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30.015-44587

Schlumberger

Oxy Corral Fly 02-01 33H - Gyro + MWD FDIR 0-20445' MD Survey Geodetic Report (Def Survey)



NM OIL CONSERVATION
ARTESIA DISTRICT

NOV 08 2018

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Report Date: September 17, 2018 - 10:38 AM
Client: OXY
Field: NM Eddy County (NAD 83)
Structure / Slot: Oxy Corral Fly 02-01 State 33H / Corral Fly 02-01 State 33H
Well: Corral Fly 02-01 State 33H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Oxy Corral Fly 02-01 33H - Gyro + MWD FDIR 0-20445' MD
Survey Date: September 05, 2018
Tort / AHD / DDI / ERD Ratio: 287.238' / 11487.188' / 6.762' / 1.107
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 0' 49" 13429", W 103° 57' 47" 91098"
Location Grid N/E Y/X: N 423467.190 NUS, E 655836.900 NUS
CRS Grid Convergence Angle: 0.1970°
Grid Scale Factor: 0.99992411
Version / Patch: 2.10.740.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 96.430° (Grid North)
Vertical Section Origin: 0.000 N, 0.000 H
TVD Reference Datum: RKB=26.5'
TVD Reference Elevation: 3021.600 ft above MSL
Seabed / Ground Elevation: 2995.100 ft above MSL
Magnetic Declination: 6.970°
Total Gravity Field Strength: 988.4591mg (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47960.259 nT
Magnetic Dip Angle: 59.912°
Declination Date: September 05, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.1970°
Total Corr Mag North-Grid: 6.7816°
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 (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	423467.19	655836.90	N 32° 0' 49.13"	W 103° 57' 47.91"
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	423467.19	655836.90	N 32° 0' 49.13"	W 103° 57' 47.91"
	100.50	0.04	224.92	100.50	-0.02	-0.02	-0.02	0.05	423467.17	655836.88	N 32° 0' 49.13"	W 103° 57' 47.91"
	186.88	0.36	64.10	186.88	0.19	0.08	0.20	0.40	423467.27	655837.10	N 32° 0' 49.14"	W 103° 57' 47.91"
	272.76	0.51	48.80	272.76	0.87	0.48	0.73	0.23	423467.85	655837.63	N 32° 0' 49.14"	W 103° 57' 47.90"
	367.37	0.29	84.51	367.38	1.18	0.77	1.27	0.35	423467.96	655838.17	N 32° 0' 49.14"	W 103° 57' 47.90"
Last Gyro	386.50	0.48	69.81	386.49	1.30	0.80	1.39	1.11	423467.99	655838.29	N 32° 0' 49.14"	W 103° 57' 47.89"
	509.00	0.23	75.40	508.99	1.98	1.04	2.11	0.21	423468.23	655839.01	N 32° 0' 49.14"	W 103° 57' 47.89"
	601.00	0.56	64.07	600.99	2.54	1.28	2.70	0.37	423468.47	655839.60	N 32° 0' 49.15"	W 103° 57' 47.88"
	686.00	0.88	68.28	685.99	3.20	1.64	3.47	0.03	423468.83	655840.37	N 32° 0' 49.15"	W 103° 57' 47.87"
	780.00	0.66	41.82	779.99	4.05	2.24	4.34	0.46	423469.52	655841.24	N 32° 0' 49.16"	W 103° 57' 47.86"
	873.00	1.00	51.97	872.97	5.04	3.38	5.45	0.23	423470.94	655842.35	N 32° 0' 49.17"	W 103° 57' 47.85"
	965.00	1.25	37.40	964.95	6.13	4.65	6.69	0.41	423471.84	655843.59	N 32° 0' 49.18"	W 103° 57' 47.83"
	1058.00	1.73	103.07	1057.92	8.04	5.14	8.67	1.79	423472.32	655844.57	N 32° 0' 49.18"	W 103° 57' 47.81"
