

Oxy Avogato 30-31 State Com 22H Gyro + MWD 0-21097MD Survey

Geodetic Report

(Def Survey)



Report Date: September 09, 2019 - 03:43 PM
 Client: OXY
 Field: NM Lea County (NAD 83)
 Structure / Slot: Oxy Avogato 30-31 State Com 22H / Oxy Avogato 30-31 State Com 22H
 Well: Oxy Avogato 30-31 State Com 22H
 Borehole: Original Borehole
 UWI / API#: Unknown / 30-025-45925
 Survey Name: Oxy Avogato 30-31 State Com 22H Gyro + MWD 0-21097MD
 Survey Date: August 02, 2019
 Tort / AHD / DDI / ERD Ratio: 202.943° / 10938.223 ft / 6.633 / 1.004
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 22' 8.17085", W 103° 36' 55.10894"
 Location Grid N/E Y/X: N 498694.400 RUS, E 763023.400 RUS
 CRS Grid Convergence Angle: 0.3844°
 Grid Scale Factor: 0.99996537
 Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 180.013° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB=26.5'
 TVD Reference Elevation: 3733.100 ft above MSL
 Seabed / Ground Elevation: 3706.600 ft above MSL
 Magnetic Declination: 6.616°
 Total Gravity Field Strength: 998.4479mgn (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 48058.400 nT
 Magnetic Dip Angle: 60.088°
 Declination Date: August 27, 2019
 Magnetic Declination Model: IFR1
 North Reference: Grid North
 Grid Convergence Used: 0.3844°
 Total Corr Mag North->Grid: 6.2316°
 North: Well Head
 Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northings (RUS)	Easting (RUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	498694.40	763023.40	N 32 22 8.17	W 103 36 55.11
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	498694.40	763023.40	N 32 22 8.17	W 103 36 55.11
	41.40	0.28	198.11	41.40	0.03	-0.03	-0.01	1.88	498694.37	763023.39	N 32 22 8.17	W 103 36 55.11
	68.40	0.42	184.24	68.40	0.20	-0.20	-0.04	0.60	498694.20	763023.38	N 32 22 8.17	W 103 36 55.11
	97.40	0.49	179.14	97.40	0.43	-0.43	-0.05	0.28	498693.97	763023.35	N 32 22 8.17	W 103 36 55.11
	127.40	0.53	172.81	127.40	0.69	-0.69	-0.03	0.23	498693.71	763023.37	N 32 22 8.16	W 103 36 55.11
	154.40	0.55	171.31	154.40	0.94	-0.94	0.01	0.09	498693.46	763023.41	N 32 22 8.16	W 103 36 55.11
	181.40	0.61	171.97	181.39	1.21	-1.21	0.05	0.22	498693.19	763023.45	N 32 22 8.16	W 103 36 55.11
	211.40	0.65	165.78	211.39	1.54	-1.54	0.11	0.26	498692.86	763023.51	N 32 22 8.15	W 103 36 55.11
	241.40	0.70	165.08	241.39	1.88	-1.88	0.20	0.17	498692.52	763023.60	N 32 22 8.15	W 103 36 55.11
	271.40	0.72	166.34	271.39	2.24	-2.24	0.29	0.08	498692.16	763023.69	N 32 22 8.15	W 103 36 55.11
	302.40	0.72	167.17	302.39	2.62	-2.62	0.38	0.03	498691.78	763023.78	N 32 22 8.14	W 103 36 55.10
	334.40	0.72	167.12	334.38	3.01	-3.01	0.47	0.00	498691.39	763023.87	N 32 22 8.14	W 103 36 55.10
	365.40	0.72	170.61	365.38	3.39	-3.39	0.55	0.14	498691.01	763023.95	N 32 22 8.14	W 103 36 55.10
	397.40	0.71	174.83	397.38	3.79	-3.79	0.60	0.17	498690.61	763024.00	N 32 22 8.13	W 103 36 55.10
	428.40	0.70	179.07	428.38	4.17	-4.17	0.62	0.17	498690.23	763024.02	N 32 22 8.13	W 103 36 55.10
