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Schlumberger

Oxy Cedar Canyon 20 Federal Com 24H Gyro + MWD(IFR1 + MS) to 16222' MD Survey Geodetic Report (Def Survey)



30-015-44545

Report Date: August 10, 2018 - 01:10 PM
Client: OXY
Field: NM Eddy County (NAD 83)
Structure / Slot: Oxy Cedar Canyon 20 Federal Com 24H / Oxy Cedar Canyon 20 Federal Com 24H
Well: Oxy Cedar Canyon 20 Federal Com 24H
Borehole: Original Borehole
UWI / API#: Unknown / 30-015-44545
Survey Name: Oxy Cedar Canyon 20 Federal Com 24H Gyro + MWD(IFR1 + MS) to 16222' MD
Survey Date: August 10, 2018
Tort / AHD / ODI / ERD Ratio: 233.640' / 8517.009' / 5.571' / 0.982
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 11' 43.42984", W 104° 0' 9.58048"
Location Grid N/E Y/X: N 434977.150 NUS, E 643624.170 NUS
CRS Grid Convergence Angle: 0.1762°
Grid Scale Factor: 0.99992107
Version / Patch: 2.10.720.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 354.352° (Grid Norm)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB=26.5'
TVD Reference Elevation: 2981.300 ft above MSL
Seabed / Ground Elevation: 2954.800 ft above MSL
Magnetic Declination: 7.070°
Total Gravity Field Strength: 998.4640mgm (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47978.874 nT
Magnetic Dip Angle: 59.954°
Declination Date: August 10, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.1762°
Total Corr Mag North-Grid North: 0.8333°
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Asm Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ° ' ")	Longitude (E/W ° ° ' ")
Tie-in	0.00	0.00		0.00	0.00	0.00	0.00	N/A	434977.15	643624.17	N 32 11 43.43 W 104 0 9.58	
	26.50	0.00		26.50	0.00	0.00	0.00	0.00	434977.15	643624.17	N 32 11 43.43 W 104 0 9.58	
	103.50	0.61	45.27	103.50	0.28	0.29	0.29	0.70	434977.44	643624.46	N 32 11 43.43 W 104 0 9.58	
Final Gyro	162.50	0.70	22.04	162.49	0.78	0.84	0.65	0.47	434977.99	643624.82	N 32 11 43.44 W 104 0 9.57	
	220.50	0.70	18.55	220.49	1.41	1.51	0.90	0.07	434978.66	643625.07	N 32 11 43.44 W 104 0 9.57	
	280.50	0.79	252.67	280.49	2.16	2.27	0.96	0.58	434979.42	643625.13	N 32 11 43.45 W 104 0 9.57	
	343.50	0.60	329.81	343.48	2.89	2.98	0.74	0.53	434980.13	643624.91	N 32 11 43.46 W 104 0 9.57	
	406.50	0.58	342.76	406.48	3.50	3.58	0.48	0.22	434980.71	643624.65	N 32 11 43.47 W 104 0 9.57	