	1152.00	1.86	54.89	1151.88	10.59	5.69	11.30	1.58	423472.88	655846.20	N 32° 0' 49.19"	W 103° 57' 47.76"
	1247.00	1.87	58.88	1246.83	12.88	7.38	13.89	0.14	423474.57	655850.70	N 32° 0' 49.21"	W 103° 57' 47.75"
	1340.00	2.16	58.14	1339.77	15.57	9.10	16.60	0.33	423476.29	655853.59	N 32° 0' 49.22"	W 103° 57' 47.72"
	1430.00	1.71	64.69	1429.72	18.08	10.57	19.36	0.58	423477.76	655856.20	N 32° 0' 49.24"	W 103° 57' 47.69"
	1525.00	0.17	223.24	1524.71	19.18	11.07	20.55	1.07	423478.26	655857.45	N 32° 0' 49.24"	W 103° 57' 47.67"
	1619.00	0.10	183.22	1618.71	19.10	10.89	20.48	0.12	423478.08	655857.35	N 32° 0' 49.24"	W 103° 57' 47.67"
	1715.00	0.10	305.15	1714.71	19.03	10.85	20.37	0.16	423478.04	655857.27	N 32° 0' 49.24"	W 103° 57' 47.67"
	1802.00	0.04	107.80	1801.71	18.99	10.89	20.34	0.16	423478.07	655857.24	N 32° 0' 49.24"	W 103° 57' 47.67"
	1897.00	0.05	2.64	1896.71	19.02	10.92	20.38	0.08	423478.11	655857.27	N 32° 0' 49.24"	W 103° 57' 47.67"
	1981.00	0.10	202.51	1980.71	19.00	10.88	20.35	0.16	423478.07	655857.24	N 32° 0' 49.24"	W 103° 57' 47.67"
	2086.00	0.10	245.39	2085.71	18.90	10.77	20.24	0.08	423477.98	655857.14	N 32° 0' 49.24"	W 103° 57' 47.68"
	2180.00	0.05	104.70	2179.71	18.88	10.73	20.20	0.15	423477.82	655857.10	N 32° 0' 49.24"	W 103° 57' 47.68"
	2274.00	0.10	212.83	2273.71	18.88	10.65	20.20	0.13	423477.84	655857.10	N 32° 0' 49.24"	W 103° 57' 47.68"
	2366.00	0.10	174.18	2365.71	18.90	10.50	20.16	0.07	423477.69	655857.06	N 32° 0' 49.24"	W 103° 57' 47.68"
	2463.00	0.05	217.97	2462.71	18.86	10.38	20.15	0.08	423477.57	655857.04	N 32° 0' 49.24"	W 103° 57' 47.68"
	2557.00	0.04	80.92	2556.71	18.87	10.35	20.15	0.09	423477.54	655857.05	N 32° 0' 49.24"	W 103° 57' 47.68"
	2651.00	0.10	118.71	2650.71	18.87	10.32	20.28	0.08	423477.51	655857.18	N 32° 0' 49.24"	W 103° 57' 47.67"
	2745.00	0.05	238.38	2744.71	19.02	10.26	20.29	0.14	423477.45	655857.10	N 32° 0' 49.24"	W 103° 57' 47.67"
	2840.00	0.05	225.59	2839.71	18.98	10.21	20.23	0.01	423477.39	655857.13	N 32° 0' 49.23"	W 103° 57' 47.68"
	2934.00	0.03	79.93	2933.71	18.88	10.18	20.23	0.08	423477.37	655857.12	N 32° 0' 49.23"	W 103° 57' 47.68"
	3028.00	1.87	126.92	3027.69	20.38	9.40	21.57	1.87	423478.59	655858.46	N 32° 0' 49.23"	W 103° 57' 47.68"
	3122.00	3.88	126.32	3121.56	24.80	8.68	25.51	2.26	423473.87	655862.41	N 32° 0' 49.20"	W 103° 57' 47.61"
	3217.00	6.71	125.62	3216.14	32.30	1.48	32.67	2.87	423468.66	655869.57	N 32° 0' 49.15"	W 103° 57' 47.53"
	3311.00	7.42	129.50	3309.43	42.17	-5.60	41.81	0.90	423481.59	655878.70	N 32° 0' 49.08"	W 103° 57' 47.42"
	3406.00	7.84	131.52	3403.61	52.48	-13.09	51.27	0.38	423453.50	655888.18	N 32° 0' 49.00"	W 103° 57' 47.32"
	3594.00	7.61	132.38	3589.95	72.78	-30.38	69.82	0.06	423436.83	655906.72	N 32° 0' 48.83"	W 103° 57' 47.10"
	3689.00	7.40	134.28	3684.13	82.71	-38.87	78.85	0.34	423428.32	655915.74	N 32° 0' 48.75"	W 103° 57' 47.00"
	3877.00	2.23	139.09	3871.41	94.06	-80.09	89.82	2.76	423417.10	655926.81	N 32° 0' 48.54"	W 103° 57' 46.87"
	3971.00	0.04	127.07	3965.38	98.34	-51.50	91.14	2.33	423415.70	655928.04	N 32° 0' 48.62"	W 103° 57' 46.85"
