



OXY



Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Sterling Silver MDP1 33-4 Federal Com 178H	NM Eddy County (NAD 83)	Oxy Sterling Silver MDP1 33-4 Federal Com 178H

Gravity & Magnetic Parameters

Model: IFR1 Dip: 59.948° Date: 27-Aug-2019
 MagDec: 6.774° FS: 47945.9nT Gravity FS: 998.449mgn (9.80665 Based)

Surface Location

NAD83 New Mexico State Plane, Eastern Zone, US Feet

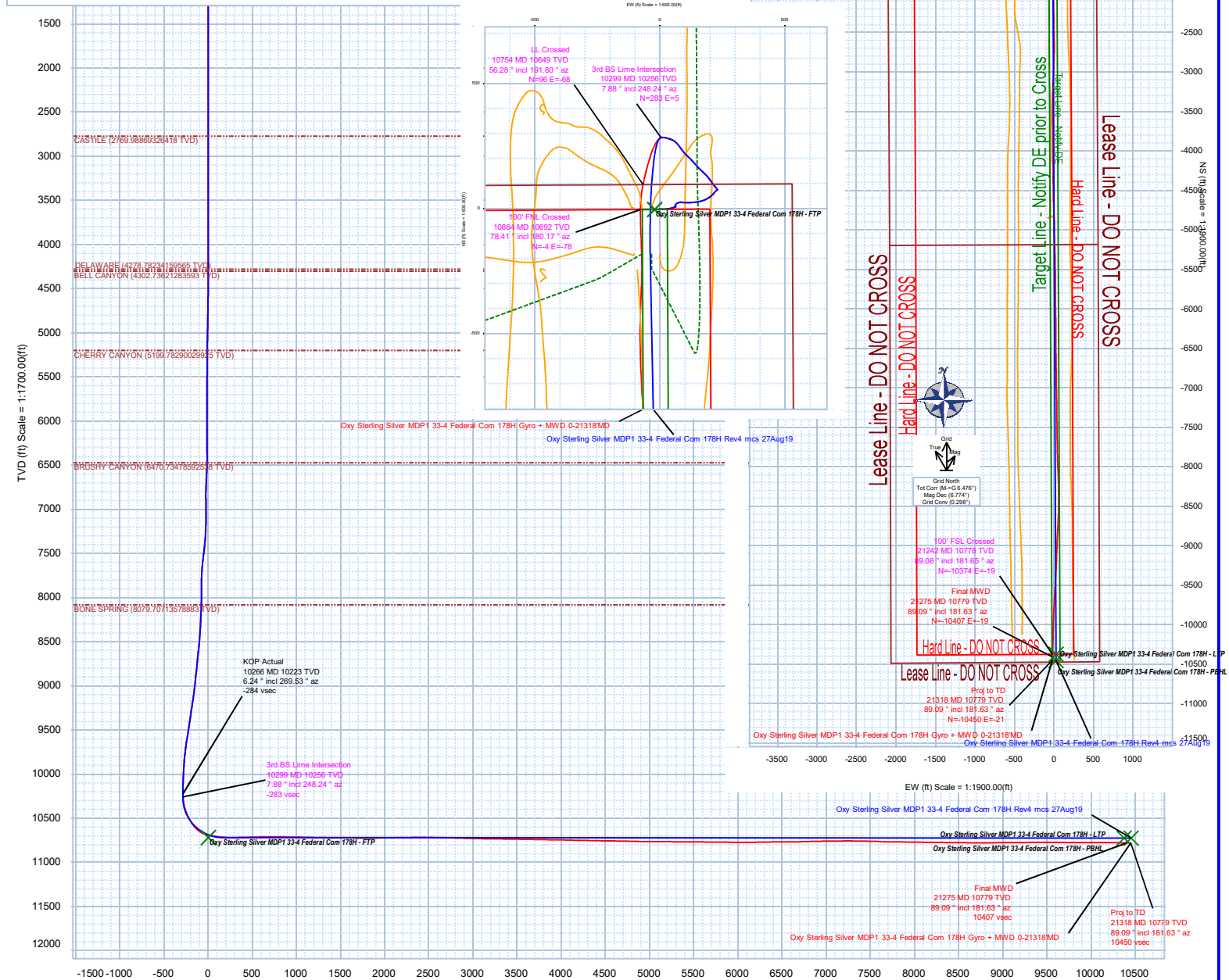
Lat: N 32 16 4.51 Northing: 461649.31HUS Grid Conv: 0.2976°
 Lon: W 103 46 33.31 Easting: 713626.32HUS Scale Fact: 0.99994309