	469.50	0.85	8.90	469.47	4.25	4.32	0.46	0.68	434981.47	643624.83	N 32 11 43.47 W 104 0 9.57	
	532.50	1.04	38.02	532.46	5.12	5.23	0.83	0.81	434982.38	643625.06	N 32 11 43.48 W 104 0 9.57	
	595.50	1.29	42.23	596.45	6.01	6.21	1.73	0.40	434983.36	643625.89	N 32 11 43.49 W 104 0 9.56	
	658.50	0.35	60.07	658.94	6.79	7.08	2.02	1.09	434984.23	643626.79	N 32 11 43.50 W 104 0 9.55	
	778.00	0.29	85.16	777.94	8.90	7.24	3.10	0.17	434984.38	643627.27	N 32 11 43.50 W 104 0 9.54	
	869.00	0.29	89.70	858.94	6.87	7.25	3.55	0.02	434984.40	643627.72	N 32 11 43.50 W 104 0 9.54	
	982.00	0.56	148.41	951.94	6.45	6.88	4.04	0.50	434984.03	643628.21	N 32 11 43.50 W 104 0 9.53	
	1054.00	0.06	216.06	1053.94	6.01	6.46	4.26	0.50	434983.61	643628.43	N 32 11 43.49 W 104 0 9.53	
	1147.00	0.16	160.00	1146.94	5.95	6.30	4.27	0.15	434983.45	643628.44	N 32 11 43.49 W 104 0 9.53	
	1239.00	0.16	57.11	1238.94	5.88	6.25	4.42	0.27	434983.40	643628.59	N 32 11 43.49 W 104 0 9.53	
	1332.00	0.18	17.49	1331.93	5.98	6.46	4.58	0.13	434983.61	643628.75	N 32 11 43.49 W 104 0 9.53	
	1428.00	0.23	13.95	1425.93	6.29	6.78	4.67	0.05	434983.03	643628.94	N 32 11 43.50 W 104 0 9.53	
	1520.00	0.57	89.57	1519.93	6.48	6.97	4.84	0.26	434984.12	643629.01	N 32 11 43.50 W 104 0 9.52	
	1614.00	0.40	58.34	1613.93	6.59	7.1	5.25	0.29	434984.29	643629.02	N 32 11 43.50 W 104 0 9.52	
	1709.00	0.13	48.82	1708.93	6.80	7.30	5.62	0.29	434984.54	643629.42	N 32 11 43.50 W 104 0 9.52	
	1803.00	0.38	79.53	1802.93	6.89	7.51	6.00	0.29	434984.66	643629.79	N 32 11 43.50 W 104 0 9.51	
	1897.00	0.35	36.82	1896.93	7.12	7.80	6.28	0.28	434984.95	643630.17	N 32 11 43.51 W 104 0 9.51	
	1991.00	0.25	351.24	1990.93	7.54	8.23	6.62	0.27	434985.38	643630.79	N 32 11 43.51 W 104 0 9.50	
	2086.00	0.11	70.12	2085.93	7.77	8.47	6.88	0.27	434985.82	643631.05	N 32 11 43.51 W 104 0 9.50	
	2180.00	0.06	35.19	2179.93	7.83	8.54	6.79	0.07	434985.85	643631.06	N 32 11 43.51 W 104 0 9.50	
	2274.00	0.16	227.53	2273.93	7.79	8.49	6.72	0.23	434985.84	643631.09	N 32 11 43.51 W 104 0 9.50	
	2369.00	0.18	164.86	2368.93	7.50	8.26	6.66	0.19	434985.41	643631.83	N 32 11 43.51 W 104 0 9.50	
	2463.00	0.08	188.34	2462.90	7.35	8.05	6.69	0.12	434985.20	643631.88	N 32 11 43.51 W 104 0 9.50	
	2652.00	0.18	167.44	2651.93	6.93	7.63	6.74	0.06	434984.78	643631.91	N 32 11 43.51 W 104 0 9.50	
	2748.00	0.06	312.30	2747.93	6.82	7.52	6.73	0.24	434984.67	643631.90	N 32 11 43.50 W 104 0 9.50	