	4066.00	0.04	208.00	4060.38	98.35	-51.54	91.16	0.05	423415.65	655928.05	N 32° 0' 48.62"	W 103° 57' 46.85"
	4254.00	0.10	100.23	4248.38	98.49	-51.63	91.29	0.08	423415.58	655928.18	N 32° 0' 48.62"	W 103° 57' 46.85"
	4443.00	0.04	278.69	4437.38	98.59	-51.85	91.38	0.07	423415.54	655928.28	N 32° 0' 48.62"	W 103° 57' 46.85"
	4637.00	0.10	105.05	4631.38	98.64	-51.89	91.43	0.18	423415.52	655928.32	N 32° 0' 48.62"	W 103° 57' 46.85"
	4831.00	0.05	255.60	4825.38	98.68	-51.71	91.47	0.15	423415.48	655928.30	N 32° 0' 48.62"	W 103° 57' 46.85"
	4820.00	0.04	33.97	4814.38	98.64	-51.68	91.42	0.04	423415.51	655928.32	N 32° 0' 48.62"	W 103° 57' 46.85"
	5008.00	0.10	142.88	5002.38	98.76	-51.70	91.56	0.08	423415.44	655928.45	N 32° 0' 48.62"	W 103° 57' 46.85"
	5102.00	0.05	182.58	5098.38	98.83	-51.88	91.60	0.08	423415.33	655928.49	N 32° 0' 48.62"	W 103° 57' 46.85"
	5197.00	0.21	181.84	5191.38	98.94	-52.08	91.58	0.17	423415.12	655928.48	N 32° 0' 48.62"	W 103° 57' 46.85"
	5291.00	1.88	180.56	5285.38	97.01	-53.79	91.56	1.78	423413.40	655928.46	N 32° 0' 48.60"	W 103° 57' 46.85"
	5385.00	4.24	182.25	5379.22	97.42	-58.80	91.41	2.51	423408.39	655928.31	N 32° 0' 48.55"	W 103° 57' 46.85"
	5480.00	6.42	182.56	5473.80	98.04	-67.62	91.04	2.29	423399.57	655927.93	N 32° 0' 48.48"	W 103° 57' 46.85"
	5574.00	7.78	189.77	5567.08	98.02	-70.14	89.72	1.73	423388.05	655928.62	N 32° 0' 48.35"	W 103° 57' 46.87"
	5668.00	8.88	178.55	5660.10	98.84	-92.65	88.83	2.07	423374.55	655925.72	N 32° 0' 48.21"	W 103° 57' 46.88"
	5763.00	10.07	179.60	5753.80	100.63	-108.27	89.07	1.29	423358.93	655925.98	N 32° 0' 48.06"	W 103° 57' 46.88"
	5857.00	11.24	179.88	5846.18	102.68	-125.65	89.15	1.25	423341.55	655926.04	N 32° 0' 47.89"	W 103° 57' 46.88"
	5951.00	11.87	179.37	5938.31	104.88	-144.32	89.28	0.47	423322.88	655926.17	N 32° 0' 47.70"	W 103° 57' 46.88"
	6139.00	13.93	179.88	6121.83	109.79	-185.96	89.53	1.20	423281.24	655926.43	N 32° 0' 47.29"	W 103° 57' 46.88"
	6234.00	14.61	180.38	6218.65	112.38	-209.54	89.48	0.94	423257.67	655926.37	N 32° 0' 47.06"	W 103° 57' 46.88"
	6328.00	16.84	179.70	6304.29	115.18	-234.46	89.46	1.22	423232.78	655926.30	N 32° 0' 46.81"	W 103° 57' 46.88"
	6422.00	14.59	182.15	6394.97	117.95	-260.20	89.09	1.59	423208.01	655925.88	N 32° 0' 46.57"	W 103° 57' 46.89"
	6516.00	15.03	183.94	6485.85	118.97	-283.19	87.81	0.88	423184.02	655924.70	N 32° 0' 46.33"	W 103° 57' 46.90"
	6610.00	14.12	188.77	6576.82	119.83	-306.78	85.82	1.08	423160.45	655922.71	N 32° 0' 46.10"	W 103° 57' 46.92"
	6704.00	13.62	188.35	6668.08	119.39	-329.12	83.06	0.85	423138.10	655919.95	N 32° 0' 45.87"	W 103° 57' 46.96"
	6798.00	13.00	190.83	6759.56	118.25	-350.48	79.50	0.88	423116.78	655916.38	N 32° 0' 45.56"	W 103° 57' 47.00"
	6892.00	11.96	191.85	6851.33	116.53	-370.39	75.55	1.14	423096.83	655912.44	N 32° 0' 45.47"	W 103° 57' 47.05"
	6986.00	9.95	197.91	6943.62	114.01	-387.65	71.05	2.48	423070.57	655907.94	N 32° 0' 45.30"	W 103° 57' 47.10"

