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Schlumberger

Oxy Corral Fly 02-01 State 34H Gyro + MWD 0-20332' MD Survey Geodetic Report (Def Survey)

30-01544588



Report Date: August 19, 2018 - 05:34 PM
Client: OXY
Field: NM Eddy County (NAD 83)
Structure / Slot: Oxy Corral Fly 02-01 State 34H / Corral Fly 02-01 State 34H
Well: Corral Fly 02-01 State 34H
Borehole: Original Borehole
UVA / APIB: Unknown / Unknown
Survey Name: Oxy Corral Fly 02-01 State 34H Gyro + MWD 0-20332' MD
Survey Date: July 27, 2018
Tort / AMD / DD / ERD Ratio: 288.913' / 11174.912' / 6.797' / 1.075
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 9' 19.69820", W 103° 57' 46.62595"
Location Grid N/E Y/X: N 420483.150 NUS, E 655957.590 NUS
CRS Grid Convergence Angle: 0.1971°
Grid Scale Factor: 0.9992414
Version / Patch: 2.10.740.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 84.799° (Grid North)
Vertical Section Origin: 0.000 N, 0.000 E
TVD Reference Datum: RKB=26.5'
TVD Reference Elevation: 3057.300 N above MSL
Seabed / Ground Elevation: 3030.800 N above MSL
Magnetic Declination: 6.981°
Total Gravity Field Strength: 998.4547mgm (8.80665 Based)
Gravity Model: GARM3
Total Magnetic Field Strength: 47969.144 nT
Magnetic Dip Angle: 59.904°
Declination Date: July 27, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.1971°
Total Corr Mag North-Grid: 6.7843°
North: Well Head
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (NUS)	Easting (EUS)	Latitude (N/E ° ' ")	Longitude (W/E ° ' ")
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	420483.15	655957.59	N 32° 9' 19.70"	W 103° 57' 46.61"
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	420483.15	655957.59	N 32° 9' 19.70"	W 103° 57' 46.61"
	66.50	1.29	43.97	66.50	0.34	0.32	0.31	3.23	420493.47	655957.90	N 32° 9' 19.70"	W 103° 57' 46.62"
	97.50	1.31	42.87	97.49	0.87	0.83	0.80	0.10	420493.88	655958.39	N 32° 9' 19.71"	W 103° 57' 46.62"
	189.50	0.89	53.52	189.47	2.28	2.03	2.09	0.51	420495.18	655959.88	N 32° 9' 19.72"	W 103° 57' 46.60"
