

Schlumberger

Oxy Avogato 30-31 State Com 11H Gyro + MWD 0-19645 MD Survey Geodetic Report (Def Survey)



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Report Date: October 29, 2019 - 01:22 PM
Client: OXY
Field: NM Lea County (NAD 83)
Structure / Slot: Oxy Avogato 30-31 State Com 11H / Oxy Avogato 30-31 State Com 11H
Well: Oxy Avogato 30-31 State Com 11H
Borehole: Original Borehole
UWI / API#: Unknown / 30-025-45956
Survey Name: Oxy Avogato 30-31 State Com 11H Gyro + MWD 0-19645 MD
Survey Date: September 18, 2019
Tort / AHD / DDI / ERD Ratio: 207.871' / 10845.164 ft / 6.672 / 1.151
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 22' 10.75013", W 103° 37' 0.93952"
Location Grid N/E Y/X: N 498951.700 RUS, E 762521.600 RUS
CRS Grid Convergence Angle: 0.3836°
Grid Scale Factor: 0.99996512
Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 181.713° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB=26.5'
TVD Reference Elevation: 3732.600 ft above MSL
Seabed / Ground Elevation: 3706.100 ft above MSL
Magnetic Declination: 6.605°
Total Gravity Field Strength: 998.4481 mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48048.600 nT
Magnetic Dip Angle: 60.086°
Declination Date: October 12, 2019
Magnetic Declination Model: IFR1
North Reference: Grid North
Grid Convergence Used: 0.3836°
Total Corr Mag North -> Grid North: 6.2214°
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northings (RUS)	Easting (RUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
RKB	0.00	0.00	181.71	0.00	0.00	0.00	0.00	N/A	498951.70	762521.60	N 32 22 10.75	W 103 37 0.94
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	498951.70	762521.60	N 32 22 10.75	W 103 37 0.94
	109.50	0.39	271.74	109.50	0.00	0.01	-0.28	0.47	498951.71	762521.32	N 32 22 10.75	W 103 37 0.94
	163.50	0.58	276.42	163.50	-0.02	0.04	-0.74	0.36	498951.74	762520.86	N 32 22 10.75	W 103 37 0.95
	250.50	0.68	282.00	250.49	-0.15	0.20	-1.68	0.13	498951.90	762519.92	N 32 22 10.75	W 103 37 0.96
	344.50	0.67	287.15	344.49	-0.40	0.48	-2.75	0.07	498952.18	762518.85	N 32 22 10.76	W 103 37 0.97
	439.50	0.60	295.72	439.48	-0.75	0.88	-3.73	0.12	498952.56	762517.87	N 32 22 10.76	W 103 37 0.98
	533.50	0.41	321.89	533.48	-1.21	1.34	-4.38	0.31	498953.04	762517.22	N 32 22 10.76	W 103 37 0.99
	628.50	0.36	1.02	628.47	-1.77	1.90	-4.59	0.28	498953.60	762517.01	N 32 22 10.77	W 103 37 0.99
	722.50	0.43	25.09	722.47	-2.38	2.52	-4.43	0.19	498954.22	762517.17	N 32 22 10.78	W 103 37 0.99