	460.40	0.65	177.09	460.37	4.55	-4.55	0.63	0.17	498689.85	763024.03	N 32 22 8.13	W 103 36 55.10
	492.40	0.60	179.06	492.37	4.89	-4.89	0.64	0.17	498689.51	763024.04	N 32 22 8.12	W 103 36 55.10
	523.40	0.55	182.48	523.37	5.21	-5.21	0.64	0.20	498689.19	763024.04	N 32 22 8.12	W 103 36 55.10
	555.40	0.53	183.61	555.37	5.51	-5.51	0.62	0.07	498688.89	763024.02	N 32 22 8.12	W 103 36 55.10
	586.40	0.52	184.59	586.37	5.79	-5.79	0.60	0.04	498688.61	763024.00	N 32 22 8.11	W 103 36 55.10
	618.40	0.50	185.31	618.37	6.07	-6.07	0.58	0.07	498688.33	763023.98	N 32 22 8.11	W 103 36 55.10
	649.40	0.48	181.72	649.37	6.34	-6.34	0.56	0.12	498688.06	763023.96	N 32 22 8.11	W 103 36 55.10
	681.40	0.44	182.50	681.38	6.60	-6.60	0.55	0.13	498687.80	763023.95	N 32 22 8.11	W 103 36 55.10
	712.40	0.41	182.51	712.36	6.82	-6.82	0.54	0.10	498687.58	763023.94	N 32 22 8.10	W 103 36 55.10
	744.40	0.37	181.30	744.38	7.04	-7.04	0.54	0.13	498687.38	763023.94	N 32 22 8.10	W 103 36 55.10
	775.40	0.38	180.24	775.36	7.24	-7.24	0.53	0.04	498687.18	763023.93	N 32 22 8.10	W 103 36 55.10
	807.40	0.34	178.84	807.38	7.44	-7.44	0.53	0.07	498686.98	763023.93	N 32 22 8.10	W 103 36 55.10
	838.40	0.32	181.25	838.36	7.61	-7.61	0.53	0.08	498686.79	763023.93	N 32 22 8.10	W 103 36 55.10
	870.40	0.45	170.83	870.38	7.83	-7.83	0.55	0.48	498686.57	763023.95	N 32 22 8.09	W 103 36 55.10
	901.40	0.41	171.07	901.36	8.06	-8.06	0.59	0.13	498686.34	763023.99	N 32 22 8.09	W 103 36 55.10
	933.40	0.38	169.28	933.38	8.27	-8.27	0.63	0.16	498686.13	763024.03	N 32 22 8.09	W 103 36 55.10
	964.40	0.34	171.21	964.38	8.46	-8.46	0.66	0.07	498685.94	763024.06	N 32 22 8.09	W 103 36 55.10
	996.40	0.33	169.92	996.36	8.64	-8.64	0.69	0.04	498685.78	763024.09	N 32 22 8.09	W 103 36 55.10
Last Gyro	1004.40	0.32	170.04	1004.36	8.68	-8.68	0.70	0.13	498685.72	763024.10	N 32 22 8.08	W 103 36 55.10
	1149.00	0.13	265.40	1148.96	9.10	-9.10	0.60	0.25	498685.30	763024.00	N 32 22 8.08	W 103 36 55.10
	1240.00	0.00	78.52	1239.96	9.10	-9.10	0.50	0.14	498685.30	763023.90	N 32 22 8.08	W 103 36 55.10
	1423.00	0.06	37.26	1422.96	9.03	-9.03	0.56	0.03	498685.37	763023.96	N 32 22 8.08	W 103 36 55.10
	1518.00	0.13	253.93	1517.96	9.02	-9.02	0.48	0.19	498685.38	763023.88	N 32 22 8.08	W 103 36 55.10
	1612.00	0.13	4.23	1611.98	8.94	-8.94	0.39	0.23	498685.48	763023.79	N 32 22 8.08	W 103 36 55.10
	1706.00	0.00	189.27	1705.96	8.83	-8.83	0.40	0.14	498685.57	763023.80	N 32 22 8.08	W 103 36 55.11
	1896.00	0.06	351.70	1895.98	8.74	-8.74	0.38	0.03	498685.68	763023.78	N 32 22 8.08	W 103 36 55.11
	1990.00	0.48	324.46	1989.98	8.37	-8.37	0.15	0.45	498686.03	763023.55	N 32 22 8.09	W 103 36 55.11
	2180.00	0.08	176.18	2179.95	7.85	-7.85	-0.31	0.29	498686.55	763023.09	N 32 22 8.09	W 103 36 55.11
	2274.00	0.00	266.28	2273.95	7.92	-7.82	-0.30	0.09	498686.48	763023.10	N 32 22 8.09	W 103 36 55.11
	2369.00	0.12	59.51	2368.95	7.87	-7.87	-0.22	0.13	498686.53	763023.18	N 32 22 8.09	W 103 36 55.11
