Schlumberger

OXY

Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Height CC 6-7 Fed Com 312H	NM Eddy County (NAD 83)	Oxy Height CC 6-7 Fed Com 312H,

Gravity & Magnetic Parameters

Model:	IFR1	Dip:	60.02°	Date:	13-May-2019
MagDec:	7.031°	FS:	47921.3nT	Gravity FS:	998.472mgn (9.80665 Based)

Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet

Lat:	N 32 15 13.71	Northing:	456203.78ftUS	Grid Conv:	0.1636°
Lon:	W 104 1 36.25	Easting:	635116.76ftUS	Scale Fact:	0.99991938

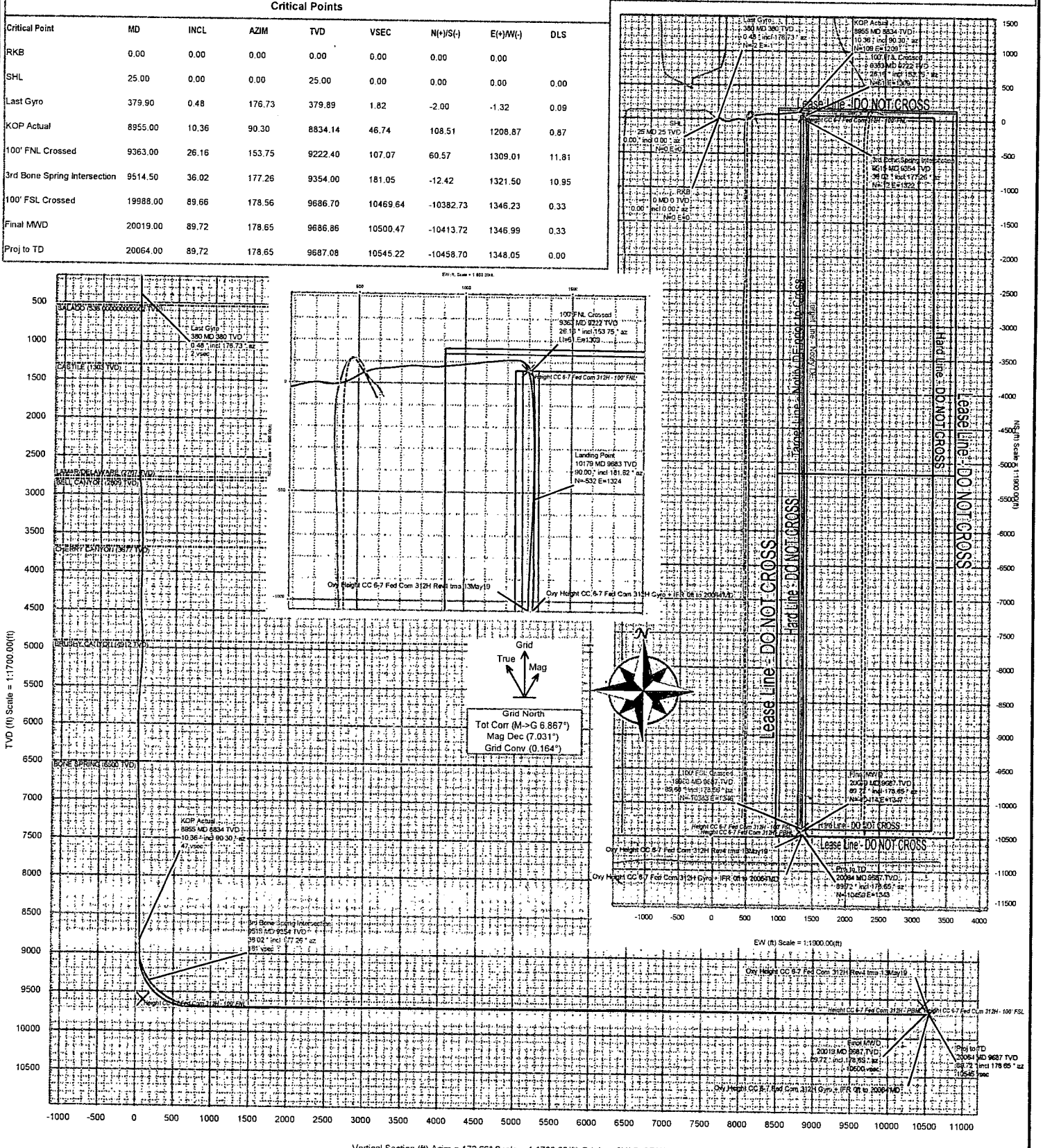
Miscellaneous

Slot: Oxy Height CC 6-7 Fed Com 312H TVD Ref: RKB=25'(2982.2ft above MSL)

Plan: Oxy Height CC 6-7 Fed Com 312H Gyro + IFR 0ft to 20064'MD

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
SHL	25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00
Last Gyro	379.90	0.48	176.73	379.89	1.82	-2.00	-1.32	0.09
KOP Actual	8955.00	10.36	90.30	8834.14	46.74	108.51	1208.87	0.87
100' FNL Crossed	9363.00	26.16	153.75	9222.40	107.07	60.57	1309.01	11.81
3rd Bone Spring Intersection	9514.50	36.02	177.26	9354.00	181.05	-12.42	1321.50	10.95
100' FSL Crossed	19988.00	89.66	178.56	9686.70	10469.64	-10382.73	1346.23	0.33
Final MWD	20019.00	89.72	178.65	9686.86	10500.47	-10413.72	1346.99	0.33
Proj to TD	20064.00	89.72	178.65	9687.08	10545.22	-10458.70	1348.05	0.00



