

Oxy Cedar Canyon 27-28 Federal 44H Gyro+MWD 0-20285 ftMD Survey

Geodetic Report

(Def Survey)



Report Date: November 14, 2017 - 12:53 PM
 Client: OXY
 Field: NM Eddy County (NAD 83)
 Structure / Slot: Oxy Cedar Canyon 27-28 Federal 44H / Oxy Cedar Canyon 27-28 Federal 44H
 Well: Oxy Cedar Canyon 27-28 Federal 44H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Oxy Cedar Canyon 27-28 Federal 44H Gyro+MWD 0-20285 ftMD
 Survey Date: October 25, 2017
 Tort / AHD / DDI / ERD Ratio: 229.235' / 10972.426 ft / 6.703 / 1.086
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 11' 4.16213", W 103° 59' 58.50147"
 Location Grid N/E Y/X: N 431012.070 ftUS, E 644588.450 ftUS
 CRS Grid Convergence Angle: 0.1778°
 Grid Scale Factor: 0.9999213
 Version / Patch: 2.10.565.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 91.467° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB=26.5'
 TVD Reference Elevation: 2963.800 ft above MSL
 Seabed / Ground Elevation: 2937.100 ft above MSL
 Magnetic Declination: 7.136°
 Total Gravity Field Strength: 996.4643mgn (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 48069.410 nT
 Magnetic Dip Angle: 59.979°
 Declination Date: October 18, 2017
 Magnetic Declination Model: HDGM 2017
 North Reference: Grid North
 Grid Convergence Used: 0.1778°
 Total Corr Mag North->Grid North: 6.9584°
 Local Coord Referenced To: Well Head

NM OIL CONSERVATION
 ARTESIA DISTRICT

DEC 27 2017

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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL	0.00		0.00	0.00	0.00	0.00	0.00	N/A	431012.07	644588.45	N 32 11	4 16 W 103 59 58.50
	83.20	0.97	293.88	83.20	-0.50	0.21	-0.49	1.53	431012.28	644587.96	N 32 11	4 16 W 103 59 58.51
	146.50	0.87	284.21	146.49	-1.76	0.65	-1.75	0.22	431012.72	644586.70	N 32 11	4 17 W 103 59 58.52
	233.80	1.02	291.34	233.77	-3.14	1.10	-3.11	0.22	431013.17	644585.34	N 32 11	4 17 W 103 59 58.54
	326.40	1.00	300.82	326.36	-4.62	1.81	-4.58	0.18	431013.88	644583.87	N 32 11	4 18 W 103 59 58.55
	421.40	0.89	289.39	421.35	-6.05	2.46	-5.98	0.23	431014.55	644582.47	N 32 11	4 19 W 103 59 58.57
	513.90	0.94	282.90	513.84	-7.47	2.89	-7.40	0.12	431014.96	644581.05	N 32 11	4 19 W 103 59 58.59
	607.90	0.82	282.09	607.82	-8.89	3.20	-8.81	0.13	431015.27	644579.64	N 32 11	4 19 W 103 59 58.60
	702.90	0.75	295.57	702.82	-10.13	3.61	-10.04	0.21	431015.68	644578.41	N 32 11	4 20 W 103 59 58.62
	747.50	1.05	315.42	747.41	-10.69	4.03	-10.59	0.96	431016.10	644577.86	N 32 11	4 20 W 103 59 58.62
Last Gyro	873.00	0.48	328.62	872.90	-11.79	5.30	-11.66	0.48	431017.37	644576.79	N 32 11	4 21 W 103 59 58.64
	965.00	0.17	318.72	964.90	-12.09	5.74	-11.94	0.34	431017.81	644576.51	N 32 11	4 22 W 103 59 58.64