	2463.00	0.00	251.11	2462.95	7.82	-7.82	-0.13	0.13	498686.58	763023.27	N 32 22 8.09	W 103 36 55.11
	2653.00	0.13	136.36	2652.95	7.97	-7.97	0.02	0.07	498686.43	763023.42	N 32 22 8.09	W 103 36 55.11
	2842.00	0.08	112.75	2841.95	8.18	-8.18	0.28	0.03	498686.22	763023.69	N 32 22 8.09	W 103 36 55.11
	2937.00	0.13	70.03	2936.95	8.17	-8.17	0.45	0.09	498686.23	763023.85	N 32 22 8.09	W 103 36 55.10
	3031.00	0.34	80.69	3030.95	8.09	-8.09	0.83	0.23	498686.31	763024.23	N 32 22 8.09	W 103 36 55.10
	3221.00	0.06	77.04	3220.95	7.97	-7.97	1.48	0.15	498686.43	763024.88	N 32 22 8.09	W 103 36 55.09
	3315.00	0.08	181.88	3314.95	8.03	-8.03	1.52	0.12	498686.37	763024.92	N 32 22 8.09	W 103 36 55.09
	3410.00	0.11	86.12	3409.95	8.09	-8.09	1.61	0.15	498686.31	763025.01	N 32 22 8.09	W 103 36 55.09
	3505.00	0.18	332.73	3504.95	7.95	-7.95	1.64	0.26	498686.45	763025.04	N 32 22 8.09	W 103 36 55.09
	3599.00	0.08	89.83	3598.95	7.82	-7.82	1.83	0.24	498686.58	763025.03	N 32 22 8.09	W 103 36 55.09
	3694.00	0.21	93.55	3693.95	7.83	-7.83	1.87	0.14	498686.57	763025.27	N 32 22 8.09	W 103 36 55.09
	3789.00	0.23	142.51	3788.95	7.99	-7.99	2.16	0.19	498686.41	763025.56	N 32 22 8.09	W 103 36 55.08
	3883.00	0.17	113.50	3882.95	8.19	-8.20	2.41	0.12	498686.20	763025.81	N 32 22 8.09	W 103 36 55.08
	4073.00	0.12	122.02	4072.95	8.41	-8.41	2.83	0.03	498685.99	763026.23	N 32 22 8.09	W 103 36 55.08
	4262.00	0.29	110.38	4261.95	8.68	-8.68	3.45	0.09	498685.72	763026.85	N 32 22 8.08	W 103 36 55.07
	4356.00	0.25	118.60	4355.95	8.87	-8.87	3.85	0.06	498685.53	763027.25	N 32 22 8.08	W 103 36 55.06
	4451.00	0.28	150.70	4450.94	9.17	-9.17	4.15	0.18	498685.23	763027.55	N 32 22 8.08	W 103 36 55.06
	4546.00	0.12	135.18	4545.94	9.44	-9.44	4.33	0.18	498684.96	763027.73	N 32 22 8.08	W 103 36 55.06
	4640.00	0.06	252.18	4639.94	9.52	-9.52	4.35	0.17	498684.87	763027.75	N 32 22 8.08	W 103 36 55.06
	4735.00	0.16	234.92	4734.94	9.62	-9.62	4.20	0.11	498684.78	763027.80	N 32 22 8.08	W 103 36 55.06
	4830.00	0.12	335.17	4829.94	9.60	-9.60	4.05	0.23	498684.80	763027.45	N 32 22 8.08	W 103 36 55.06
	4924.00	0.21	324.13	4923.94	9.37	-9.37	3.91	0.10	498685.03	763027.31	N 32 22 8.08	W 103 36 55.06
	5019.00	0.12	242.08	5018.94	9.28	-9.28	3.72	0.24	498685.12	763027.12	N 32 22 8.08	W 103 36 55.07
	5114.00	0.00	64.66	5113.94	9.33	-9.33	3.63	0.14	498685.07	763027.03	N 32 22 8.08	W 103 36 55.07
	5209.00	0.13	338.99	5208.94	9.22	-9.23	3.59	0.14	498685.17	763026.99	N 32 22 8.08	W 103 36 55.07
	5303.00	0.06	27.99	5302.94	9.08	-9.08	3.57	0.11	498685.32	763026.87	N 32 22 8.08	W 103 36 55.07
	5398.00	0.13	99.69	5397.94	9.06	-9.06	3.70	0.13	498685.34	763027.10	N 32 22 8.08	W 103 36 55.07
	5493.00	0.08	333.20	5492.94	9.03	-9.03	3.79	0.18	498685.37	763027.19	N 32 22 8.08	W 103 36 55.07
	5587.00	0.08	18.02	5586.94	8.92	-8.92	3.79	0.06	498685.48	763027.19	N 32 22 8.08	W 103 36 55.07
	5682.00	0.13	350.62	5681.94	8.75	-8.76	3.79	0.07				