Vertical Section (ft) Azim = 172.66° Scale = 1:1700.00(ft) Origin = 0N/-S, 0E/-W

Schlumberger

Oxy Height CC 6-7 Fed Com 312H Gyro + IFR 0ft to 20064'MD Survey
Geodetic Report
(Def Survey)

Report Date:	May 20, 2019 - 01:34 PM
Client:	OXY
Field:	NM Eddy County (NAD 83)
Structure / Slot:	Oxy Height CC 6-7 Fed Com 312H / Oxy Height CC 6-7 Fed Com 312H
Well:	Oxy Height CC 6-7 Fed Com 312H
Borehole:	Original Borehole
UWI / API#:	Unknown / Unknown
Survey Name:	Oxy Height CC 6-7 Fed Com 312H Gyro + IFR 0ft to 20064'MD
Survey Date:	April 20, 2019
Tort / AHD / DDI / ERD Ratio:	263.192 ° / 11915.569 ft / 6.812 / 1.230
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long:	N 32° 15' 13.70699", W 104° 1' 36.24622"
Location Grid N/E Y/X:	N 456203.780 ftUS, E 636116.760 ftUS
CRS Grid Convergence Angle:	0.1636 °
Grid Scale Factor:	0.99991938
Version / Patch:	2.10.760.0

Survey / DLS Computation:	Minimum Curvature / Lubinski
Vertical Section Azimuth:	172.664 ° (Grid North)
Vertical Section Origin:	0.000 ft, 0.000 ft
TVD Reference Datum:	RKB=25'
TVD Reference Elevation:	2982.200 ft above MSL
Seabed / Ground Elevation:	2957.200 ft above MSL
Magnetic Declination:	7.031 °
Total Gravity Field Strength:	998.4718mgn (9.80665 Based)
Gravity Model:	GARM
Total Magnetic Field Strength:	47921.300 nT
Magnetic Dip Angle:	60.020 °
Declination Date:	May 13, 2019
Magnetic Declination Model:	IFR1
North Reference:	Grid North
Grid Convergence Used:	0.1636 °
Total Corr Mag North->Grid North:	6.8674 °
Local Coord Referenced To:	Well Head

