

Provide Signature Page for Directional Survey

Schlumberger

Oxy Cedar Canyon 20 Federal Com 26H Gyro + MWD(IFR1) 0-16365' MD Survey Geodetic Report (Def Survey)

30-015-44520



Report Date: July 23, 2018 - 09:47 AM
Client: OXY
Field: NM Eddy County (NAD 83)
Structure / Slot: Oxy Cedar Canyon 20 Federal Com 26H / Oxy Cedar Canyon 20 Federal Com 26H
Well: Oxy Cedar Canyon 20 Federal Com 26H
Borehole: Original Borehole
UWI / API#: Unknown / 30-015-44520
Survey Name: Oxy Cedar Canyon 20 Federal Com 26H Gyro + MWD(IFR1) 0-16365' MD
Survey Date: July 22, 2018
Tort / AHD / DD / ERO Ratio: 321.510' / 8741.258' / 8.725' / 1.009
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 11' 43.42594" W 104° 0' 8.82220"
Location Grid N/E Y/X: N 434976 940 NUS, E 643684 170 NUS
CRS Grid Convergence Angle: 0.1763°
Grid Scale Factor: 0.99992109
Version / Patch: 2.10.720.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 0.000° (Grid North)
Vertical Section Origin: 0.000 ft. 0.000 h
TVD Reference Datum: RKB=26.5'
TVD Reference Elevation: 2980 400 ft above MSL
Seabed / Ground Elevation: 2953 900 ft above MSL
Magnetic Declination: 7.074°
Total Gravity Field Strength: 985 4641mg (9.80685 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47984.954 nT
Magnetic Dip Angle: 59.966°
Declination Date: July 22, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.1763°
Total Corr Mag North-Grid North: 6.8976°
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azin Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (m)	Easting (m)	Latitude (N/S)	Longitude (E/W)
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	434976.94	643684.17	N 32° 11' 43.43" W 104° 0' 8.82"	0.88
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	434976.94	643684.17	N 32° 11' 43.43" W 104° 0' 8.82"	0.88
	103.50	0.50	69.71	103.50	0.12	0.12	0.32	0.65	434977.08	643684.49	N 32° 11' 43.43" W 104° 0' 8.88	0.88
	162.50	0.22	74.44	162.50	0.24	0.24	0.67	0.48	434977.18	643684.84	N 32° 11' 43.43" W 104° 0' 8.87	0.87
	220.50	0.13	87.53	220.50	0.29	0.29	0.83	0.18	434977.23	643685.00	N 32° 11' 43.43" W 104° 0' 8.87	0.87
	280.50	0.44	19.68	280.50	0.53	0.53	0.97	0.61	434977.47	643685.14	N 32° 11' 43.43" W 104° 0' 8.87	0.87
	343.50	0.94	355.83	343.49	1.28	1.28	1.02	0.90	434978.22	643685.19	N 32° 11' 43.44" W 104° 0' 8.87	0.87
	406.50	0.95	357.00	406.48	2.31	2.31	0.95	0.03	434979.25	643685.12	N 32° 11' 43.45" W 104° 0' 8.87	0.87
	469.50	0.96	348.89	469.47	3.35	3.35	0.82	0.21	434980.29	643684.99	N 32° 11' 43.46" W 104° 0' 8.87	0.87
	532.50	1.07	353.51	532.46	4.46	4.46	0.66	0.22	434981.40	643684.83	N 32° 11' 43.47" W 104° 0' 8.87	0.87
Final Gyro Survey	570.50	0.85	338.51	570.46	5.07	5.07	0.51	0.87	434982.01	643684.68	N 32° 11' 43.48" W 104° 0' 8.88	0.88
	685.00	0.13	75.55	685.98	5.90	5.90	0.33	0.78	434982.84	643684.50	N 32° 11' 43.48" W 104° 0' 8.88	0.88
	870.00	0.17	155.70	869.95	5.70	5.70	0.64	0.11	434982.84	643684.81	N 32° 11' 43.48" W 104° 0' 8.87	0.87
	1055.00	0.13	34.84	1054.95	5.63	5.63	0.87	0.14	434982.57	643685.04	N 32° 11' 43.48" W 104° 0' 8.87	0.87
	1240.00	2.11	48.20	1239.91	8.07	8.07	3.53	1.07	434985.01	643687.70	N 32° 11' 43.51" W 104° 0' 8.84	0.84