Comments	MD (ft)	Incl (°)	Azin Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DL8 (ft/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S)	Longitude (E/W)
	6050.00	0.16	237.13	6050.94	9.06	-9.06	3.98	0.13	488685.34	763027.38	N 32 22 8.08	W 103 36 55.06
	6155.00	0.16	327.80	6154.94	9.02	-9.03	3.78	0.25	488685.38	763027.18	N 32 22 8.08	W 103 36 55.07
	6250.00	0.08	225.87	6249.94	8.96	-8.96	3.67	0.20	488685.44	763027.07	N 32 22 8.08	W 103 36 55.07
	6350.00	0.06	35.65	6359.94	8.97	-8.97	3.64	0.13	488685.43	763027.04	N 32 22 8.08	W 103 36 55.07
	6558.00	0.10	141.56	6557.94	9.02	-9.02	3.81	0.07	488685.38	763027.21	N 32 22 8.08	W 103 36 55.07
	6653.00	0.02	342.24	6652.94	9.07	-9.07	3.86	0.13	488685.33	763027.26	N 32 22 8.08	W 103 36 55.06
	6747.00	0.07	218.09	6746.94	9.09	-9.10	3.82	0.09	488685.30	763027.22	N 32 22 8.08	W 103 36 55.07
	6841.00	0.06	195.77	6840.94	9.19	-9.19	3.77	0.03	488685.21	763027.17	N 32 22 8.08	W 103 36 55.07
	6936.00	0.06	228.90	6935.94	9.27	-9.27	3.72	0.04	488685.13	763027.12	N 32 22 8.08	W 103 36 55.07
	7030.00	0.16	237.89	7029.94	9.37	-9.37	3.57	0.11	488685.03	763026.97	N 32 22 8.08	W 103 36 55.07
	7124.00	0.16	262.45	7123.94	9.46	-9.46	3.33	0.07	488684.94	763026.73	N 32 22 8.08	W 103 36 55.07
	7219.00	0.25	213.39	7218.94	9.65	-9.65	3.08	0.20	488684.75	763026.48	N 32 22 8.08	W 103 36 55.07
	7313.00	0.07	303.90	7312.94	9.79	-9.79	2.92	0.28	488684.61	763026.32	N 32 22 8.07	W 103 36 55.08
	7407.00	0.38	352.68	7406.94	9.45	-9.45	2.84	0.36	488684.95	763026.24	N 32 22 8.08	W 103 36 55.08
	7502.00	1.04	340.90	7501.93	8.32	-8.32	2.51	0.71	488686.08	763025.91	N 32 22 8.09	W 103 36 55.08
	7596.00	1.77	357.19	7595.90	6.06	-6.06	2.16	0.88	488686.34	763025.56	N 32 22 8.11	W 103 36 55.08
	7690.00	2.77	26.65	7689.83	2.58	-2.58	3.11	1.60	488691.82	763026.51	N 32 22 8.15	W 103 36 55.07
	7785.00	3.87	35.50	7784.67	-2.08	2.08	6.00	1.27	488696.48	763026.40	N 32 22 8.19	W 103 36 55.04
	7879.00	5.37	41.70	7878.36	-7.95	7.95	10.77	1.68	488702.35	763034.17	N 32 22 8.25	W 103 36 54.98
	7974.00	6.48	45.45	7972.85	-15.03	15.03	17.55	1.24	488709.43	763040.95	N 32 22 8.32	W 103 36 54.90
	8068.00	7.33	39.37	8066.17	-23.39	23.38	25.13	1.19	488717.78	763048.53	N 32 22 8.40	W 103 36 54.81
	8162.00	8.25	30.97	8159.31	-33.81	33.80	32.41	1.55	488728.20	763055.81	N 32 22 8.50	W 103 36 54.73
	8257.00	8.81	23.85	8253.26	-46.31	46.30	38.86	1.26	488740.70	763062.25	N 32 22 8.63	W 103 36 54.65
	8351.00	9.56	19.46	8346.05	-60.25	60.24	44.37	1.09	488754.64	763067.77	N 32 22 8.76	W 103 36 54.59
	8446.00	10.44	16.75	8439.61	-75.94	75.92	49.48	1.05	488770.32	763072.87	N 32 22 8.82	W 103 36 54.53
	8540.00	9.54	15.67	8532.18	-91.59	91.58	54.03	0.98	488785.98	763077.43	N 32 22 9.07	W 103 36 54.47
	8634.00	9.38	13.75	8624.91	-106.53	106.52	57.96	0.38	488800.92	763081.36	N 32 22 9.22	W 103 36 54.42
	8728.00	9.34	14.18	8717.65	-121.37	121.36	61.65	0.09	488815.75	763085.05	N 32 22 9.37	W 103 36 54.38
	8823.00	9.05	13.02	8811.43	-138.13	138.11	65.22	0.36	488830.51	763088.62	N 32 22 9.51	W 103 36 54.34
	8917.00	9.60	10.98	8904.19	-151.02	151.01	68.38	0.68	488845.40	763091.78	N 32 22 9.66	W 103 36 54.30
	9011.00	9.69	5.90	8996.86	-166.59	166.57	70.68	0.91	488860.97	763094.08	N 32 22 9.81	W 103 36 54.27
	9105.00	9.81	5.87	9089.51	-182.42	182.41	72.32	0.13	488876.80	763095.71	N 32 22 9.97	W 103 36 54.25
	9200.00	10.44	8.62	9183.03	-198.99	198.97	74.43	0.84	488893.36	763097.83	N 32 22 10.13	W 103 36 54.23
	9294.00	9.65	19.48	9275.59	-214.84	214.82	78.34	2.18	488909.21	763101.73	N 32 22 10.29	W 103 36 54.18
	9388.00	10.16	22.32	9368.19	-229.94	229.92	84.11	0.75	488924.31	763107.51	N 32 22 10.44	W 103 36 54.11
	9483.00	10.23	13.09	9481.70	-245.91	245.89	89.20	1.72	488940.28	763112.60	N 32 22 10.60	W 103 36 54.05
	9577.00	10.61	5.97	9554.15	-262.65	262.62	91.99	1.43	488957.01	763115.39	N 32 22 10.76	W 103 36 54.02
	9671.00	10.33	0.76	9646.59	-279.68	279.66	93.01	1.05	488974.05	763116.40	N 32 22 10.93	W 103 36 54.00
	9765.00	9.30	4.55	9739.21	-295.68	295.66	93.72	1.29	488990.05	763117.12	N 32 22 11.09	W 103 36 53.99
	9860.00	8.99	3.12	9833.01	-310.74	310.72	94.73	0.40	489005.11	763118.13	N 32 22 11.24	W 103 36 53.98
