Final PvA - Rev1 H&P 636 (RKB=26.5')

Schlumberger

OXY

Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Cal-Mon 35 Federal 172H	NM Eddy County (NAD 83)	Oxy Cal-Mon 35 Federal 172H

Gravity & Magnetic Parameters

Model:	IFR1	Dip:	59.981°	Date:	11-Mar-2019
MagDec:	6.784°	FS:	47998.7nT	Gravity FS:	998.446mgn (9.80665 Based)

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

Lat:	N 32 16 2.74	Northing:	461518.18ftUS	Grid Conv:	0.3125°
Lon:	W 103 44 52.81	Easting:	722256.06ftUS	Scale Fact:	0.99994658

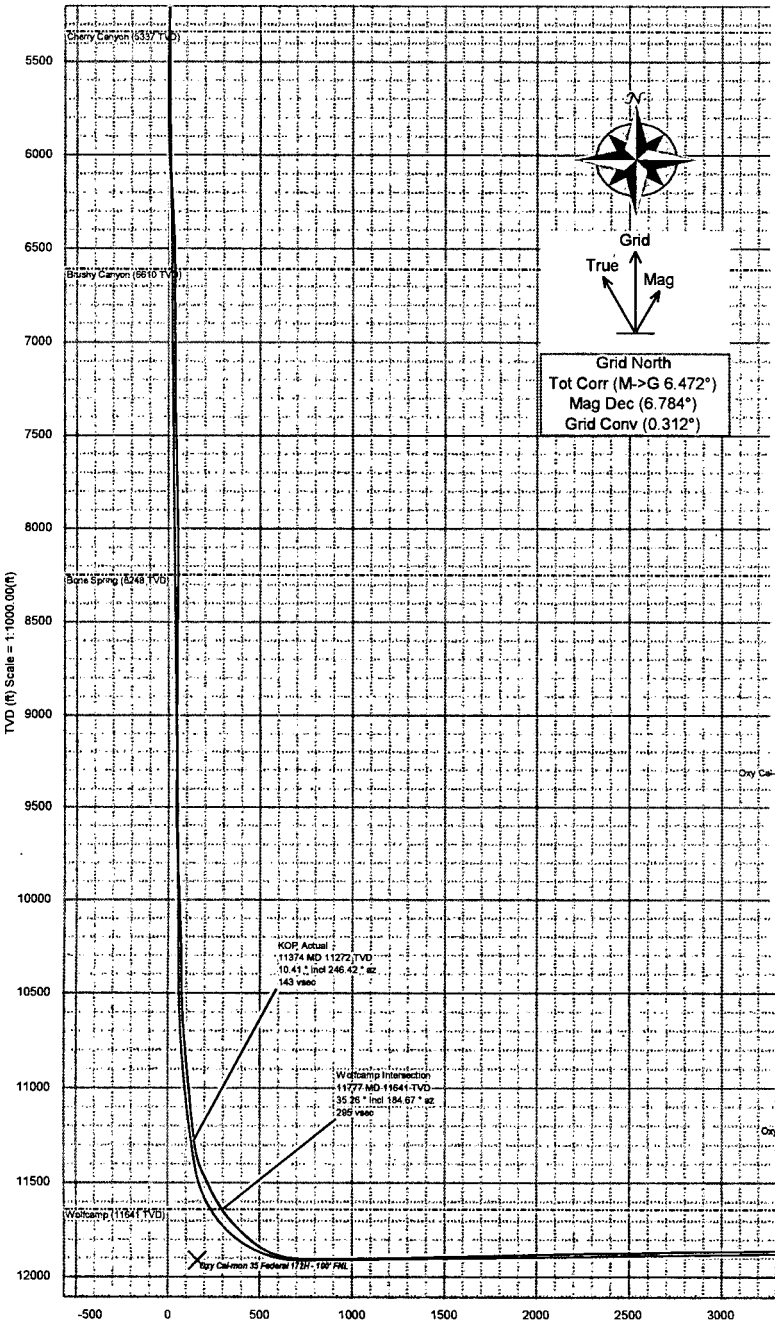
Miscellaneous

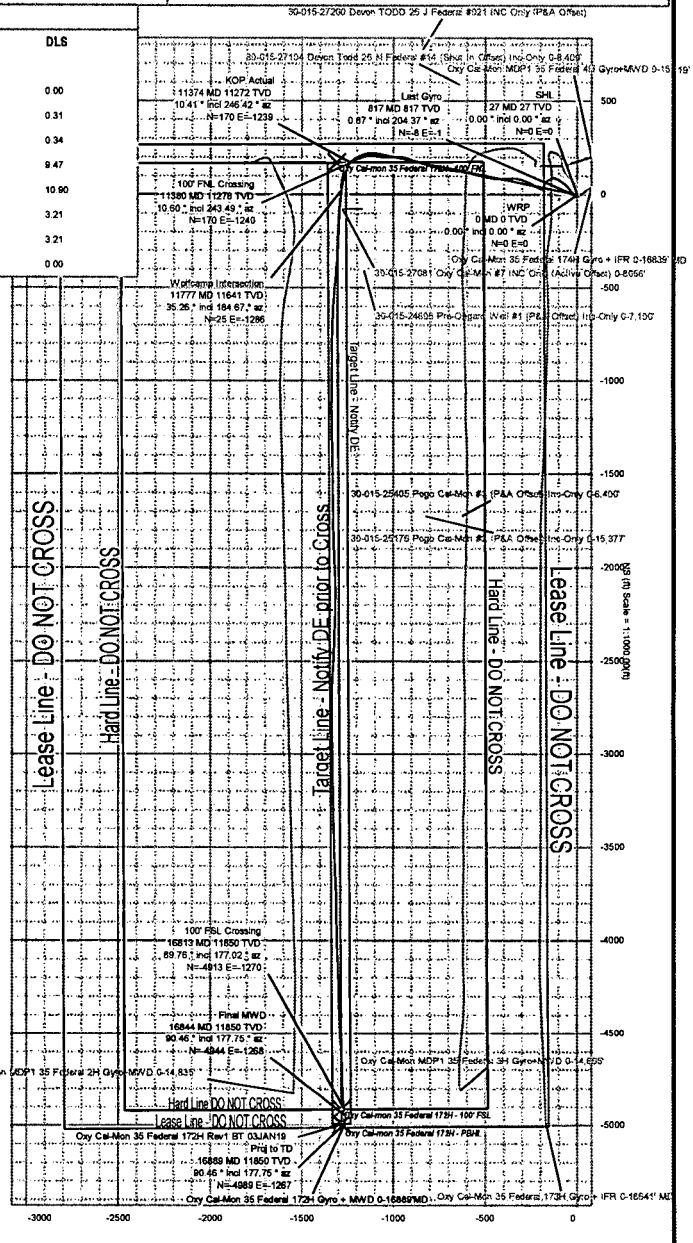
Slot: Oxy Cal-Mon 35 Federal 172H TVD Ref: RKB(3488.9ft above MSL)

Plan: Oxy Cal-Mon 35 Federal 172H Gyro + MWD 0-16889'MD

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
WRP	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	816.75	0.67	204.37	816.70	8.07	-8.16	-0.66	0.31
KOP Actual	11374.00	10.41	246.42	11272.50	143.48	170.08	-1239.01	0.34
100' FNL Crossing	11380.00	10.60	243.49	11278.40	144.18	169.61	-1240.00	9.47
Wolfcamp Intersection	11777.31	35.26	184.67	11641.00	295.47	25.20	-1285.93	10.90
100' FSL Crossing	16812.50	89.75	177.02	11850.22	5073.96	-4912.51	-1269.79	3.21
Final MWD	16844.00	90.46	177.75	11850.16	5104.08	-4943.98	-1268.36	3.21
Proj to TD	16889.00	90.46	177.75	11849.79	5147.19	-4988.94	-1266.59	0.00





Vertical Section (ft) Azim = 194.40° Scale = 1:1000.00(ft) Origin = 0N/-S, 0E/-W

Schlumberger

Oxy Cal-Mon 35 Federal 172H Gyro + MWD 0-16889'MD Survey Geodetic Report

(Def Survey)