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 ° ' ")
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	456203.78	636116.76	N 32 15 13.71	W 104 1 36.25
SHL	25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	456203.78	636116.76	N 32 15 13.71	W 104 1 36.25
	101.20	0.65	256.87	101.20	0.04	-0.10	-0.42	0.85	456203.68	636116.34	N 32 15 13.71	W 104 1 36.25
	190.60	0.46	233.52	190.59	0.27	-0.43	-1.20	0.33	456203.35	636115.56	N 32 15 13.70	W 104 1 36.26
	279.80	0.58	171.46	279.79	0.90	-1.09	-1.42	0.61	456202.69	636115.34	N 32 15 13.70	W 104 1 36.26
	374.60	0.48	176.14	374.59	1.77	-1.96	-1.33	0.11	456201.82	636115.43	N 32 15 13.69	W 104 1 36.26
Last Gyro	379.90	0.48	176.73	379.89	1.82	-2.00	-1.32	0.09	456201.78	636115.44	N 32 15 13.69	W 104 1 36.26
	516.00	0.51	215.02	515.98	2.83	-3.07	-1.64	0.24	456200.71	636115.12	N 32 15 13.68	W 104 1 36.27
	607.00	0.70	281.44	606.98	2.95	-3.29	-2.42	0.75	456200.49	636114.34	N 32 15 13.67	W 104 1 36.27
	698.00	0.70	112.08	697.98	3.05	-3.39	-2.45	1.53	456200.39	636114.31	N 32 15 13.67	W 104 1 36.27
	808.00	0.76	350.99	807.97	2.65	-2.92	-1.94	1.16	456200.86	636114.82	N 32 15 13.68	W 104 1 36.27
	900.00	0.67	212.70	899.97	2.45	-2.77	-2.32	1.45	456201.01	636114.44	N 32 15 13.68	W 104 1 36.27
	992.00	0.64	162.67	991.96	3.37	-3.71	-2.46	0.60	456200.07	636114.30	N 32 15 13.67	W 104 1 36.27
	1174.00	0.66	187.92	1173.95	5.38	-5.72	-2.30	0.16	456198.06	636114.46	N 32 15 13.65	W 104 1 36.27
	1266.00	0.63	236.20	1265.95	6.12	-6.53	-2.80	0.57	456197.25	636113.96	N 32 15 13.64	W 104 1 36.28
	1356.00	0.63	267.21	1355.94	6.30	-6.83	-3.70	0.37	456196.95	636113.06	N 32 15 13.64	W 104 1 36.29
	1539.00	0.82	292.52	1538.93	5.57	-6.37	-5.92	0.20	456197.41	636110.84	N 32 15 13.64	W 104 1 36.32
	1630.00	0.73	132.95	1629.92	5.69	-6.52	-6.09	1.68	456197.26	636110.67	N 32 15 13.64	W 104 1 36.32
	1725.00	1.04	70.85	1724.91	5.98	-6.65	-4.84	1.00	456197.13	636111.92	N 32 15 13.64	W 104 1 36.30
	1820.00	2.21	52.99	1819.88	4.89	-5.26	-2.56	1.33	456198.52	636114.20	N 32 15 13.65	W 104 1 36.28
	1916.00	2.77	38.02	1915.79	2.35	-2.32	0.35	0.89	456201.46	636117.11	N 32 15 13.68	W 104 1 36.24
	2011.00	2.79	36.26	2010.67	-0.94	1.35	3.13	0.09	456205.13	636119.89	N 32 15 13.72	W 104 1 36.21
	2106.00	3.25	33.88	2105.54	-4.64	5.45	6.00	0.50	456209.23	636122.76	N 32 15 13.76	W 104 1 36.18
	2201.00	3.26	45.01	2200.39	-8.32	9.60	9.41	0.66	456213.38	636126.17	N 32 15 13.80	W 104 1 36.14
	2297.00	3.47	66.24	2296.23	-10.81	12.70	14.00	1.31	456216.48	636130.76	N 32 15 13.83	W 104 1 36.08
	2392.00	2.62	86.00	2391.09	-11.49	14.01	18.80	1.41	456217.79	636135.56	N 32 15 13.85	W 104 1 36.03
	2488.00	3.74	125.49	2486.96	-9.24	12.34	23.54	2.49	456216.12	636140.29	N 32 15 13.83	W 104 1 35.97
	2583.00	5.17	130.67	2581.67	-3.95	7.75	29.31	1.56	456211.53	636146.06	N 32 15 13.78	W 104 1 35.90
	2678.00	5.78	128.63	2676.23	2.67	1.98	36.29	0.67	456205.76	636153.05	N 32 15 13.73	W 104 1 35.82
	2771.00	6.02	125.48	2768.74	9.35	-3.78	43.92	0.43	456200.00	636160.68	N 32 15 13.67	W 104 1 35.73
	2867.00	6.44	119.64	2864.17	16.01	-9.36	52.70	0.79	456194.42	636169.45	N 32 15 13.61	W 104 1 35.63
	2961.00	7.09	115.69	2957.52	22.35	-14.48	62.51	0.85	456189.30	636179.26	N 32 15 13.56	W 104 1 35.52
	3057.00	7.74	111.28	3052.72	28.67	-19.40	73.87	0.90	456184.38	636190.62	N 32 15 13.51	W 104 1 35.39
	3151.00	8.13	106.32	3145.82	34.37	-23.56	86.15	0.84	456180.22	636202.90	N 32 15 13.47	W 104 1 35.24
	3246.00	8.09	102.13	3239.87	39.29	-26.85	99.13	0.62	456176.93	636215.88	N 32 15 13.44	W 104 1 35.09
	3341.00	8.55	96.57	3333.87	43.22	-29.07	112.68	0.97	456174.72	636229.43	N 32 15 13.42	W 104 1 34.94
	3437.00	9.11	91.64	3428.73	46.12	-30.10	127.37	0.98	456173.68	636244.12	N 32 15 13.41	W 104 1 34.76
	3532.00	9.23	88.05	3522.52	48.01	-30.06	142.50	0.62	456173.73	636259.25	N 32 15 13.41	W 104 1 34.59
	3627.00	8.97	81.07	3616.33	48.52	-28.65	157.43	1.19	456175.13	636274.18	N 32 15 13.42	W 104 1 34.41