	817.50	0.44	39.84	817.47	-3.00	3.12	-4.05	0.12	498954.82	762517.55	N 32 22 10.78	W 103 37 0.99
	911.50	0.36	50.29	911.47	-3.48	3.59	-3.59	0.11	498955.29	762518.01	N 32 22 10.78	W 103 37 0.98
Last Gyro	1008.50	0.24	70.52	1008.47	-3.75	3.84	-3.17	0.17	498955.54	762518.43	N 32 22 10.79	W 103 37 0.98
	1199.00	0.13	49.29	1198.96	-4.04	4.12	-2.62	0.07	498955.82	762518.98	N 32 22 10.79	W 103 37 0.97
	1258.00	0.11	291.29	1257.96	-4.10	4.18	-2.63	0.35	498955.88	762518.97	N 32 22 10.79	W 103 37 0.97
	1442.00	0.05	122.89	1441.96	-4.12	4.21	-2.72	0.09	498955.90	762518.88	N 32 22 10.79	W 103 37 0.97
	1536.00	0.02	107.30	1535.96	-4.10	4.18	-2.67	0.03	498955.88	762518.93	N 32 22 10.79	W 103 37 0.97
	1631.00	0.02	178.89	1630.96	-4.08	4.16	-2.66	0.02	498955.86	762518.94	N 32 22 10.79	W 103 37 0.97
	1725.00	0.02	291.74	1724.96	-4.06	4.15	-2.67	0.04	498955.85	762518.93	N 32 22 10.79	W 103 37 0.97
	1819.00	0.02	129.82	1818.96	-4.08	4.14	-2.67	0.04	498955.84	762518.93	N 32 22 10.79	W 103 37 0.97
	1913.00	0.06	243.42	1912.96	-4.03	4.11	-2.71	0.07	498955.81	762518.89	N 32 22 10.79	W 103 37 0.97
	2008.00	0.05	89.45	2007.96	-4.00	4.09	-2.71	0.11	498955.79	762518.89	N 32 22 10.79	W 103 37 0.97
	2197.00	0.05	105.29	2196.96	-3.99	4.07	-2.55	0.01	498955.77	762519.05	N 32 22 10.79	W 103 37 0.97
	2291.00	0.05	325.27	2290.96	-4.01	4.09	-2.53	0.10	498955.79	762519.07	N 32 22 10.79	W 103 37 0.97
	2385.00	0.02	158.56	2384.96	-4.03	4.11	-2.55	0.07	498955.81	762519.05	N 32 22 10.79	W 103 37 0.97
	2480.00	0.02	40.62	2479.96	-4.03	4.10	-2.53	0.04	498955.80	762519.07	N 32 22 10.79	W 103 37 0.97
	2574.00	0.05	251.84	2573.96	-4.03	4.10	-2.56	0.07	498955.80	762519.04	N 32 22 10.79	W 103 37 0.97
	2668.00	0.02	82.69	2667.96	-4.01	4.09	-2.56	0.07	498955.79	762519.02	N 32 22 10.79	W 103 37 0.97
	2763.00	0.06	39.41	2762.96	-4.06	4.13	-2.53	0.05	498955.83	762519.07	N 32 22 10.79	W 103 37 0.97
	2857.00	0.02	357.53	2856.96	-4.11	4.19	-2.50	0.05	498955.89	762519.10	N 32 22 10.79	W 103 37 0.97
	2951.00	0.05	303.64	2950.96	-4.15	4.23	-2.54	0.04	498955.93	762519.06	N 32 22 10.79	W 103 37 0.97
	3046.00	0.05	255.80	3045.96	-4.18	4.24	-2.61	0.04	498955.94	762518.99	N 32 22 10.79	W 103 37 0.97
	3140.00	0.06	23.70	3139.96	-4.20	4.28	-2.63	0.11	498955.98	762518.97	N 32 22 10.79	W 103 37 0.97
	3234.00	0.06	329.04	3233.96	-4.28	4.36	-2.64	0.06	498956.06	762518.96	N 32 22 10.79	W 103 37 0.97
	3423.00	0.05	83.93	3422.96	-4.38	4.46	-2.61	0.05	498956.16	762518.99	N 32 22 10.79	W 103 37 0.97
	3612.00	0.05	7.35	3611.96	-4.47	4.55	-2.51	0.03	498956.25	762519.09	N 32 22 10.80	W 103 37 0.97