Report Date:	March 21, 2019 - 06:20 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	194.404 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Oxy Cal-Mon 35 Federal 172H / Oxy Cal-Mon 35 Federal 172H	**TVD Reference Datum:**	RKB
Well:	Oxy Cal-Mon 35 Federal 172H	**TVD Reference Elevation:**	3488.900 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3462.400 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	6.784 °
Survey Name:	Oxy Cal-Mon 35 Federal 172H Gyro + MWD 0-16889'MD	**Total Gravity Field Strength:**	998.4459mgn (9.80665 Based)
Survey Date:	January 23, 2019	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	221.490 ° / 6524.105 ft / 6.312 / 0.548	**Total Magnetic Field Strength:**	47998.700 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.981 °
Location Lat / Long:	N 32° 16' 2.73540", W 103° 44' 52.80616"	**Declination Date:**	March 11, 2019
Location Grid N/E Y/X:	N 461516.185 ftUS, E 722256.060 ftUS	**Magnetic Declination Model:**	IFR1
CRS Grid Convergence Angle:	0.3125 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99994658	**Grid Convergence Used:**	0.3125 °
Version / Patch:	2.10.753.0	**Total Corr Mag North->Grid North:**	6.4715 °
		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 ° ' ")
WRP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	461516.19	722256.06	N 32 16 2.74	W 103 44 52.81
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	461516.19	722256.06	N 32 16 2.74	W 103 44 52.81
	74.56	1.02	168.08	74.56	0.38	-0.42	0.09	2.12	461515.77	722256.15	N 32 16 2.73	W 103 44 52.81
	161.81	0.64	171.55	161.80	1.53	-1.66	0.32	0.44	461514.52	722256.38	N 32 16 2.72	W 103 44 52.80
	245.92	0.59	169.96	245.90	2.36	-2.55	0.46	0.06	461513.63	722256.52	N 32 16 2.71	W 103 44 52.80
	340.68	0.60	184.54	340.66	3.29	-3.53	0.51	0.16	461512.66	722256.57	N 32 16 2.70	W 103 44 52.80
	434.99	0.55	191.06	434.96	4.23	-4.46	0.38	0.09	461511.72	722256.44	N 32 16 2.69	W 103 44 52.80
	529.59	0.47	195.42	529.56	5.07	-5.28	0.19	0.09	461510.90	722256.25	N 32 16 2.68	W 103 44 52.80
	624.39	0.52	195.10	624.36	5.89	-6.07	-0.02	0.05	461510.11	722256.04	N 32 16 2.68	W 103 44 52.81
	719.06	0.61	192.56	719.02	6.82	-6.98	-0.24	0.10	461509.21	722255.82	N 32 16 2.67	W 103 44 52.81
Last Gyro	816.75	0.87	204.37	816.70	8.07	-8.16	-0.66	0.31	461508.02	722255.40	N 32 16 2.65	W 103 44 52.81
	942.00	0.97	231.00	941.94	9.86	-9.70	-1.88	0.35	461506.49	722254.18	N 32 16 2.64	W 103 44 52.83
	1036.00	1.12	263.24	1035.92	10.83	-10.30	-3.41	0.64	461505.88	722252.65	N 32 16 2.63	W 103 44 52.85
	1130.00	1.55	290.69	1129.90	11.02	-9.96	-5.51	0.81	461506.22	722250.55	N 32 16 2.64	W 103 44 52.87
	1224.00	2.12	304.93	1223.85	10.27	-8.52	-8.12	0.77	461507.67	722247.94	N 32 16 2.65	W 103 44 52.90
	1318.00	3.08	308.15	1317.75	8.65	-5.96	-11.54	1.03	461510.22	722244.52	N 32 16 2.68	W 103 44 52.94
	1412.00	3.92	315.36	1411.58	5.98	-2.12	-15.78	1.01	461514.07	722240.28	N 32 16 2.72	W 103 44 52.99
	1506.00	4.29	317.59	1505.34	2.40	2.76	-20.41	0.43	461518.95	722235.65	N 32 16 2.76	W 103 44 53.04
	1600.00	4.57	319.10	1599.05	-1.66	8.19	-25.23	0.32	461524.38	722230.83	N 32 16 2.82	W 103 44 53.10