	3722.00	9.11	77.21	3710.15	47.59	-25.83	172.08	0.66	456177.95	636288.83	N 32 15 13.45	W 104 1 34.24
	3817.00	9.43	75.54	3803.91	45.91	-22.23	186.95	0.44	456181.56	636303.70	N 32 15 13.48	W 104 1 34.07
	3913.00	9.27	75.42	3898.63	43.96	-18.32	202.05	0.17	456185.47	636318.79	N 32 15 13.52	W 104 1 33.89
	4008.00	9.60	74.93	3992.35	41.93	-14.33	217.10	0.36	456189.45	636333.85	N 32 15 13.56	W 104 1 33.72
	4103.00	9.38	75.45	4086.05	39.90	-10.32	232.25	0.25	456193.46	636348.99	N 32 15 13.60	W 104 1 33.54
	4198.00	10.10	76.17	4179.68	37.98	-6.39	247.83	0.77	456197.39	636364.57	N 32 15 13.64	W 104 1 33.36
	4294.00	9.79	79.25	4274.24	36.54	-2.85	264.02	0.64	456200.93	636380.76	N 32 15 13.67	W 104 1 33.17
	4389.00	11.01	81.72	4367.67	35.91	-0.04	280.93	1.37	456203.74	636397.67	N 32 15 13.70	W 104 1 32.97
	4484.00	11.17	88.52	4460.90	36.70	1.50	299.11	1.39	456205.28	636415.85	N 32 15 13.71	W 104 1 32.76
	4675.00	11.11	106.80	4648.36	46.12	-3.34	335.23	1.84	456200.44	636451.97	N 32 15 13.66	W 104 1 32.34
	4770.00	11.07	92.17	4741.61	51.37	-6.33	353.11	2.95	456197.45	636469.84	N 32 15 13.63	W 104 1 32.13
	4866.00	10.92	91.92	4835.85	54.35	-6.98	371.41	0.16	456196.80	636488.14	N 32 15 13.63	W 104 1 31.92
	4961.00	11.17	87.03	4929.09	56.50	-6.81	389.59	1.02	456196.97	636506.32	N 32 15 13.63	W 104 1 31.71
	5056.00	11.61	80.92	5022.22	56.91	-4.82	408.22	1.35	456198.96	636524.95	N 32 15 13.65	W 104 1 31.49
	5152.00	11.70	74.86	5116.24	55.29	-0.76	427.16	1.28	456203.02	636543.88	N 32 15 13.69	W 104 1 31.27
	5247.00	11.61	67.59	5209.29	51.50	5.40	445.30	1.55	456209.18	636562.02	N 32 15 13.75	W 104 1 31.06
	5342.00	12.21	60.45	5302.25	45.22	14.00	462.87	1.67	456217.78	636579.59	N 32 15 13.83	W 104 1 30.86
	5438.00	12.75	59.81	5395.98	37.26	24.34	480.86	0.58	456228.11	636597.58	N 32 15 13.93	W 104 1 30.65
	5533.00	12.12	62.26	5488.75	29.71	34.25	498.75	0.86	456238.03	636615.47	N 32 15 14.03	W 104 1 30.44
	5628.00	12.39	64.86	5581.59	23.12	43.22	516.80	0.65	456247.00	636633.52	N 32 15 14.12	W 104 1 30.23
	5724.00	12.50	67.84	5675.33	17.31	51.52	535.75	0.68	456255.29	636652.46	N 32 15 14.20	W 104 1 30.01
	5819.00	12.70	72.89	5768.05	12.91	58.47	555.25	1.18	456262.24	636671.97	N 32 15 14.27	W 104 1 29.78
	5915.00	12.51	80.56	5861.74	10.74	63.28	575.59	1.75	456267.05	636692.31	N 32 15 14.32	W 104 1 29.54
	6105.00	12.65	85.92	6047.19	11.16	68.13	616.65	0.62	456271.91	636733.36	N 32 15 14.36	W 104 1 29.06
	6296.00	12.43	84.81	6233.63	13.12	71.48	657.98	0.17	456275.25	636774.69	N 32 15 14.40	W 104 1 28.58
	6391.00	12.31	83.76	6326.43	13.70	73.51	678.23	0.27	456277.28	636794.93	N 32 15 14.42	W 104 1 28.35
	6489.00	12.30	84.40	6422.17	14.21	75.66	699.00	0.14	456279.43	636815.71	N 32 15 14.44	W 104 1 28.10
	6581.00	12.00	82.53	6512.11	14.49	77.86	718.24	0.54	456281.63	636834.94	N 32 15 14.46	W 104 1 27.88
	6675.00	10.71	82.05	6604.27	14.37	80.34	736.58	1.38	456284.11	636853.28	N 32 15 14.48	W 104 1 27.67
	6771.00	11.24	91.13	6698.52	15.65	81.39	754.77	1.88	456285.16	636871.47	N 32 15 14.49	W 104 1 27.45
	6866.00	10.93	94.56	6791.75	18.87	80.49	773.00	0.77	456284.26	636889.70	N 32 15 14.48	W 104 1 27.24
	6961.00	11.28	92.57	6884.97	22.33	79.36	791.26	0.55	456283.13	636907.96	N 32 15 14.47	W 104 1 27.03
	7055.00	11.26	93.61	6977.16	25.65	78.37	809.61	0.22	456282.14	636926.30	N 32 15 14.46	W 104 1 26.82
	7150.00	12.33	94.54	7070.15	29.50	76.98	828.98	1.14	456280.75	636945.67	N 32 15 14.45	W 104 1 26.59
	7245.00	13.15	92.68	7162.81	33.47	75.67	849.88	0.97	456279.45	636966.57	N 32 15 14.43	W 104 1 26.35
	7341.00	12.69	83.67	7256.39	35.55	76.32	871.27	2.15	456280.10	636987.96	N 32 15 14.44	W 104 1 26.10
	7436.00	12.68	84.95	7349.07	36.15	78.39	892.03	0.30	456282.17	637008.72	N 32 15 14.46	W 104 1 25.86
	7531.00	12.23	84.54	7441.84	36.90	80.27	912.43	0.48	456284.04	637029.12	N 32 15 14.48	W 104 1 25.62
	7626.00	12.83	83.85	7534.58	37.44	82.35	932.94	0.65	456286.13	637049.62	N 32 15 14.50	W 104 1 25.38