	3707.00	0.05	83.41	3706.96	-4.52	4.59	-2.47	0.06	498956.29	762519.13	N 32 22 10.80	W 103 37 0.97
	3896.00	0.11	42.51	3895.96	-4.67	4.74	-2.26	0.04	498956.44	762519.34	N 32 22 10.80	W 103 37 0.97
	3990.00	0.11	348.16	3989.96	-4.82	4.89	-2.22	0.11	498956.59	762519.38	N 32 22 10.80	W 103 37 0.97
	4179.00	0.12	64.05	4178.96	-5.09	5.16	-2.08	0.07	498956.86	762519.52	N 32 22 10.80	W 103 37 0.96
	4367.00	0.05	203.03	4366.96	-5.11	5.17	-1.94	0.09	498956.87	762519.66	N 32 22 10.80	W 103 37 0.96
	4461.00	0.10	51.41	4460.96	-5.12	5.18	-1.89	0.16	498956.88	762519.71	N 32 22 10.80	W 103 37 0.96
	4650.00	0.05	308.25	4649.96	-5.28	5.33	-1.82	0.06	498957.03	762519.78	N 32 22 10.80	W 103 37 0.96
	4839.00	0.10	189.17	4838.96	-5.16	5.22	-1.91	0.07	498956.92	762519.69	N 32 22 10.80	W 103 37 0.96
	4933.00	0.05	173.00	4932.96	-5.04	5.10	-1.92	0.06	498956.80	762519.68	N 32 22 10.80	W 103 37 0.96
	5028.00	0.05	155.13	5027.96	-4.96	5.02	-1.90	0.02	498956.72	762519.70	N 32 22 10.80	W 103 37 0.96
	5122.00	0.05	244.84	5121.96	-4.91	4.97	-1.92	0.08	498956.67	762519.68	N 32 22 10.80	W 103 37 0.96
	5311.00	0.05	330.77	5310.96	-4.94	5.00	-2.03	0.04	498956.70	762519.57	N 32 22 10.80	W 103 37 0.96
	5405.00	0.02	130.87	5404.96	-4.97	5.03	-2.04	0.07	498956.73	762519.56	N 32 22 10.80	W 103 37 0.96
	5500.00	0.06	337.20	5499.96	-5.00	5.06	-2.05	0.08	498956.76	762519.55	N 32 22 10.80	W 103 37 0.96
	5594.00	0.05	232.03	5593.96	-5.02	5.08	-2.10	0.09	498956.78	762519.50	N 32 22 10.80	W 103 37 0.96
	5689.00	0.02	256.54	5688.96	-4.99	5.05	-2.15	0.03	498956.75	762519.45	N 32 22 10.80	W 103 37 0.96
	5877.00	1.17	216.77	5876.95	-3.41	3.51	-3.33	0.61	498955.21	762518.27	N 32 22 10.79	W 103 37 0.98
	5972.00	1.85	257.62	5971.92	-2.24	2.40	-5.41	1.30	498954.10	762516.19	N 32 22 10.77	W 103 37 1.00
	6066.00	2.85	276.92	6065.84	-2.20	2.48	-9.19	1.42	498954.18	762512.41	N 32 22 10.78	W 103 37 1.05
	6160.00	4.29	290.38	6159.66	-3.68	4.11	-14.79	1.68	498955.81	762506.81	N 32 22 10.78	W 103 37 1.11
	6254.00	5.56	294.70	6253.31	-6.57	7.24	-22.24	1.43	498956.94	762499.36	N 32 22 10.82	W 103 37 1.20
	6441.00	8.10	298.06	6440.05	-16.07	17.35	-42.34	1.35	498959.05	762479.26	N 32 22 10.92	W 103 37 1.43
	6537.00	8.26	297.95	6533.99	-22.00	23.63	-54.15	0.17	498975.33	762467.45	N 32 22 10.99	W 103 37 1.57
	6632.00	8.15	297.69	6628.02	-27.96	29.95	-66.14	0.12	498981.65	762455.46	N 32 22 11.05	W 103 37 1.71
	6726.00	8.18	296.39	6721.07	-33.67	36.02	-78.03	0.20	498987.72	762443.57	N 32 22 11.11	W 103 37 1.85