	2842.00	0.11	171.32	2841.93	6.78	7.46	6.71	0.17	434984.66	643631.88	N 32 11 43.50 W 104 0 9.50	
	2937.00	0.11	68.82	2936.93	6.70	7.41	6.81	0.18	434984.56	643631.98	N 32 11 43.50 W 104 0 9.50	
	3125.00	0.11	54.53	3124.93	6.84	7.58	7.12	0.01	434984.73	643631.29	N 32 11 43.50 W 104 0 9.50	
	3314.00	0.11	171.66	3313.93	6.75	7.51	7.30	0.10	434984.66	643631.47	N 32 11 43.50 W 104 0 9.50	
	3503.00	0.11	140.92	3502.92	6.42	7.19	7.44	0.03	434984.34	643631.81	N 32 11 43.50 W 104 0 9.49	
	3692.00	0.11	172.41	3691.92	6.09	6.87	7.57	0.03	434984.02	643631.74	N 32 11 43.50 W 104 0 9.49	
	3880.00	1.13	298.17	3879.91	6.94	7.56	5.96	0.64	434984.71	643632.13	N 32 11 43.50 W 104 0 9.51	
	3975.00	2.71	297.57	3974.98	8.69	9.04	3.15	1.68	434980.19	643627.32	N 32 11 43.52 W 104 0 9.54	
	4063.00	4.05	298.04	4068.66	12.00	11.85	-2.15	2.01	434988.99	643622.02	N 32 11 43.55 W 104 0 9.61	
	4164.00	1.4	301.02	4163.24	17.15	16.25	-0.87	1.65	434993.40	643614.30	N 32 11 43.59 W 104 0 9.69	
4258.00	0.93	299.39	4256.52	23.92	22.07	-19.90	2.02	434999.22	643604.28	N 32 11 43.65 W 104 0 9.81		
4353.00	0.08	292.90	4352.06	32.06	30.16	-30.68	1.09	435006.00	643599.01	N 32 11 43.72 W 104 0 9.96		
4447.00	0.63	296.20	4441.22	40.53	36.21	-45.03	0.86	435010.68	643594.53	N 32 11 43.85 W 104 0 10.16		
4541.00	0.38	294.50	4535.93	48.52	42.85	-59.84	0.46	435022.00	643580.29	N 32 11 43.92 W 104 0 10.44		
4636.00	0.42	291.85	4629.66	55.89	48.95	-73.89	0.41	435025.10	643550.29	N 32 11 44.07 W 104 0 10.44		
4731.00	0.75	269.12	4723.33	62.95	54.48	-68.70	0.59	435031.63	643535.47	N 32 11 44.07 W 104 0 10.61		
4825.00	0.60	288.67	4815.99	69.26	59.34	-103.73	0.47	435038.48	643520.44	N 32 11 44.02 W 104 0 10.79		
4920.00	0.95	285.32	4909.66	75.11	63.71	-119.00	0.24	435040.86	643505.18	N 32 11 44.08 W 104 0 10.96		
5014.00	0.74	281.83	5002.32	80.32	67.42	-134.38	0.63	435044.57	643489.80	N 32 11 44.10 W 104 0 11.14		
5109.00	0.81	279.88	5095.94	84.90	70.46	-150.22	0.36	435047.60	643473.96	N 32 11 44.13 W 104 0 11.33		
5204.00	0.73	277.45	5189.58	88.89	72.89	-166.15	0.44	435250.03	643458.03	N 32 11 44.16 W 104 0 11.51		
5293.00	0.96	275.06	5282.17	92.20	74.64	-182.13	0.50	435051.78	643442.06	N 32 11 44.17 W 104 0 11.70		
5391.00	0.63	275.83	5373.82	95.24	76.14	-197.88	0.38	435053.28	643426.31	N 32 11 44.19 W 104 0 11.88		
