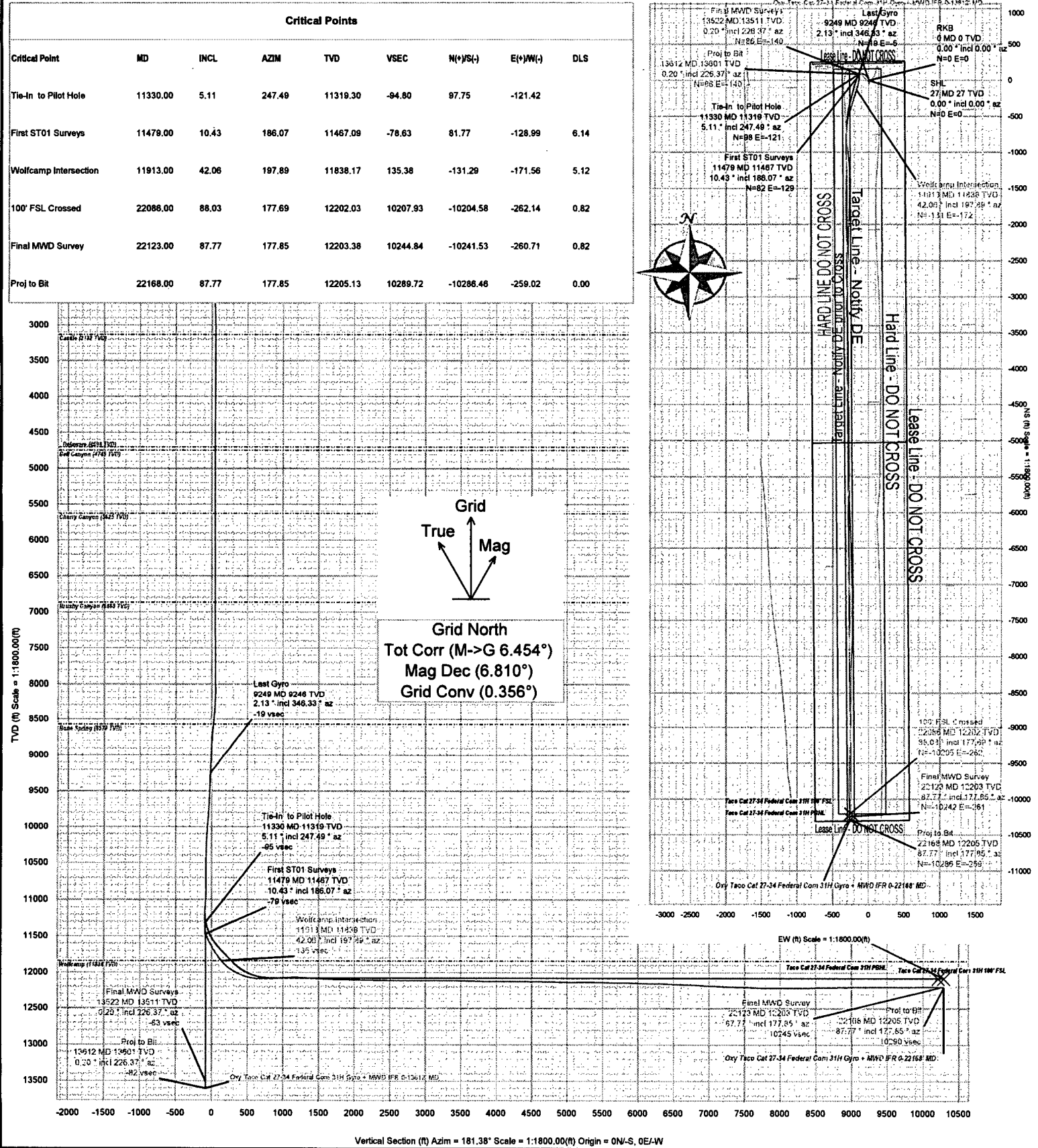


Borehole:	Well:	Field:	Structure:
ST01	Taco Cat 27-34 Federal Com 31H	NM LBL County (HOBBS)	Oxy Taco Cat 27-34 Federal Com 31H

Gravity & Magnetic Parameters				Surface Location				Miscellaneous			
Model:	IFR1	Dip:	80.168°	Date:	06-Dec-2018	Lat:	N 32 22 8.14	Northings:	499886.381US	Grid Conv:	0.356°
MagDec:	6.81°	FS:	48161nT	Gravity FS:	988.454mgm (8.80656 Based)	Lon:	W 103 40 6.45	Easting:	746612.781US	Scale Fact:	0.99995738
								Plan:			
								Oxy Taco Cat 27-34 Federal Com 31H ST01 Gyro + MWD IFR 0-22168' MD			



Oxy Taco Cat 27-34 Federal Com 31H ST01 Gyro + MWD IFR 0-22168' MD

Survey Geodetic Report

(Def Survey)



Report Date: December 23, 2018 - 10:02 AM
Client: OXY
Field: NM Lea County (NAD 83)
Structure / Slot: Oxy Taco Cat 27-34 Federal Com 31H / Oxy Taco Cat 27-34 Federal Com 31H
Well: Taco Cat 27-34 Federal Com 31H
Borehole: ST01
UWI / APW: H&P 656 / 30-025-44935
Survey Name: Oxy Taco Cat 27-34 Federal Com 31H ST01 Gyro + MWD IFR 0-22168' MD
Survey Date: October 30, 2018
Tort / AHD / DDI / ERD Ratio: 274.965' / 10709.944 ft / 6.728 / 0.877
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 22' 9.14072", W 103° 40' 6.44830"
Location Grid N/E Y/X: N 498686.382 NUS, E 746612.780 NUS
CRS Grid Convergence Angle: 0.3560°
Grid Scale Factor: 0.99995735
Version / Patch: 2.10.753.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 181.380° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3681.700 ft above MSL
Seabed / Ground Elevation: 3635.200 ft above MSL
Magnetic Declination: 6.810°
Total Gravity Field Strength: 998.4543mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48151.000 nT
Magnetic Dip Angle: 80.155°
Declination Date: December 06, 2018
Magnetic Declination Model: IFR1
North Reference: Grid North
Grid Convergence Used: 0.3560°
Total Corr Mag North->Grid: 6.4540°
North: 6.4540°
Local Coord Referenced To: Well Head

HOBBS OCD

JAN 29 2019

RECEIVED

Comments	MD	Incl	Azim Grid	TVD	VSEC	NS	EW	DLS	Northing	Easting	Latitude	Longitude
	(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft/100ft)	(ftUS)	(ftUS)	(N/S ° ' ")	(E/W ° ' ")
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	498686.38	746612.78	N 32 22 9.14	W 103 40 6.45
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	498686.38	746612.78	N 32 22 9.14	W 103 40 6.45
	84.00	0.82	295.69	84.00	-0.13	0.13	-0.28	1.08	498686.52	746612.50	N 32 22 9.14	W 103 40 6.45
	176.00	0.85	293.70	175.99	-0.53	0.56	-1.21	0.04	498686.94	746611.57	N 32 22 9.15	W 103 40 6.46
	268.00	0.84	297.93	267.99	-0.96	1.01	-2.14	0.05	498687.39	746610.64	N 32 22 9.15	W 103 40 6.47
	360.00	0.53	303.42	359.98	-1.41	1.49	-2.95	0.13	498687.87	746609.83	N 32 22 9.16	W 103 40 6.48
	452.00	0.38	307.42	451.98	-1.81	1.90	-3.53	0.19	498688.28	746609.25	N 32 22 9.16	W 103 40 6.49
	544.00	0.07	318.57	543.98	-2.02	2.11	-3.80	0.32	498688.50	746608.98	N 32 22 9.16	W 103 40 6.49
	637.00	0.05	330.86	636.98	-2.10	2.19	-3.86	0.03	498688.57	746608.92	N 32 22 9.16	W 103 40 6.49