	6820.00	8.18	296.36	6814.11	-39.26	41.96	-90.01	0.00	498993.66	762431.59	N 32 22 11.17	W 103 37 1.99
	6915.00	8.14	297.83	6908.15	-45.03	48.10	-102.02	0.22	498999.80	762419.59	N 32 22 11.23	W 103 37 2.13
	7009.00	8.05	294.98	7001.21	-50.56	53.99	-113.87	0.44	499005.69	762407.74	N 32 22 11.29	W 103 37 2.26
	7198.00	7.82	291.99	7188.40	-60.25	64.39	-137.78	0.25	499016.09	762383.82	N 32 22 11.40	W 103 37 2.54
	7292.00	7.77	289.82	7281.53	-64.44	68.94	-149.69	0.32	499020.64	762371.91	N 32 22 11.44	W 103 37 2.68
	7387.00	7.99	290.22	7375.64	-68.53	73.40	-161.93	0.24	499025.10	762359.68	N 32 22 11.49	W 103 37 2.82
	7481.00	8.01	288.89	7468.72	-72.54	77.78	-174.26	0.20	499028.48	762347.35	N 32 22 11.53	W 103 37 2.97
	7670.00	7.93	286.92	7655.90	-78.85	85.84	-189.19	0.15	499037.54	762322.42	N 32 22 11.61	W 103 37 3.28
	7764.00	7.86	287.02	7749.01	-83.24	89.61	-211.54	0.08	499041.30	762310.07	N 32 22 11.65	W 103 37 3.40
	7858.00	7.84	287.03	7842.12	-86.64	93.37	-223.81	0.02	499045.06	762297.79	N 32 22 11.69	W 103 37 3.54
	7953.00	7.81	284.45	7936.24	-89.77	96.87	-236.26	0.37	499048.57	762285.35	N 32 22 11.72	W 103 37 3.69
	8047.00	7.73	279.36	8029.38	-92.02	99.50	-248.68	0.74	499051.19	762272.93	N 32 22 11.75	W 103 37 3.83
	8142.00	7.98	274.30	8123.49	-93.17	101.03	-261.56	0.77	499052.73	762260.05	N 32 22 11.77	

Comments	MD (ft)	Incl (°)	Azimuth (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	8709.00	6.70	220.28	8685.36	-64.75	74.64	-329.68	1.48	499026.34	762191.93	N 32 22 11.51 W 103 37	4.78
	8753.00	6.40	216.19	8729.07	-60.72	70.70	-332.79	1.28	499022.40	762188.83	N 32 22 11.47 W 103 37	4.81
100' FNL Crossed KOP Actual	8872.00	7.92	211.30	8847.14	-48.13	58.34	-340.96	1.37	499010.04	762180.65	N 32 22 11.35 W 103 37	4.91
	8888.00	8.10	210.84	8861.01	-46.43	56.87	-341.97	1.37	499008.37	762179.65	N 32 22 11.33 W 103 37	4.92
	8981.00	15.89	209.58	8953.88	-29.06	39.59	-351.83	8.20	488991.29	762169.78	N 32 22 11.17 W 103 37	5.04
	9075.00	21.39	210.44	9042.90	-2.83	13.60	-368.88	5.86	488965.30	762154.73	N 32 22 10.91 W 103 37	5.22
	9138.00	23.77	205.65	9101.07	19.06	-7.76	-378.20	4.77	488943.94	762143.41	N 32 22 10.70 W 103 37	5.35
	9169.00	25.02	205.93	9129.30	30.74	-19.28	-383.77	4.05	488932.42	762137.84	N 32 22 10.58 W 103 37	5.42
	9283.00	38.21	193.99	9209.25	77.53	-65.62	-399.58	15.47	488886.08	762122.04	N 32 22 10.13 W 103 37	5.60
	9358.00	46.04	185.22	9279.71	140.52	-128.33	-409.81	10.29	488823.37	762111.80	N 32 22 9.51 W 103 37	5.73