	9954.00	9.59	10.95	9925.78	-325.78	325.74	96.62	1.49	489020.13	763120.02	N 32 22 11.39	W 103 36 53.96
	10048.00	9.50	21.73	10018.48	-340.66	340.64	100.98	1.90	489035.03	763124.38	N 32 22 11.53	W 103 36 53.90
	10124.00	9.48	27.58	10003.44	-352.03	352.01	106.21	1.29	489048.39	763126.60	N 32 22 11.65	W 103 36 53.84
	10147.00	9.31	28.73	10116.14	-355.34	355.32	107.98	1.05	489049.70	763131.38	N 32 22 11.68	W 103 36 53.82
	10241.00	2.75	261.15	10209.70	-362.84	362.82	109.54	10.69	489057.20	763132.93	N 32 22 11.75	W 103 36 53.80
	10335.00	12.59	206.98	10302.89	-354.49	354.47	102.76	13.41	489048.85	763126.16	N 32 22 11.67	W 103 36 53.88
	10430.00	22.64	224.04	10393.33	-331.93	331.91	85.19	11.99	489026.30	763108.59	N 32 22 11.45	W 103 36 54.09
100' FNL Crossed	10469.00	25.81	224.32	10428.86	-320.41	320.39	73.99	7.82	490014.78	763097.39	N 32 22 11.34	W 103 36 54.22
	10524.00	30.00	224.82	10477.45	-302.04	302.03	55.96	7.82	489996.42	763079.36	N 32 22 11.16	W 103 36 54.43
	10618.00	35.06	205.60	10556.89	-260.83	260.82	27.70	12.08	489955.21	763051.10	N 32 22 10.75	W 103 36 54.77
2nd Bone Spring Intersection	10618.14	35.07	205.58	10557.00	-260.76	260.75	27.66	12.52	489955.14	763051.06	N 32 22 10.75	W 103 36 54.77
	10713.00	44.35	193.89	10630.00	-203.78	203.78	7.86	12.52	489898.17	763031.26	N 32 22 10.19	W 103 36 55.00
	10807.00	55.98	191.52	10690.11	-133.46	133.46	-7.86	12.52	489827.86	763015.54	N 32 22 9.49	W 103 36 55.19
	10901.00	62.38	192.03	10738.25	-54.47	54.48	-24.33	6.82	489748.88	762998.07	N 32 22 8.71	W 103 36 55.39
	10996.00	63.87	189.69	10781.20	28.74	-28.73	-40.29	2.70	489665.67	762983.12	N 32 22 7.89	W 103 36 55.58
	11090.00	73.12	183.63	10815.65	115.48	-115.47	-50.27	11.52	489578.93	762973.14	N 32 22 7.03	W 103 36 55.70
	11184.00	84.66	179.53	10833.74	207.51	-207.50	-52.74	13.00	489486.91	762970.66	N 32 22 6.12	W 103 36 55.74
	11284.00	87.48	179.41	10838.53	277.34	-277.32	-52.09	4.03	489417.09	762971.31	N 32 22 5.43	W 103 36 55.74
	11380.00	87.19	179.25	10843.00	373.23	-373.21	-50.97	0.34	489321.20	762972.43	N 32 22 4.48	W 103 36 55.73
	11444.00	86.25	179.17	10846.74	467.14	-467.13	-49.68	1.13	489227.29	762973.73	N 32 22 3.55	W 103 36 55.72
	11538.00	86.15	179.72	10849.69	561.09	-561.08	-48.77	0.59	489133.34	762974.64	N 32 22 2.62	W 103 36 55.72
	11633.00	86.53	179.97	10852.44	656.05	-656.04	-48.51	0.48	489038.39	762974.89	N 32 22 1.68	W 103 36 55.73
	11727.00	86.91	179.45	10854.54	750.02	-750.01	-48.03	0.69	489744.41	762975.37	N 32 22 0.75	W 103 36 55.73
	11822.00	89.33	179.97	10856.00	845.01	-845.00	-47.55	0.70	489749.43	762975.85	N 32 21 59.81	W 103 36 55.73
	12010.00	90.21	180.51	10856.76	1033.00	-1032.99	-48.34	0.55	489768.44	762975.06	N 32 21 57.95	W 103 36 55.75
	12104.00	90.38	180.79	10856.27	1127.00	-1126.99	-49.41	0.35	489767.45	762973.99	N 32 21 57.02	W 103 36 55.77
	12199.00	89.95	180.92	10856.00	1221.99	-1221.98	-50.82	0.47	489742.47	762972.58	N 32 21 56.08	W 103 36 55.80
	12267.00	89.63	180.82	10856.25	1289.98	-1289.97	-51.92	0.47	489740.48	762971.49	N 32 21 55.41	W 103 36 55.82
	12362.00	90.25	181.06	10856.35	1384.96	-1384.95	-53.56	0.67	489730.50	762969.84	N 32 21 54.47	W 103 36 55.84
	12456.00	90.35	181.39	10855.85	1478.94	-1478.93	-55.57	0.37	489721.53	762967.83	N 32 21 53.54	W 103 36 55.87
	12551.00	89.87	181.10	10855.67	1573.92	-1573.91	-57.63	0.59	489712.05	762965.77	N 32 21 52.60	W 103 36 55.90
	12645.00	90.32	181.81	10855.52	1667.89	-1667.88	-59.85	0.72	489702.58	762963.55	N 32 21 51.87	W 103 36 55.94
	12739.00	90.54	181.95	10854.81	1761.84	-1761.83	-62.77	0.43	489693.63	762960.63	N 32 21 50.74	W 103 36 55.98
	12834.00	91.14	181.90	10853.42	1856.78	-1856.77	-65.96	0.63	489683.70	762957.44	N 32 21 49.80	W 103 36 56.02
	13022.00	89.56	180.58	10852.27	2044.72	-2044.71	-70.03	1.10	489649.77	762953.37	N 32 21 47.94	W 103 36 56.09
	13210.00	89.59	180.08	10853.66	2232.72	-2232.70	-71.08	0.28	489641.78	762952.32	N 32 21 46.08	W 103 36 56.11
	13304.00	89.77	179.98	10854.19	2326.71	-2326.70	-71.10	0.22	489637.79	762952.30	N 32 21 45.15	W 103 36 56.12
	13399.00	89.66	180.02	10854.68	2421.71	-242						