	1789.00	4.20	321.94	1787.50	-10.16	19.33	-34.43	0.23	461535.52	722221.63	N 32 16 2.93	W 103 44 53.21
	1883.00	4.24	322.20	1881.25	-14.39	24.79	-38.68	0.05	461540.97	722217.38	N 32 16 2.98	W 103 44 53.26
	1977.00	4.19	320.48	1974.99	-18.54	30.18	-43.00	0.14	461546.37	722213.07	N 32 16 3.04	W 103 44 53.30
	2072.00	4.29	323.77	2069.73	-22.84	35.73	-47.30	0.28	461551.91	722208.76	N 32 16 3.09	W 103 44 53.35
	2173.00	5.07	319.17	2170.39	-27.78	42.15	-52.45	0.86	461558.33	722203.61	N 32 16 3.16	W 103 44 53.41
	2268.00	5.86	312.89	2264.96	-32.48	48.63	-58.75	1.04	461564.81	722197.31	N 32 16 3.22	W 103 44 53.49
	2362.00	6.78	305.62	2358.39	-36.78	55.12	-66.78	1.30	461571.31	722189.28	N 32 16 3.28	W 103 44 53.58
	2457.00	7.05	302.66	2452.70	-40.64	61.54	-76.25	0.47	461577.72	722179.82	N 32 16 3.35	W 103 44 53.69
	2550.00	6.69	303.96	2545.03	-44.24	67.64	-85.54	0.42	461583.82	722170.52	N 32 16 3.41	W 103 44 53.80
	2644.00	6.24	303.63	2638.44	-47.75	73.53	-94.34	0.48	461589.71	722161.73	N 32 16 3.47	W 103 44 53.90
	2739.00	5.83	300.82	2732.91	-50.82	78.86	-102.78	0.53	461595.04	722153.28	N 32 16 3.52	W 103 44 54.00
	2833.00	5.42	295.45	2826.46	-53.02	83.22	-110.89	0.71	461599.40	722145.18	N 32 16 3.56	W 103 44 54.09
	2928.00	5.32	287.71	2921.04	-54.13	86.48	-119.14	0.77	461602.66	722136.93	N 32 16 3.60	W 103 44 54.19
	3116.00	5.02	251.59	3108.33	-50.17	86.54	-135.25	1.71	461602.72	722120.82	N 32 16 3.60	W 103 44 54.38
	3306.00	5.86	239.49	3297.47	-38.82	78.99	-151.49	0.75	461595.17	722104.58	N 32 16 3.53	W 103 44 54.57
	3401.00	5.58	239.39	3392.00	-32.13	74.17	-159.65	0.29	461590.35	722096.42	N 32 16 3.48	W 103 44 54.66
	3589.00	3.61	238.95	3579.39	-21.45	66.47	-172.58	1.05	461582.65	722083.49	N 32 16 3.40	W 103 44 54.81
	3684.00	2.45	220.59	3674.26	-17.49	63.38	-176.47	1.58	461579.56	722079.60	N 32 16 3.37	W 103 44 54.86
	3778.00	2.37	197.32	3768.17	-13.75	60.00	-178.35	1.04	461576.18	722077.72	N 32 16 3.34	W 103 44 54.88
	3967.00	2.67	194.10	3956.99	-5.44	52.00	-180.59	0.18	461568.18	722075.48	N 32 16 3.26	W 103 44 54.91
	4061.00	2.97	187.07	4050.88	-0.84	47.46	-181.42	0.49	461563.64	722074.65	N 32 16 3.21	W 103 44 54.92
	4251.00	3.10	192.49	4240.61	9.18	37.56	-183.14	0.17	461553.74	722072.93	N 32 16 3.12	W 103 44 54.94
	4346.00	2.40	207.42	4335.50	13.68	33.29	-184.61	1.05	461549.47	722071.46	N 32 16 3.07	W 103 44 54.95
	4440.00	2.09	231.85	4429.43	16.96	30.48	-186.87	1.06	461546.66	722069.21	N 32 16 3.05	W 103 44 54.98
	4534.00	2.26	254.20	4523.37	19.26	28.92	-190.00	0.91	461545.10	722066.07	N 32 16 3.03	W 103 44 55.02
	4629.00	2.92	276.95	4618.27	20.51	28.70	-194.20	1.27	461544.88	722061.87	N 32 16 3.03	W 103 44 55.07
	4818.00	5.00	294.23	4806.82	19.73	32.66	-206.49	1.26	461548.85	722049.58	N 32 16 3.07	W 103 44 55.21
	4912.00	5.42	300.40	4900.43	17.81	36.59	-214.06	0.74	461552.77	722042.02	N 32 16 3.11	W 103 44 55.30
	5101.00	7.49	299.41	5088.22	12.16	47.16	-232.49	1.10	461563.34	722023.58	N 32 16 3.21	W 103 44 55.51
	5291.00	8.89	295.87	5276.28	6.03	59.64	-256.49	0.78	461575.83	721999.59	N 32 16 3.34	W 103 44 55.79