	9452.00	58.49	180.23	9337.15	214.87	-202.41	-413.07	13.89	488749.30	762108.55	N 32 22 8.77 W 103 37	5.77
	9546.00	71.32	180.11	9378.94	299.59	-267.38	-413.61	13.65	488664.35	762108.30	N 32 22 7.93 W 103 37	5.80
	9641.00	87.51	181.45	9384.33	392.84	-380.42	-414.82	17.10	488571.29	762107.00	N 32 22 7.01 W 103 37	5.80
	9715.00	99.54	179.54	9396.24	498.60	-454.39	-415.25	3.77	488497.33	762106.37	N 32 22 6.28 W 103 37	5.82
	9789.00	99.68	179.13	9396.74	540.55	-528.38	-414.35	0.59	488423.34	762107.22	N 32 22 5.55 W 103 37	5.81
	9881.00	99.74	178.76	9387.20	632.42	-620.38	-412.70	0.41	488331.36	762106.92	N 32 22 4.84 W 103 37	5.80
	9974.00	99.79	178.84	9397.59	725.30	-713.34	-410.75	0.10	488238.38	762110.87	N 32 22 3.72 W 103 37	5.78
	10066.00	90.38	178.40	9397.45	817.17	-805.32	-408.53	0.80	488146.41	762113.08	N 32 22 2.81 W 103 37	5.77
	10158.00	91.52	178.00	9395.92	908.98	-897.26	-405.64	1.31	488054.48	762115.97	N 32 22 1.90 W 103 37	5.74
	10250.00	91.32	176.87	9393.64	1000.69	-989.13	-401.53	1.25	487962.60	762120.09	N 32 22 0.89 W 103 37	5.70
	10343.00	91.67	176.41	9391.22	1093.30	-1081.94	-398.08	0.82	487869.80	762125.54	N 32 22 0.07 W 103 37	5.64
	10435.00	91.60	176.21	9388.59	1184.85	-1173.71	-390.16	0.23	487778.03	762131.45	N 32 21 59.16 W 103 37	5.58
	10529.00	90.66	176.53	9386.74	1278.55	-1267.59	-385.85	2.66	487684.16	762135.77	N 32 21 58.23 W 103 37	5.54
	10624.00	89.84	182.43	9386.32	1373.51	-1362.57	-386.64	4.19	487589.18	762134.97	N 32 21 57.29 W 103 37	5.55
	10718.00	89.18	183.17	9387.13	1467.49	-1456.45	-391.24	1.05	487495.31	762130.38	N 32 21 56.36 W 103 37	5.61
	10812.00	89.23	178.19	9388.43	1561.44	-1550.40	-392.35	5.30	487401.35	762128.26	N 32 21 55.44 W 103 37	5.63
	10907.00	89.25	176.13	9389.69	1656.12	-1645.27	-387.65	2.17	487306.49	762133.97	N 32 21 54.50 W 103 37	5.59
	11001.00	89.25	176.42	9390.92	1749.69	-1739.07	-381.54	0.31	487212.70	762140.08	N 32 21 53.57 W 103 37	5.52
	11095.00	88.92	177.51	9392.43	1843.36	-1832.92	-376.56	1.21	487118.85	762145.05	N 32 21 52.64 W 103 37	5.47
	11190.00	89.65	179.34	9393.61	1938.19	-1927.87	-373.95	2.07	487023.90	762147.66	N 32 21 51.70 W 103 37	5.45
	11284.00	89.52	180.04	9394.29	2032.13	-2021.87	-373.44	0.76	486929.91	762148.17	N 32 21 50.77 W 103 37	5.45
	11378.00	89.78	182.03	9394.87	2126.11	-2115.85	-375.14	2.13	486835.93	762146.47	N 32 21 49.84 W 103 37	5.48
	11473.00	89.70	182.50	9395.30	2221.11	-2210.77	-378.90	0.50	486741.01	762142.72	N 32 21 48.90 W 103 37	5.53