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 ° ' ")
	16701.00	89.57	181.78	10887.07	5722.43	-5722.42	-27.75	0.72	492972.19	762985.65	N 32 21 11.55	W 103 36 55.88
	16889.00	89.97	180.95	10887.83	5910.37	-5910.37	-32.23	0.49	492784.25	762991.17	N 32 21 9.69	W 103 36 55.95
	16984.00	89.47	180.49	10888.29	6005.36	-6005.36	-33.42	0.72	492689.28	762989.88	N 32 21 8.75	W 103 36 55.97
	17172.00	89.21	180.84	10870.46	6193.34	-6193.33	-35.61	0.23	492501.30	762987.79	N 32 21 6.89	W 103 36 56.01
	17267.00	89.77	180.76	10871.30	6288.33	-6288.32	-36.93	0.60	492406.31	762986.47	N 32 21 5.95	W 103 36 56.03
	17455.00	89.83	179.80	10871.96	6476.32	-6476.31	-37.85	0.51	492218.33	762985.55	N 32 21 4.09	W 103 36 56.06
	17644.00	90.10	180.47	10872.07	6665.32	-6665.31	-38.30	0.38	492029.33	762985.10	N 32 21 2.22	W 103 36 56.08
	17738.00	89.97	180.87	10872.02	6759.31	-6759.30	-39.40	0.45	491935.34	762984.01	N 32 21 1.29	W 103 36 56.10
	17927.00	90.17	181.02	10871.78	6948.29	-6948.28	-42.51	0.13	491746.38	762980.89	N 32 20 59.42	W 103 36 56.15
	18115.00	90.14	181.46	10871.28	7136.24	-7136.23	-46.58	0.23	491556.43	762976.82	N 32 20 57.56	W 103 36 56.21
	18304.00	90.37	181.07	10870.43	7325.19	-7325.18	-50.75	0.24	491369.49	762972.65	N 32 20 55.69	W 103 36 56.27
	18398.00	90.30	181.11	10869.89	7419.18	-7419.16	-52.54	0.09	491275.51	762970.88	N 32 20 54.76	W 103 36 56.30
	18587.00	90.97	180.24	10867.79	7608.15	-7608.14	-54.77	0.58	491086.54	762968.63	N 32 20 52.89	W 103 36 56.34
	18775.00	89.84	179.94	10866.46	7796.14	-7796.13	-55.06	0.62	490898.56	762968.34	N 32 20 51.03	W 103 36 56.36
	18869.00	88.05	179.40	10868.19	7890.12	-7890.11	-54.52	1.99	490804.58	762968.88	N 32 20 50.10	W 103 36 56.38
	18963.00	89.31	179.33	10870.36	7984.09	-7984.07	-53.48	1.34	490710.62	762969.92	N 32 20 49.17	W 103 36 56.38
	19057.00	89.37	178.75	10871.44	8078.07	-8078.05	-51.91	0.62	490616.64	762971.50	N 32 20 48.24	W 103 36 56.35
	19152.00	89.02	178.06	10872.78	8173.02	-8173.01	-49.26	0.81	490521.69	762974.14	N 32 20 47.30	W 103 36 56.32
	19246.00	89.33	178.08	10874.13	8266.95	-8266.94	-46.10	0.33	490427.76	762977.30	N 32 20 46.37	W 103 36 56.29
	19435.00	89.23	177.57	10876.50	8455.80	-8455.79	-38.92	0.27	490238.92	762984.48	N 32 20 44.51	W 103 36 56.22
	19623.00	89.84	177.48	10878.36	8643.61	-8643.61	-30.81	0.22	490051.11	762992.59	N 32 20 42.65	W 103 36 56.14
	19812.00	89.32	177.06	10880.07	8832.39	-8832.39	-21.81	0.28	489862.34	763001.60	N 32 20 40.78	W 103 36 56.05
	20001.00	89.11	177.45	10882.66	9021.15	-9021.15	-12.75	0.23	489673.58	763010.65	N 32 20 38.91	W 103 36 55.96
	20189.00	89.08	179.49	10885.63	9209.05	-9209.05	-7.74	1.09	489485.69	763015.66	N 32 20 37.05	W 103 36 55.92
	20283.00	89.35	179.51	10888.92	9303.04	-9303.04	-6.92	0.29	489391.70	763016.48	N 32 20 36.12	W 103 36 55.92
	20377.00	89.28	179.36	10888.04	9397.03	-9397.03	-5.99	0.16	489297.72	763017.41	N 32 20 35.19	W 103 36 55.91
	20472.00	89.63	179.38	10888.95	9492.02	-9492.02	-4.94	0.37	489202.73	763018.48	N 32 20 34.25	W 103 36 55.91
	20568.00	89.74	179.24	10889.46	9586.01	-9586.01	-3.81	0.19	489108.74	763019.59	N 32 20 33.32	W 103 36 55.90
	20755.00	90.03	178.96	10889.84	9774.88	-9774.98	-0.64	0.21	488919.77	763022.56	N 32 20 31.45	W 103 36 55.88
	20944.00	89.88	179.76	10889.99	9963.97	-9963.97	1.27	0.43	488730.80	763024.87	N 32 20 29.58	W 103 36 55.87
100' FSL	21019.00	89.76	179.75	10890.23	10038.97	-10038.97	1.59	0.16	488655.80	763024.99	N 32 20 28.84	W 103 36 55.88
Crossed	21057.00	89.70	179.75	10890.41	10076.97	-10076.97	1.75	0.16	488617.80	763025.15	N 32 20 28.48	W 103 36 55.88
Final MWD	21097.00	89.70	179.75	10890.62	10116.97	-10116.97	1.93	0.00	488577.60	763025.33	N 32 20 28.07	W 103 36 55.88
Proj to TD												