	729.00	0.06	95.68	728.98	-2.13	2.22	-3.83	0.11	498688.60	746608.95	N 32 22 9.16	W 103 40 6.49
	820.00	0.09	160.99	819.98	-2.06	2.15	-3.76	0.09	498688.53	746609.02	N 32 22 9.16	W 103 40 6.49
	911.00	0.37	221.64	910.98	-1.77	1.86	-3.93	0.37	498688.24	746608.85	N 32 22 9.16	W 103 40 6.49
	1002.00	0.74	202.77	1001.97	-1.00	1.10	-4.35	0.45	498687.48	746608.43	N 32 22 9.15	W 103 40 6.50
	1093.00	1.10	193.76	1092.96	0.40	-0.29	-4.79	0.43	498686.09	746607.99	N 32 22 9.14	W 103 40 6.50
	1185.00	1.19	190.73	1184.94	2.21	-2.09	-5.18	0.12	498684.30	746607.61	N 32 22 9.12	W 103 40 6.51
	1276.00	1.07	189.28	1275.93	3.98	-3.85	-5.49	0.14	498682.53	746607.29	N 32 22 9.10	W 103 40 6.51
	1367.00	0.98	183.78	1366.91	5.60	-5.47	-5.68	0.15	498680.91	746607.10	N 32 22 9.09	W 103 40 6.51
	1457.00	1.00	178.24	1456.90	7.16	-7.02	-5.70	0.11	498679.36	746607.08	N 32 22 9.07	W 103 40 6.52
	1549.00	1.04	172.77	1548.88	8.78	-8.65	-5.57	0.11	498677.73	746607.21	N 32 22 9.06	W 103 40 6.51
	1644.00	1.09	168.80	1643.87	10.52	-10.39	-5.29	0.09	498675.99	746607.49	N 32 22 9.04	W 103 40 6.51
	1738.00	1.19	165.05	1737.85	12.33	-12.21	-4.86	0.13	498674.17	746607.92	N 32 22 9.02	W 103 40 6.51
	1833.00	1.28	164.00	1832.83	14.29	-14.19	-4.32	0.10	498672.20	746608.46	N 32 22 9.00	W 103 40 6.50
	1927.00	1.39	164.46	1926.80	16.38	-16.29	-3.72	0.12	498670.09	746609.06	N 32 22 8.98	W 103 40 6.49
	2021.00	1.51	164.74	2020.77	18.66	-18.59	-3.09	0.13	498667.87	746609.69	N 32 22 8.96	W 103 40 6.49
	2116.00	1.55	164.51	2115.74	21.08	-21.03	-2.42	0.04	498665.35	746610.36	N 32 22 8.93	W 103 40 6.48
	2210.00	1.70	161.90	2209.70	23.62	-23.58	-1.84	0.18	498662.80	746611.14	N 32 22 8.91	W 103 40 6.47
	2305.00	1.92	158.58	2304.65	26.41	-26.40	-0.83	0.28	498659.98	746612.15	N 32 22 8.88	W 103 40 6.46
	2399.00	2.07	157.49	2398.59	29.42	-29.44	0.80	0.16	498658.94	746613.38	N 32 22 8.85	W 103 40 6.44
	2494.00	2.15	157.02	2493.53	32.61	-32.68	1.95	0.09	498653.72	746614.73	N 32 22 8.82	W 103 40 6.43
	2589.00	2.21	155.98	2588.46	35.89	-35.98	3.39	0.08	498650.41	746616.17	N 32 22 8.78	W 103 40 6.41
	2683.00	2.25	155.34	2682.39	39.18	-39.31	4.90	0.05	498647.07	746617.68	N 32 22 8.75	W 103 40 6.39
	2778.00	2.22	153.86	2777.32	42.49	-42.66	6.49	0.07	498643.73	746619.27	N 32 22 8.72	W 103 40 6.38
	2873.00	2.19	152.44	2872.25	45.71	-45.92	8.14	0.07	498640.47	746620.92	N 32 22 8.69	W 103 40 6.36
	2967.00	1.16	143.20	2966.21	48.03	-48.27	9.54	1.13	498638.11	746622.32	N 32 22 8.66	W 103 40 6.34
	3062.00	0.06	74.14	3061.20	48.77	-49.03	10.16	1.20	498637.36	746622.94	N 32 22 8.65	W 103 40 6.33
	3156.00	0.03	309.83	3155.20	48.74	-49.00	10.19	0.09	498637.39	746622.97	N 32 22 8.66	W 103 40 6.33
	3251.00	0.03	293.59	3250.20	48.71	-48.97	10.15	0.01	498637.41	746622.93	N 32 22 8.66	W 103 40 6.33
	3345.00	0.07	281.56	3344.20	48.70	-48.95	10.07	0.04	498637.43	746622.85	N 32 22 8.66	W 103 40 6.33
	3440.00	0.08	270.30	3439.20	48.69	-48.94	9.95	0.02	498637.44	746622.73	N 32 22 8.66	W 103 40 6.34