	5395.00	9.19	292.40	5378.99	3.28	66.32	-271.40	0.60	461582.50	721984.68	N 32 16 3.41	W 103 44 55.96
	5583.00	9.36	287.52	5564.53	0.36	76.64	-299.86	0.43	461592.82	721956.22	N 32 16 3.51	W 103 44 56.29
	5678.00	9.48	283.85	5658.25	0.02	80.84	-314.82	0.64	461597.02	721941.26	N 32 16 3.55	W 103 44 56.47
	5866.00	9.42	273.53	5843.71	3.07	85.49	-345.21	0.90	461601.67	721910.87	N 32 16 3.60	W 103 44 56.82
	5961.00	9.42	269.31	5937.43	6.56	85.88	-360.74	0.73	461602.06	721895.34	N 32 16 3.60	W 103 44 57.00
	6056.00	9.52	267.65	6031.14	10.85	85.46	-376.37	0.31	461601.64	721879.72	N 32 16 3.60	W 103 44 57.18
	6151.00	9.48	266.72	6124.84	15.49	84.69	-392.03	0.17	461600.87	721864.06	N 32 16 3.59	W 103 44 57.37
	6339.00	9.77	266.44	6310.19	25.11	82.81	-423.40	0.16	461598.99	721832.68	N 32 16 3.58	W 103 44 57.73
	6528.00	15.51	280.33	6494.57	31.86	86.35	-464.31	3.42	461602.53	721791.77	N 32 16 3.61	W 103 44 58.21
	6623.00	16.03	283.42	6586.00	32.99	91.68	-489.57	1.04	461607.86	721766.52	N 32 16 3.67	W 103 44 58.50
	6717.00	15.12	282.57	6676.55	33.60	97.36	-514.16	1.00	461613.54	721741.93	N 32 16 3.73	W 103 44 58.79
	6811.00	13.91	281.94	6767.54	34.48	102.36	-537.18	1.30	461618.54	721718.91	N 32 16 3.78	W 103 44 59.06
	6933.00	11.69	282.05	6886.51	35.62	107.98	-563.62	1.82	461624.16	721692.48	N 32 16 3.83	W 103 44 59.36
	7001.00	10.81	281.84	6953.20	36.19	110.72	-576.59	1.30	461626.90	721679.50	N 32 16 3.86	W 103 44 59.51
	7096.00	9.57	281.62	7046.70	36.97	114.14	-593.05	1.31	461630.32	721663.04	N 32 16 3.90	W 103 44 59.71
	7190.00	8.09	280.74	7139.58	37.77	116.95	-607.20	1.58	461633.13	721648.89	N 32 16 3.93	W 103 44 59.87
	7285.00	7.36	280.53	7233.72	38.61	119.31	-619.75	0.77	461635.48	721636.34	N 32 16 3.95	W 103 45 0.02
	7402.00	8.37	277.91	7349.62	40.08	121.85	-635.55	0.92	461638.03	721620.54	N 32 16 3.98	W 103 45 0.20
	7490.00	8.56	276.63	7436.66	41.69	123.49	-648.40	0.30	461639.66	721607.69	N 32 16 3.99	W 103 45 0.35
	7568.00	8.82	276.56	7513.76	43.29	124.84	-660.11	0.33	461641.02	721595.99	N 32 16 4.01	W 103 45 0.49
	7706.00	8.85	277.03	7650.13	46.10	127.35	-681.16	0.06	461643.52	721574.94	N 32 16 4.03	W 103 45 0.73
	7757.00	8.64	277.00	7700.53	47.10	128.29	-688.85	0.41	461644.47	721567.25	N 32 16 4.04	W 103 45 0.82
	7909.00	8.64	275.91	7850.81	50.25	130.86	-711.54	0.11	461647.04	721544.56	N 32 16 4.07	W 103 45 1.08
	8041.00	8.76	279.52	7981.29	52.57	133.54	-731.32	0.42	461649.72	721524.78	N 32 16 4.10	W 103 45 1.31
	8135.00	8.92	281.94	8074.17	53.50	136.24	-745.51	0.43	461652.41	721510.60	N 32 16 4.12	W 103 45 1.48
	8244.00	8.78	285.87	8181.88	53.65	140.26	-761.78	0.57	461656.44	721494.33	N 32 16 4.16	W 103 45 1.67
	8331.00	8.49	287.92	8267.89	53.08	144.05	-774.27	0.49	461660.23	721481.83	N 32 16 4.20	W 103 45 1.81
	8419.00	8.47	288.25	8354.93	52.25	148.08	-786.61	0.06	461664.26	721469.49	N 32 16 4.24	W 103 45 1.96
	8513.00	8.04	287.50	8447.95	51.43	152.22	-799.45	0.47	461668.40	721456.65	N 32 16 4.28	W 103 45 2.11
	8608.00	8.12	287.62	8542.01	50.70	156.25	-812.18	0.09	461672.43	721443.92	N 32 16 4.33	W 103 45 2.25