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	1/88.425	30.000	30.000	GYD_GC+DROP+OH-Depth Only	Original Borehole / Oxy Avogato 30-31 State Com 22H Gyro + MWD 0-21097MD
	1	26.500	26.500	Act Strs	30.000	30.000	GYD_GC+DROP+OH-Depth Only	Original Borehole / Oxy Avogato 30-31 State Com 22H Gyro + MWD 0-21097MD
	1	26.500	1004.400	Act Strs	30.000	30.000	GYD_GC+DROP+OH	Original Borehole / Oxy Avogato 30-31 State Com 22H Gyro +
	1	1004.400	21097.000	Act Strs	30.000	30.000	A010Mb_MWD+IFR1+SAG+MS	Original Borehole / Oxy Avogato 30-31 State Com 22H Gyro + MWD 0-21097MD

...Original Borehole\Oxy Avogato 30-31 State Com 22H Gyro + MWD 0-21097MD

Schlumberger

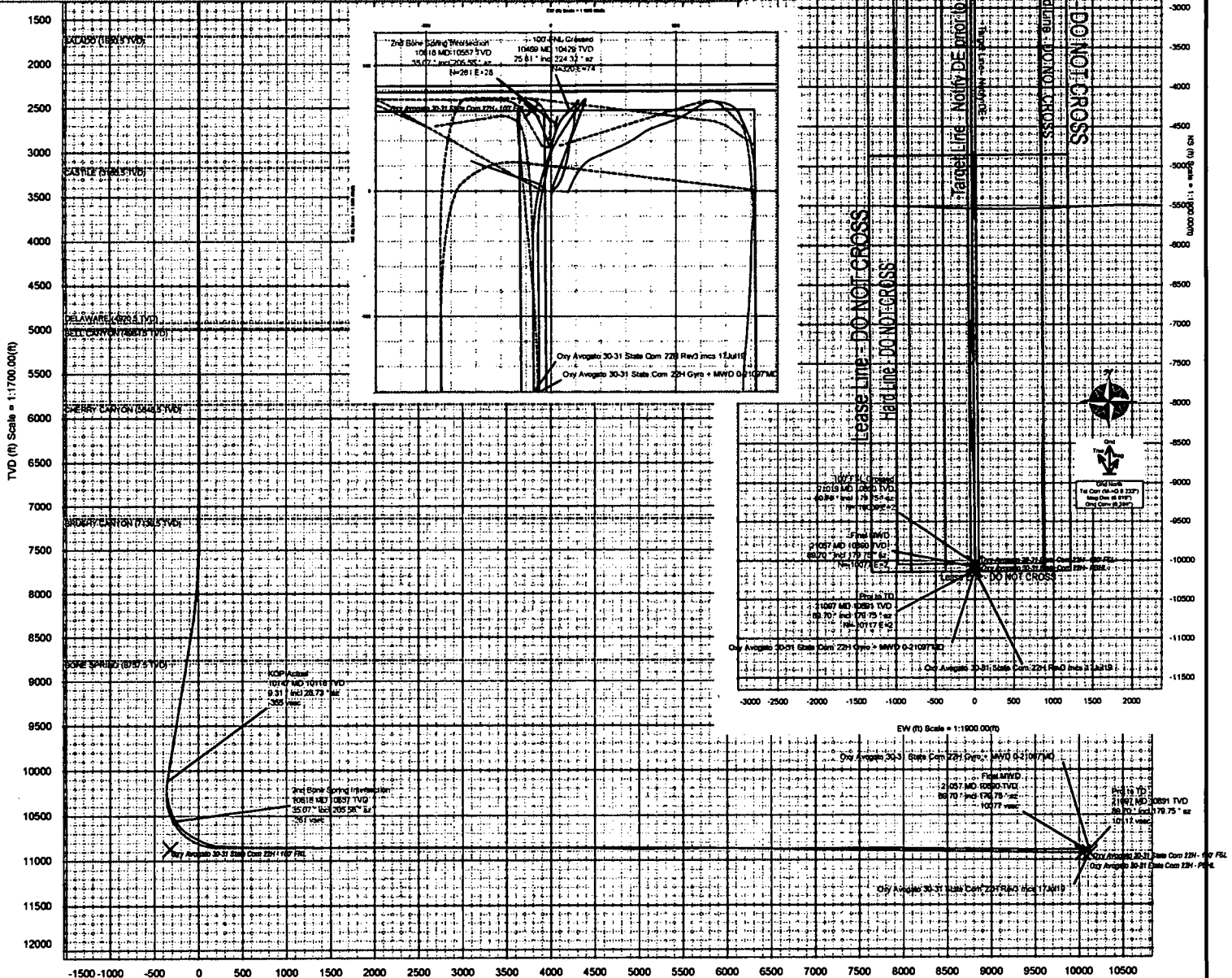
OXY



Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Avogato 30-31 State Com 22H	NM Lea County (NAD 83)	Oxy Avogato 30-31 State Com 22H

Gravity & Magnetic Parameters				Surface Location				Miscellaneous			
Model:	IFR1	Dip:	60.082°	Date:	27-Aug-2018	Lat:	N 32 22 8.17	Northings:	438534.47US	Grid Conv:	0.3844°
MagnDec:	6.81F°	FS:	43088.4mT	Gravity FS:	998.448mgm (9.80665 Based)	Lon:	W 103 38 58.11	Eastings:	763023.47US	Scale Fact:	0.99996537
								Plan: Oxy Avogato 30-31 State Com 22H Gyro + MWD 0-21097MD			

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	1004.40	0.32	170.04	1004.38	8.68	-8.68	0.70	0.13
KOP Actual	10147.00	9.31	28.73	10116.14	-355.34	355.32	107.98	1.05
100' FNL Crossed	10469.00	25.81	224.32	10428.86	-320.41	320.39	73.99	7.62
2nd Bone Spring Intersection	10618.14	35.07	205.58	10557.00	-260.76	260.75	27.66	12.52
100' FSL Crossed	21019.00	89.76	179.75	10890.23	10038.97	-10038.97	1.59	0.16
Final MWD	21057.00	89.70	179.75	10890.41	10076.97	-10076.97	1.75	0.16
Proj to TD	21097.00	89.70	179.75	10890.62	10116.97	-10116.97	1.93	0.00



Vertical Section (R) Azim = 180.01° Scale = 1:1700.00(ft) Origin = 0N/-S, 0E/-W

Oilfield Services, Central U.S. Land