	1056.00	0.06	121.53	1055.90	-12.14	5.82	-11.99	0.25	431017.88	644576.46	N 32 11	4 22 W 103 59 58.64
	1151.00	0.11	313.40	1150.90	-12.16	5.85	-12.02	0.18	431017.92	644576.43	N 32 11	4 22 W 103 59 58.64
	1246.00	0.11	234.44	1245.90	-12.30	5.86	-12.16	0.15	431017.93	644576.29	N 32 11	4 22 W 103 59 58.64
	1435.00	0.13	321.93	1434.90	-12.58	5.92	-12.44	0.09	431017.99	644576.01	N 32 11	4 22 W 103 59 58.65
	1530.00	0.08	225.88	1529.90	-12.70	5.96	-12.55	0.17	431018.03	644575.90	N 32 11	4 22 W 103 59 58.65
	1625.00	0.23	179.62	1624.90	-12.74	5.73	-12.60	0.19	431017.80	644575.85	N 32 11	4 22 W 103 59 58.65
	1816.00	0.13	17.38	1815.90	-12.67	5.55	-12.53	0.19	431017.62	644575.92	N 32 11	4 22 W 103 59 58.65
	1910.00	0.17	33.00	1909.90	-12.57	5.77	-12.42	0.06	431017.84	644576.03	N 32 11	4 22 W 103 59 58.65
	2005.00	0.29	43.76	2004.89	-12.33	6.06	-12.18	0.13	431018.13	644576.27	N 32 11	4 22 W 103 59 58.64
	2100.00	0.08	51.51	2099.89	-12.12	6.28	-11.96	0.22	431018.34	644576.49	N 32 11	4 22 W 103 59 58.64
	2195.00	0.56	98.78	2194.89	-11.61	6.25	-11.45	0.54	431018.32	644577.00	N 32 11	4 22 W 103 59 58.63
	2290.00	0.53	142.38	2289.89	-10.87	5.83	-10.72	0.43	431017.90	644577.73	N 32 11	4 22 W 103 59 58.63
	2385.00	0.41	146.09	2384.89	-10.40	5.20	-10.27	0.13	431017.27	644578.19	N 32 11	4 21 W 103 59 58.62
	2480.00	0.41	144.64	2479.88	-9.99	4.64	-9.88	0.01	431016.71	644578.57	N 32 11	4 21 W 103 59 58.62
	2575.00	0.40	182.85	2574.88	-9.80	4.03	-9.70	0.28	431016.10	644578.75	N 32 11	4 20 W 103 59 58.62
	2669.00	0.36	221.98	2668.88	-10.00	3.48	-9.91	0.27	431015.55	644578.54	N 32 11	4 20 W 103 59 58.62
	2764.00	0.45	208.44	2763.88	-10.38	2.93	-10.29	0.14	431015.00	644578.16	N 32 11	4 19 W 103 59 58.62
	2859.00	0.44	250.79	2858.87	-10.87	2.48	-10.81	0.34	431014.55	644577.64	N 32 11	4 19 W 103 59 58.63
	2954.00	0.08	50.08	2953.87	-11.18	2.41	-11.11	0.54	431014.48	644577.34	N 32 11	4 19 W 103 59 58.63
	3049.00	0.17	243.19	3048.87	-11.24	2.39	-11.18	0.26	431014.46	644577.27	N 32 11	4 19 W 103 59 58.63
	3144.00	0.06	353.31	3143.87	-11.37	2.37	-11.31	0.21	431014.44	644577.14	N 32 11	4 19 W 103 59 58.63
	3239.00	0.08	305.15	3238.87	-11.43	2.46	-11.37	0.07	431014.53	644577.08	N 32 11	4 19 W 103 59 58.63
	3334.00	0.13	244.93	3333.87	-11.58	2.45	-11.52	0.12	431014.52	644576.93	N 32 11	4 19 W 103 59 58.64
	3429.00	0.06	190.54	3428.87	-11.69	2.36	-11.64	0.10	431014.43	644576.82	N 32 11	4 19 W 103 59 58.64
	3524.00	0.06	133.43	3523.87	-11.67	2.28	-11.62	0.07	431014.35	644576.84	N 32 11	4 19 W 103 59 58.64
	3619.00	0.11	115.39	3618.87	-11.55	2.20	-11.50	0.06	431014.27	644576.95	N 32 11	4 18 W 103 59 58.64
	3714.00	0.13	294.26	3713.87	-11.57	2.21	-11.51	0.25	431014.28	644576.94	N 32 11	4 18 W 103 59 58.64