Miscellaneous

Surveying
 Slot: Silver MDP1 33-4 Federal Com
 Plan: Oxy Sterling Silver MDP1 33-4 Federal Com 178H Gyro + MWD 0-21318'MD
 TVD Ref: RKB=26.5'(3429.4ft above MSL)

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	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00
Last Gyro	541.50	0.51	230.40	541.49	1.74	-1.74	-1.25	0.22
KOP Actual	10266.00	6.24	269.53	10222.97	-283.76	283.78	8.90	1.38
3rd BS Lime Intersection	10299.28	7.88	248.24	10256.00	-282.91	282.92	4.97	9.21
LL Crossed	10754.00	56.28	191.80	10649.48	-95.87	95.69	-67.61	20.04
100' FNL Crossed	10864.00	78.41	180.17	10691.71	4.19	-4.39	-78.16	22.75
100' FSL Crossed	21242.00	89.08	181.63	10778.06	10374.02	-10374.10	-18.52	0.06
Final MWD	21275.00	89.09	181.63	10778.59	10407.00	-10407.09	-19.46	0.06
Proj to TD	21318.00	89.09	181.63	10779.27	10449.98	-10450.06	-20.68	0.00



Oxy Sterling Silver MDP1 33-4 Federal Com 178H Gyro + MWD 0-21318MD

Survey Geodetic Report

(Def Survey)