	3535.00	0.06	285.78	3534.20	48.67	-48.93	9.84	0.03	498637.46	746622.61	N 32 22 8.66	W 103 40 6.34
	3629.00	0.07	280.29	3628.20	48.65	-48.90	9.73	0.01	498637.48	746622.51	N 32 22 8.66	W 103 40 6.34
	3724.00	0.03	280.94	3723.20	48.64	-48.89	9.65	0.04	498637.50	746622.43	N 32 22 8.66	W 103 40 6.34
	3819.00	0.05	273.98	3818.20	48.63	-48.88	9.58	0.02	498637.50	746622.36	N 32 22 8.66	W 103 40 6.34
	3913.00	0.07	268.26	3912.20	48.64	-48.88	9.49	0.02	498637.51	746622.27	N 32 22 8.66	W 103 40 6.34
	4008.00	0.05	317.53	4007.20	48.61	-48.85	9.40	0.06	498637.53	746622.18	N 32 22 8.66	W 103 40 6.34
	4102.00	0.05	304.50	4101.20	48.58	-48.80	9.34	0.01	498637.59	746622.12	N 32 22 8.66	W 103 40 6.34
	4197.00	0.05	312.78	4196.20	48.51	-48.74	9.27	0.01	498637.64	746622.05	N 32 22 8.66	W 103 40 6.34
	4292.00	0.06	325.99	4291.20	48.44	-48.68	9.22	0.02	498637.71	746622.00	N 32 22 8.66	W 103 40 6.34
	4386.00	0.07	287.52	4385.20	48.38	-48.62	9.13	0.05	498637.77	746621.91	N 32 22 8.66	W 103 40 6.35
	4480.00	0.11	305.05	4479.20	48.32	-48.55	9.00	0.05	498637.84	746621.78	N 32 22 8.66	W 103 40 6.35
	4575.00	0.14	313.54	4574.20	48.19	-48.42	8.85	0.04	498637.97	746621.63	N 32 22 8.66	W 103 40 6.35
	4669.00	0.12	295.54	4668.20	48.07	-48.29	8.67	0.05	498638.09	746621.45	N 32 22 8.66	W 103 40 6.35
	4763.00	0.09	299.53	4762.20	48.00	-48.22	8.52	0.03	498638.17	746621.30	N 32 22 8.66	W 103 40 6.35
	4858.00	0.10	290.11	4857.20	47.93	-48.15	8.38	0.02	498638.23	746621.16	N 32 22 8.66	W 103 40 6.35
	4952.00	0.09	272.74	4951.20	47.91	-48.12	8.23	0.03	498638.27	746621.01	N 32 22 8.66	W 103 40 6.36
	5047.00	0.08	306.10	5046.20	47.87	-48.08	8.10	0.05	498638.31	746620.88	N 32 22 8.66	W 103 40 6.36
	5142.00	0.09	298.21	5141.20	47.80	-48.00	7.98	0.02	498638.38	746620.76	N 32 22 8.67	W 103 40 6.36
	5236.00	0.09	298.91	5235.20	47.73	-47.93	7.85	0.00	498638.45	746620.63	N 32 22 8.67	W 103 40 6.36
	5331.00	0.09	296.32	5330.20	47.66	-47.86	7.72	0.00	498638.52	746620.50	N 32 22 8.67	W 103 40 6.36
	5426.00	0.07	301.78	5425.20	47.60	-47.80	7.60	0.02	498638.59	746620.38	N 32 22 8.67	W 103 40 6.36
	5520.00	0.09	283.91	5519.20	47.56	-47.75	7.48	0.03	498638.63	746620.26	N 32 22 8.67	W 103 40 6.36
	5615.00	0.12	289.97	5614.20	47.49	-47.68	7.32	0.04	498638.70	746620.10	N 32 22 8.67	W 103 40 6.37
	5709.00	0.07	301.86	5708.20	47.42	-47.60	7.19	0.05	498638.78	746619.97	N 32 22 8.67	W 103 40 6.37
	5804.00	0.09	314.09	5803.20	47.34	-47.52	7.09	0.03	498638.86	746619.87	N 32 22 8.67	W 103 40 6.37
	5899.00	0.09	302.83	5898.20	47.25	-47.43	6.97	0.02	498638.96	746619.75	N 32 22 8.67	W 103 40 6.37
	5993.00	0.10	312.31	5992.20	47.15	-47.33	6.85	0.02	498639.05	746619.63	N 32 22 8.67	W 103 40 6.37
	6088.00	0.10	239.35	6087.20	47.14	-47.32	6.71	0.13	498639.06	746619.49	N 32 22 8.67	W 103 40 6.37
	6182.00	0.08	237.09	6181.20	47.22	-47.40	6.59	0.02	498638.99	746619.37	N 32 22 8.67	W 103 40 6.37
	6276.00	0.08	235.16	6275.20	47.30	-47.47	6.48	0.00	498638.91	746619.26	N 32 22 8.67	W 103 40 6.38