5486.00	0.98	274.48	5467.43	98.27	77.58	-213.97	0.42	435054.73	643410.21	N 32 11 44.20 W 104 0 12.07		
5580.00	10.29	278.46	5559.97	101.46	79.16	-230.42	0.51	435059.31	643393.77	N 32 11 44.22 W 104 0 12.26		
5675.00	10.00	278.09	5553.40	105.19	81.28	-247.02	0.43	435058.42	643377.17	N 32 11 44.24 W 104 0 12.45		
5760.00	10.00	280.78	5746.04	109.48	83.96	-263.19	0.51	435081.11	643361.00	N 32 11 44.27 W 104 0 12.64		
5863.00	10.25	284.45	5838.57	114.69	87.59	-279.38	0.71	435084.73	643344.82	N 32 11 44.31 W 104 0 12.83		
5958.00	10.18	288.64	5932.06	121.01	92.38	-295.52	0.79	435089.52	643328.68	N 32 11 44.35 W 104 0 13.02		
6052.00	9.99	292.40	6024.61	128.27	98.14	-310.93	0.73	435075.28	643313.27	N 32 11 44.41 W 104 0 13.20		
6147.00	10.31	297.84	6116.13	136.63	105.25	-325.98	1.06	435039.19	643298.13	N 32 11 44.48 W 104 0 13.37		
6241.00	10.11	300.38	6210.64	146.32	113.35	-341.62	0.52	435090.49	643283.59	N 32 11 44.58 W 104 0 13.54		
6335.00	9.94	304.40	6303.21	156.40	122.11	-354.43	0.77	435099.25	643269.79	N 32 11 44.65 W 104 0 13.70		
6430.00	9.89	306.66	6396.78	167.16	131.61	-367.74	0.77	435106.76	643256.46	N 32 11 44.74 W 104 0 13.86		
6524.00	0.91	307.26	6489.39	178.11	141.33	-380.65	0.11	435116.77	643243.55	N 32 11 44.84 W 104 0 14.15		
6619.00	0.69	303.81	6582.97	189.49	151.50	-393.43	0.48	435128.04	643230.78	N 32 11 44.94 W 104 0 14.35		
6714.00	0.77	314.65	6676.58	201.50	172.39	-405.43	0.88	435139.53	643218.77	N 32 11 45.05 W 104 0 14.49		
6808.00	0.70	303.94	6769.23	212.63	182.42	-417.67	1.93	435149.55	643206.53	N 32 11 45.15 W 104 0 14.43		
6902.00	0.70	290.22	6862.04	220.84	178.30	-430.92	2.56	435155.43	643193.29	N 32 11 45.25 W 104 0 14.59		
6996.00	7.10	277.74	6955.15	225.28	182.54	-443.25	2.49	435153.67	643180.96	N 32 11 45.32 W 104 0 14.73		
7184.00	0.93	278.58	7141.74	230.78	185.79	-466.07	0.11	435162.93	643158.14	N 32 11 45.28 W 104 0 15.00		
7279.00	7.36	208.98	7230.01	234.71	188.63	-477.49	1.43	435165.78	643146.71	N 32 11 45.31 W 104 0 15.13		
7373.00	0.42	293.41	7329.00	240.95	193.64	-490.25	2.30	435170.78	643133.96	N 32 11 45.38 W 104 0 15.28		
7467.00	11.26	294.37	7421.47	249.28	200.49	-505.67	1.97	435177.62	643118.54	N 32 11 45.43 W 104 0 15.43		

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
KOP Actual	7562.00	12.08	296.28	7514.50	259.17	208.71	-523.02	0.93	435185.84	643101.20	N 32 11 45.51 W 104	0 15.60