Schlumberger Drilling and Measurements
Drilling Group
Geo Market Area: South West Texas Basin
7220 W I-H 20
Midland, Texas 79706
Phone : (432) 742-5400 (Main)
Fax : (432) 742-5606 (Shared)

Schlumberger

September 30, 2019

OXY USA INC
P.O. BOX 4294
HOUSTON, TX 77210-4294

HOBBS OCD
NOV 14 2019
RECEIVED

Re:

S30, T22S, R33E Lea, NM
N 32.368936 W -103.615308

CLIENT: OXY USA INC
WELL: Avogato 30 31 State Com 22H
FIELD: Red Tank; Bone Spring, East

RIG: H&P 636
COUNTY: LEA
API NO: 30-025-45925
JOB NO: 19MLH0255

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements, a division of Schlumberger Technology Corporation (P-5 No. 754900).
Other information required by your office is as follows.

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Devon Kurtz FS	Avogato 30 31 State Com 22H Original Hole	1149.00 Ft to 21057.00 Ft	August 8, 2019 to September 9, 2019	TelePacer, SlimPulse 3rd Party Corrected

Oilfield Services, Central U.S. Land
Schlumberger Drilling and Measurements
Drilling Group
Geo Market Area: South West Texas Basin
7220 W I-H 20
Midland, Texas 79706

Schlumberger

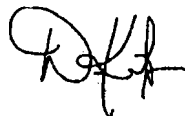
Fax : (432) 742-5606 (Shared)

Well Reference:

S30, T22S, R33E Lea, NM
N 32.368936 W -103.615308

I, Devon Kurtz certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of August 08, 2019 through September 09, 2019, conduct or supervise the taking of the TelePacer, SlimPulse & 3rd Party Corrected surveys from a depth of 1149.00 feet to a depth of 21057.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of OXY USA INC for the Avogato 30 31 State Com 22H Well (Original Hole) API No. 30-025-45925 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

By
Devon Kurtz
FS



Subscribed and Sworn to before me this 30 day of September (month) 2019 (yr)

My Commission expires:

6/14/2023

Notary Public

Jean-Paul Langlois
Comanche, Oklahoma
(County State)

(signature)