	6371.00	0.10	240.46	6370.20	47.38	-47.55	6.35	0.02	498638.84	746619.13	N 32 22 8.67	W 103 40 6.38
	6465.00	0.10	239.11	6464.20	47.47	-47.63	6.21	0.00	498638.75	746618.99	N 32 22 8.67	W 103 40 6.38
	6560.00	0.09	240.66	6559.20	47.55	-47.71	6.07	0.01	498638.67	746618.85	N 32 22 8.67	W 103 40 6.38
	6654.00	0.10	244.96	6653.20	47.62	-47.78	5.94	0.01	498638.60	746618.72	N 32 22 8.67	W 103 40 6.38
	6749.00	0.10	249.37	6748.20	47.69	-47.85	5.78	0.01	498638.54	746618.58	N 32 22 8.67	W 103 40 6.38
	6843.00	0.10	225.67	6842.20	47.78	-47.93	5.65	0.04	498638.45	746618.43	N 32 22 8.67	W 103 40 6.39
	6938.00	0.11	230.15	6937.20	47							

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 ° ' ")
	7127.00	0.11	233.43	7126.20	48.18	-48.30	5.26	0.03	498638.08	746818.04	N 32 22 8.86 W 103 40 8.39	
	7222.00	0.14	244.85	7221.19	48.27	-48.41	5.08	0.04	498637.98	746817.86	N 32 22 8.66 W 103 40 8.39	
	7316.00	0.15	237.05	7315.19	48.39	-48.52	4.88	0.02	498637.86	746817.66	N 32 22 8.66 W 103 40 8.39	
	7411.00	0.22	237.86	7410.19	48.58	-48.69	4.82	0.07	498637.70	746817.40	N 32 22 8.66 W 103 40 8.40	
	7506.00	0.32	245.10	7505.19	48.78	-48.89	4.22	0.11	498637.49	746817.00	N 32 22 8.66 W 103 40 8.40	
	7601.00	0.36	246.54	7600.19	49.02	-49.13	3.71	0.04	498637.26	746816.49	N 32 22 8.65 W 103 40 8.41	
	7695.00	0.41	242.67	7694.19	49.31	-49.40	3.14	0.06	498636.99	746815.92	N 32 22 8.65 W 103 40 8.42	
	7790.00	0.38	236.38	7789.19	49.64	-49.72	2.57	0.04	498636.87	746815.35	N 32 22 8.65 W 103 40 8.42	
	7884.00	0.44	214.46	7883.18	50.11	-50.18	2.10	0.19	498636.20	746814.88	N 32 22 8.64 W 103 40 8.43	
	7979.00	0.56	196.45	7978.18	50.87	-50.93	1.78	0.21	498635.46	746814.54	N 32 22 8.64 W 103 40 8.43	
	8073.00	0.33	198.69	8072.18	51.57	-51.62	1.54	0.25	498634.76	746814.32	N 32 22 8.63 W 103 40 8.43	
	8168.00	1.23	355.84	8167.17	50.82	-50.86	1.38	1.62	498635.52	746814.16	N 32 22 8.64 W 103 40 8.44	
	8262.00	2.85	357.23	8261.12	47.64	-47.69	1.21	1.51	498638.70	746813.99	N 32 22 8.67 W 103 40 8.44	
	8357.00	3.81	357.94	8355.98	42.30	-42.34	0.99	1.22	498644.04	746813.77	N 32 22 8.72 W 103 40 8.44	
	8451.00	5.03	356.16	8449.68	35.08	-35.11	0.60	1.31	498651.28	746813.58	N 32 22 8.79 W 103 40 8.44	
	8545.00	5.84	354.12	8543.26	26.23	-26.24	-0.17	0.89	498660.15	746812.81	N 32 22 8.88 W 103 40 8.45	
	8640.00	5.42	352.65	8637.80	17.01	-16.98	-1.24	0.47	498669.40	746811.54	N 32 22 8.97 W 103 40 8.46	
	8734.00	4.74	354.41	8731.43	8.76	-8.71	-2.18	0.74	498677.67	746810.80	N 32 22 9.05 W 103 40 8.47	
	8829.00	4.11	357.62	8826.15	1.47	-1.40	-2.71	0.71	498684.98	746810.07	N 32 22 9.13 W 103 40 8.48	
	8923.00	2.97	359.79	8919.97	-4.33	4.40	-2.86	1.22	498690.78	746809.92	N 32 22 9.18 W 103 40 8.48	
	9018.00	2.80	351.72	9014.85	-9.07	9.15	-3.20	0.46	498695.54	746809.58	N 32 22 9.23 W 103 40 8.48	
	9112.00	2.81	354.16	9108.74	-13.46	13.56	-3.75	0.24	498699.94	746809.03	N 32 22 9.28 W 103 40 8.49	
	9207.00	2.26	350.94	9203.68	-17.45	17.56	-4.26	0.40	498703.94	746808.52	N 32 22 9.31 W 103 40 8.50	