[illegible]

Comments	MD (ft)	Incl (°)	Azim Ori'd (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	OLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	18271.00	87.77	89.59	10335.54	9168.88	-1160.92	9094.08	0.88	422306.36	664930.27	N 32 9 37.33	W 103 56 2.17
	19385.00	87.42	89.56	10339.48	9260.13	-1160.22	9187.99	0.37	422307.06	665024.18	N 32 9 37.33	W 103 56 1.08
	19460.00	87.46	89.20	10343.73	9354.32	-1159.20	9282.89	0.38	422308.08	665119.07	N 32 9 37.34	W 103 55 59.97
	19455.00	86.80	91.08	10348.46	9448.62	-1159.43	9377.77	2.10	422307.85	665213.94	N 32 9 37.33	W 103 55 59.87
	19649.00	86.08	89.30	10352.68	9541.97	-1159.74	9471.67	2.33	422307.54	665307.83	N 32 9 37.33	W 103 55 57.78
	19744.00	87.83	89.69	10356.24	9636.20	-1158.90	9566.60	0.83	422308.38	665402.75	N 32 9 37.33	W 103 55 56.67
	19838.00	87.80	89.40	10359.99	9729.45	-1158.16	9660.52	0.36	422309.12	665496.67	N 32 9 37.33	W 103 55 55.58
	19932.00	87.35	89.30	10363.98	9822.65	-1157.09	9754.43	0.49	422310.19	665590.57	N 32 9 37.34	W 103 55 54.49
	20026.00	88.01	90.09	10367.77	9915.92	-1156.59	9848.35	1.09	422310.89	665684.48	N 32 9 37.34	W 103 55 53.40
	20120.00	88.49	89.27	10370.64	10009.23	-1156.07	9942.30	1.01	422311.21	665778.43	N 32 9 37.34	W 103 55 52.30
	20215.00	88.80	89.86	10372.89	10103.52	-1155.35	10037.27	0.70	422311.93	665873.39	N 32 9 37.35	W 103 55 51.20
	20310.00	88.04	89.22	10375.51	10197.80	-1154.58	10132.23	1.05	422312.70	665968.34	N 32 9 37.35	W 103 55 50.09
Bottom Perf Cross	20320.00	88.05	89.24	10375.85	10207.71	-1154.45	10142.23	0.21	422312.83	665978.34	N 32 9 37.35	W 103 55 49.98
Final MWD Survey	20401.00	88.11	89.40	10378.56	10284.04	-1153.49	10223.18	0.21	422313.79	666059.28	N 32 9 37.36	W 103 55 49.04
Proj to Bit	20445.00	88.11	89.40	10380.01	10331.89	-1153.03	10287.15	0.00	422314.25	666103.25	N 32 9 37.36	W 103 55 48.52