	7567.00	12.83	293.71	7807.27	269.59	217.34	-541.57	1.00	435194.48	643082.84	N 32 11 45.80 W 104	0 15.87
	7751.00	12.68	288.23	7698.98	278.88	224.77	-560.93	1.30	435201.90	643063.29	N 32 11 45.87 W 104	0 16.10
	7845.00	11.94	283.59	7759.80	286.33	230.35	-580.10	1.24	435207.48	643044.05	N 32 11 45.73 W 104	0 16.32
	7907.00	11.23	277.72	7851.54	289.88	232.71	-592.37	2.33	435203.84	643031.85	N 32 11 45.75 W 104	0 16.47
	8085.00	13.69	267.14	8005.82	294.25	233.84	-626.30	2.12	435210.97	642973.81	N 32 11 45.85 W 104	0 16.86
	8159.00	18.72	304.22	8098.08	305.09	242.24	-650.61	12.72	435219.37	642951.42	N 32 11 48.09 W 104	0 17.14
	8253.00	22.81	330.29	8193.84	331.95	267.04	-672.81	10.48	435244.17	642934.98	N 32 11 48.45 W 104	0 17.40
	8347.00	26.12	340.48	8268.72	370.15	303.78	-689.27	7.30	435280.81	642917.89	N 32 11 48.46 W 104	0 17.59
	8442.00	35.57	339.84	8349.36	418.07	350.86	-709.39	7.86	435327.88	642917.83	N 32 11 48.92 W 104	0 17.78
	8538.00	35.05	347.88	8426.12	471.97	402.91	-721.59	5.08	435380.02	642902.64	N 32 11 47.44 W 104	0 17.98
	8631.00	44.42	351.54	8499.10	532.42	462.50	-732.24	10.17	435439.71	642891.99	N 32 11 48.03 W 104	0 17.99
	8726.00	32.39	352.11	8562.12	603.34	532.87	-742.32	8.40	435509.98	642881.91	N 32 11 48.73 W 104	0 18.20
	8821.00	68.98	349.94	8608.47	685.73	614.38	-755.32	17.57	435591.48	642868.91	N 32 11 49.53 W 104	0 18.35
	8914.00	81.98	2.67	8631.89	775.23	703.85	-759.09	19.95	435680.94	642864.24	N 32 11 50.42 W 104	0 18.40
	9009.00	85.84	8.31	8641.05	868.04	797.93	-751.77	4.93	435775.01	642872.46	N 32 11 51.35 W 104	0 18.30
	9100.00	89.00	3.98	8646.05	957.32	888.45	-743.64	4.33	435865.53	642880.59	N 32 11 52.24 W 104	0 18.20
	9195.00	89.48	1.74	8647.31	1051.27	983.32	-738.92	2.39	435960.39	642885.31	N 32 11 53.18 W 104	0 18.14
	9289.00	89.48	0.99	8648.16	1144.58	1077.29	-738.68	0.80	436054.35	642887.55	N 32 11 54.11 W 104	0 18.11
	9479.00	89.72	1.43	8649.49	1372.19	1267.24	-732.87	0.28	436244.29	642891.58	N 32 11 55.99 W 104	0 18.08
	9573.00	90.52	1.17	8649.29	1470.50	1581.21	-730.63	0.89	436338.25	642893.70	N 32 11 56.92 W 104	0 18.03
	9668.00	89.76	358.29	8649.06	1521.07	1458.20	-739.13	3.14	436433.23	642893.25	N 32 11 57.88 W 104	0 18.04
	9857.00	89.55	358.77	8650.20	1709.77	1645.02	-746.18	1.15	436510.87	642895.10	N 32 11 59.73 W 104	0 18.12