	3809.00	0.11	20.26	3808.87	-11.64	2.34	-11.58	0.17	431014.41	644576.87	N 32 11	4 19 W 103 59 58.64
	3904.00	0.11	319.54	3907.87	-11.70	2.65	-11.63	0.06	431014.72	644576.82	N 32 11	4 19 W 103 59 58.64
	4093.00	0.13	219.17	4092.87	-11.83	2.63	-11.76	0.19	431014.70	644576.89	N 32 11	4 19 W 103 59 58.64
	4188.00	0.08	302.05	4187.87	-11.95	2.59	-11.89	0.15	431014.66	644576.56	N 32 11	4 19 W 103 59 58.64
	4378.00	0.08	354.15	4377.87	-12.08	2.79	-12.01	0.04	431014.86	644576.44	N 32 11	4 19 W 103 59 58.64
	4473.00	0.23	284.50	4472.87	-12.27	2.90	-12.20	0.23	431014.97	644576.25	N 32 11	4 19 W 103 59 58.64
	4568.00	0.13	102.66	4567.87	-12.35	2.93	-12.26	0.38	431015.00	644576.17	N 32 11	4 19 W 103 59 58.64
	4663.00	0.08	303.72	4662.87	-12.30	2.94	-12.23	0.22	431015.01	644576.22	N 32 11	4 19 W 103 59 58.64
	4852.00	0.11	103.84	4851.87	-12.24	2.97	-12.17	0.10	431015.04	644576.28	N 32 11	4 19 W 103 59 58.64
	4947.00	0.06	189.05	4946.87	-12.14	2.90	-12.07	0.11	431014.97	644576.38	N 32 11	4 19 W 103 59 58.64
	5043.00	0.06	50.74	5042.87	-12.09	2.88	-12.02	0.11	431014.95	644576.43	N 32 11	4 19 W 103 59 58.64
5138.00	0.17	288.76	5137.87	-12.19	2.96	-12.12	0.22	431015.03	644576.34	N 32 11	4 19 W 103 59 58.64	
5232.00	0.06	190.00	5231.87	-12.33	2.95	-12.26	0.20	431015.02	644576.20	N 32 11	4 19 W 103 59 58.64	
5327.00	0.11	0.18	5326.87	-12.34	3.00	-12.26	0.18	431015.07	644576.19	N 32 11	4 19 W 103 59 58.64	
5422.00	0.08	13.23	5421.87	-12.33	3.15	-12.25	0.04	431015.22	644576.20	N 32 11	4 19 W 103 59 58.64	
5517.00	0.11	178.52	5516.87	-12.31	3.13	-12.23	0.20	431015.19	644576.22	N 32 11	4 19 W 103 59 58.64	
5612.00	0.08	191.42	5611.87	-12.31	2.97	-12.24	0.04	431015.04	644576.21	N 32 11	4 19 W 103 59 58.64	
5707.00	0.13	277.54	5706.87	-12.43	2.92	-12.36	0.16	431014.99	644576.09	N 32 11	4 19 W 103 59 58.65	
5802.00	0.06	65.61	5801.87	-12.49	2.95	-12.42	0.19	431015.02	644576.03	N 32 11	4 19 W 103 59 58.65	
5991.00	0.18	197.53	5990.87	-12.49	2.71	-12.42	0.12	431014.78	644576.03	N 32 11	4 19 W 103 59 58.65	
6181.00	0.13	108.24	6180.87	-12.37	2.35	-12.31	0.12	431014.42	644576.14	N 32 11	4 19 W 103 59 58.64	
6277.00	0.08	293.77	6276.87	-12.32	2.35	-12.27	0.22	431014.42	644576.18	N 32 11	4 19 W 103 59 58.64	
6468.00	0.18	161.76	6465.87	-12.35	2.12	-12.30	0.13	431014.19	644576.16	N 32 11	4 18 W 103 59 58.64	
6656.00	0.34	327.35	6655.87	-12.58	2.31	-12.51	0.27	431014.38	644575.95	N 32 11	4 18 W 103 59 58.65	
6751.00	0.57	150.51	6750.87	-12.48	2.13	-12.43	0.96	431014.20	644576.03	N 32 11	4 18 W 103 59 58.65	
6846.00	2.09	140.89	6845.84	-11.11	0.38	-11.10	1.61	431012.45	644577.35	N 32 11	4 17 W 103 59 58.63	
7036.00	4.56	124.04	7035.51	-2.49	-6.54	-2.65	1.38	431005.53	644585.80	N 32 11	4 02 W 103 59 58.53	