Report Date: September 17, 2019 - 04:38 PM
Client: OXY
Field: NM Eddy County (NAD 83)
Structure / Slot: Oxy Sterling Silver MDP1 33-4 Federal Com 178H / Oxy Sterling Silver MDP1 33-4 Federal Com 178H
Well: Oxy Sterling Silver MDP1 33-4 Federal Com 178H
Borehole: Original Borehole
UWI / API#: Unknown / 30-015-46048
Survey Name: Oxy Sterling Silver MDP1 33-4 Federal Com 178H Gyro + MWD 0-21318MD
Survey Date: July 26, 2019
Tort / AHD / DDI / ERD Ratio: 269.794 ° / 11353.713 ft / 6.782 / 1.053
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 16' 4.50739", W 103° 46' 33.30619"
Location Grid N/E Y/X: N 461649.310 ftUS, E 713626.320 ftUS
CRS Grid Convergence Angle: 0.2976 °
Grid Scale Factor: 0.99994309
Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.853 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB=26.5'
TVD Reference Elevation: 3429.400 ft above MSL
Seabed / Ground Elevation: 3402.900 ft above MSL
Magnetic Declination: 6.774 °
Total Gravity Field Strength: 998.4489mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47945.900 nT
Magnetic Dip Angle: 59.948 °
Declination Date: August 27, 2019
Magnetic Declination Model: IFR1
North Reference: Grid North
Grid Convergence Used: 0.2976 °
Total Corr Mag North->Grid North: 6.4764 °
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	461649.31	713626.32	N 32 16	4.51 W 103 46 33.31
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	461649.31	713626.32	N 32 16	4.51 W 103 46 33.31
	72.50	0.08	285.82	72.50	-0.01	0.01	-0.03	0.17	461649.32	713626.29	N 32 16	4.51 W 103 46 33.31
	142.50	0.07	140.54	142.50	0.01	-0.01	-0.05	0.20	461649.30	713626.27	N 32 16	4.51 W 103 46 33.31
	185.50	0.19	172.83	185.50	0.10	-0.10	-0.03	0.32	461649.21	713626.29	N 32 16	4.51 W 103 46 33.31
	274.50	0.22	217.75	274.50	0.38	-0.38	-0.11	0.18	461648.93	713626.21	N 32 16	4.50 W 103 46 33.31
	369.50	0.32	226.61	369.50	0.71	-0.71	-0.42	0.11	461648.60	713625.90	N 32 16	4.50 W 103 46 33.31
	464.50	0.49	211.06	464.50	1.24	-1.24	-0.82	0.21	461648.07	713625.50	N 32 16	4.50 W 103 46 33.32
Last Gyro	541.50	0.51	230.40	541.49	1.74	-1.74	-1.25	0.22	461647.57	713625.07	N 32 16	4.49 W 103 46 33.32
	679.00	0.06	89.92	678.99	2.13	-2.13	-1.65	0.41	461647.18	713624.67	N 32 16	4.49 W 103 46 33.33
	773.00	0.21	293.82	772.99	2.06	-2.06	-1.76	0.28	461647.25	713624.56	N 32 16	4.49 W 103 46 33.33
	958.00	0.09	307.59	957.99	1.83	-1.84	-2.19	0.07	461647.47	713624.13	N 32 16	4.49 W 103 46 33.33
	1051.00	0.09	160.81	1050.99	1.85	-1.86	-2.22	0.19	461647.45	713624.10	N 32 16	4.49 W 103 46 33.33
	1142.00	0.09	36.45	1141.99	1.86	-1.87	-2.15	0.17	461647.44	713624.17	N 32 16	4.49 W 103 46 33.33
	1238.00	0.17	20.89	1237.99	1.67	-1.68	-2.06	0.09	461647.63	713624.26	N 32 16	4.49 W 103 46 33.33
	1330.00	0.09	104.63	1329.99	1.56	-1.57	-1.94	0.20	461647.74	713624.38	N 32 16	4.49 W 103 46 33.33
	1423.00	0.09	334.98	1422.99	1.51	-1.52	-1.90	0.18	461647.79	713624.42	N 32 16	4.49 W 103 46 33.33
	1611.00	0.09	133.60	1610.99	1.48	-1.49	-1.85	0.09	461647.82	713624.47	N 32 16	4.49 W 103 46 33.33
	1703.00	0.14	173.29	1702.99	1.64	-1.65	-1.79	0.10	461647.66	713624.53	N 32 16	4.49 W 103 46 33.33
	1892.00	0.14	285.87	1891.99	1.81	-1.81	-1.98	0.12	461647.50	713624.34	N 32 16	4.49 W 103 46 33.33
	1987.00	0.07	296.42	1986.99	1.75	-1.76	-2.15	0.08	461647.55	713624.17	N 32 16	4.49 W 103 46 33.33
	2176.00	0.09	84.81	2175.99	1.69	-1.69	-2.10	0.08	461647.62	713624.22	N 32 16	4.49 W 103 46 33.33
	2365.00	0.09	200.39	2364.99	1.81	-1.82	-2.01	0.08	461647.49	713624.31	N 32 16	4.49 W 103 46 33.33
	2459.00	0.09	133.36	2458.99	1.93	-1.94	-1.98	0.11	461647.37	713624.34	N 32 16	4.49 W 103 46 33.33
	2553.00	0.09	201.12	2552.99	2.05	-2.06	-1.95	0.11	461647.25	713624.37	N 32 16	4.49 W 103 46 33.33
	2648.00	0.07	318.78	2647.99	2.08	-2.08	-2.02	0.14	461647.23	713624.30	N 32 16	4.49 W 103 46 33.33
	2742.00	0.09	188.92	2741.99	2.11	-2.11	-2.07	0.15	461647.20	713624.25	N 32 16	4.49 W 103 46 33.33
	2836.00	0.07	105.37	2835.99	2.20	-2.20	-2.02	0.11	461647.11	713624.30	N 32 16	4.49 W 103 46 33.33
2931.00	0.17	114.18	2930.99	2.27	-2.27	-1.84	0.11	461647.04	713624.48	N 32 16	4.48 W 103 46 33.33	
3025.00	0.09	284.46	3024.99	2.31	-2.31	-1.78	0.28	461647.00	713624.54	N 32 16	4.48 W 103 46 33.33	
3120.00	0.09	269.90	3119.99	2.29	-2.29	-1.93	0.02	461647.02	713624.39	N 32 16	4.48 W 103 46 33.33	
3214.00	0.09	311.21	3213.99	2.24	-2.25	-2.06	0.07	461647.06	713624.26	N 32 16	4.49 W 103 46 33.33	