	11567.00	89.74	180.47	9395.76	2315.10	-2304.73	-381.33	2.16	486647.05	762140.28	N 32 21 47.97 W 103 37	5.57
	11661.00	89.81	179.16	9396.29	2409.05	-2398.73	-381.03	1.40	486553.08	762140.59	N 32 21 47.04 W 103 37	5.57
	11756.00	89.70	178.78	9396.86	2503.94	-2493.73	-379.32	0.41	486458.08	762142.29	N 32 21 46.10 W 103 37	5.56
	11850.00	89.73	178.26	9397.33	2597.79	-2588.68	-378.89	0.55	486364.12	762144.72	N 32 21 45.17 W 103 37	5.54
	11945.00	89.90	178.89	9397.64	2692.64	-2683.65	-374.53	0.69	486269.15	762147.08	N 32 21 44.23 W 103 37	5.52
	12039.00	89.69	179.55	9397.97	2788.55	-2778.64	-373.25	0.74	486175.16	762148.36	N 32 21 43.30 W 103 37	5.51
	12133.00	89.58	178.51	9398.57	2880.45	-2870.62	-371.66	1.11	486081.18	762149.95	N 32 21 42.37 W 103 37	5.50
	12228.00	89.65	179.72	9399.21	2975.35	-2965.81	-370.19	1.28	485986.20	762151.42	N 32 21 41.43 W 103 37	5.49
	12322.00	89.69	179.35	9399.75	3069.28	-3059.60	-369.43	0.40	485892.21	762152.18	N 32 21 40.50 W 103 37	5.49
	12417.00	89.73	178.73	9400.23	3164.17	-3154.59	-367.84	0.65	485797.23	762153.78	N 32 21 39.56 W 103 37	5.47
	12511.00	89.67	176.97	9400.72	3257.95	-3248.52	-364.31	1.87	485703.30	762157.30	N 32 21 38.63 W 103 37	5.44
	12606.00	89.71	176.28	9401.24	3352.58	-3343.35	-358.70	0.75	485608.47	762162.91	N 32 21 37.69 W 103 37	5.38
	12700.00	90.31	176.67	9401.22	3446.18	-3437.17	-352.91	0.77	485514.68	762168.71	N 32 21 36.76 W 103 37	5.32
	12794.00	90.09	178.29	9400.69	3539.92	-3531.07	-348.77	1.74	485420.78	762172.04	N 32 21 35.83 W 103 37	5.28
	12889.00	90.15	178.59	9400.69	3634.77	-3626.04	-346.19	0.32	485325.79	762175.43	N 32 21 34.89 W 103 37	5.28
	12983.00	90.57	178.80	9400.10	3728.63	-3720.01	-344.05	0.50	485231.82	762177.57	N 32 21 33.96 W 103 37	5.24
	13077.00	90.02	176.30	9399.62	3822.38	-3813.92	-340.03	2.72	485137.92	762181.58	N 32 21 33.04 W 103 37	5.20
	13171.00	89.67	176.54	9399.87	3916.11	-3907.82	-335.80	2.41	485044.03	762185.81	N 32 21 32.11 W 103 37	5.16
	13266.00	90.16	176.97	9400.02	4010.88	-4002.74	-332.08	1.73	484949.11	762189.54	N 32 21 31.17 W 103 37	5.12
	13360.00	89.87	176.55	9399.99	4104.65	-4096.66	-328.40	1.71	484855.19	762193.21	N 32 21 30.24 W 103 37	5.09
	13454.00	90.04	178.15	9400.06	4198.53	-4190.85	-326.52	0.66	484761.21	762195.10	N 32 21 29.31 W 103 37	5.07
	13549.00	90.21	181.45	9399.86	4293.50	-4285.64	-327.01	2.43	484666.22	762194.60	N 32 21 28.37 W 103 37	5.09
	13643.00	90.14	178.27	9399.57	4387.46	-4379.63	-327.60	2.32	484572.23	762194.01	N 32 21 27.44 W 103 37	5.10