7226.00	5.02	117.03	7224.84	11.38	-14.54	11.01	0.39	430997.53	644590.46	N 32 11	4 02 W 103 59 58.37	
7416.00	5.13	116.48	7414.10	26.57	-22.11	26.02	0.06	430989.96	644614.47	N 32 11	3 54 W 103 59 58.20	
7511.00	4.26	83.19	7508.80	33.92	-23.59	33.32	2.96	430988.49	644621.77	N 32 11	3 53 W 103 59 58.11	
7610.00	5.22	53.78	7607.47	41.12	-20.49	40.61	2.60	430991.58	644629.06	N 32 11	3 56 W 103 59 58.03	
7700.00	6.07	58.44	7697.04	48.35	-15.58	47.97	1.07	430996.49	644636.41	N 32 11	4 01 W 103 59 57.94	
7795.00	7.00	70.20	7791.42	57.96	-10.99	57.69	1.71	431001.08	644646.14	N 32 11	4 05 W 103 59 57.83	
7890.00	7.53	83.03	7885.66	69.51	-8.27	69.32	1.79	431003.80	644657.76	N 32 11	4 08 W 103 59 57.70	
8080.00	9.67	102.52	8073.56	97.49	-10.22	97.26	1.86	431001.85	644665.71	N 32 11	4 06 W 103 59 57.37	
8175.00	9.80	111.99	8167.22	112.75	-14.92	112.40	1.69	430997.15	644700.84	N 32 11	4 01 W 103 59 57.19	
8365.00	9.92	123.52	8354.49	141.48	-29.89	140.74	1.04	430982.18	644729.18	N 32 11	3 86 W 103 59 56.86	
8460.00	9.43	124.04	8448.14	154.95	-38.76	154.01	0.52	430973.31	644742.45	N 32 11	3 77 W 103 59 56.71	

Comments	MD (ft)	Incl (°)	Azin Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DL8 (°/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	8555.00	9.12	125.64	8541.90	167.74	-47.51	166.58	0.42	430664.57	644755.01	N 32 11	3.69 W 103 59 56.56
	8650.00	9.29	126.56	8635.67	180.24	-56.46	178.85	0.24	430955.61	644767.29	N 32 11	3.60 W 103 59 56.42
	8745.00	9.34	127.23	8729.42	192.77	-65.69	191.15	0.13	430946.38	644779.59	N 32 11	3.51 W 103 59 56.28
	8855.00	8.75	127.91	8839.05	206.74	-76.23	204.86	0.55	430935.84	644793.29	N 32 11	3.40 W 103 59 56.12
	8905.00	8.91	126.02	8917.10	216.62	-83.79	214.54	0.20	430928.29	644802.97	N 32 11	3.33 W 103 59 56.01
	9029.00	10.06	130.02	9009.82	226.88	-93.55	226.56	1.27	430918.53	644815.00	N 32 11	3.23 W 103 59 55.87
	9123.00	10.90	131.34	9102.25	242.13	-104.70	239.52	0.93	430907.38	644827.05	N 32 11	3.12 W 103 59 55.72
	9218.00	11.43	133.93	9195.45	255.96	-117.17	253.05	0.77	430894.91	644841.48	N 32 11	2.99 W 103 59 55.56
	9244.00	11.40	133.33	9220.94	259.78	-120.72	256.77	0.47	430891.36	644845.20	N 32 11	2.96 W 103 59 55.52
	9426.00	13.97	129.35	9396.48	290.52	-146.99	286.65	1.49	430865.09	644875.28	N 32 11	2.70 W 103 59 55.17
	9484.00	17.63	126.66	9454.28	303.23	-156.68	299.31	6.43	430855.40	644887.74	N 32 11	2.60 W 103 59 55.02
	9580.00	21.79	119.80	9544.65	330.81	-174.23	326.45	4.95	430837.86	644914.88	N 32 11	2.43 W 103 59 54.71
	9674.00	28.59	110.89	9629.69	367.43	-190.94	362.86	8.26	430821.14	644951.08	N 32 11	2.26 W 103 59 54.29