	307.50	0.92	83.42	307.48	3.93	3.00	3.87	0.13	420496.15	655961.28	N 32° 9' 19.73"	W 103° 57' 46.58"
Last Gyro	387.50	0.90	74.38	387.45	5.14	3.46	4.85	0.22	420496.61	655962.44	N 32° 9' 19.73"	W 103° 57' 46.57"
	507.00	0.14	345.68	506.94	6.04	3.85	5.72	0.76	420497.00	655963.31	N 32° 9' 19.74"	W 103° 57' 46.56"
	598.00	0.09	292.29	595.94	5.96	3.98	5.63	0.13	420497.13	655963.22	N 32° 9' 19.74"	W 103° 57' 46.56"
	685.00	0.09	325.99	684.94	5.87	4.07	5.52	0.06	420497.22	655963.11	N 32° 9' 19.74"	W 103° 57' 46.56"
	867.00	0.09	124.89	866.94	5.84	4.32	5.47	0.04	420497.31	655963.06	N 32° 9' 19.74"	W 103° 57' 46.56"
	957.00	0.09	116.13	956.94	5.82	4.36	5.35	0.16	420497.47	655963.14	N 32° 9' 19.74"	W 103° 57' 46.56"
	1048.00	0.07	317.55	1047.94	5.85	4.37	5.30	0.15	420497.52	655963.22	N 32° 9' 19.74"	W 103° 57' 46.56"
	1140.00	0.07	120.51	1139.94	5.96	4.39	5.30	0.15	420497.53	655963.18	N 32° 9' 19.74"	W 103° 57' 46.56"
	1229.00	0.05	168.99	1228.94	6.01	4.32	5.64	0.06	420497.47	655963.23	N 32° 9' 19.74"	W 103° 57' 46.56"
	1318.00	0.07	353.80	1317.94	6.02	4.34	5.65	0.13	420497.48	655963.24	N 32° 9' 19.74"	W 103° 57' 46.56"
	1407.00	0.09	335.70	1406.94	5.99	4.45	5.61	0.04	420497.60	655963.20	N 32° 9' 19.74"	W 103° 57' 46.56"
	1497.00	0.07	17.75	1496.94	5.98	4.57	5.60	0.07	420497.72	655963.19	N 32° 9' 19.74"	W 103° 57' 46.56"
	1592.00	0.04	288.93	1591.94	5.99	4.63	5.58	0.09	420497.78	655963.17	N 32° 9' 19.74"	W 103° 57' 46.56"
	1687.00	0.02	121.29	1686.94	5.96	4.64	5.57	0.06	420497.70	655963.16	N 32° 9' 19.74"	W 103° 57' 46.56"
	1782.00	0.16	200.48	1781.94	5.92	4.50	5.53	0.17	420497.65	655963.12	N 32° 9' 19.74"	W 103° 57' 46.56"
	1877.00	0.11	233.32	1876.94	5.78	4.32	5.42	0.09	420497.47	655963.09	N 32° 9' 19.74"	W 103° 57' 46.56"
	1971.00	0.14	184.27	1970.94	5.69	4.18	5.33	0.11	420497.31	655962.92	N 32° 9' 19.74"	W 103° 57' 46.56"
	2066.00	0.02	171.21	2065.94	5.67	4.02	5.33	0.13	420497.17	655962.92	N 32° 9' 19.74"	W 103° 57' 46.56"