	1425.00	0.24	114.64	1424.87	10.18	10.18	8.42	1.10	434987.12	643690.59	N 32° 11' 43.53" W 104° 0' 8.81	0.81
	1517.00	0.16	107.88	1516.87	10.06	10.06	6.72	0.09	434987.00	643690.89	N 32° 11' 43.53" W 104° 0' 8.80	0.80
	1611.00	0.08	81.10	1610.87	10.05	10.05	8.90	0.13	434986.99	643691.07	N 32° 11' 43.53" W 104° 0' 8.80	0.80
	1705.00	0.13	152.53	1704.88	9.99	9.99	7.01	0.18	434986.93	643691.18	N 32° 11' 43.52" W 104° 0' 8.80	0.80
	1800.00	0.20	83.65	1799.88	9.91	9.91	7.22	0.21	434986.85	643691.39	N 32° 11' 43.52" W 104° 0' 8.80	0.80
	1894.00	0.20	141.20	1893.86	9.80	9.80	7.49	0.20	434986.74	643691.68	N 32° 11' 43.52" W 104° 0' 8.79	0.79
	1988.00	0.11	65.47	1987.86	9.71	9.71	7.58	0.22	434986.65	643691.84	N 32° 11' 43.52" W 104° 0' 8.79	0.79
	2082.00	0.63	65.30	2081.86	9.96	9.96	8.23	0.55	434986.60	643692.40	N 32° 11' 43.53" W 104° 0' 8.77	0.77
	2177.00	0.79	84.88	2176.85	10.24	10.24	9.35	0.30	434987.18	643693.52	N 32° 11' 43.53" W 104° 0' 8.77	0.77
	2271.00	0.43	140.77	2270.85	10.02	10.02	10.22	0.70	434988.96	643694.39	N 32° 11' 43.52" W 104° 0' 8.76	0.76
	2365.00	0.25	126.40	2364.85	9.83	9.83	10.81	0.21	434988.57	643694.78	N 32° 11' 43.52" W 104° 0' 8.76	0.76
	2460.00	0.86	119.18	2459.84	9.16	9.16	11.40	0.65	434988.10	643695.57	N 32° 11' 43.52" W 104° 0' 8.75	0.75
	2554.00	0.50	118.68	2553.84	8.62	8.62	12.38	0.38	434985.56	643696.54	N 32° 11' 43.51" W 104° 0' 8.74	0.74
	2648.00	0.30	176.92	2647.83	8.18	8.18	12.75	0.45	434985.11	643696.92	N 32° 11' 43.51" W 104° 0' 8.73	0.73
	2743.00	0.06	258.16	2742.83	7.92	7.92	12.71	0.31	434984.86	643698.88	N 32° 11' 43.50" W 104° 0' 8.73	0.73
	2837.00	0.41	9.54	2836.83	8.24	8.24	12.72	0.46	434985.18	643698.89	N 32° 11' 43.51" W 104° 0' 8.73	0.73
	2932.00	0.13	340.16	2931.83	8.67	8.67	12.74	0.32	434985.61	643698.91	N 32° 11' 43.51" W 104° 0' 8.73	0.73
	3026.00	0.16	312.41	3025.83	8.86	8.86	12.81	0.08	434985.80	643699.78	N 32° 11' 43.51" W 104° 0' 8.74	0.74
	3215.00	0.13	271.41	3214.83	9.05	9.05	12.20	0.06	434986.99	643699.37	N 32° 11' 43.52" W 104° 0' 8.74	0.74
	3404.00	0.18	191.48	3403.83	8.78	8.78	11.92	0.11	434985.76	643699.05	N 32° 11' 43.51" W 104° 0' 8.74	0.74
	3498.00	0.13	189.31	3497.83	8.51	8.51	11.88	0.05	434985.45	643699.05	N 32° 11' 43.51" W 104° 0' 8.74	0.74
	3592.00	0.13	97.70	3591.83	8.30	8.30	11.97	0.20	434985.33	643699.14	N 32° 11' 43.51" W 104° 0' 8.74	0.74
	3687.00	0.20	163.35	3686.83	8.22	8.22	12.12	0.20	434985.16	643699.29	N 32° 11' 43.51" W 104° 0' 8.74	0.74
	3781.00	0.18	250.25	3780.83	8.01	8.01	12.03	0.28	434984.95	643699.20	N 32° 11' 43.50" W 104° 0' 8.74	0.74
	3970.00	0.78	78.64	3969.82	8.14	8.14	13.01	0.51	434985.08	643697.18	N 32° 11' 43.51" W 104° 0' 8.73	0.73
	4065.00	2.15	93.14	4064.79	8.16	8.16	15.43	1.48	434985.10	643699.60	N 32° 11' 43.51" W 104° 0' 8.70	0.70
	4253.00	5.67	96.51	4252.32	6.91	6.91	28.18	1.88	434983.85	643712.35	N 32° 11' 43.49" W 104° 0' 8.55	0.55
	4348.00	7.57	100.06	4348.69	5.29	5.29	39.01	2.04	434982.23	643723.17	N 32° 11' 43.48" W 104° 0' 8.43	0.43
	4537.00	9.98	96.81	4533.40	1.17	1.17	67.53	1.30	434978.11	643751.70	N 32° 11' 43.44" W 104° 0' 8.10	0.10