	9769.00	40.04	106.39	9708.03	418.27	-208.75	413.06	12.14	430803.34	645001.48	N 32 11	2.06 W 103 59 53.70
	9864.00	48.32	106.94	9776.10	481.27	-230.52	475.52	8.79	430781.56	645063.93	N 32 11	1.87 W 103 59 52.98
	9960.00	59.34	111.46	9832.68	554.30	-257.94	547.88	11.55	430754.15	645136.28	N 32 11	1.59 W 103 59 52.14
	10054.00	64.57	107.64	9876.87	633.14	-285.62	626.03	6.62	430726.47	645214.43	N 32 11	1.27 W 103 59 51.23
	10149.00	74.14	97.22	9910.41	720.21	-304.45	712.65	14.37	430707.64	645301.04	N 32 11	1.13 W 103 59 50.22
	10244.00	82.65	92.09	9929.51	813.01	-311.93	805.29	10.40	430700.16	645393.67	N 32 11	1.05 W 103 59 49.14
	10339.00	89.79	89.86	9935.77	907.73	-313.54	900.00	7.87	430696.56	645486.38	N 32 11	1.03 W 103 59 48.04
	10432.00	91.38	88.37	9934.82	1000.64	-312.10	992.98	2.34	430699.99	645581.35	N 32 11	1.04 W 103 59 46.96
	10495.00	89.55	86.68	9934.31	1063.49	-309.38	1055.91	3.95	430702.71	645644.28	N 32 11	1.07 W 103 59 46.23
	10623.00	86.42	86.94	9935.58	1191.04	-302.26	1183.69	0.91	430709.83	645772.05	N 32 11	1.13 W 103 59 44.74
	10745.00	89.24	87.83	9939.07	1312.71	-296.70	1305.54	0.99	430715.40	645893.88	N 32 11	1.19 W 103 59 43.32
	10809.00	89.04	87.25	9940.03	1376.55	-293.95	1369.47	0.96	430718.15	645957.81	N 32 11	1.21 W 103 59 42.58
	10872.00	88.66	88.15	9941.29	1439.40	-291.42	1432.41	1.55	430720.67	646020.74	N 32 11	1.23 W 103 59 41.85
	10935.00	88.38	89.42	9942.92	1502.31	-290.09	1495.37	2.08	430722.01	646083.70	N 32 11	1.25 W 103 59 41.11
	10999.00	88.97	89.11	9944.40	1566.24	-288.26	1559.35	1.04	430722.83	646147.67	N 32 11	1.25 W 103 59 40.37
	11126.00	88.14	88.94	9947.55	1665.08	-287.07	1688.29	0.68	430725.02	646278.60	N 32 11	1.27 W 103 59 38.87
	11233.00	87.73	88.81	9951.08	1789.92	-285.21	1783.21	0.45	430726.89	646371.51	N 32 11	1.28 W 103 59 37.76
	11318.00	87.87	89.22	9954.64	1894.77	-283.57	1878.13	0.50	430728.52	646466.42	N 32 11	1.30 W 103 59 36.66
	11413.00	87.66	89.36	9958.24	1979.63	-281.20	1973.05	0.33	430729.69	646561.34	N 32 11	1.31 W 103 59 35.55
	11508.00	89.04	89.22	9960.95	2074.52	-281.22	2068.00	1.49	430730.87	646656.26	N 32 11	1.32 W 103 59 34.45
	11603.00	87.90	88.40	9963.49	2169.39	-279.25	2162.94	1.48	430732.84	646751.22	N 32 11	1.33 W 103 59 33.34
	11698.00	88.45	88.94	9966.51	2264.22	-277.05	2257.87	0.81	430735.05	646846.14	N 32 11	1.35 W 103 59 32.24
	11793.00	88.73	88.61	9968.85	2359.09	-275.02	2352.82	0.46	430737.08	646941.08	N 32 11	1.37 W 103 59 31.14
	11888.00	88.52	89.40	9971.13	2453.97	-273.37	2447.78	0.86	430738.73	647036.03	N 32 11	1.38 W 103 59 30.03
	11982.00	87.83	89.10	9974.12	2547.85	-272.14	2541.72	0.80	430739.96	647129.97	N 32 11	1.39 W 103 59 28.94
	12077.00	88.42	88.80	9977.23	2642.71	-270.40	2636.65	0.70	430741.70	647224.89	N 32 11	1.40 W 103 59 27.83