	2162.00	0.05	83.70	2161.94	5.71	4.03	5.37	0.08	420497.18	655962.96	N 32° 9' 19.74"	W 103° 57' 46.56"
	2351.00	0.09	224.78	2350.94	5.67	3.96	5.34	0.07	420497.11	655962.93	N 32° 9' 19.74"	W 103° 57' 46.56"
	2445.00	0.29	137.23	2444.94	5.78	3.73	5.45	0.32	420496.88	655963.04	N 32° 9' 19.74"	W 103° 57' 46.56"
	2541.00	0.38	137.54	2540.94	6.09	3.33	5.82	0.07	420496.49	655963.41	N 32° 9' 19.73"	W 103° 57' 46.56"
	2635.00	0.31	178.81	2634.94	6.26	2.88	6.02	0.29	420496.01	655963.61	N 32° 9' 19.73"	W 103° 57' 46.56"
	2730.00	0.34	150.08	2729.94	6.38	2.68	6.17	0.17	420495.51	655963.78	N 32° 9' 19.72"	W 103° 57' 46.55"
	2825.00	0.26	111.77	2824.93	6.67	2.03	6.51	0.22	420495.18	655964.10	N 32° 9' 19.72"	W 103° 57' 46.55"
	2920.00	0.18	156.39	2919.93	6.90	1.83	6.75	0.19	420494.88	655964.35	N 32° 9' 19.72"	W 103° 57' 46.55"
	3015.00	0.09	234.40	3014.93	6.88	1.66	6.75	0.18	420494.81	655964.34	N 32° 9' 19.72"	W 103° 57' 46.55"
	3205.00	0.05	35.31	3204.93	6.80	1.65	6.67	0.07	420494.80	655964.26	N 32° 9' 19.72"	W 103° 57' 46.55"
	3300.00	0.04	293.13	3299.93	6.80	1.69	6.67	0.07	420494.84	655964.18	N 32° 9' 19.72"	W 103° 57' 46.55"
	3395.00	0.09	314.46	3394.93	6.72	1.78	6.59	0.06	420494.91	655964.18	N 32° 9' 19.72"	W 103° 57' 46.55"
	3485.00	0.05	72.47	3484.93	6.71	1.89	6.58	0.06	420495.04	655964.15	N 32° 9' 19.72"	W 103° 57' 46.55"
	3680.00	0.02	252.00	3679.93	6.73	1.89	6.59	0.07	420495.04	655964.18	N 32° 9' 19.72"	W 103° 57' 46.55"
	3774.00	0.05	47.41	3773.93	6.75	1.92	6.60	0.07	420495.07	655964.18	N 32° 9' 19.72"	W 103° 57' 46.55"
	3869.00	0.07	292.78	3868.93	6.73	1.97	6.58	0.11	420495.12	655964.17	N 32° 9' 19.72"	W 103° 57' 46.55"
	3964.00	0.19	290.44	3963.93	6.54	2.05	6.38	0.13	420495.20	655963.97	N 32° 9' 19.72"	W 103° 57' 46.55"
	4058.00	1.23	328.31	4057.92	5.95	2.98	5.70	1.18	420496.11	655963.29	N 32° 9' 19.73"	W 103° 57' 46.58"
	4153.00	2.99	335.52	4152.85	4.87	6.08	4.14	1.87	420499.23	655961.73	N 32° 9' 19.78"	W 103° 57' 46.56"
	4248.00	4.63	335.28	4247.64	2.57	11.82	1.51	1.73	420504.97	655959.10	N 32° 9' 19.82"	W 103° 57' 46.61"
