	-4,432.2	38.6	179.50	4,432.4
14,017.0	91.63	182.81	9,862.7	-4,495.1	36.1	179.54	4,495.3
14,080.0	92.59	183.33	9,860.4	-4,558.0	32.7	179.59	4,558.1
14,142.0	91.98	181.93	9,857.9	-4,619.9	29.9	179.63	4,620.0
14,204.0	93.39	182.10	9,855.0	-4,681.8	27.7	179.66	4,681.9
14,267.0	94.70	182.28	9,850.5	-4,744.6	25.3	179.69	4,744.7
14,330.0	95.14	182.96	9,845.1	-4,807.3	22.4	179.73	4,807.3
14,392.0	95.94	182.63	9,839.1	-4,868.9	19.4	179.77	4,869.0
14,429.0	96.90	182.81	9,835.0	-4,905.6	17.6	179.79	4,905.7
Final MWD Survey							
14,485.0	98.30	182.81	9,827.6	-4,961.1	14.9	179.83	4,961.1
Final Projection to Bit							

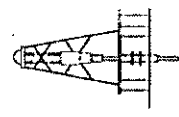
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
14,429.0	9,835.0	-4,905.6	17.6	Final MWD Survey
14,485.0	9,827.6	-4,961.1	14.9	Final Projection to Bit

Checked By: _____ Approved By: _____ Date: _____



Cedar Canyon 16 State 9H
Eddy County, NM (NAD 27 NME)
Northing: (Y) 445414.50
Easting: (X) 604188.40
Plan #5

James Dunn
7/31, August 05 2015
Scientific Drilling
2501 Westinghouse
Odessa, TX 79768



KB= 17.5 @ 2944.54ft (Canelson 46)
Ground Level: 2927.0



Scientific Drilling

WELL DETAILS:									
+N/-S		+E/-W	0.0	0.0	Northing	445414.50	Easting	604188.40	Ground Level: 2927.0
						Latitude		Longitude	
						32° 13' 26.805 N		103° 59' 47.093 W	

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dieg	TFace	VSeid	Target
8670.0	2.81	232.55	8668.8	-75.1	13.5	0.00	0.00	75.3	
8763.7	0.00	0.00	8760.4	-76.5	11.6	3.00	180.00	76.7	
9270.3	0.00	0.00	9267.0	-76.5	11.6	0.00	0.00	76.7	
10168.9	88.86	77.83	9840.0	-847.7	33.3	0.00	177.83	948.0	
10256.7	88.86	77.83	9840.0	-847.7	33.3	0.00	177.83	948.0	
10275.7	89.86	77.87	9849.7	-847.9	33.3	0.00	177.87	948.3	
14275.7	89.86	77.87	9849.7	-847.9	33.3	0.00	177.87	948.3	
14425.6	89.86	179.67	9850.0	-4904.3	58.9	0.00	-155.62	4904.7	CC16 S 9H LTP (Plan 4) CC16 S 9H BHL (Plan 4)

DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting				
CC16 S 9H LTP (Plan 4)	8849.7	-4754.3	58.1	440580.15	604246.46				
CC16 S 9H BHL (Plan 4)	9850.0	-4904.3	58.9	440510.17	604247.31				
CC16 S 9H FTP (Plan 4)	9840.0	-105.9	31.2	445308.62	604219.61				