	10046.00	89.82	358.95	8651.57	1898.40	1833.87	-749.04	1.15	436599.73	642895.07	N 32 12 1.60 W 104	0 18.20
	10140.00	89.48	357.58	8652.31	1992.18	1927.82	-749.04	1.49	436694.82	642875.18	N 32 12 2.53 W 104	0 18.23
	10235.00	89.52	357.91	8653.14	2087.01	2022.74	-752.80	0.37	436993.93	642871.43	N 32 12 3.47 W 104	0 18.25
	10425.00	89.00	358.38	8653.83	2278.58	2212.84	-758.05	0.35	437189.81	642865.28	N 32 12 5.35 W 104	0 18.33
	10520.00	89.90	357.81	8654.01	2371.39	2307.59	-762.11	0.61	437284.55	642862.12	N 32 12 8.29 W 104	0 18.37
	10709.00	89.72	357.82	8654.84	2560.06	2498.44	-769.64	0.14	437473.38	642854.59	N 32 12 8.16 W 104	0 18.45
	10898.00	90.07	358.54	8654.99	2748.84	2685.19	-779.27	0.60	437662.12	642844.96	N 32 12 10.02 W 104	0 18.55
	11088.00	90.14	357.40	8654.64	2938.64	2874.92	-789.31	0.45	437851.84	642834.82	N 32 12 11.90 W 104	0 18.68
	11182.00	90.07	358.00	8654.47	3032.53	2968.80	-793.99	0.54	437945.71	642830.25	N 32 12 12.83 W 104	0 18.71
	11276.00	89.93	358.60	8654.47	3126.38	3062.73	-797.68	1.81	438039.63	642826.56	N 32 12 13.76 W 104	0 18.75
	11371.00	89.87	358.33	8654.55	3221.12	3157.69	-800.22	0.29	438134.59	642824.01	N 32 12 14.70 W 104	0 18.78
	11466.00	90.07	357.51	8654.52	3315.93	3252.83	-803.87	0.87	438229.52	642820.56	N 32 12 15.64 W 104	0 18.82
	11561.00	89.79	358.58	8654.83	3410.83	3347.50	-806.58	1.04	438324.38	642816.65	N 32 12 16.58 W 104	0 18.87
	11655.00	89.80	357.67	8654.89	3504.72	3441.38	-813.32	1.19	438418.25	642810.82	N 32 12 17.51 W 104	0 18.92
	11750.00	90.14	358.52	8654.85	3599.51	3536.33	-816.47	0.93	438513.19	642807.76	N 32 12 18.45 W 104	0 18.96
	11939.00	87.83	359.33	8654.90	3787.91	3725.29	-820.02	0.46	438702.14	642804.22	N 32 12 20.32 W 104	0 18.99
	12129.00	90.07	359.13	8655.07	3972.22	3915.27	-822.57	0.18	438892.11	642801.68	N 32 12 22.20 W 104	0 19.01
	12218.00	90.00	359.03	8655.02	4065.92	4004.26	-824.00	0.14	438981.09	642800.23	N 32 12 23.08 W 104	0 19.03
	12313.00	89.87	0.89	8655.87	4160.45	4099.25	-823.99	2.33	439076.07	642800.25	N 32 12 24.02 W 104	0 19.02
	12408.00	89.14	0.40	8657.44	4254.84	4194.23	-822.76	0.56	439171.04	642801.48	N 32 12 24.98 W 104	0 19.01
	12503.00	89.24	4.02	8658.78	4348.82	4288.13	-819.02	3.32	439265.94	642805.21	N 32 12 25.90 W 104	0 18.96
	12598.00	89.24	0.98	8660.04	4442.94	4384.02	-814.88	3.70	439360.82	642809.36	N 32 12 26.84 W 104	0 18.91