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 ° ' ")
	7720.00	12.72	84.39	7626.25	37.97	84.48	953.61	0.17	456288.26	637070.29	N 32 15 14.52 W 104	1 25.14
	7816.00	12.74	85.44	7719.89	38.80	86.36	974.68	0.24	456290.13	637091.36	N 32 15 14.53 W 104	1 24.89
	7911.00	11.87	83.06	7812.71	39.38	88.37	994.82	1.06	456292.14	637111.50	N 32 15 14.55 W 104	1 24.66
	8005.00	12.82	83.24	7904.53	39.55	90.77	1014.78	1.01	456294.54	637131.45	N 32 15 14.58 W 104	1 24.43
	8100.00	12.14	85.89	7997.29	40.22	92.72	1035.21	0.94	456296.50	637151.88	N 32 15 14.60 W 104	1 24.19
	8195.00	11.95	85.88	8090.20	41.33	94.15	1054.98	0.20	456297.92	637171.65	N 32 15 14.61 W 104	1 23.96
	8291.00	10.22	77.19	8184.41	41.08	96.75	1073.20	2.50	456300.52	637189.87	N 32 15 14.63 W 104	1 23.75
	8384.00	11.95	84.30	8275.67	40.56	99.54	1090.83	2.37	456303.31	637207.50	N 32 15 14.66 W 104	1 23.54
	8479.00	12.66	86.30	8368.49	41.51	101.18	1111.00	0.87	456304.96	637227.67	N 32 15 14.68 W 104	1 23.31
	8575.00	13.00	84.48	8462.09	42.51	102.90	1132.25	0.55	456306.67	637248.92	N 32 15 14.69 W 104	1 23.06
	8670.00	12.73	84.59	8554.71	43.21	104.92	1153.31	0.29	456308.69	637269.97	N 32 15 14.71 W 104	1 22.81
	8766.00	12.68	83.70	8648.36	43.75	107.07	1174.31	0.21	456310.84	637290.97	N 32 15 14.73 W 104	1 22.57
	8861.00	9.59	88.78	8741.56	44.78	108.38	1192.59	3.41	456312.15	637309.25	N 32 15 14.75 W 104	1 22.36
KOP Actual	8955.00	10.36	90.30	8834.14	46.74	108.51	1208.87	0.87	456312.28	637325.53	N 32 15 14.75 W 104	1 22.17
	8994.00	11.72	89.46	8872.42	47.68	108.52	1216.34	3.51	456312.30	637333.00	N 32 15 14.75 W 104	1 22.08
	9073.00	13.56	85.72	8949.50	49.12	109.29	1233.60	2.55	456313.06	637350.26	N 32 15 14.75 W 104	1 21.88
	9167.00	15.92	101.50	9040.44	53.87	107.54	1257.23	4.93	456311.31	637373.89	N 32 15 14.74 W 104	1 21.60
	9262.00	22.56	130.02	9130.27	71.54	93.18	1284.04	11.92	456296.95	637400.70	N 32 15 14.59 W 104	1 21.29
	9357.00	26.08	152.15	9217.01	104.58	62.93	1307.81	10.22	456266.70	637424.46	N 32 15 14.29 W 104	1 21.02
100' FNL Crossed	*9363.00*	*26.16*	*153.75*	*9222.40*	*107.07*	*60.57*	*1309.01*	*11.81*	*456264.35*	*637425.66*	*N 32 15 14.27 W 104*	*1 21.00*
	9452.00	29.24	175.50	9301.39	147.45	21.20	1319.42	11.81	456224.98	637436.08	N 32 15 13.88 W 104	1 20.88
3rd Bone Spring Intersection	*9514.50*	*36.02*	*177.26*	*9354.00*	*181.05*	*-12.42*	*1321.50*	*10.95*	*456191.36*	*637438.15*	*N 32 15 13.55 W 104*	*1 20.86*
	9546.00	39.44	177.95	9378.91	200.25	-31.67	1322.30	10.95	456172.11	637438.95	N 32 15 13.36 W 104	1 20.85
	9641.00	47.04	177.83	9448.06	265.02	-96.66	1324.70	8.00	456107.13	637441.35	N 32 15 12.71 W 104	1 20.82
	9736.00	54.37	179.24	9508.19	338.09	-170.10	1326.53	7.80	456033.69	637443.18	N 32 15 11.99 W 104	1 20.81
	9831.00	57.24	179.69	9561.58	416.11	-248.67	1327.26	3.05	455955.13	637443.91	N 32 15 11.21 W 104	1 20.80
	9926.00	67.35	179.59	9605.69	499.49	-332.67	1327.79	10.64	455871.14	637444.44	N 32 15 10.38 W 104	1 20.80
	10021.00	72.95	180.23	9637.93	588.09	-421.99	1327.92	5.93	455781.83	637444.57	N 32 15 9.49 W 104	1 20.80
	10115.00	78.76	180.08	9660.89	678.42	-513.10	1327.68	6.18	455690.73	637444.33	N 32 15 8.59 W 104	1 20.80
	10209.00	86.79	181.37	9672.71	770.68	-606.26	1326.49	8.65	455597.57	637443.14	N 32 15 7.67 W 104	1 20.82
	10323.00	87.55	179.97	9678.33	883.43	-720.11	1325.16	1.40	455483.73	637441.81	N 32 15 6.54 W 104	1 20.84
	10416.00	87.83	178.48	9682.08	975.74	-813.03	1326.42	1.63	455390.82	637443.07	N 32 15 5.62 W 104	1 20.83
	10509.00	88.27	180.62	9685.25	1068.01	-905.96	1327.15	2.35	455297.89	637443.80	N 32 15 4.70 W 104	1 20.82
	10603.00	88.65	182.81	9687.77	1160.80	-999.88	1324.33	2.36	455203.98	637440.98	N 32 15 3.78 W 104	1 20.86
	10696.00	89.31	181.98	9689.43	1252.44	-1092.78	1320.45	1.14	455111.09	637437.10	N 32 15 2.86 W 104	1 20.91