	9249.00	2.13	346.33	9245.62	-19.02	19.13	-4.58	0.52	498705.51	746808.20	N 32 22 9.33 W 103 40 8.50	
	9416.00	1.94	346.70	9412.52	-24.75	24.90	-5.96	0.11	498711.28	746806.82	N 32 22 9.39 W 103 40 8.52	
	9605.00	3.32	323.43	9601.32	-32.16	32.41	-9.96	0.91	498718.79	746802.82	N 32 22 9.46 W 103 40 8.56	
	9699.00	3.51	317.09	9695.15	-36.37	36.70	-13.54	0.45	498723.08	746809.24	N 32 22 9.50 W 103 40 8.60	
	9794.00	5.81	321.25	9789.85	-42.00	42.45	-18.43	2.24	498728.83	746804.35	N 32 22 9.56 W 103 40 8.68	
	9888.00	6.34	322.10	9883.34	-49.53	50.13	-24.49	0.78	498736.51	746808.29	N 32 22 9.64 W 103 40 8.73	
	9983.00	5.91	321.39	9977.79	-57.34	58.09	-30.76	0.46	498744.47	746802.02	N 32 22 9.72 W 103 40 8.80	
	10077.00	5.24	316.95	10071.35	-64.11	65.01	-36.71	0.85	498751.39	746807.07	N 32 22 9.79 W 103 40 8.87	
	10172.00	4.54	313.06	10166.00	-69.71	70.75	-42.42	0.81	498757.13	746807.36	N 32 22 9.84 W 103 40 8.94	
	10267.00	2.87	307.64	10260.80	-73.61	74.77	-47.05	1.79	498761.15	746805.73	N 32 22 9.88 W 103 40 8.99	
	10361.00	1.84	314.43	10354.72	-76.04	77.26	-50.00	1.13	498763.64	746802.79	N 32 22 9.91 W 103 40 7.03	
	10456.00	1.29	301.33	10449.69	-77.61	78.89	-52.00	0.69	498765.27	746800.78	N 32 22 9.92 W 103 40 7.05	
	10551.00	1.25	295.16	10544.66	-78.56	79.88	-53.85	0.15	498766.26	746805.93	N 32 22 9.93 W 103 40 7.07	
	10682.00	1.85	259.61	10675.62	-78.71	80.11	-57.22	0.84	498766.49	746805.56	N 32 22 9.94 W 103 40 7.11	
	10777.00	1.95	264.50	10770.57	-78.20	79.68	-60.34	0.20	498766.06	746805.44	N 32 22 9.93 W 103 40 7.15	
	10872.00	4.42	287.57	10865.41	-79.03	80.63	-65.44	2.88	498767.01	746804.34	N 32 22 9.94 W 103 40 7.21	
	10967.00	6.92	293.92	10959.94	-82.24	84.05	-74.16	2.71	498770.43	746803.62	N 32 22 9.98 W 103 40 7.31	
	11141.00	10.45	294.41	11131.92	-92.44	94.83	-98.12	2.03	498781.21	746814.66	N 32 22 10.09 W 103 40 7.59	
	11235.00	7.09	275.00	11224.83	-96.14	98.86	-111.67	4.72	498785.24	746801.12	N 32 22 10.13 W 103 40 7.74	
	11330.00	5.11	247.49	11319.30	-94.80	97.75	-121.42	3.66	498784.13	746801.36	N 32 22 10.12 W 103 40 7.86	
Tie-In to Pilot Hole												
First ST01	11479.00	10.43	186.07	11467.09	-78.63	81.77	-126.99	6.14	498768.14	746843.79	N 32 22 9.96 W 103 40 7.95	
Surveys	11573.00	27.87	185.83	11555.55	-48.02	51.21	-132.19	18.55	498737.59	746840.60	N 32 22 9.86 W 103 40 7.99	
	11668.00	29.13	189.00	11639.04	-2.96	6.29	-138.10	2.03	498692.67	746847.69	N 32 22 9.21 W 103 40 8.06	
	11763.00	33.63	191.47	11720.13	45.89	-42.36	-146.95	4.93	498644.02	746845.63	N 32 22 8.73 W 103 40 8.16	
	11857.00	39.30	196.70	11795.71	100.28	-96.44	-160.70	6.87	498589.95	746842.09	N 32 22 8.20 W 103 40 8.33	
Wolfcamp Intersection	11913.00	42.06	197.89	11838.17	135.38	-131.29	-171.56	5.12	498555.10	746441.23	N 32 22 7.85 W 103 40 8.46	
	11952.00	43.99	198.84	11866.68	160.84	-156.55	-179.90	5.12	498529.84	746432.89	N 32 22 7.80 W 103 40 8.56	