	13737.00	90.10	181.33	9399.37	4481.43	-4473.62	-328.10	2.19	484478.24	762193.52	N 32 21 26.51 W 103 37	5.11
	13832.00	89.99	181.76	9399.30	4576.43	-4568.59	-330.66	0.47	484383.28	762190.95	N 32 21 25.57 W 103 37	5.15
	13926.00	89.97	180.58	9399.33	4670.42	-4662.57	-332.58	1.28	484289.31	762189.04	N 32 21 24.64 W 103 37	5.18
	14021.00	90.03	181.78	9399.33	4765.42	-4757.54	-334.53	1.26	484194.33	762187.08	N 32 21 23.70 W 103 37	5.21
	14115.00	90.87	178.80	9398.59	4859.37	-4851.53	-335.01	3.29	484100.35	762186.60	N 32 21 22.77 W 103 37	5.22
	14209.00	90.76	180.12	9397.26	4953.29	-4945.51	-334.12	1.41	484006.37	762187.49	N 32 21 21.84 W 103 37	5.22
	14304.00	90.45	182.09	9396.25	5046.27	-5040.49	-335.95	2.10	483911.40	762185.66	N 32 21 20.90 W 103 37	5.25
	14398.00	90.45	180.51	9395.51	5142.27	-5134.46	-338.09	1.68	483817.43	762183.53	N 32 21 19.97 W 103 37	5.28
	14493.00	90.41	181.35	9394.80	5237.25	-5229.44	-339.63	0.89	483722.45	762181.96	N 32 21 19.03 W 103 37	5.31
	14587.00	89.78	179.58	9394.65	5331.23	-5323.43	-340.39	2.00	483628.48	762181.22	N 32 21 18.10 W 103 37	5.32
	14681.00	89.96	178.64	9395.09	5425.20	-5419.41	-337.33	0.49	483533.50	762184.28	N 32 21 16.15 W 103 37	5.30
	14775.00	90.07	178.62	9395.04	5519.15	-5513.38	-332.81	0.08	483438.52	762188.80	N 32 21 14.28 W 103 37	5.28
	14869.00	90.07	178.73	9394.93	5613.12	-5607.35	-330.64	0.12	483343.54	762190.87	N 32 21 13.35 W 103 37	5.25
	14963.00	89.99	178.33	9394.88	5707.07	-5701.30	-328.23	0.43	483248.56	762193.38	N 32 21 12.42 W 103 37	5.23
	15057.00	89.94	178.29	9394.94	5801.02	-5795.25	-325.43	0.07	483153.58	762196.18	N 32 21 11.48 W 103 37	5.20
	15151.00	89.94	178.24	9395.04	5894.97	-5888.21	-322.58	0.05	483058.62	762199.03	N 32 21 10.55 W 103 37	5.17
	15245.00	89.98	177.98	9395.10	5988.92	-5981.16	-319.45	0.28	482963.66	762201.91	N 32 21 9.61 W 103 37	5.15
	15339.00	89.95	180.12	9395.13	6082.87	-6075.14	-317.75	2.10	482868.70	762203.86	N 32 21 8.68 W 103 37	5.13
	15433.00	90.06	180.12	9395.13	6176.82	-6169.14	-317.81	0.21	482773.74	762205.80	N 32 21 7.75 W 103 37	5.14
	15527.00	90.06	179.94	9395.04	6270.75	-6263.14	-317.86	0.19	482678.78	762207.76	N 32 21 6.81 W 103 37	5.15
	15621.00	90.06	179.74	9394.9								

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 ° ' '')
	19032.00	88.56	178.68	9412.88	9772.49	-9787.65	-308.02	0.38	489184.41	762213.59	N 32 20 34.12	W 103 37 5.29
	19126.00	88.59	178.05	9415.22	9868.30	-9881.58	-305.32	0.85	489090.48	762218.29	N 32 20 33.19	W 103 37 5.27