	12692.00	88.86	0.63	8661.80	4536.33	4478.00	-812.58	0.45	439454.78	642810.68	N 32 12 27.78 W 104	0 18.89
	12787.00	89.28	0.56	8663.14	4630.75	4572.98	-810.48	0.12	439548.72	642811.66	N 32 12 28.70 W 104	0 18.87
	12976.00	89.11	0.72	8665.80	4818.60	4761.95	-810.48	0.12	439738.72	642813.77	N 32 12 30.57 W 104	0 18.84
	13165.00	89.88	1.10	8667.49	5008.35	4950.92	-807.46	0.44	439927.87	642816.78	N 32 12 32.44 W 104	0 18.80
	13260.00	89.60	1.00	8667.87	5100.70	5045.90	-805.72	0.21	440022.64	642818.52	N 32 12 33.38 W 104	0 18.78
13354.00	89.38	0.07	8668.83	5104.15	5139.89	-804.64	1.04	440118.63	642819.39	N 32 12 34.31 W 104	0 18.70	
13449.00	91.00	1.15	8668.32	5288.58	5234.88	-803.63	2.05	440211.61	642820.41	N 32 12 35.25 W 104	0 18.75	
13543.00	90.21	0.84	8667.32	5381.94	5328.86	-802.20	0.90	440305.58	642822.04	N 32 12 36.18 W 104	0 18.73	
13638.00	89.58	0.86	8666.87	5476.33	5423.85	-800.79	0.39	440400.56	642823.45	N 32 12 37.12 W 104	0 18.71	
13733.00	89.72	0.19	8666.42	5570.78	5518.85	-799.82	1.15	440495.55	642824.32	N 32 12 38.06 W 104	0 18.69	
13828.00	90.55	0.49	8666.20	5665.28	5613.84	-799.35	0.93	440590.54	642824.88	N 32 12 39.00 W 104	0 18.68	
13922.00	90.76	1.73	8665.12	5758.80	5707.82	-797.53	1.34	440684.50	642826.70	N 32 12 39.93 W 104	0 18.66	
14111.00	91.17	0.93	8661.04	5946.17	5898.74	-793.15	0.48	440873.41	642831.09	N 32 12 41.80 W 104	0 18.60	
14300.00	89.93	1.14	8660.12	6133.87	6085.69	-789.73	0.87	441062.35	642834.50	N 32 12 43.67 W 104	0 18.55	
14488.00	91.27	0.78	8658.15	6320.61	6273.65	-788.58	0.74	441250.89	642837.65	N 32 12 45.53 W 104	0 18.51	
14678.00	89.83	0.07	8658.33	6509.53	6463.63	-785.17	0.84	441440.28	642839.08	N 32 12 47.41 W 104	0 18.49	
14772.00	91.41	0.85	8655.31	6693.00	6557.62	-784.58	1.79	441534.24	642839.65	N 32 12 48.34 W 104	0 18.48	
14867.00	89.24	2.64	8654.77	6877.22	6852.57	-781.88	3.10	441629.18	642842.38	N 32 12 49.28 W 104	0 18.44	
14961.00	90.15	2.24	8655.26	6960.28	6946.48	-777.85	1.08	441723.09	642846.38	N 32 12 50.21 W 104	0 18.39	
15100.00	92.55	2.04	8651.96	6927.05	6885.34	-772.67	1.72	441861.83	642851.57	N 32 12 51.58 W 104	0 18.33	
15245.00	93.65	0.82	8643.87	7071.62	7030.06	-769.05	1.23	442008.64	642855.18	N 32 12 53.02 W 104	0 18.28	
15434.00	93.68	1.11	8631.46	7258.96	7218.62	-765.88	0.18	442185.19	642859.36	N 32 12 54.88 W 104	0 18.24	