	12046.00	52.95	197.85	11928.94	228.12	-223.33	-201.88	9.55	498463.07	746410.91	N 32 22 6.94 W 103 40 8.82	
	12141.00	60.22	196.72	11981.23	304.34	-289.00	-225.39	7.72	498387.40	746387.40	N 32 22 6.20 W 103 40 9.10	
	12235.00	66.54	196.82	12023.32	385.32	-379.42	-249.63	6.72	498306.98	746363.16	N 32 22 5.40 W 103 40 9.39	
	12330.00	72.95	197.37	12056.20	471.07	-484.56	-275.82	6.77	498221.84	746336.97	N 32 22 4.56 W 103 40 9.70	
	12424.00	80.58	193.78	12077.71	559.71	-552.63	-300.32	8.93	498133.77	746312.47	N 32 22 3.69 W 103 40 9.99	
	12519.00	90.46	182.12	12085.14	653.52	-646.16	-313.32	16.05	498040.25	746299.48	N 32 22 2.77 W 103 40 10.15	
	12594.00	89.70	178.67	12085.04	728.50	-721.15	-313.84	4.71	497965.26	746298.96	N 32 22 2.02 W 103 40 10.16	
	12653.00	90.61	178.84	12084.88	787.44	-780.13	-312.55	1.57	497906.28	746300.24	N 32 22 1.44 W 103 40 10.15	
	12839.00	93.09	171.82	12078.87	972.19	-965.31	-297.60	3.95	497721.12	746315.20	N 32 21 59.81 W 103 40 9.99	
	12933.00	93.06	172.84	12073.83	1064.90	-1058.34	-285.15	0.98	497628.09	746327.64	N 32 21 58.69 W 103 40 9.85	
	13028.00	90.89	175.16	12070.55	1159.05	-1152.75	-275.23	3.34	497533.68	746337.56	N 32 21 57.75 W 103 40 9.74	
	13125.00	85.57	177.18	12073.55	1255.58	-1249.45	-268.75	5.87	497436.99	746344.04	N 32 21 56.79 W 103 40 9.67	
	13220.00	87.40	180.62	12079.37	1350.27	-1344.24	-266.94	4.10	497342.21	746345.86	N 32 21 55.86 W 103 40 9.66	
	13314.00	86.99	179.27	12083.97	1444.13	-1438.12	-266.85	1.50	497248.33	746345.95	N 32 21 54.93 W 103 40 9.68	
	13409.00	87.12	179.60	12088.85	1538.95	-1532.99	-265.91	0.37	497153.46	746346.88	N 32 21 53.99 W 103 40 9.66	
	13503.00	88.22	181.37	12092.68	1632.88	-1626.90	-266.71	2.22	497059.55	746346.09	N 32 21 53.06 W 103 40 9.68	
	13599.00	88.29	182.35	12095.60	1728.81	-1722.81	-269.82	1.02	496963.65	746342.97	N 32 21 52.11 W 103 40 9.72	
	13692.00	88.26	181.72	12098.40	1821.76	-1815.71	-273.12	0.68	496870.76	746339.67	N 32 21 51.19 W 103 40 9.76	
	13787.00	88.53	182.00	12101.06	1916.72	-1910.62	-276.20	0.41	496775.85	746336.59	N 32 21 50.25 W 103 40 9.81	
	13881.00	89.15	181.99	12102.96	2010.69	-2004.54	-279.48	0.66	496681.93	746333.32	N 32 21 49.32 W 103 40 9.85	
	13976.00	88.91	180.96	12104.57	2105.68	-2099.50	-281.92	1.11	496586.98	746330.87	N 32 21 48.38 W 103 40 9.89	
	14070.00	89.39	180.88	12105.97	2199.66	-2193.47	-283.51	0.51	496493.01	746329.28	N 32 21 47.45 W 103 40 9.91	
	14165.00	88.74	181.00	12107.52	2294.65	-2288.44	-285.15	0.68	496398.04	746327.64	N 32 21 46.51 W 103 40 9.94	
	14260.00	89.22	181.46	12109.21	2389.63	-2383.41	-287.19	0.70	496303.08	746325.60	N 32 21 45.58 W 103 40 9.97	
	14354.00	89.01	180.64	12110.68	2483.62	-2477.38	-288.91	0.90	496209.11	746323.88	N 32 21 44.65 W 103 40 10.00	
	14449.00	89.81	180.56	12111.64	2578.60	-2572.37	-289.91	0.85	496114.13	746322.88	N 32 21 43.71 W 103 40 10.01	
	14544.00	89.56	180.46	12112.16	2673.59	-2667.36	-290.75	0.28	496019.14	746322.04	N 32 21 42.77 W 103 40 10.03	
	14639.00	89.98	181.56	12112.54	2768.59	-2762.35	-292.43	1.24				