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 ° ' ")
	8715.00	8.51	286.27	8647.89	50.01	160.76	-826.99	0.41	461676.93	721429.12	N 32 16 4.37	W 103 45 2.43
	8796.00	8.36	287.85	8728.01	49.47	164.24	-838.34	0.34	461680.42	721417.76	N 32 16 4.41	W 103 45 2.56
	8892.00	8.02	287.20	8823.03	48.72	168.36	-851.38	0.37	461684.54	721404.72	N 32 16 4.45	W 103 45 2.71
	9024.00	8.14	287.16	8953.72	47.82	173.84	-869.11	0.09	461690.02	721387.00	N 32 16 4.50	W 103 45 2.92
	9080.00	8.61	286.12	9009.12	47.50	176.17	-876.93	0.88	461692.35	721379.18	N 32 16 4.53	W 103 45 3.01
	9183.00	8.34	286.19	9111.00	47.04	180.40	-891.51	0.26	461696.57	721364.60	N 32 16 4.57	W 103 45 3.18
	9269.00	8.36	286.48	9196.09	46.62	183.91	-903.49	0.05	461700.09	721352.62	N 32 16 4.60	W 103 45 3.32
	9363.00	8.35	289.68	9289.09	45.75	188.15	-916.47	0.49	461704.32	721339.64	N 32 16 4.65	W 103 45 3.47
	9458.00	8.54	291.43	9383.06	44.25	193.05	-929.53	0.34	461709.22	721326.58	N 32 16 4.70	W 103 45 3.62
	9564.00	8.33	280.46	9487.92	43.81	197.32	-944.41	1.53	461713.49	721311.70	N 32 16 4.74	W 103 45 3.79
	9646.00	8.41	273.74	9569.05	45.33	198.79	-956.23	1.20	461714.96	721299.88	N 32 16 4.75	W 103 45 3.93
	9741.00	8.61	273.53	9663.00	47.96	199.68	-970.26	0.21	461715.85	721285.85	N 32 16 4.76	W 103 45 4.09
	9835.00	9.36	269.84	9755.85	51.21	200.09	-984.93	1.01	461716.26	721271.18	N 32 16 4.77	W 103 45 4.26
	9945.00	9.88	268.04	9864.30	56.12	199.74	-1003.31	0.55	461715.92	721252.81	N 32 16 4.77	W 103 45 4.48
	10024.00	9.48	269.48	9942.18	59.70	199.45	-1016.59	0.59	461715.63	721239.53	N 32 16 4.76	W 103 45 4.63
	10119.00	9.51	268.94	10035.88	63.81	199.24	-1032.26	0.10	461715.41	721223.86	N 32 16 4.76	W 103 45 4.82
	10213.00	9.59	270.69	10128.57	67.74	199.19	-1047.85	0.32	461715.36	721208.27	N 32 16 4.76	W 103 45 5.00
	10377.00	8.86	279.94	10290.46	71.96	201.53	-1073.95	1.01	461717.70	721182.17	N 32 16 4.79	W 103 45 5.30
	10509.00	9.87	277.14	10420.70	74.18	204.69	-1095.19	0.84	461720.87	721160.93	N 32 16 4.82	W 103 45 5.55
	10591.00	10.27	276.79	10501.44	76.04	206.43	-1109.42	0.49	461722.60	721146.70	N 32 16 4.84	W 103 45 5.71
	10694.00	10.28	267.95	10602.79	79.86	207.19	-1127.73	1.53	461723.36	721128.40	N 32 16 4.85	W 103 45 5.93
	10780.00	9.97	258.87	10687.46	85.24	205.47	-1142.70	1.89	461721.65	721113.42	N 32 16 4.83	W 103 45 6.10
	10875.00	10.05	252.68	10781.01	93.14	201.42	-1158.68	1.14	461717.59	721097.44	N 32 16 4.79	W 103 45 6.29
	10970.00	9.96	249.11	10874.57	102.25	196.02	-1174.27	0.66	461712.20	721081.85	N 32 16 4.74	W 103 45 6.47
	11076.00	9.45	248.79	10979.05	112.61	189.61	-1190.95	0.48	461705.78	721065.18	N 32 16 4.68	W 103 45 6.66
	11153.00	9.60	248.36	11054.99	120.07	184.95	-1202.81	0.22	461701.13	721053.32	N 32 16 4.63	W 103 45 6.80
	11230.00	10.13	247.96	11130.85	127.87	180.04	-1215.06	0.69	461696.22	721041.07	N 32 16 4.58	W 103 45 6.95
	11307.00	10.50	247.59	11206.61	136.10	174.83	-1227.82	0.49	461691.00	721028.31	N 32 16 4.53	W 103 45 7.09
KOP Actual	11374.00	10.41	246.42	11272.50	143.48	170.08	-1239.01	0.34	461686.25	721017.12	N 32 16 4.48	W 103 45 7.22
100' FNL Crossing	*11380.00*	*10.60*	*243.49*	*11278.40*	*144.18*	*169.61*	*-1240.00*	*9.47*	*461685.79*	*721016.13*	*N 32 16 4.48*	*W 103 45 7.24*
	11469.00	15.73	213.25	11365.13	160.99	155.85	-1253.97	9.47	461672.02	721002.16	N 32 16 4.34	W 103 45 7.40
	11564.00	26.05	196.85	11453.83	194.13	125.00	-1267.12	12.39	461641.18	720989.01	N 32 16 4.04	W 103 45 7.56
	11659.00	26.42	192.77	11539.05	236.10	84.42	-1277.84	1.94	461600.60	720978.29	N 32 16 3.64	W 103 45 7.68