3403.00	0.16	78.43	3402.99	2.09	-2.10	-1.91	0.12	461647.21	713624.41	N 32 16	4.49 W 103 46 33.33	
3592.00	0.27	105.25	3591.99	2.16	-2.16	-1.22	0.08	461647.15	713625.10	N 32 16	4.49 W 103 46 33.32	
3780.00	0.19	161.42	3779.99	2.57	-2.57	-0.70	0.12	461646.74	713625.62	N 32 16	4.48 W 103 46 33.31	
3875.00	0.11	62.40	3874.99	2.68	-2.68	-0.57	0.25	461646.63	713625.75	N 32 16	4.48 W 103 46 33.31	
3969.00	0.32	119.31	3968.98	2.76	-2.77	-0.26	0.29	461646.54	713626.06	N 32 16	4.48 W 103 46 33.31	
4063.00	1.14	91.22	4062.98	2.92	-2.91	0.91	0.93	461646.40	713627.23	N 32 16	4.48 W 103 46 33.30	
4158.00	2.21	91.75	4157.93	3.00	-2.99	3.68	1.13	461646.32	713630.00	N 32 16	4.48 W 103 46 33.26	
4247.00	3.16	88.24	4246.84	2.99	-2.97	7.85	1.08	461646.34	713634.17	N 32 16	4.48 W 103 46 33.21	
4387.00	4.41	86.33	4386.53	2.55	-2.50	17.08	0.90	461646.81	713643.40	N 32 16	4.48 W 103 46 33.11	
4577.00	4.56	82.33	4575.95	1.11	-1.03	31.85	0.18	461648.28	713658.17	N 32 16	4.50 W 103 46 32.94	
4672.00	4.33	79.47	4670.66	-0.03	0.13	39.12	0.34	461649.44	713665.44	N 32 16	4.51 W 103 46 32.85	
4767.00	3.98	75.40	4765.41	-1.50	1.62	45.84	0.48	461650.93	713672.16	N 32 16	4.52 W 103 46 32.77	
4862.00	3.77	74.77	4860.19	-3.14	3.27	52.04	0.23	461652.58	713678.36	N 32 16	4.54 W 103 46 32.70	
4991.00	3.80	73.43	4988.91	-5.45	5.60	60.23	0.07	461654.91	713686.55	N 32 16	4.56 W 103 46 32.60	
5086.00	1.65	48.12	5083.80	-7.25	7.41	64.27	2.54	461656.72	713690.58	N 32 16	4.58 W 103 46 32.56	
5181.00	0.62	307.41	5178.79	-8.47	8.64	64.88	1.97	461657.95	713691.19	N 32 16	4.59 W 103 46 32.55	
5276.00	0.51	308.36	5273.78	-9.05	9.21	64.14	0.12	461658.52	713690.45	N 32 16	4.60 W 103 46 32.56	
5371.00	0.66	308.28	5368.78	-9.65	9.81	63.38	0.16	461659.12	713689.69	N 32 16	4.60 W 103 46 32.57	
5466.00	0.56	292.20	5463.77	-10.17	10.33	62.52	0.21	461659.64	713688.83	N 32 16	4.61 W 103 46 32.58	
5561.00	0.61	299.14	5558.77	-10.59	10.75	61.65	0.09	461660.06	713687.96	N 32 16	4.61 W 103 46 32.59	
5751.00	0.49	279.75	5748.76	-11.23	11.38	59.96	0.12	461660.69	713686.28	N 32 16	4.62 W 103 46 32.61	
5846.00	0.49	283.33	5843.76	-11.39	11.54	59.17	0.03	461660.85	713685.48	N 32 16	4.62 W 103 46 32.62	
5941.00	0.34	274.58	5938.75	-11.51	11.66	58.49	0.17	461660.97	713684.81	N 32 16	4.62 W 103 46 32.62	
6130.00	0.22	210.11	6127.75	-11.24	11.39	57.75	0.17	461660.70	713684.07	N 32 16	4.62 W 103 46 32.63	
6225.00	0.27	159.10	6222.75	-10.88	11.02	57.74	0.23	461660.33	713684.05	N 32 16	4.61 W 103 46 32.63	
6415.00	0.60	111.12	6412.75	-10.10	10.25	58.82	0.24	461659.56	713685.14	N 32 16	4.61 W 103 46 32.62	
6510.00	2.22	21.48	6507.72	-11.63	11.78	59.96	2.42	461661.09	713686.28	N 32 16	4.62 W 103 46 32.61	
6605.00	4.16	38.02	6602.57	-16.05	16.21	62.76	2.24	461665.52	713689.08	N 32 16	4.66 W 103 46 32.57	
6794.00	6.46	75.39	6790.80	-24.09	24.29	77.28	2.14	461673.60	713703.59	N 32 16	4.74 W 103 46 32.40	
6889.00	7.00	101.18	6885.17	-24.29	24.52	88.13	3.20	461673.83	713714.44	N 32 16	4.75 W 103 46 32.28	
6984.00	8.59	91.92	6979.29	-22.90	23.16	100.90	2.13	461672.47	713727.21	N 32 16	4.73 W 103 46 32.13	
7079.00	11.04	87.84	7072.89	-22.96	23.26	117.08	2.68	461672.57	713743.40	N 32 16	4.73 W 103 46 31.94	
7174.00	12.12	85.01	7165.96	-24.12	24.47	136.11	1.28	461673.78	713762.42	N 32 16	4.74 W 103 46 31.72	
7269.00	12.53	78.15	7258.77	-27.06	27.46	156.13	1.60	461676.77	713782.44	N 32 16	4.77 W 103 46 31.49	
7364.00	12.92	69.09	7351.45	-32.91	33.36	176.14	2.14	461682.67	713802.45	N 32 16	4.83 W 103 46 31.25	
7459.00	11.79	58.18	7444.26	-41.78	42.27	194.31	2.72	461691.58	713820.62	N 32 16	4.92 W 103 46 31.04	
7554.00	10.20	45.70	7537.53	-52.73	53.27	208.58	3.00	461702.58	713834.89	N 32 16	5.02 W 103 46 30.87	
7647.00	7.47	36.38	7629.42	-63.33	63.89	218.06	3.31	461713.20	713844.37	N 32 16	5.13 W 103 46 30.76	
7744.00	4.48	52.82	7725.89	-70.68	71.26	224.82	3.52	461720.56	713851.13	N 32 16	5.20 W 103 46 30.68	
7840.00	1.74	86.07	7821.74	-73.03	73.62	229.26	3.30	461722.93	713855.57	N 32 16	5.22 W 103 46 30.63	
8029.00	1.22	307.84	8010.72	-74.46	75.05	230.54	1.47	461724.36	713856.84	N 32 16	5.24 W 103 46 30.62	
8124.00	2.52	317.97	8105.66	-76.64	77.23	228.34	1.41	461726.53	713854.65	N 32 16	5.26 W 103 46 30.64	
8219.00	3.22	323.64	8200.54	-80.35	80.93	225.36	0.79	461730.23	713851.67	N 32 16	5.30 W 103 46 30.68	
8314.00	3.59	320.70	8295.38	-84.81	85.38	221.90	0.43	461734.68	713848.20	N 32 16	5.34 W 103 46 30.72	
8404.00	4.55	317.55	8390.13	-89.90	90.46	217.47	1.04	461739.76	713843.78	N 32 16	5.39 W 103 46 30.72	