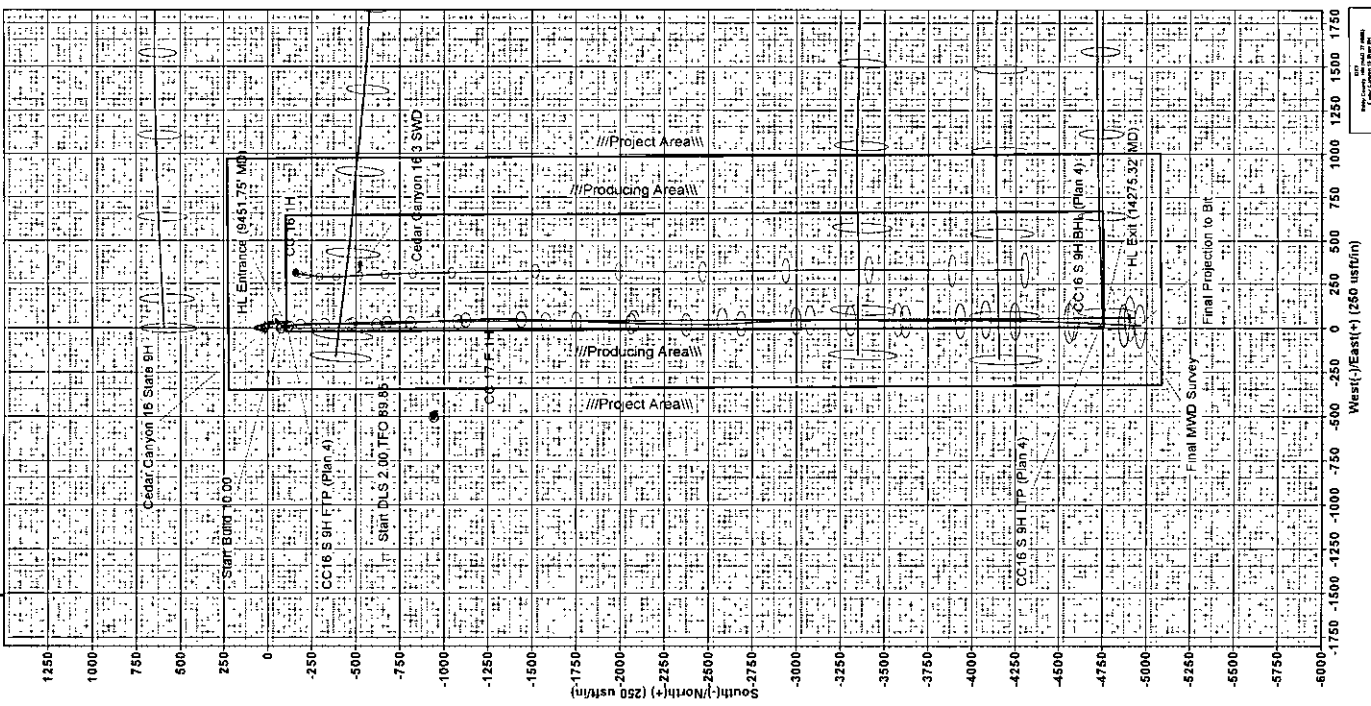
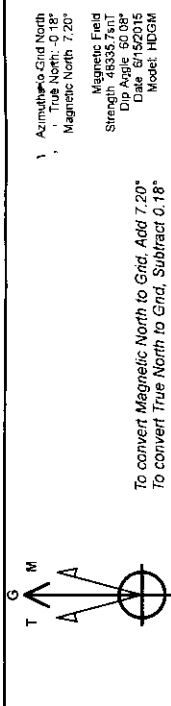
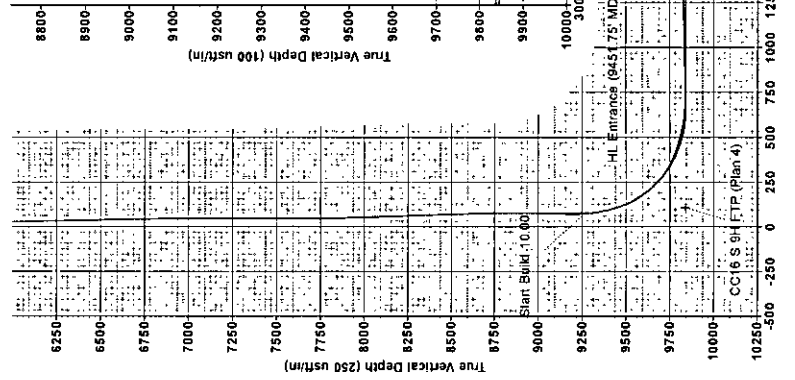
PROJECT DETAILS:									
Geodetic System: Eddy County, NM (NAD 27 NME)									
Datum: NAD 1927 (NADCON CONUS)									
Ellipsoid: Clarke 1866									
Zone: New Mexico East 3001									
System Datum: Mean Sea Level									

SITE DETAILS: Cedar Canyon 16 State 9H									
Site Centre Northing: 445414.50									
Easting: 604188.40									
Positional Uncertainty: 0.0									
Convergence: 0.18									
Local North: Grid									

CASING DETAILS									
No casing data is available									

LEGEND									
→ CC 16 1H Wellbore #1, Wellbore #1 V0									
→ CC 16 1H Wellbore #1, Wellbore #1 V0									
→ CC 16 1H Wellbore #1, Wellbore #1 V0									
→ CC 16 1H Wellbore #1, Wellbore #1 V0									
→ CC 16 1H Wellbore #1, Wellbore #1 V0									
→ CC 16 1H Wellbore #1, Wellbore #1 V0									
→ CC 16 1H Wellbore #1, Wellbore #1 V0									
→ CC 16 1H Wellbore #1, Wellbore #1 V0									
→ CC 16 1H Wellbore #1, Wellbore #1 V0									