	4631.00	10.83	96.11	4625.95	-0.72	-0.72	84.24	0.70	434978.22	643758.40	N 32° 11' 43.42" W 104° 0' 7.90	0.90
	4820.00	10.87	89.88	4811.83	-2.57	-2.57	119.40	0.62	434974.37	643803.56	N 32° 11' 43.40" W 104° 0' 7.49	0.49
	4915.00	8.54	78.97	4905.28	-1.33	-1.33	135.30	3.02	434975.61	643819.48	N 32° 11' 43.41" W 104° 0' 7.31	0.31
	5104.00	0.70	56.90	5092.84	7.13	7.13	158.38	1.87	434984.07	643842.52	N 32° 11' 43.49" W 104° 0' 7.04	0.04
	5189.00	7.67	47.47	5185.91	14.37	14.37	167.58	1.82	434991.31	643851.74	N 32° 11' 43.50" W 104° 0' 6.93	0.93
	5293.00	8.66	39.23	5279.92	24.32	24.32	176.88	1.78	435001.26	643861.04	N 32° 11' 43.69" W 104° 0' 6.82	0.82
	5388.00	9.03	33.17	5373.77	36.23	36.23	185.59	1.01	435013.17	643869.74	N 32° 11' 43.76" W 104° 0' 6.63	0.63
	5482.00	9.18	27.44	5466.58	48.06	48.06	193.08	0.98	435026.00	643877.23	N 32° 11' 44.05" W 104° 0' 6.55	0.55
	5576.00	10.48	27.58	5559.20	83.29	83.29	200.49	1.38	435040.23	643884.85	N 32° 11' 44.20" W 104° 0' 6.44	0.44
	5671.00	11.23	36.53	5652.51	78.39	78.39	210.00	1.94	435055.32	643894.15	N 32° 11' 44.20" W 104° 0' 6.29	0.29
	5765.00	12.35	42.19	5744.53	93.19	93.19	222.20	1.71	435070.12	643908.35	N 32° 11' 44.34" W 104° 0' 6.12	0.12
	5860.00	13.68	47.07	5837.09	108.37	108.37	237.25	1.81	435085.30	643921.40	N 32° 11' 44.49" W 104° 0' 5.70	0.70
	5954.00	14.88	53.89	6019.30	137.79	137.79	272.96	1.07	435114.72	643957.10	N 32° 11' 44.78" W 104° 0' 5.46	0.46
	6048.00	15.80	58.50	6110.92	151.76	151.76	293.80	1.68	435128.69	643977.95	N 32° 11' 45.04" W 104° 0' 5.20	0.20
	6237.00	15.35	62.88	6201.47	164.12	164.12	315.79	1.34	435141.05	644022.67	N 32° 11' 45.15" W 104° 0' 4.94	0.94
	6332.00	15.38	66.45	6293.08	174.88	174.88	338.53	1.00	435151.81	644042.67	N 32° 11' 45.23" W 104° 0' 4.67	0.67
	6426.00	14.47	72.59	6383.91	183.38	183.38	361.16	1.94	435160.31	644068.75	N 32° 11' 45.29" W 104° 0' 4.40	0.40
	6521.00	15.08	78.69	6475.77	193.81	193.81	384.81	1.76	435169.28	644091.58	N 32° 11' 45.37" W 104° 0' 4.13	0.13
	6612.00	14.50	80.24	6563.76	197.72	197.72	407.44	0.77	435170.53	644098.75	N 32° 11' 45.37" W 104° 0' 4.10	0.10
	6707.00	14.12	78.57	6655.81	197.72	197.72	430.56	0.44	435174.65	644114.70	N 32° 11' 45.37" W 104° 0' 3.88	0.88
	6819.00	13.00	81.18	6747.19	201.42	201.42	452.29	1.28	435178.34	644136.42	N 32° 11' 45.44" W 104° 0' 3.61	0.61
	6896.00	12.45	80.38	6839.86	204.77	204.77	472.94	0.81	435181.70	644157.07	N 32° 11' 45.44" W 104° 0' 3.37	0.37
	6990.00	11.13	80.03	6931.87	208.04	208.04	491.87	1.40	435184.96	644178.00	N 32° 11' 45.47" W 104° 0' 3.15	0.15
	7084.00	9.87	77.88	7024.30	211.30	211.30	508.68	1.40	435188.23	644192.81	N 32° 11' 45.50" W 104° 0' 2.98	0.98
	7178.00	8.95	76.88	7118.02	214.69	214.69	523.84	0.98	435191.61	644207.96	N 32° 11' 45.53" W 104° 0' 2.78	0.78
	7273.00	8.12	75.03	7210.97	218.08	218.08	537.37	0.93	435194.89	644221.30	N 32° 11' 45.57" W 104° 0' 2.62	0.62
	7367.00	8.25	69.15	7304.23	221.60	221.60	548.57	2.14	435198.52	644232.69	N 32° 11' 45.60" W 104° 0' 2.49	0.49
	7462.00	8.37	71.91	7398.68	225.0							

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