	12172.00	89.31	90.79	9979.11	2737.65	-270.06	2731.63	2.29	430742.04	647319.86	N 32 11	1.40 W 103 59 26.73
	12267.00	87.69	90.28	9981.60	2832.60	-270.94	2826.59	1.79	430741.15	647414.81	N 32 11	1.39 W 103 59 25.62
	12362.00	89.31	91.16	9984.09	2927.55	-272.14	2921.54	1.94	430739.95	647509.76	N 32 11	1.38 W 103 59 24.52
	12457.00	89.52	91.50	9985.06	3022.55	-274.34	3016.51	0.42	430737.75	647604.72	N 32 11	1.35 W 103 59 23.41
	12647.00	87.59	89.77	9989.85	3212.45	-276.45	3206.43	1.36	430735.64	647704.62	N 32 11	1.33 W 103 59 21.20
	12742.00	89.00	90.69	9992.67	3307.38	-276.83	3301.38	1.77	430735.26	647889.56	N 32 11	1.32 W 103 59 20.10
	12837.00	88.21	91.12	9994.99	3402.35	-278.33	3396.34	0.95	430733.76	647984.51	N 32 11	1.30 W 103 59 18.99
	12932.00	89.93	91.23	9996.53	3497.33	-280.28	3491.30	1.81	430731.82	648079.47	N 32 11	1.28 W 103 59 17.89
	13026.00	88.42	90.39	9997.88	3591.31	-281.61	3585.28	1.84	430730.49	648173.44	N 32 11	1.26 W 103 59 16.80
	13121.00	89.31	90.92	9999.76	3686.28	-282.69	3680.25	1.09	430729.40	648268.41	N 32 11	1.25 W 103 59 15.69
	13311.00	89.14	91.23	10002.33	3876.26	-286.26	3870.20	0.19	430725.84	648456.34	N 32 11	1.21 W 103 59 13.48
	13406.00	88.55	91.21	10004.25	3971.24	-286.28	3965.16	0.62	430723.81	648553.29	N 32 11	1.19 W 103 59 12.38
	13501.00	87.14	90.33	10007.82	4066.18	-288.55	4060.08	1.75	430722.54	648648.20	N 32 11	1.17 W 103 59 11.27
	13596.00	88.93	91.25	10011.08	4161.10	-290.86	4155.01	2.12	430721.23	648743.13	N 32 11	1.15 W 103 59 10.17
	13691.00	89.38	90.24	10012.48	4256.08	-292.10	4249.99	1.16	430719.99	648838.10	N 32 11	1.14 W 103 59 9.06
	13786.00	90.00	90.76	10012.99	4351.08	-292.93	4344.99	0.85	430719.17	648933.09	N 32 11	1.13 W 103 59 7.96
	13881.00	89.62	90.85	10013.31	4446.05	-294.10	4439.98	0.42	430718.00	649028.07	N 32 11	1.11 W 103 59 6.85
	13976.00	89.62	91.43	10013.94	4541.05	-295.82	4534.98	0.62	430716.27	649123.04	N 32 11	1.09 W 103 59 5.75
	14071.00	89.90	90.84	10015.15	4636.04	-297.70	4629.93	0.98	430714.39	649218.01	N 32 11	1.07 W 103 59 4.64
	14166.00	88.18	90.59	10017.56	4730.00	-298.88	4723.89	0.81	430713.22	649311.96	N 32 11	1.06 W 103 59 3.55
	14260.00	89.14	91.45	10019.78	4824.97	-300.57	4818.85	1.36	430711.53	649406.91	N 32 11	1.04 W 103 59 2.44
	14450.00	88.42	91.11	10022.17	5014.95	-304.81	5008.79	0.23	430707.28	649596.83	N 32 11	0.99 W 103 59 0.23
	14545.00	89.35	90.85	10023.19	5109.94	-306.43	5103.77	0.28	430705.66	649691.81	N 32 11	0.97 W 103 59 59.13
	14640.00	89.59	90.46	10024.07	5204.93	-307.52	5198.76	0.48	430704.57	649786.79	N 32 11	0.96 W 103 59 58.02
	14735.00	89.69	88.78	10024.66	5299.97	-308.89	5293.75	1.77	430705.20	649881.77	N 32 11	0.96 W 103 59 56.82