PROJECT DETAILS:									
Datum: NAD 1927 (NADCON CONUS)									
Ellipsoid: Clarke 1866									
Zone Name: New Mexico East 3001									
Local Origin: Well Cedar Canyon 16 State 9H, Grid North									
Latitude: 32° 13' 26.805 N									
Longitude: 103° 59' 47.093 W									
Grid East: 604188.40									
Grid North: 445414.50									
Scale Factor: 1.000									
Geometric Model: HDGM									
Sample Date: 15-Jun-15									
Magnetic Declination: 7.38°									
Dip Angle from Horizontal: 90.08°									
Magnetic Field Strength: 48336									
To convert Magnetic North to Grid, Add 7.20°									
To convert Magnetic North to True, Add 7.38° East									
To convert True North to Grid, Subtract 0.18°									

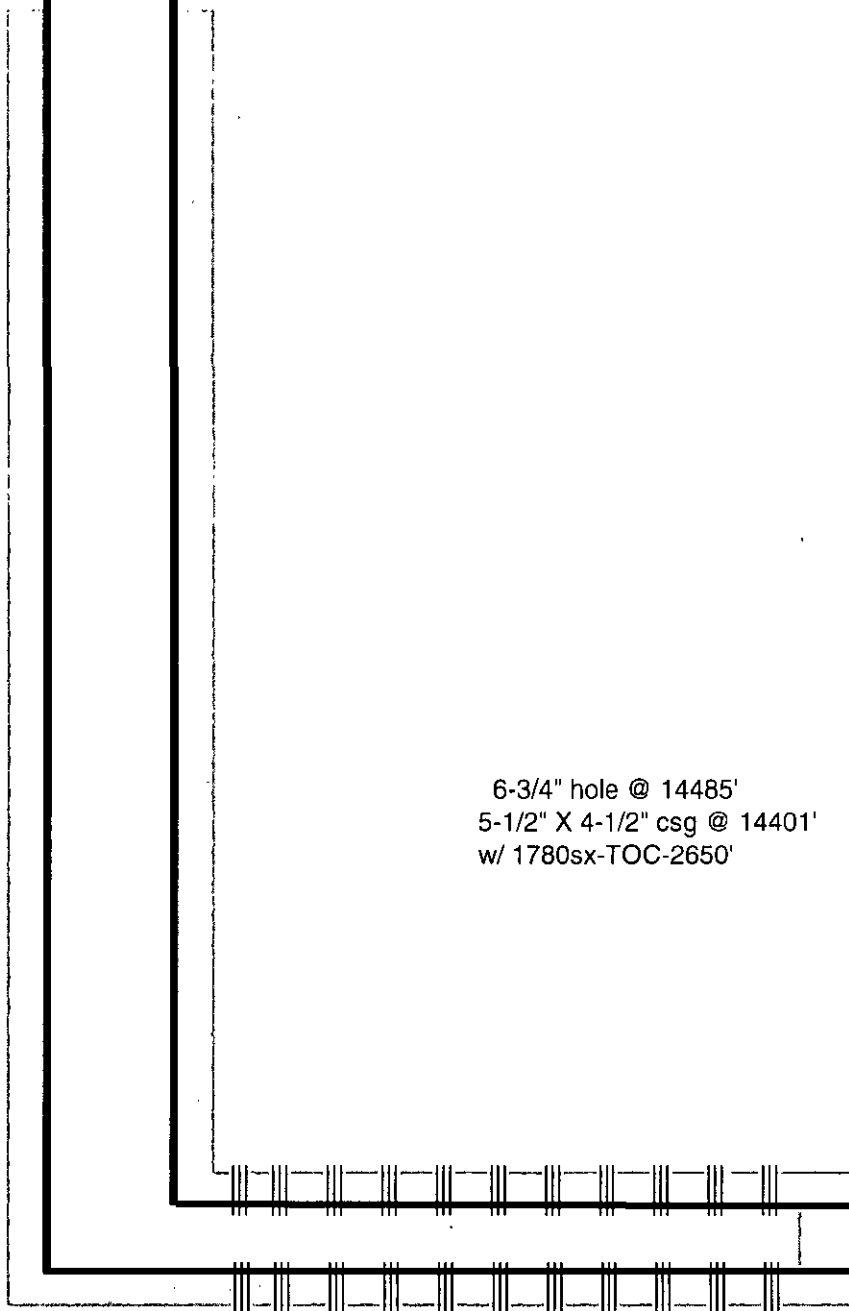


OXY USA INC.
Cedar Canyon 16 State 9H
API No. 30-015-42061



11" hole @ 459'
8-5/8" csg @ 459'
w/ 280sx-TOC-Surf-Circ.

6-3/4" hole @ 14485'
5-1/2" X 4-1/2" csg @ 14401'
w/ 1780sx-TOC-2650'



Perfs @ 14262-10083'

TD- 14485' M 9828' V