	11753.00	32.63	185.19	11620.84	282.08	38.73	-1284.76	7.70	461554.91	720971.37	N 32 16 3.19	W 103 45 7.77
Wolfcamp Intersection	*11777.31*	*35.26*	*184.67*	*11641.00*	*295.47*	*25.20*	*-1285.93*	*10.90*	*461541.39*	*720970.20*	*N 32 16 3.05*	*W 103 45 7.78*
	11847.00	42.82	183.50	11695.09	338.62	-18.55	-1289.02	10.90	461497.64	720967.11	N 32 16 2.62	W 103 45 7.82
	11942.00	47.48	184.02	11762.07	404.80	-85.74	-1293.45	4.92	461430.45	720962.69	N 32 16 1.96	W 103 45 7.88
	12037.00	53.20	182.69	11822.68	476.54	-158.71	-1297.69	6.12	461357.48	720958.44	N 32 16 1.23	W 103 45 7.93
	12131.00	66.07	182.57	11870.10	555.77	-239.56	-1301.40	13.69	461276.63	720954.73	N 32 16 0.43	W 103 45 7.98
	12226.00	81.11	183.58	11896.86	644.87	-330.30	-1306.30	15.86	461185.90	720949.83	N 32 15 59.54	W 103 45 8.04
	12341.00	88.92	185.06	11906.84	757.58	-444.45	-1314.93	6.91	461071.76	720941.20	N 32 15 58.41	W 103 45 8.15
	12429.00	90.03	184.68	11907.65	844.35	-532.12	-1322.41	1.33	460984.09	720933.73	N 32 15 57.54	W 103 45 8.24
	12524.00	91.33	183.42	11906.52	937.80	-626.88	-1329.11	1.91	460889.34	720927.02	N 32 15 56.60	W 103 45 8.32
	12619.00	90.58	181.74	11904.94	1030.76	-721.76	-1333.39	1.94	460794.46	720922.74	N 32 15 55.67	W 103 45 8.38
	12714.00	90.89	180.01	11903.72	1123.12	-816.74	-1334.84	1.85	460699.49	720921.29	N 32 15 54.73	W 103 45 8.40
	12809.00	91.30	180.72	11901.91	1215.26	-911.72	-1335.45	0.86	460604.52	720920.69	N 32 15 53.79	W 103 45 8.42
	12903.00	90.89	180.23	11900.11	1306.48	-1005.70	-1336.22	0.68	460510.54	720919.91	N 32 15 52.86	W 103 45 8.43
	12998.00	92.02	180.88	11897.70	1398.69	-1100.66	-1337.14	1.37	460415.58	720918.99	N 32 15 51.92	W 103 45 8.45
	13093.00	91.13	179.37	11895.09	1490.71	-1195.62	-1337.35	1.84	460320.63	720918.78	N 32 15 50.98	W 103 45 8.46
	13188.00	91.33	178.68	11893.05	1582.29	-1290.59	-1335.73	0.76	460225.67	720920.40	N 32 15 50.04	W 103 45 8.44
	13282.00	91.09	178.83	11891.06	1672.79	-1384.54	-1333.69	0.30	460131.72	720922.44	N 32 15 49.11	W 103 45 8.43
	13377.00	91.78	179.38	11888.68	1764.39	-1479.50	-1332.21	0.93	460036.77	720923.92	N 32 15 48.17	W 103 45 8.41
	13472.00	91.51	179.15	11885.96	1856.05	-1574.45	-1330.99	0.37	459941.82	720925.14	N 32 15 47.23	W 103 45 8.41
	13567.00	91.30	179.21	11883.63	1947.69	-1669.41	-1329.63	0.23	459846.86	720926.50	N 32 15 46.29	W 103 45 8.40
	13756.00	91.20	178.07	11879.50	2129.54	-1858.31	-1325.15	0.61	459657.98	720930.99	N 32 15 44.42	W 103 45 8.36
	13850.00	91.23	176.77	11877.51	2219.42	-1952.19	-1320.92	1.38	459564.10	720935.22	N 32 15 43.49	W 103 45 8.31
	13944.00	90.63	177.29	11875.98	2309.12	-2046.06	-1316.05	0.84	459470.24	720940.09	N 32 15 42.56	W 103 45 8.26
	14039.00	90.11	180.22	11875.37	2400.58	-2141.02	-1313.98	3.13	459375.28	720942.15	N 32 15 41.62	W 103 45 8.24
	14133.00	90.90	181.04	11874.54	2491.87	-2235.01	-1315.02	1.21	459281.30	720941.12	N 32 15 40.69	W 103 45 8.26
	14227.00	90.83	182.44	11873.12	2583.57	-2328.95	-1317.87	1.49	459187.36	720938.26	N 32 15 39.76	W 103 45 8.30
	14322.00	91.25	182.51	11871.40	2676.51	-2423.85	-1321.97	0.45	459092.47	720934.16	N 32 15 38.82	W 103 45 8.35
	14417.00	91.11	183.37	11869.44	2769.59	-2518.70	-1326.84	0.92	458997.62	720929.29	N 32 15 37.88	W 103 45 8.42
	14512.00	90.83	182.31	11867.83	2862.65	-2613.57	-1331.55	1.15	458902.76	720924.58	N 32 15 36.95	W 103 45 8.48
	14606.00	90.39	181.57	11866.83	2954.43	-2707.51	-1334.73	0.92	458808.82	720921.40	N 32 15 36.02	W 103 45 8.52
	14701.00	90.73	179.00	11865.90	3046.54	-2802.50	-1335.20	2.73	458713.84	720920.93	N 32 15 35.08	W 103 45 8.53