	14830.00	89.45	88.49	10025.38	5394.75	-304.63	5388.72	0.40	430707.47	649976.74	N 32 11	0.98 W 103 59 55.81
	14925.00	89.21	88.81	10026.49	5489.63	-302.39	5483.69	0.42	430709.70	650071.70	N 32 11	1.00 W 103 59 54.71
	15020.00	89.45	88.48	10027.60	5584.51	-300.14	5578.65	0.43	430711.95	650166.65	N 32 11	1.02 W 103 59 53.60
	15115.00	88.59	87.70	10028.22	5679.33	-296.98	5673.59	1.22	430715.12	650261.58	N 32 11	1.04 W 103 59 52.50
	15210.00	89.24	88.85	10031.02	5774.16	-294.12	5768.52	1.39	430717.98	650356.51	N 32 11	1.07 W 103 59 51.39
	15304.00	88.14	88.45	10033.17	5868.02	-291.90	5862.47	1.25	430720.19	650450.45	N 32 11	1.09 W 103 59 50.30
	15399.00	88.21	88.49	10036.20	5962.85	-289.37	5957.39	0.68	430722.72	650545.36	N 32 11	1.11 W 103 59 49.19
	15494.00	88.73	88.85	10038.73	6057.70	-287.17	6052.33	0.07	430724.93	650640.29	N 32 11	1.13 W 103 59 48.09
	15589.00	88.90	89.24	10040.70	6152.59	-285.58	6147.30	0.45	430726.51	650735.25	N 32 11	1.14 W 103 59 46.99
	15779.00	90.00	88.96	10042.52	6342.42	-282.60	6337.26	0.60	430729.40	650829.20	N 32 11	1.17 W 103 59 44.77
	15874.00	88.76	89.24	10043.55	6437.33	-281.11	6432.24	1.34	430730.99	651020.17	N 32 11	1.18 W 103 59 43.67
	15968.00	88.73	89.40	10045.61	6531.24	-279.99	6526.21	0.17	430732.10	651114.14	N 32 11	1.18 W 103 59 42.58
	16063.00	89.55	88.43	10047.03	6626.13	-278.19						

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	19669.00	87.11	89.81	10087.90	10230.22	-290.98	10226.12	1.71	430721.11	654813.75	N 32 11 0.95	W 103 57 59.53
	19764.00	88.01	90.44	10091.95	10325.11	-291.19	10321.03	1.16	430720.90	654808.85	N 32 11 0.95	W 103 57 58.42
	19955.00	88.11	91.29	10098.42	10515.98	-294.07	10511.90	0.45	430718.02	655099.50	N 32 11 0.91	W 103 57 56.20
	20050.00	88.36	91.86	10101.32	10610.94	-296.68	10606.82	0.66	430715.41	655194.41	N 32 11 0.88	W 103 57 55.10
	20145.00	89.83	91.18	10102.81	10705.92	-298.20	10701.77	1.69	430712.89	655289.36	N 32 11 0.86	W 103 57 53.99
Final MWD	20240.00	88.14	90.87	10104.49	10800.90	-300.90	10796.74	1.81	430711.19	655384.32	N 32 11 0.84	W 103 57 52.89
Proj to bit	20285.00	88.14	90.87	10105.95	10845.88	-301.59	10841.71	0.00	430710.51	655429.28	N 32 11 0.83	W 103 57 52.36

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	26.500	1/98.425	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Cedar Canyon 27-28 Federal 44H Gyro+MWD 0-20285 ftMD
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Cedar Canyon 27-28 Federal 44H Gyro+MWD 0-20285 ftMD
	1	26.500	747.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Cedar Canyon 27-28 Federal 44H
	1	747.500	20285.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Original Borehole / Oxy Cedar Canyon 27-28 Federal 44H