	4343.00	6.48	335.48	4342.19	-0.48	20.17	-2.31	1.93	420513.31	655955.28	N 32° 9' 19.90"	W 103° 57' 46.65"
	4438.00	7.78	335.11	4436.48	-4.40	30.85	-7.23	1.37	420523.99	655950.36	N 32° 9' 20.00"	W 103° 57' 46.71"
	4533.00	9.43	335.80	4530.39	-9.10	43.76	-13.12	1.70	420536.91	655944.47	N 32° 9' 20.13"	W 103° 57' 46.78"
	4628.00	9.83	335.85	4624.08	-14.21	58.11	-19.56	0.21	420551.26	655938.03	N 32° 9' 20.27"	W 103° 57' 46.85"
	4723.00	9.27	334.25	4717.79	-19.48	72.29	-26.14	0.47	420565.40	655931.46	N 32° 9' 20.42"	W 103° 57' 46.93"
	4818.00	9.55	332.67	4811.51	-25.13	86.15	-33.98	0.40	420579.29	655924.51	N 32° 9' 20.55"	W 103° 57' 47.01"
	4913.00	9.62	331.20	4905.19	-31.28	100.10	-40.92	0.27	420593.25	655917.07	N 32° 9' 20.69"	W 103° 57' 47.09"
	5008.00	9.87	331.46	4908.84	-37.62	114.07	-48.16	0.07	420607.21	655909.44	N 32° 9' 20.83"	W 103° 57' 47.18"
	5102.00	9.87	333.82	5091.51	-43.57	128.09	-55.41	0.42	420621.23	655902.18	N 32° 9' 20.97"	W 103° 57' 47.27"
	5197.00	9.96	338.73	5185.12	-48.70	142.91	-61.91	0.93	420636.05	655895.68	N 32° 9' 21.12"	W 103° 57' 47.34"
	5292.00	9.72	345.90	5278.73	-52.22	158.34	-66.85	1.31	420651.48	655890.75	N 32° 9' 21.27"	W 103° 57' 47.40"
	5387.00	9.76	353.09	5372.30	-53.70	174.11	-69.77	1.28	420667.28	655887.83	N 32° 9' 21.42"	W 103° 57' 47.43"
	5482.00	9.98	355.18	5465.95	-53.88	190.31	-71.43	0.44	420683.45	655886.17	N 32° 9' 21.58"	W 103° 57' 47.45"
	5576.00	9.85	351.49	5558.54	-54.30	206.46	-73.32	0.66	420699.59	655884.28	N 32° 9' 21.74"	W 103° 57' 47.47"
	5671.00	9.81	340.30	5652.16	-55.94	222.28	-76.41	0.99	420715.41	655881.19	N 32° 9' 21.90"	W 103° 57' 47.51"
	5766.00	9.55	340.48	5745.84	-59.07	237.41	-80.92	1.02	420730.54	655878.88	N 32° 9' 22.05"	W 103° 57' 47.56"
	5861.00	9.80	341.39	5839.47	-62.91	252.58	-86.16	0.40	420745.71	655871.44	N 32° 9' 22.20"	W 103° 57' 47.62"
	5956.00	9.60	352.80	6025.76	-67.28	283.61	-93.38	1.02	420776.74	655864.22	N 32° 9' 22.51"	W 103° 57' 47.70"