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 ° ' ")
	8504.00	6.23	326.28	8484.71	-96.98	97.53	212.06	1.96	461746.83	713838.37	N 32 16 5.46 W	103 46 30.83
	8599.00	7.02	324.00	8579.08	-105.98	106.51	205.79	0.88	461755.82	713832.10	N 32 16 5.55 W	103 46 30.90
	8694.00	7.70	323.19	8673.29	-115.79	116.30	198.56	0.72	461765.61	713824.87	N 32 16 5.65 W	103 46 30.99
	8789.00	7.32	318.63	8767.48	-125.45	125.94	190.75	0.74	461775.24	713817.06	N 32 16 5.74 W	103 46 31.08
	8884.00	8.05	315.41	8861.63	-134.75	135.22	182.08	0.89	461784.52	713808.39	N 32 16 5.84 W	103 46 31.18
	8980.00	9.06	313.10	8956.56	-144.73	145.17	171.84	1.11	461794.47	713798.15	N 32 16 5.94 W	103 46 31.30
	9075.00	10.31	314.44	9050.20	-155.82	156.24	160.31	1.34	461805.54	713786.62	N 32 16 6.05 W	103 46 31.43
	9170.00	10.70	318.57	9143.61	-168.42	168.80	148.40	0.89	461818.10	713774.72	N 32 16 6.17 W	103 46 31.57
	9265.00	11.37	318.11	9236.85	-182.03	182.38	136.32	0.71	461831.68	713762.63	N 32 16 6.31 W	103 46 31.71
	9454.00	12.05	313.58	9421.92	-209.57	209.85	109.58	0.60	461859.15	713735.90	N 32 16 6.58 W	103 46 32.02
	9644.00	11.83	324.11	9607.84	-239.09	239.31	83.80	1.15	461888.60	713710.11	N 32 16 6.87 W	103 46 32.32
	9739.00	9.50	322.23	9701.19	-253.21	253.40	73.28	2.48	461902.69	713699.60	N 32 16 7.01 W	103 46 32.44
	9834.00	8.06	312.96	9795.08	-263.97	264.13	63.61	2.12	461913.43	713689.92	N 32 16 7.12 W	103 46 32.55
	9929.00	7.98	298.85	9889.16	-271.72	271.85	52.96	2.07	461921.15	713679.27	N 32 16 7.19 W	103 46 32.67
	10024.00	8.53	288.36	9983.18	-277.15	277.25	40.49	1.68	461926.55	713666.81	N 32 16 7.25 W	103 46 32.82
	10119.00	8.55	284.67	10077.13	-281.19	281.26	26.98	0.58	461930.56	713653.29	N 32 16 7.29 W	103 46 32.98
	10214.00	6.80	275.11	10171.30	-283.50	283.54	14.70	2.44	461932.83	713641.02	N 32 16 7.31 W	103 46 33.12
KOP Actual 3rd BS Lime Intersection	10266.00	6.24	269.53	10222.97	-283.76	283.78	8.90	1.38	461933.07	713635.22	N 32 16 7.31 W	103 46 33.19
	10299.28	7.88	248.24	10256.00	-282.91	282.92	4.97	9.21	461932.21	713631.29	N 32 16 7.31 W	103 46 33.23
	10386.00	14.51	224.07	10341.07	-272.91	272.89	-8.13	9.21	461922.19	713618.19	N 32 16 7.21 W	103 46 33.38
	10481.00	24.10	203.96	10430.79	-246.59	246.53	-24.34	12.15	461895.82	713601.98	N 32 16 6.95 W	103 46 33.57
	10575.00	28.74	197.55	10514.89	-207.51	207.41	-38.96	5.79	461856.71	713587.37	N 32 16 6.56 W	103 46 33.75
LL Crossed	10670.00	39.58	194.71	10593.39	-156.34	156.21	-53.57	11.53	461800.51	713572.75	N 32 16 6.06 W	103 46 33.92
	10754.00	56.28	197.80	10649.48	-95.87	95.69	-67.61	20.04	461745.00	713558.71	N 32 16 5.46 W	103 46 34.09
100' FNL Crossed	10765.00	58.47	191.51	10655.41	-86.80	86.62	-69.48	20.04	461735.93	713556.84	N 32 16 5.37 W	103 46 34.11
	10864.00	78.41	180.17	10691.71	4.19	-4.39	-78.16	22.75	461644.92	713548.17	N 32 16 4.47 W	103 46 34.22
	10959.00	83.26	177.39	10706.84	97.92	-98.12	-76.15	5.87	461551.20	713550.18	N 32 16 3.54 W	103 46 34.20
	11054.00	85.77	178.43	10715.92	192.42	-192.61	-72.70	2.86	461456.71	713553.62	N 32 16 2.61 W	103 46 34.16
	11149.00	91.25	181.80	10718.39	287.34	-287.53	-72.89	6.77	461361.80	713553.43	N 32 16 1.67 W	103 46 34.17
	11154.00	91.02	182.34	10718.29	292.33	-292.52	-73.08	11.74	461356.80	713553.25	N 32 16 1.62 W	103 46 34.17
	11214.00	91.37	182.66	10717.04	352.26	-352.45	-75.69	0.79	461296.88	713550.63	N 32 16 1.02 W	103 46 34.21
	11341.00	91.26	180.53	10714.12	479.16	-479.36	-79.23	1.68	461169.98	713547.10	N 32 15 59.77 W	103 46 34.26
	11436.00	91.23	178.41	10712.06	574.13	-574.33	-78.35	2.23	461075.01	713547.98	N 32 15 58.83 W	103 46 34.25
	11531.00	90.99	177.36	10710.22	669.05	-669.25	-74.84	1.13	460980.10	713551.48	N 32 15 57.89 W	103 46 34.22
	11626.00	89.68	176.60	10709.66	763.93	-764.11	-69.84	1.59	460885.24	713556.49	N 32 15 56.95 W	103 46 34.17
	11721.00	89.06	177.16	10710.71	858.79	-858.96	-64.67	0.88	460790.40	713561.66	N 32 15 56.01 W	103 46 34.11
	11911.00	88.72	176.88	10714.39	1048.53	-1048.67	-54.79	0.23	460600.70	713571.53	N 32 15 54.13 W	103 46 34.01
	12006.00	88.72	177.35	10716.51	1143.39	-1143.53	-50.01	0.49	460505.85	713576.31	N 32 15 53.19 W	103 46 33.96