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 ° ' ")
	17667.00	90.55	180.74	12142.74	5794.21	-5789.35	-271.45	2.25	492897.29	746341.35	N 32 21 11.87	W 103 40 10.03
	17762.00	88.11	177.18	12143.85	5889.09	-5884.30	-269.72	4.54	492802.34	746343.07	N 32 21 10.93	W 103 40 10.02
	17952.00	87.86	176.96	12150.53	6078.44	-6073.94	-260.02	0.18	492612.72	746352.77	N 32 21 9.06	W 103 40 9.92
	18047.00	88.90	177.78	12153.22	6173.17	-6168.80	-255.86	1.39	492517.86	746357.13	N 32 21 8.12	W 103 40 9.88
	18141.00	89.78	178.49	12154.32	6267.01	-6262.74	-252.80	1.19	492423.92	746360.19	N 32 21 7.19	W 103 40 9.85
	18236.00	88.45	177.52	12155.80	6361.83	-6357.87	-249.29	1.72	492329.00	746363.50	N 32 21 6.25	W 103 40 9.81
	18331.00	86.55	178.76	12159.95	6456.58	-6452.52	-246.21	2.39	492234.15	746366.58	N 32 21 5.31	W 103 40 9.79
	18520.00	88.89	178.83	12167.79	6645.20	-6641.30	-241.91	1.13	492045.38	746370.88	N 32 21 3.44	W 103 40 9.75
	18615.00	88.62	177.54	12170.02	6740.01	-6736.22	-238.74	1.15	491950.47	746374.05	N 32 21 2.50	W 103 40 9.72
	18710.00	86.25	178.89	12174.28	6834.76	-6831.06	-235.62	2.77	491855.62	746377.17	N 32 21 1.56	W 103 40 9.69
	18805.00	86.90	177.15	12179.95	6929.41	-6925.83	-232.17	1.76	491760.86	746380.62	N 32 21 0.83	W 103 40 9.68
	18899.00	86.89	177.31	12185.21	7023.02	-7019.57	-227.84	0.28	491667.13	746385.15	N 32 20 59.70	W 103 40 9.61
	18993.00	87.45	180.42	12190.01	7116.79	-7113.42	-225.78	3.40	491573.28	746387.01	N 32 20 58.77	W 103 40 9.60
	19088.00	86.87	180.19	12194.72	7211.66	-7208.30	-226.29	0.66	491478.41	746388.50	N 32 20 57.83	W 103 40 9.61
	19183.00	87.90	180.01	12199.05	7306.53	-7303.20	-226.45	1.10	491383.51	746391.35	N 32 20 56.89	W 103 40 9.62
	19277.00	88.62	180.00	12201.91	7400.46	-7397.15	-226.46	0.77	491289.56	746386.33	N 32 20 55.96	W 103 40 9.62
	19372.00	88.86	179.17	12204.00	7495.39	-7492.13	-225.77	0.91	491194.59	746387.02	N 32 20 55.02	W 103 40 9.62
	19561.00	87.38	180.44	12210.20	7684.21	-7681.02	-225.13	1.03	491005.71	746387.66	N 32 20 53.15	W 103 40 9.63
	19660.00	88.84	181.20	12214.12	7803.13	-7799.93	-226.83	1.38	490886.80	746385.96	N 32 20 51.98	W 103 40 9.66
	19775.00	90.25	183.34	12214.88	7898.11	-7894.85	-230.59	2.70	490791.89	746382.20	N 32 20 51.04	W 103 40 9.71
	19870.00	90.18	183.58	12214.52	7993.05	-7989.68	-236.33	0.26	490697.06	746376.48	N 32 20 50.10	W 103 40 9.78
	19964.00	90.32	183.76	12214.11	8086.97	-8083.48	-242.34	0.24	490603.26	746370.45	N 32 20 49.17	W 103 40 9.86
	20058.00	89.22	182.08	12214.49	8180.93	-8177.35	-247.13	2.14	490509.39	746365.66	N 32 20 48.24	W 103 40 9.92
	20153.00	90.83	181.09	12214.45	8275.93	-8272.31	-249.76	1.99	490414.44	746363.03	N 32 20 47.30	W 103 40 9.96
	20247.00	91.04	180.37	12212.91	8369.91	-8366.29	-250.96	0.80	490320.46	746361.83	N 32 20 46.37	W 103 40 9.98
	20437.00	91.04	180.46	12209.46	8559.85	-8556.26	-252.33	0.05	490130.51	746360.46	N 32 20 44.49	W 103 40 10.01