	6145.00	9.98	0.98	6119.38	-66.70	299.68	-94.25	1.54	420792.81	655863.34	N 32° 9' 22.87"	W 103° 57' 47.71"
	6240.00	10.22	6.02	6212.91	-64.18	318.28	-93.23	0.97	420809.40	655864.37	N 32° 9' 23.02"	W 103° 57' 47.70"
	6335.00	10.48	8.89	6306.37	-60.43	333.19	-91.01	0.81	420826.32	655860.59	N 32° 9' 23.10"	W 103° 57' 47.87"
	6430.00	10.39	9.14	6399.80	-56.21	350.19	-89.32	0.11	420843.31	655869.28	N 32° 9' 23.17"	W 103° 57' 47.04"
	6525.00	10.48	5.51	6493.23	-52.48	367.23	-86.13	0.70	420860.37	655871.47	N 32° 9' 23.34"	W 103° 57' 47.81"
	6620.00	10.36	1.91	6586.66	-49.82	384.38	-85.45	1.29	420877.50	655872.59	N 32° 9' 23.51"	W 103° 57' 47.80"
	6715.00	10.18	258.08	6680.14	-46.72	401.28	-87.65	1.03	420894.40	655872.15	N 32° 9' 23.67"	W 103° 57' 47.83"
	6809.00	10.15	349.62	6772.67	-49.42	417.71	-91.08	0.52	420911.23	655869.95	N 32° 9' 23.84"	W 103° 57' 47.83"
	6904.00	10.24	346.88	6868.17	-51.35	434.17	-91.08	0.52	420927.28	655866.52	N 32° 9' 24.00"	W 103° 57' 47.87"
	6999.00	9.79	349.14	6959.72	-53.31	450.32	-91.62	0.63	420943.41	655863.08	N 32° 9' 24.16"	W 103° 57' 47.71"
	7093.00	9.57	348.20	7052.38	-55.00	465.82	-97.62	0.52	420958.93	655859.91	N 32° 9' 24.34"	W 103° 57' 47.73"
	7188.00	8.83	346.46	7146.15	-56.97	40						

Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS ("/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ° °)	Longitude (E/W ° ° °)
	18250.00	88.49	88.57	10351.93	8198.02	912.81	8149.44	0.37	421405.89	664105.40	N 32 9 28.44 W 103 56 11.79	
	18355.00	88.25	88.54	10354.84	8283.38	915.00	8244.37	0.29	421408.08	664201.32	N 32 9 28.46 W 103 56 10.89	
	18450.00	88.32	88.82	10357.48	8388.13	917.38	8339.30	0.11	421410.44	664298.24	N 32 9 28.48 W 103 56 9.59	
	18545.00	89.84	90.11	10359.01	8482.81	918.41	8434.28	2.24	421411.49	664391.21	N 32 9 28.49 W 103 56 8.48	
	18640.00	88.74	89.44	10360.18	8577.44	918.78	8529.27	1.30	421411.88	664485.19	N 32 9 28.49 W 103 56 7.38	
	18735.00	88.01	88.11	10362.88	8672.11	919.98	8624.22	0.84	421413.06	664581.14	N 32 9 28.50 W 103 56 6.27	