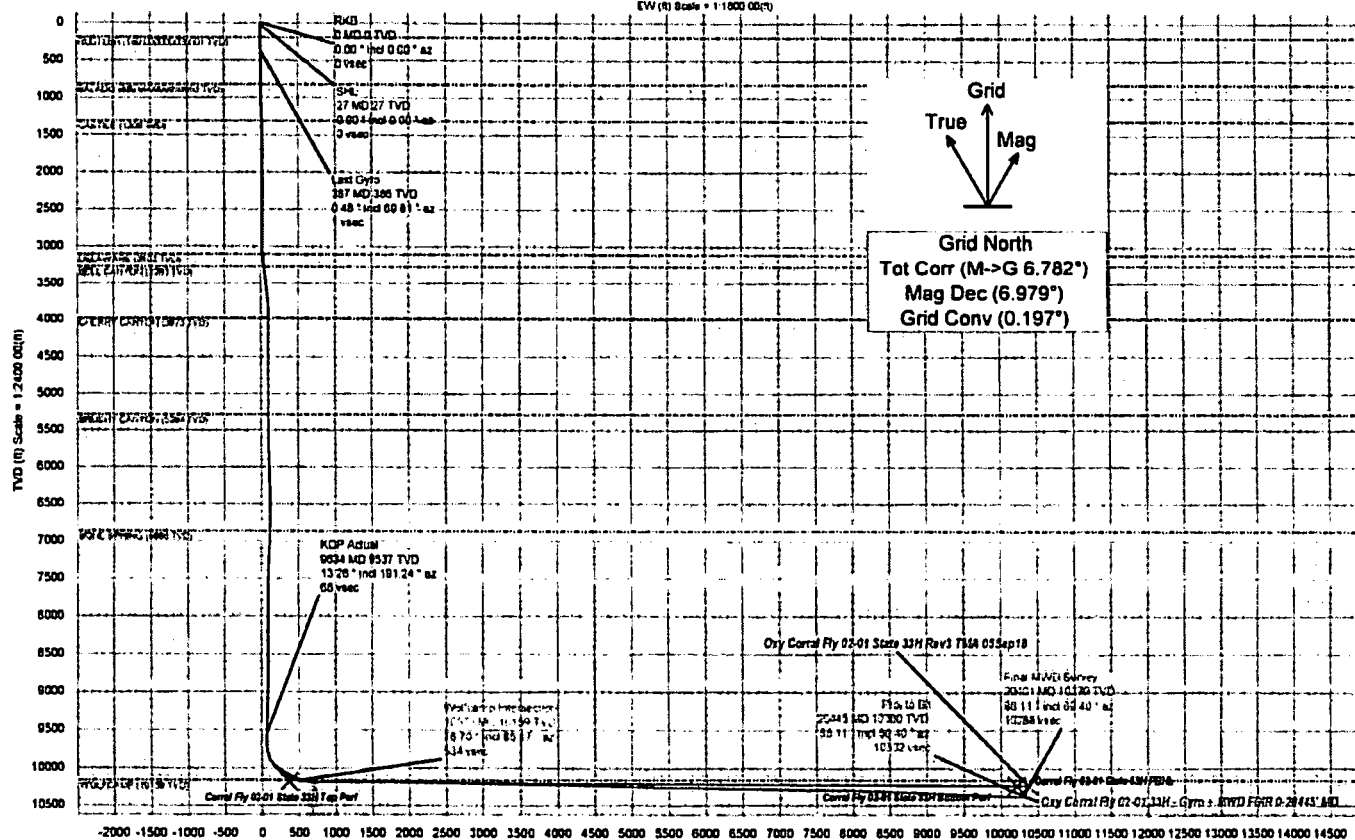
Survey Type: Def Survey

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	28.500	1/98.423	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Corral Fly 02-01 33H - Gyro + MWD FDIR 0- 20445' MD
	1	28.500	28.500	Act Sns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Corral Fly 02-01 33H - Gyro + MWD FDIR 0- 20445' MD
	1	28.500	388.500	Act Sns	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Corral Fly 02-01 33H - Gyro + MWD FDIR 0- 20445' MD
	1	388.500	20445.000	Act Sns	30.000	30.000	NAL_MWD_IFR1+MB	Original Borehole / Oxy Corral Fly 02-01 33H - Gyro + MWD FDIR 0-



Critical Points



Vertical Section (ft) Azim = 88 43° Scale = 1:2400 00(ft) Origin = 0NU-2, 0EJ-W