	12101.00	89.06	176.74	10718.35	1238.26	-1238.38	-45.11	0.74	460411.00	713581.21	N 32 15 52.26 W	103 46 33.91
	12196.00	89.10	176.50	10719.88	1333.10	-1333.20	-39.51	0.26	460316.18	713586.81	N 32 15 51.32 W	103 46 33.85
	12291.00	89.41	175.56	10721.11	1427.88	-1427.97	-32.94	1.04	460221.43	713593.38	N 32 15 50.38 W	103 46 33.78
	12386.00	89.30	174.60	10722.18	1522.61	-1522.61	-24.79	1.02	460126.79	713601.53	N 32 15 49.44 W	103 46 33.69
	12481.00	89.82	177.26	10722.91	1617.31	-1617.36	-18.05	2.85	460032.05	713608.27	N 32 15 48.50 W	103 46 33.61
	12575.00	89.58	177.97	10723.40	1711.23	-1711.27	-14.14	0.80	459938.14	713612.18	N 32 15 47.58 W	103 46 33.57
	12670.00	90.10	179.11	10723.67	1806.21	-1806.24	-11.72	1.32	459843.17	713614.60	N 32 15 46.64 W	103 46 33.55
	12860.00	90.96	179.37	10721.91	1996.18	-1996.21	-9.20	0.47	459653.21	713617.12	N 32 15 44.76 W	103 46 33.53
	13050.00	90.82	178.60	10718.96	2186.14	-2186.16	-5.83	0.41	459463.28	713620.49	N 32 15 42.88 W	103 46 33.51
	13240.00	90.51	179.62	10716.75	2376.11	-2376.12	-2.88	0.56	459273.33	713623.44	N 32 15 41.00 W	103 46 33.48
	13335.00	89.82	178.68	10716.48	2471.10	-2471.11	-1.47	1.23	459178.35	713624.85	N 32 15 40.06 W	103 46 33.47
	13430.00	88.96	178.14	10717.49	2566.06	-2566.07	-1.16	1.07	459083.39	713627.48	N 32 15 39.12 W	103 46 33.45
	13525.00	88.75	179.85	10719.39	2661.03	-2661.03	-2.83	1.81	458988.44	713629.15	N 32 15 38.18 W	103 46 33.43
	13620.00	88.34	180.72	10721.80	2755.99	-2755.99	-2.36	1.01	458893.48	713628.68	N 32 15 37.24 W	103 46 33.45
	13715.00	88.13	182.27	10724.73	2850.91	-2850.92	-0.12	1.65	458798.56	713626.20	N 32 15 36.30 W	103 46 33.48
	13810.00	88.31	181.52	10727.68	2945.80	-2945.82	-3.26	0.81	458703.67	713623.06	N 32 15 35.36 W	103 46 33.52
	13905.00	88.48	184.50	10730.34	3040.61	-3040.64	-8.24	3.14	458608.85	713618.08	N 32 15 34.42 W	103 46 33.59
	14095.00	89.85	180.51	10733.11	3230.34	-3230.39	-16.55	2.22	458419.11	713609.78	N 32 15 32.54 W	103 46 33.69
	14190.00	89.03	180.62	10734.04	3325.33	-3325.38	-17.48	0.87	458324.12	713608.84	N 32 15 31.60 W	103 46 33.71
	14285.00	89.13	179.74	10735.57	3420.31	-3420.37	-17.78	0.93	458229.14	713608.54	N 32 15 30.66 W	103 46 33.72
	14380.00	88.99	179.99	10737.12	3515.30	-3515.36	-17.56	0.30	458134.16	713608.76	N 32 15 29.72 W	103 46 33.72
	14475.00	88.72	179.63	10739.02	3610.28	-3610.34	-17.24	0.47	458039.19	713609.08	N 32 15 28.78 W	103 46 33.73
	14666.00	89.37	179.48	10742.21	3801.25	-3801.30	-15.76	0.35	457848.23	713610.56	N 32 15 26.89 W	103 46 33.72
	14760.00	89.06	180.10	10743.49	3895.24	-3895.29	-15.41	0.74	457754.25	713610.91	N 32 15 25.96 W	103 46 33.72
	14855.00	88.99	179.86	10745.11	3990.23	-3990.28	-15.38	0.26	457659.26	713610.94	N 32 15 25.02 W	103 46 33.73
	14950.00	88.44	179.32	10747.24	4085.20	-4085.25	-14.70	0.81	457564.30	713611.62	N 32 15 24.08 W	103 46 33.72
	15045.00	89.06	178.83	10749.31	4180.17	-4180.22	-13.17	0.83	457469.34	713613.15	N 32 15 23.15 W	103 46 33.71
	15235.00	89.03	179.63	10752.48	4370.13	-4370.17	-10.61	0.42	457279.39	713615.71	N 32 15 21.27 W	103 46 33.69
	15330.00	88.51	179.20	10754.52	4465.11	-4465.15	-9.65	0.71	457184.43	713616.68	N 32 15 20.33 W	103 46 33.69
	15425.00	89.30	179.67	10756.33	4560.08	-4560.12	-8.71	0.97	457089.46	713617.61	N 32 15 19.39 W	103 46 33.68
	15520.00	89.17	178.10	10757.60	4655.06	-4655.09	-6.86	1.66	456994.49	713619.46	N 32 15 18.45 W	103 46 33.67
	15710.00	88.23	177.35	10761.91	4844.88	-4844.89	-0.68	0.63	456804.70	713627.00	N 32 15 16.57 W	103 46 33.59
	15805.00	89.48	179.64	10763.81	4939.82	-4939.83	-3.17	2.75	456709.77	713629.49	N 32 15 15.63 W	103 46 33.57
	15900.00	89.68	179.18	10764.51	5034.82	-5034.82	-4.15	0.53	456614.78	713630.47	N 32 15 14.69 W	103 46 33.56
	16090.00	89.72	177.68	10765.50	5224.75	-5224.74	-9.36	0.79	456424.87	713635.68	N 32 15 12.81 W	103 46 33.51
	16185.00	89.54	179.21	10766.12	5319.72	-5319.70	-11.94	1.62	456329.92	713638.25	N 32 15 11.87 W	103 46 33.49
	16280.00	89.72	179.14	10766.73	5414.71	-5414.69	-13.30	0.20	456234.94	713639.62	N 32 15 10.93 W	103 46 33.48
	16470.00	89.37	179.29	10768.24	5604.69	-5604.67	-15.91	0.20	456044.97	713642.23	N 32 15 9.05 W	103 46 33.46
	16565.00	89.82										