	18830.00	87.94	88.13	10366.23	8708.84	922.27	8719.13	1.03	421415.35	664678.05	N 32 9 28.52 W 103 56 5.17	
	18925.00	91.83	90.01	10368.42	8861.55	923.81	8814.10	4.55	421416.89	664771.00	N 32 9 28.53 W 103 56 4.06	
	19020.00	88.42	89.05	10368.22	8956.21	924.59	8909.08	3.73	421417.87	664865.98	N 32 9 28.53 W 103 56 2.96	
	19115.00	88.29	88.17	10368.94	9051.05	928.55	9003.95	3.03	421421.83	664960.84	N 32 9 28.57 W 103 56 1.85	
	19210.00	89.15	85.15	10371.07	9146.01	935.74	9098.65	1.40	421428.82	665055.53	N 32 9 28.64 W 103 56 0.75	
	19305.00	88.53	88.89	10372.89	9240.91	940.88	9193.49	3.09	421433.75	665150.36	N 32 9 28.68 W 103 55 59.65	
	19400.00	89.46	88.98	10374.68	9335.64	942.44	9288.45	0.98	421435.52	665245.32	N 32 9 28.70 W 103 55 58.54	
	19500.00	88.53	89.28	10376.32	9430.38	943.88	9383.43	1.03	421438.06	665340.29	N 32 9 28.71 W 103 55 57.44	
	19600.00	88.43	89.69	10378.84	9525.12	948.30	9478.38	1.68	421439.47	665435.21	N 32 9 28.73 W 103 55 56.33	
	19700.00	87.94	89.98	10384.80	9714.54	950.28	9568.21	1.23	421443.33	665625.05	N 32 9 28.78 W 103 55 54.13	
	19800.00	88.63	90.95	10387.67	9809.04	949.49	9762.16	1.27	421442.57	665718.99	N 32 9 28.75 W 103 55 53.03	
	19900.00	88.60	91.35	10390.00	9903.42	947.57	9858.11	0.42	421440.84	665814.94	N 32 9 28.73 W 103 55 51.82	
	20000.00	90.70	93.70	10390.57	9998.58	943.43	9952.01	3.35	421436.50	665908.82	N 32 9 28.68 W 103 55 50.82	
Bottom Perf Cross	20138.00	88.71	91.48	10390.95	10089.88	940.88	10025.92	4.03	421433.18	665982.73	N 32 9 28.65 W 103 55 49.97	
	20159.00	88.15	90.85	10391.52	10090.73	939.68	10046.91	4.03	421432.73	666003.72	N 32 9 28.64 W 103 55 49.72	
	20254.00	88.36	90.09	10394.42	10185.22	938.88	10141.86	0.83	421431.95	666088.66	N 32 9 28.63 W 103 55 48.62	
Final MWD Survey	20289.00	88.87	90.83	10395.19	10217.08	938.88	10173.85	2.32	421431.75	666130.65	N 32 9 28.63 W 103 55 48.24	
Proj. to Bit	20332.00	88.87	90.83	10396.10	10262.81	938.17	10219.84	0.90	421431.25	666176.84	N 32 9 28.62 W 103 55 47.71	