	14796.00	90.59	179.27	11864.81	3138.18	-2897.48	-1333.77	0.32	458618.87	720922.36	N 32 15 34.14	W 103 45 8.52
	14891.00	91.01	178.85	11863.48	3229.79	-2992.46	-1332.21	0.63	458523.89	720923.92	N 32 15 33.20	W 103 45 8.51
	15081.00	91.25	179.08	11859.74	3412.90	-3182.39	-1328.78	0.17	458333.97	720927.35	N 32 15 31.32	W 103 45 8.48
	15176.00	90.56	179.21	11858.24	3504.54	-3277.37	-1327.36	0.74	458239.00	720928.77	N 32 15 30.38	W 103 45 8.47
	15271.00	90.66	178.59	11857.22	3596.07	-3372.34	-1325.54	0.66	458144.03	720930.59	N 32 15 29.44	W 103 45 8.46
	15365.00	90.42	178.23	11856.34	3686.43	-3466.30	-1322.93	0.46	458050.08	720933.20	N 32 15 28.51	W 103 45 8.43
	15460.00	90.22	177.53	11855.81	3777.50	-3561.23	-1319.42	0.77	457955.15	720936.72	N 32 15 27.57	W 103 45 8.40
	15555.00	87.60	176.56	11857.61	3868.15	-3656.08	-1314.52	2.94	457860.31	720941.61	N 32 15 26.63	W 103 45 8.35
	15650.00	91.04	178.46	11858.74	3959.03	-3750.97	-1310.40	4.14	457765.43	720945.74	N 32 15 25.69	W 103 45 8.30
	15744.00	91.25	179.41	11856.86	4049.60	-3844.93	-1308.65	1.03	457671.47	720947.48	N 32 15 24.76	W 103 45 8.29
	15839.00	90.94	178.68	11855.05	4141.19	-3939.90	-1307.07	0.83	457576.50	720949.07	N 32 15 23.82	W 103 45 8.28
	15934.00	90.97	177.89	11853.46	4232.45	-4034.84	-1304.22	0.83	457481.57	720951.91	N 32 15 22.88	W 103 45 8.25
	16029.00	90.63	177.77	11852.14	4323.49	-4129.77	-1300.63	0.38	457386.65	720955.51	N 32 15 21.94	W 103 45 8.21
	16123.00	91.01	177.96	11850.79	4413.59	-4223.69	-1297.13	0.45	457292.73	720959.01	N 32 15 21.01	W 103 45 8.18
	16218.00	90.80	178.37	11849.29	4504.79	-4318.63	-1294.08	0.48	457197.80	720962.05	N 32 15 20.07	W 103 45 8.15
	16313.00	91.14	178.30	11847.68	4596.06	-4413.58	-1291.32	0.37	457102.85	720964.81	N 32 15 19.13	W 103 45 8.12
	16502.00	87.57	176.62	11849.81	4776.81	-4602.34	-1282.95	2.09	456914.10	720973.18	N 32 15 17.26	W 103 45 8.04
	16597.00	91.14	178.14	11850.88	4867.63	-4697.22	-1278.61	4.08	456819.23	720977.52	N 32 15 16.33	W 103 45 7.99
	16691.00	90.42	178.33	11849.60	4957.90	-4791.16	-1275.72	0.79	456725.29	720980.42	N 32 15 15.40	W 103 45 7.97
	16785.00	89.15	176.38	11849.95	5047.76	-4885.06	-1271.38	2.48	456631.40	720984.75	N 32 15 14.47	W 103 45 7.92
100' FSL Crossing	*16812.50*	*89.76*	*177.02*	*11850.22*	*5073.96*	*-4912.51*	*-1269.79*	*3.21*	*456603.95*	*720986.34*	*N 32 15 14.19*	*W 103 45 7.90*
Final MWD	16844.00	90.46	177.75	11850.16	5104.08	-4943.98	-1268.36	3.21	456572.48	720987.77	N 32 15 13.88	W 103 45 7.89
Proj to TD	16889.00	90.46	177.75	11849.79	5147.19	-4988.94	-1266.59	0.00	456527.52	720989.54	N 32 15 13.44	W 103 45 7.87

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	26.500	1/98.425	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Cal-Mon 35 Federal 172H Gyro + MWD 0-16889'MD
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Cal-Mon 35 Federal 172H Gyro + MWD 0-16889'MD

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 ° ' ")
		1	26.500	816.750	Act Stns	30.000	30.000	NAL_NSG+MSHOT		Original Borehole / Oxy Cal-Mon 35 Federal 172H Gyro + MWD 0-		
		1	816.750	11076.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS		Original Borehole / Oxy Cal-Mon 35 Federal 172H Gyro + MWD 0-		
		1	11076.000	11230.000	Act Stns	30.000	30.000	SLB_MWD-POOR		Original Borehole / Oxy Cal-Mon 35 Federal 172H Gyro + MWD 0-		
		1	11230.000	11659.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG		Original Borehole / Oxy Cal-Mon 35 Federal 172H Gyro + MWD 0-		
		1	11659.000	16889.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS		Original Borehole / Oxy Cal-Mon 35 Federal 172H Gyro + MWD 0-		