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 ° ' ")
	20266.00	90.26	182.81	10772.68	9399.06	-9399.04	21.09	0.78	452250.82	713647.41	N 32 14 31.50	W 103 46 33.63
	20361.00	89.71	183.85	10772.70	9493.89	-9493.88	15.57	1.24	452155.99	713641.89	N 32 14 30.57	W 103 46 33.70
	20551.00	89.54	182.53	10773.95	9683.56	-9683.58	5.00	0.70	451966.30	713631.32	N 32 14 28.69	W 103 46 33.83
	20741.00	90.13	182.94	10774.49	9873.31	-9873.36	-4.07	0.38	451776.53	713622.25	N 32 14 26.81	W 103 46 33.95
	20931.00	90.02	180.96	10774.25	10063.18	-10063.24	-10.53	1.04	451586.67	713615.79	N 32 14 24.93	W 103 46 34.04
	21026.00	89.34	181.33	10774.78	10158.15	-10158.22	-12.43	0.81	451491.69	713613.89	N 32 14 23.99	W 103 46 34.06
	21121.00	89.06	181.72	10776.10	10253.10	-10253.17	-14.96	0.51	451396.74	713611.36	N 32 14 23.05	W 103 46 34.10
100' FSL Crossed	21242.00	89.08	181.65	10778.06	10374.02	-10374.10	-18.52	0.06	451275.82	713607.80	N 32 14 21.86	W 103 46 34.15
Final MWD	21275.00	89.09	181.63	10778.59	10407.00	-10407.09	-19.46	0.06	451242.84	713606.86	N 32 14 21.53	W 103 46 34.16
Proj to TD	21318.00	89.09	181.63	10779.27	10449.98	-10450.06	-20.68	0.00	451199.86	713605.64	N 32 14 21.11	W 103 46 34.18