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)	EDU Freq (Hz)	Hole Size	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 Corral Fly 02-01 State 34H Gyro + MWD 0-20332' MD
	1	26.500	28.500	Act Sens	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Corral Fly 02-01 State 34H Gyro + MWD 0-20332' MD
	1	28.500	20332.000	Act Sens	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Corral Fly 02-01 State 34H Gyro + MWD 0-

...Corral Fly 02-01 State 34H\Original Borehole\Oxy Corral Fly 02-01 State 34H Gyro + MWD 0-20332' MD

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OXY

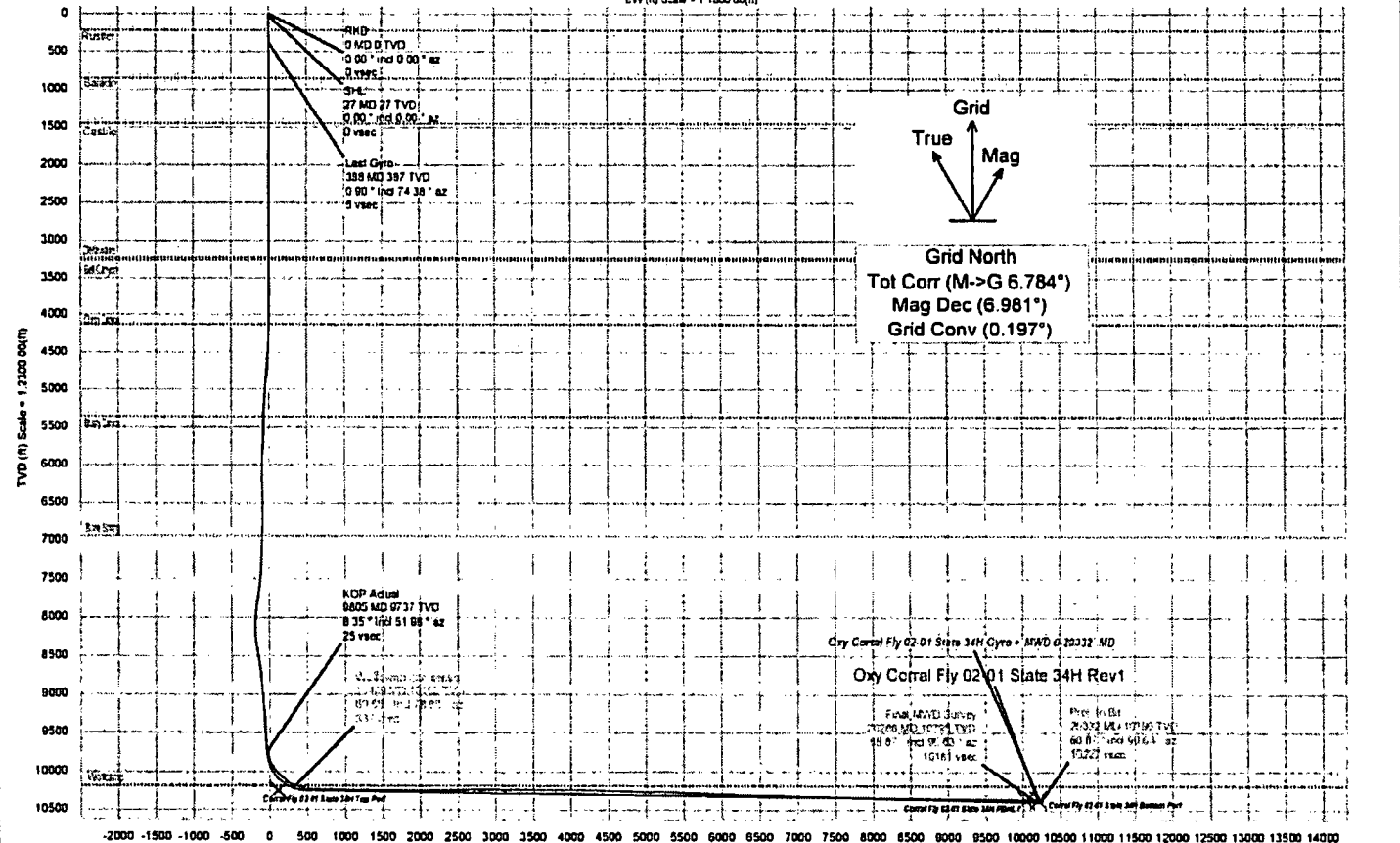
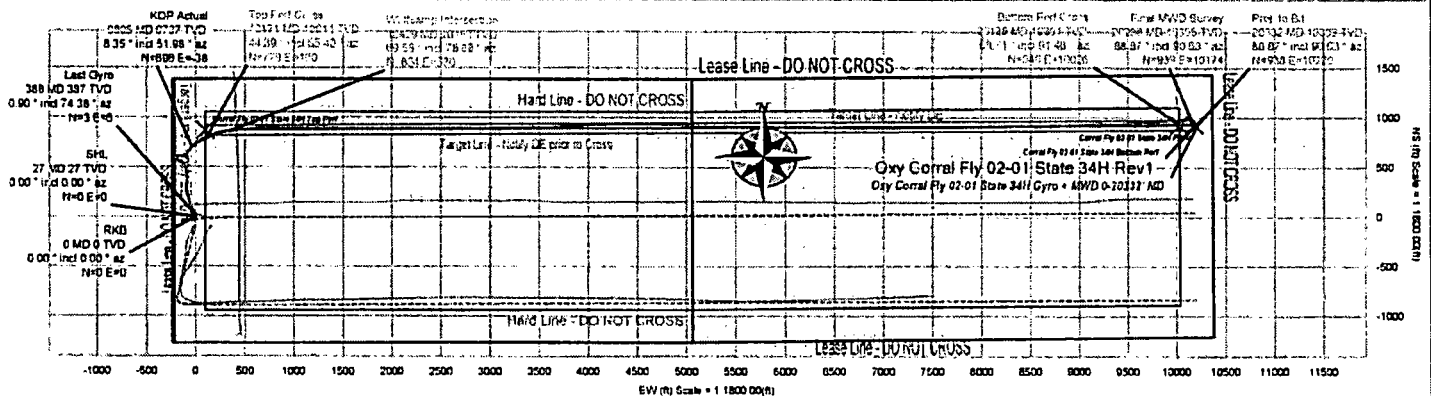


Borehole:	Well:	Field:	Structure:
Original Borehole	Corral Fly 02-01 State 34H	NM Eddy County (NAD 83)	Oxy Corral Fly 02-01 State 34H

Gravity & Magnetic Parameters				Surface Location				Miscellaneous			
Model:	MOG 2010	Dp:	85 104'	Date:	27-Jul-2010	Location:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Well:	Corral Fly 02-01	TVD Ref:	RKB=26.5' (21027.21 above MSL)
MagDec:	6.981°	FB:	47953.144mT	Gravity FB:	998.425mgal (9.81958 Based)	Lat:	N 32 0 19.78	North:	429481.16NUS	Grid Conv:	0.1971°
						Lon:	W 102 07 48.63	East:	658657.87WUS	Scale Fact:	0.9992816
										Plan:	Oxy Corral Fly 02-01 State 34H Gyro + MWD 0-20332' 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	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00
Last Gyro	387.50	0.90	74.38	387.45	5.14	3.48	4.85	0.22
KOP Actual	9805.00	8.35	51.98	9737.17	25.19	895.85	-38.04	2.01
Top Perf Cross	10131.00	44.39	65.40	10014.05	170.11	778.90	89.82	9.03
Wolfcamp Intersection	10429.00	89.58	78.88	10182.10	406.32	854.41	330.23	9.21
Bottom Perf Cross	20138.00	88.71	91.48	10390.95	10069.88	940.08	10025.92	4.03
Final MWD Survey	20286.00	88.87	90.83	10395.19	10217.06	938.88	10173.85	2.32
Proj. to Bit	20332.00	88.87	90.83	10398.10	10262.81	938.17	10219.84	0.00



Vertical Section (ft) Azim = 89.54° Scale = 1:2300 00(ft) Origin = ONI-3, OE-W