	10883.00	89.92	179.20	9690.74	1437.52	-1279.74	1317.96	1.00	455018.13	637434.61	N 32 15 1.94 W 104	1 20.94
	10976.00	89.92	180.91	9690.87	1529.75	-1372.74	1317.72	2.04	454924.15	637434.37	N 32 15 1.01 W 104	1 20.95
	11163.00	90.30	181.37	9690.51	1714.70	-1559.70	1317.63	1.84	454831.16	637434.28	N 32 15 0.09 W 104	1 20.95
	11256.00	90.16	180.82	9690.14	1806.70	-1652.68	1313.91	0.32	454644.21	637430.56	N 32 14 58.24 W 104	1 21.00
	11351.00	90.10	181.48	9689.92	1900.65	-1747.66	1312.13	0.61	454551.24	637428.78	N 32 14 57.32 W 104	1 21.02
	11539.00	89.89	179.26	9689.94	2086.95	-1935.64	1310.22	0.70	454456.26	637426.88	N 32 14 56.38 W 104	1 21.05
	11727.00	90.82	178.79	9688.77	2273.78	-2123.61	1309.01	1.19	454268.30	637425.66	N 32 14 54.52 W 104	1 21.07
	11821.00	91.06	178.69	9687.23	2367.24	-2217.58	1312.21	0.55	454080.34	637428.86	N 32 14 52.66 W 104	1 21.04
	11915.00	90.61	178.65	9685.86	2460.71	-2311.54	1314.28	0.28	453986.39	637430.93	N 32 14 51.73 W 104	1 21.02
	12009.00	90.89	178.67	9684.63	2554.19	-2405.51	1316.46	0.48	453892.43	637433.11	N 32 14 50.80 W 104	1 20.99
	12104.00	90.82	180.67	9683.21	2648.47	-2500.49	1318.66	0.30	453798.47	637435.31	N 32 14 49.87 W 104	1 20.97
	12199.00	90.27	180.76	9682.31	2742.53	-2595.48	1319.20	2.11	453703.50	637435.85	N 32 14 48.93 W 104	1 20.97
	12294.00	90.61	180.88	9681.58	2836.56	-2690.46	1318.02	0.59	453608.52	637434.67	N 32 14 47.99 W 104	1 20.99
	12388.00	90.51	181.06	9680.66	2929.57	-2784.45	1316.66	0.38	453513.54	637433.31	N 32 14 47.05 W 104	1 21.01
	12483.00	90.78	180.77	9679.59	3023.58	-2879.43	1315.07	0.22	453419.56	637431.72	N 32 14 46.12 W 104	1 21.03
	12577.00	90.82	181.15	9678.28	3116.59	-2973.41	1313.55	0.42	453324.59	637430.20	N 32 14 45.18 W 104	1 21.05
	12672.00	90.78	180.31	9676.95	3210.64	-3068.39	1311.98	0.41	453230.62	637428.63	N 32 14 44.25 W 104	1 21.07
	12766.00	90.20	178.77	9676.15	3303.96	-3162.38	1310.77	0.89	453135.65	637427.42	N 32 14 43.31 W 104	1 21.09
	12861.00	90.10	178.62	9675.90	3398.43	-3257.35	1311.52	1.75	453041.66	637428.17	N 32 14 42.38 W 104	1 21.08
	12956.00	90.27	181.25	9675.59	3492.66	-3352.34	1313.68	0.19	452946.70	637430.33	N 32 14 41.44 W 104	1 21.06
	13050.00	90.47	180.91	9674.99	3585.64	-3446.33	1313.79	2.77	452851.71	637430.44	N 32 14 40.50 W 104	1 21.06
	13145.00	89.72	179.55	9674.83	3679.81	-3541.32	1312.02	0.42	452757.74	637428.67	N 32 14 39.57 W 104	1 21.08
	13239.00	89.82	179.38	9675.21	3773.15	-3635.32	1311.64	1.63	452662.75	637428.29	N 32 14 38.63 W 104	1 21.09
	13334.00	89.68	179.38	9675.62	3867.50	-3730.31	1312.52	0.21	452568.76	637429.17	N 32 14 37.70 W 104	1 21.09
	13429.00	89.72	179.24	9676.12	3961.86	-3825.30	1313.54	0.15	452473.78	637430.20	N 32 14 36.76 W 104	1 21.08
	13524.00	89.55	178.65	9676.72	4056.29	-3920.28	1314.69	0.15	452378.79	637431.34	N 32 14 35.82 W 104	1 21.07
	13618.00	89.65	178.90	9677.38	4149.75	-4014.26	1316.44	0.65	452283.82	637433.09	N 32 14 34.88 W 104	1 21.05
	13713.00	89.65	178.70	9677.96	4244.20	-4109.24	1318.45	0.29	452189.85	637435.10	N 32 14 33.95 W 104	1 21.03
	13808.00	89.65	179.42	9678.54	4338.61	-4204.22	1320.44	0.21	452094.88	637437.09	N 32 14 33.01 W 104	1 21.01
	13903.00	90.16	181.23	9678.70	4432.76	-4299.22	1321.99	0.76	451999.91	637438.65	N 32 14 32.07 W 104	1 20.99
	13997.00	90.30	180.97	9678.32	4525.74	-4393.20	1321.46	1.98	451904.92	637438.11	N 32 14 31.13 W 104	1 21.00
	14092.00	90.03	180.51	9678.05	4619.80	-4488.19	1319.65	0.31	451810.95	637436.30	N 32 14 30.20 W 104	1 21.03
	14186.00	90.03	178.63	9678.00	4713.11	-4582.18	1318.42	0.56	451715.96	637435.08	N 32 14 29.26 W 104	1 21.05
	14281.00	90.20	178.56	9677.81	4807.60	-4677.15	1319.13	2.00	451621.98	637435.78	N 32 14 28.33 W 104	1 21.04
	14375.00	90.17	179.20	9677.50	4901.05	-4771.13	1321.46	0.19	451527.01	637438.11	N 32 14 27.39 W 104	1 21.02