	20532.00	90.83	180.36	12207.91	8654.82	-8651.24	-253.01	0.24	490035.53	746359.78	N 32 20 43.55	W 103 40 10.02
	20626.00	90.83	180.56	12206.55	8748.80	-8745.23	-253.77	0.21	489941.54	746359.02	N 32 20 42.62	W 103 40 10.04
	20815.00	90.93	180.59	12203.65	8937.76	-8934.20	-255.66	0.06	489752.58	746357.13	N 32 20 40.75	W 103 40 10.08
	20910.00	90.62	180.36	12202.36	9032.74	-9029.18	-256.45	0.41	489657.60	746356.34	N 32 20 39.81	W 103 40 10.09
	21004.00	90.62	180.36	12201.35	9126.72	-9123.18	-257.04	0.00	489563.61	746355.75	N 32 20 38.88	W 103 40 10.10
	21099.00	89.87	181.18	12200.94	9221.71	-9218.17	-258.32	1.17	489468.63	746354.47	N 32 20 37.95	W 103 40 10.13
	21193.00	90.04	181.76	12201.01	9315.71	-9312.13	-260.73	0.64	489374.66	746352.06	N 32 20 37.02	W 103 40 10.16
	21288.00	90.14	181.52	12200.87	9410.71	-9407.10	-263.45	0.27	489279.71	746349.34	N 32 20 36.08	W 103 40 10.20
	21383.00	90.01	180.98	12200.74	9505.71	-9502.07	-265.52	0.58	489184.73	746347.27	N 32 20 35.14	W 103 40 10.23
	21571.00	89.49	182.24	12201.56	9693.70	-9689.99	-270.80	0.73	488996.82	746341.99	N 32 20 33.28	W 103 40 10.31
	21666.00	90.59	182.41	12201.49	9788.69	-9784.91	-274.66	1.17	488901.91	746338.14	N 32 20 32.34	W 103 40 10.36
	21760.00	90.45	178.43	12200.64	9882.65	-9878.89	-275.35	4.24	488807.94	746337.45	N 32 20 31.41	W 103 40 10.37
	21855.00	90.07	177.17	12200.21	9977.48	-9973.81	-271.70	1.39	488713.01	746341.09	N 32 20 30.47	W 103 40 10.34
	21949.00	90.52	177.93	12199.73	10071.25	-10067.73	-267.68	0.94	488619.11	746345.11	N 32 20 29.54	W 103 40 10.30
	22044.00	88.32	177.51	12200.69	10166.05	-10162.64	-263.90	2.36	488524.20	746348.89	N 32 20 28.60	W 103 40 10.26
100' FSL Crossed Final MWD Survey Proj to Bit	22086.00	88.03	177.69	12202.03	10207.93	-10204.58	-262.14	0.82	488482.26	746350.65	N 32 20 28.19	W 103 40 10.24
	22123.00	87.77	177.85	12203.38	10244.84	-10241.53	-260.71	0.82	488445.31	746352.09	N 32 20 27.82	W 103 40 10.23
	22168.00	87.77	177.85	12205.13	10289.72	-10286.48	-259.02	0.00	488400.38	746353.77	N 32 20 27.37	W 103 40 10.21

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	Pilot / Oxy Taco Cat 27-34 Federal Com 31H Gyro + MWD IFR 0-13612' MD
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Pilot / Oxy Taco Cat 27-34 Federal Com 31H Gyro + MWD IFR 0-13612' MD
	1	26.500	9249.000	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Pilot / Oxy Taco Cat 27-34 Federal Com 31H Gyro + MWD
	1	9249.000	10551.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Pilot / Oxy Taco Cat 27-34 Federal Com 31H Gyro + MWD
	1	10551.000	10967.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Pilot / Oxy Taco Cat 27-34 Federal Com 31H Gyro + MWD
	1	10967.000	11330.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Pilot / Oxy Taco Cat 27-34 Federal Com 31H Gyro + MWD
	1	11330.000	22168.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	ST01 / Oxy Taco Cat 27-34 Federal Com 31H ST01 Gyro +

...ST01\Oxy Taco Cat 27-34 Federal Com 31H ST01 Gyro + MWD IFR 0-22168' MD