15529.00	93.65	0.68	8625.38	7353.14	7313.42	-764.40	0.45	442289.98	642859.84	N 32 12 55.82 W 104	0 18.22	
15623.00	90.24	3.08	8622.19	7446.28	7407.29	-761.31	4.44	442383.84	642862.92	N 32 12 56.75 W 104	0 18.18	
15718.00	88.59	3.99	8624.82	7539.99	7502.06	-755.46	3.96	442478.60	642868.77	N 32 12 57.69 W 104	0 18.11	
15812.00	87.56	4.54	8628.02	7632.46	7595.67	-748.48	1.19	442572.21	642875.75	N 32 12 58.61 W 104	0 18.02	
15906.00	90.55	3.35	8631.17	7725.12	7689.43	-742.01	3.42					

Schlumberger

OXY



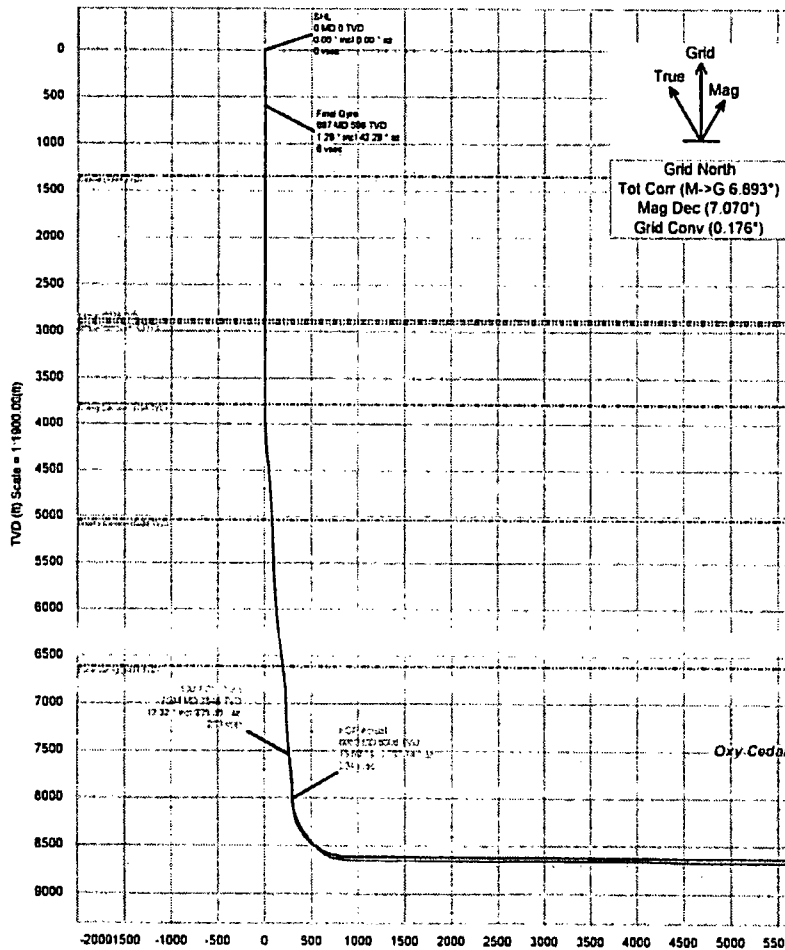
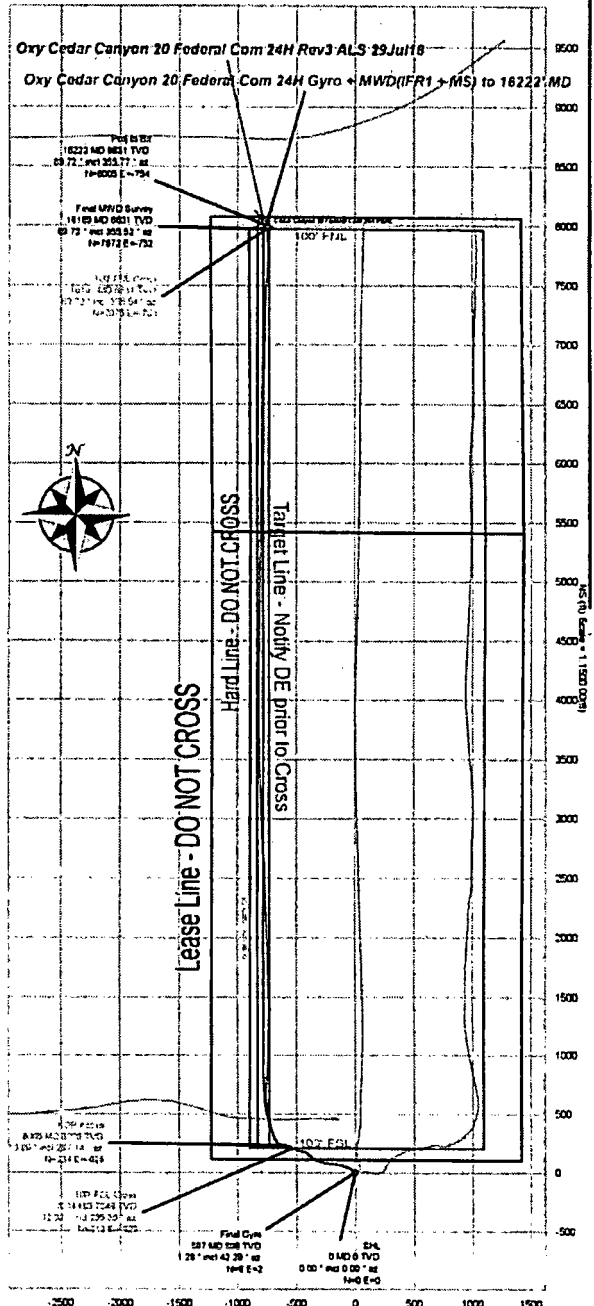
Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Cedar Canyon 20 Federal Com 24H	NM Eddy County (NAD 83)	Oxy Cedar Canyon 20 Federal Com 24H

Gravity & Magnetic Parameters				Surface Location				Miscellaneous			
Model:	HOIM 2010	Op:	10 MAY	Date:	10-Aug-2010	Lat:	N 32 11 43.43	North:	434977.196US	Grid Cont:	8 1762
MagDev:	1.67	PS:	47970.574-T	Gravity PS:	980.664m/s ² (9.80665 Standard)	Lon:	W 104 0 9.58	East:	843824.176US	Scale Fact:	0.99992107

Macellaneous			
Site:	Oxy Cedar Canyon 20 Federal Com 24H	TVD Ref:	HOIM 2010, 10 MAY 2010, 10 MAY 2010
PSA:	Oxy Cedar Canyon 20 Federal Com 24H Gyro + MWD (IFR1 + MS) to 16222' MD		

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLG
Tie-In	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rustler	338.02	0.82	333.20	338.00	2.82	2.91	0.78	0.53
Final Gyr	596.50	1.28	42.29	596.45	6.01	6.21	1.73	0.40
Selado	731.06	0.31	71.52	731.00	6.67	7.19	2.86	0.17
Castile	1344.07	0.10	16.93	1344.00	6.01	6.50	4.59	0.05
Lamar	2879.07	0.07	134.90	2879.00	6.71	7.41	8.73	0.18
Bell Canyon	2612.07	0.08	87.53	2612.00	6.69	7.40	8.77	0.18
Cherry Canyon	3794.08	0.59	294.17	3794.00	6.25	8.98	7.11	0.64
Brushy Canyon	5050.21	9.77	281.08	5038.00	82.13	88.64	-140.39	0.38
Bone Spring	6850.49	9.84	311.40	6814.00	193.38	155.01	-397.52	0.88
100' FSL Cross	7594.00	12.32	295.38	7545.78	262.70	211.85	-529.10	1.00
KOP Actual	8065.00	13.89	267.14	8005.82	294.35	233.84	-626.30	2.12
Final MWD Survey	16189.00	89.72	355.52	8630.76	8007.28	7971.98	-751.94	0.11
100' FNL Cross	16192.00	89.72	355.54	8630.79	8010.28	7974.97	-752.17	0.78
Proj to Bit	16222.00	89.72	355.77	8630.94	8040.27	8004.88	-754.44	0.78
Wolfcamp	NaN			8632.00				



Vertical Section (ft) Azim = 354.35° Scale = 1:1000 (0.00) Origin = DN/S, OE/W