	14470.00	90.13	178.46	9677.26	4995.50	-4866.11	1323.30	0.68	451433.04	637439.95	N 32 14 26.46 W 104	1 21.00
	14659.00	90.23	179.31	9676.66	5183.38	-5055.08	1325.24	0.78	451338.07	637441.89	N 32 14 25.52 W 104	1 20.98
	14754.00	90.27	178.82	9676.25	5277.79	-5150.06	1328.91	0.45	451149.12	637445.56	N 32 14 23.65 W 104	1 20.94
	14848.00	90.13	180.30	9675.92	5371.11	-5244.06	1330.46	0.52	451054.14	637447.11	N 32 14 22.71 W 104	1 20.93
	14943.00	89.61	179.35	9676.14	5465.36	-5339.05	1331.19	1.58	450960.16	637447.84	N 32 14 21.78 W 104	1 20.92
	15038.00	90.10	178.25	9676.38	5559.82	-5434.03	1331.48	1.14	450865.17	637448.13	N 32 14 20.84 W 104	1 20.92
	15132.00	90.10	178.26	9676.21	5653.37	-5527.99	1333.47	1.27	450770.20	637450.12	N 32 14 19.90 W 104	1 20.90
	15227.00	90.23	179.40	9675.94	5747.82	-5622.96	1336.33	0.01	450676.25	637452.98	N 32 14 18.97 W 104	1 20.87
	15322.00	90.34	180.60	9675.47	5842.04	-5717.96	1338.27	1.21	450581.28	637454.92	N 32 14 18.03 W 104	1 20.85
	15416.00	90.41	181.05	9674.85	5935.08	-5811.95	1336.91	1.27	450486.29	637454.92	N 32 14 17.09 W 104	1 20.86
	15511.00	90.41	180.92	9674.17	6029.08	-5906.93	1335.28	0.48	450392.31	637453.56	N 32 14 16.16 W 104	1 20.87
	15606.00	90.20	180.64	9673.66	6123.13	-6001.92	1333.99	0.14	450297.33	637451.93	N 32 14 15.22 W 104	1 20.90
	15699.00	90.41	180.65	9673.17	6215.23	-6094.92	1332.94	0.37	450202.35	637450.64	N 32 14 14.28 W 104	1 20.92
	15794.00	90.13	181.79	9672.72	6309.17	-6189.89	1330.92	0.23	450109.37	637449.59	N 32 14 13.36 W 104	1 20.93
	15889.00	89.92	183.02	9672.68	6402.79	-6284.81	1326.93	1.24	450014.40	637447.57	N 32 14 12.42 W 104	1 20.96
	15984.00	90.61	182.23	9672.24	6496.36	-6379.70	1322.58	1.31	449919.49	637443.58	N 32 14 11.48 W 104	1 21.01
	16078.00	90.30	180.38	9671.49	6589.29	-6473.67	1320.44	1.10	449824.60	637439.23	N 32 14 10.54 W 104	1 21.06
	16268.00	89.65	178.22	9671.58	6778.00	-6663.65	1322.76	2.00	449730.64	637437.09	N 32 14 9.61 W 104	1 21.09
	16362.00	89.58	177.89	9672.21	6871.58	-6757.59	1325.95	1.19	449540.68	637439.41	N 32 14 7.73 W 104	1 21.07
	16457.00	89.72	179.48	9672.79	6966.05	-6852.56	1328.13	0.36	449446.75	637442.60	N 32 14 6.80 W 104	1 21.03
	16552.00	89.72	178.35	9673.25	7060.49	-6947.54	1329.93	1.68	449351.79	637444.78	N 32 14 5.86 W 104	1 21.01
	16647.00	89.79	177.96	9673.66	7155.05	-7042.49	1332.99	1.19	449256.81	637446.58	N 32 14 4.92 W 104	1 20.99
	16742.00	89.79	178.53	9674.01	7249.60	-7137.44	1335.90	0.42	449161.87	637449.64	N 32 14 3.98 W 104	1 20.96
	16837.00	89.65	179.72	9674.47	7343.99	-7232.43	1337.35	0.60	449066.93	637452.55	N 32 14 3.04 W 104	1 20.93
	16932.00	89.89	180.50	9674.85	7438.19	-7327.43	1337.17	1.26	448971.95	637454.00	N 32 14 2.10 W 104	1 20.92
	17026.00	89.79	181.26	9675.12	7531.22	-7421.42	1335.72	0.86	448876.96	637453.82	N 32 14 1.16 W 104	1 20.92
	17121.00	89.92	181.21	9675.36	7625.16	-7516.39	1333.68	0.82	448782.98	637452.37	N 32 14 0.23 W 104	1 20.94
	17216.00	90.06	180.99	9675.37	7719.13	-7611.38	1331.85	0.15	448688.01	637450.33	N 32 13 59.29 W 104	1 20.97
	17311.00	89.75	180.34	9675.53	7813.21	-7706.37	1330.75	0.27	448593.03	637448.50	N 32 13 58.35 W 104	1 20.99
	17406.00	89.37	180.47	9676.26	7907.34	-7801.36	1330.08	0.76	448498.05	637447.40	N 32 13 57.41 W 104	1 21.01
	17500.00	89.79	179.43	9676.95	8000.58	-7895.36	1330.16	0.42	448403.06	637446.73	N 32 13 56.47 W 104	1 21.02
	17595.00	89.82	178.34	9677.27	8095.02	-7990.34	1332.01	1.19	448309.07	637446.81	N 32 13 55.54 W 104	1 21.02
	17689.00	89.92	178.52	9677.49	8188.54	-8084.30	1334.58	1.15	448214.10	637448.66	N 32 13 54.60 W 104	1 21.01
	17784.00	89.82	178.42	9677.70	8283.05	-8179.27	1337.12	0.22	448120.14	637451.23	N 32 13 53.67 W 104	1 20.98
	17879.00	89.58	178.73	9678.20	8377.55	-8274.24	1339.48	0.15	448025.19	637453.77	N 32 13 52.73 W 104	1 20.95
								0.41	447930.22	637456.13	N 32 13 51.79 W 104	1 20.93