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 3 *** 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	GYD_GC+DROP+OH-Depth Only	Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 178H Gyro + MWD 0-21318'MD
	1	26.500	26.500	Act Stns	30.000	30.000	GYD_GC+DROP+OH-Depth Only	Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 178H Gyro + MWD 0-21318'MD
	1	26.500	541.500	Act Stns	30.000	30.000	GYD_GC+DROP+OH	Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 178H Gyro + MWD 0-21318'MD
	1	541.500	4247.000	Act Stns	30.000	30.000	A010Mb_MWD+IFR1+SAG+MS	Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 178H Gyro + MWD 0-21318'MD
	1	4247.000	4991.000	Act Stns	30.000	30.000	B001Mb_MWD+HRGM	Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 178H Gyro + MWD 0-21318'MD
	1	4991.000	10214.000	Act Stns	30.000	30.000	A010Mb_MWD+IFR1+SAG+MS	Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 178H Gyro + MWD 0-21318'MD
	1	10214.000	10575.000	Act Stns	30.000	30.000	B001Mb_MWD+HRGM	Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 178H Gyro + MWD 0-21318'MD
	1	10575.000	13430.000	Act Stns	30.000	30.000	A010Mb_MWD+IFR1+SAG+MS	Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 178H Gyro + MWD 0-21318'MD
	1	13430.000	13715.000	Act Stns	30.000	30.000	B001Mb_MWD+HRGM	Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 178H Gyro + MWD 0-21318'MD
	1	13715.000	21318.000	Act Stns	30.000	30.000	A010Mb_MWD+IFR1+SAG+MS	Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 178H Gyro + MWD 0-21318'MD