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 ° ' ")
	17974.00	89.82	178.67	9678.70	8472.02	-8369.21	1341.64	0.26	447835.26	637458.29	N 32 13 50.85	W 104 1 20.91
	18162.00	89.86	177.85	9679.22	8659.12	-8557.12	1347.35	0.44	447647.36	637464.00	N 32 13 49.00	W 104 1 20.85
	18257.00	89.51	180.16	9679.74	8753.53	-8652.10	1349.00	2.46	447552.39	637465.64	N 32 13 48.06	W 104 1 20.83
	18352.00	89.61	180.92	9680.47	8847.63	-8747.09	1348.10	0.81	447457.41	637464.75	N 32 13 47.12	W 104 1 20.84
	18447.00	89.61	180.26	9681.12	8941.72	-8842.09	1347.12	0.69	447362.42	637463.77	N 32 13 46.18	W 104 1 20.86
	18541.00	89.72	180.12	9681.67	9034.91	-8936.08	1346.81	0.19	447268.43	637463.46	N 32 13 45.25	W 104 1 20.86
	18636.00	89.75	180.83	9682.11	9129.03	-9031.08	1346.02	0.75	447173.45	637462.67	N 32 13 44.31	W 104 1 20.88
	18730.00	89.79	180.35	9682.49	9222.13	-9125.07	1345.06	0.51	447079.46	637461.70	N 32 13 43.38	W 104 1 20.89
	18825.00	89.89	180.16	9682.75	9316.29	-9220.07	1344.63	0.23	446984.47	637461.28	N 32 13 42.44	W 104 1 20.90
	18919.00	89.79	180.32	9683.01	9409.47	-9314.07	1344.24	0.20	446890.48	637460.89	N 32 13 41.51	W 104 1 20.91
	19014.00	89.82	181.00	9683.34	9503.55	-9409.06	1343.14	0.72	446795.49	637459.79	N 32 13 40.57	W 104 1 20.92
	19109.00	89.58	180.35	9683.83	9597.62	-9504.06	1342.03	0.73	446700.51	637458.67	N 32 13 39.63	W 104 1 20.94
	19204.00	89.79	178.50	9684.36	9691.95	-9599.04	1342.98	1.96	446605.53	637459.63	N 32 13 38.69	W 104 1 20.93
	19299.00	89.75	178.79	9684.74	9786.43	-9694.02	1345.23	0.31	446510.56	637461.87	N 32 13 37.75	W 104 1 20.91
	19393.00	89.79	181.68	9685.12	9879.60	-9788.01	1344.84	3.07	446416.58	637461.49	N 32 13 36.82	W 104 1 20.92
	19488.00	90.23	182.55	9685.10	9973.31	-9882.94	1341.33	1.03	446321.66	637457.98	N 32 13 35.88	W 104 1 20.96
	19582.00	90.17	181.84	9684.77	10066.02	-9976.87	1337.73	0.76	446227.73	637454.38	N 32 13 34.95	W 104 1 21.01
	19677.00	89.68	178.42	9684.90	10160.20	-10071.85	1337.52	3.64	446132.76	637454.17	N 32 13 34.01	W 104 1 21.01
	19771.00	89.79	178.32	9685.33	10253.73	-10165.82	1340.19	0.16	446038.80	637456.84	N 32 13 33.08	W 104 1 20.98
	19866.00	89.58	178.37	9685.85	10348.26	-10260.77	1342.94	0.23	445943.85	637459.58	N 32 13 32.14	W 104 1 20.95
	19961.00	89.61	178.49	9686.52	10442.78	-10355.74	1345.54	0.13	445848.90	637462.19	N 32 13 31.20	W 104 1 20.93
100' FSL Crossed	*19988.00*	*89.66*	*178.56*	*9686.70*	*10469.64*	*-10382.73*	*1346.23*	*0.33*	*445821.91*	*637462.88*	*N 32 13 30.93*	*W 104 1 20.92*
Final MWD	20019.00	89.72	178.65	9686.86	10500.47	-10413.72	1346.99	0.33	445790.92	637463.63	N 32 13 30.62	W 104 1 20.91
Proj to TD	20064.00	89.72	178.65	9687.08	10545.22	-10458.70	1348.05	0.00	445745.94	637464.69	N 32 13 30.18	W 104 1 20.90

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 (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	25.000	1/98.425	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Height CC 6-7 Fed Com 312H Gyro + IFR 0ft to 20064'MD
	1	25.000	25.000	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Height CC 6-7 Fed Com 312H Gyro + IFR 0ft to 20064'MD
	1	25.000	20064.000	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Height CC 6-7 Fed Com 312H Gyro + IFR 0ft