	19220.00	88.58	177.80	9417.54	9960.07	-9955.49	-301.92	0.27	488996.57	762219.69	N 32 20 32.26	W 103 37 5.24
	19315.00	89.04	177.72	9419.51	10054.82	-10050.40	-298.21	0.49	488901.67	762223.40	N 32 20 31.32	W 103 37 5.20
	19504.00	88.84	177.51	9423.01	10243.31	-10239.20	-290.34	0.15	488712.87	762231.27	N 32 20 29.46	W 103 37 5.12
100' FSL Crossed	19565.00	88.70	177.33	9424.32	10304.12	-10300.13	-287.60	0.37	488651.95	762234.01	N 32 20 28.85	W 103 37 5.09
	19599.00	88.62	177.23	9425.11	10338.01	-10334.08	-285.89	0.37	488618.00	762235.63	N 32 20 28.52	W 103 37 5.08
Final MWD	19613.00	88.68	177.19	9425.44	10351.96	-10348.06	-285.30	0.52	488604.02	762236.31	N 32 20 28.38	W 103 37 5.07
Proj to TD	19645.00	88.68	177.19	9426.18	10383.85	-10380.01	-283.74	0.00	488572.07	762237.87	N 32 20 28.06	W 103 37 5.06

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 3 *** 3-D 95.000% Confidence 2.7855 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	1/88.425	30.000	30.000	GYD_GC+DROP+OH-Depth Only	Original Borehole / Oxy Avogato 30-31 State Com 11H Gyro + MWD 0-19645MD
	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 11H Gyro + MWD 0-19645MD
	1	26.500	1008.500	Act Strs	30.000	30.000	GYD_GC+DROP+OH	Original Borehole / Oxy Avogato 30-31 State Com 11H Gyro + Original Borehole / Oxy Avogato
	1	1008.500	8753.000	Act Strs	30.000	30.000	A010Mb_MWD+IFR1+SAG+MS	30-31 State Com 11H Gyro + MWD 0-19645MD
	1	8753.000	9138.000	Act Strs	30.000	30.000	B001Mb_MWD+HRGM	Original Borehole / Oxy Avogato 30-31 State Com 11H Gyro + Original Borehole / Oxy Avogato
	1	9138.000	19645.000	Act Strs	30.000	30.000	A010Mb_MWD+IFR1+SAG+MS	30-31 State Com 11H Gyro + MWD 0-19645MD

...Original Borehole/Oxy Avogato 30-31 State Com 11H Gyro + MWD 0-19645MD

Schlumberger

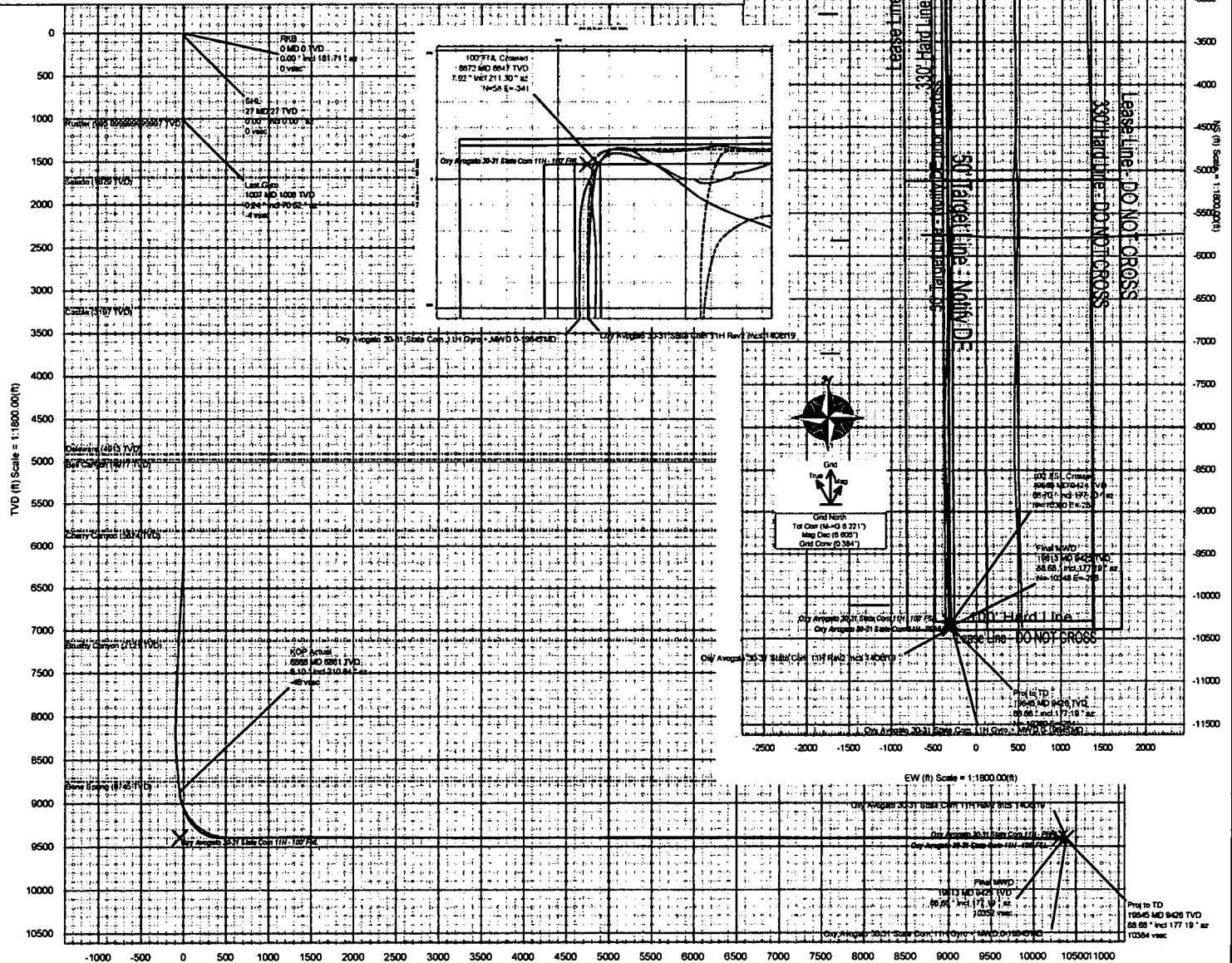
OXY



Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Avogato 30-31 State Com 11H	NM Lea County (NAD 83)	Oxy Avogato 30-31 State Com 11H

Gravity & Magnetic Parameters	Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Miscellaneous
Model: IFR1 MagDec: 8.60° Dip: 60.08° Data: 12-Oct-2019 FS: 43048.6mT Gravity FS: 988.448mg (9.80665 Based)	Lat: N 32 22 10.75 Lon: W 103 37 0.94	Northing: 488981.76US Easting: 782521.87US Grid Conv: 0.3838° Scale Fact: 0.99998612	Spot: Oxy Avogato 30-31 State Com 11H Plan: Oxy Avogato 30-31 State Com 11H Gyro + MWD 0-10845TMD TVD Ref: RKB=26.5' (732.81' above MSL)

Critical Points							
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)
RKB	0.00	0.00	181.71	0.00	0.00	0.00	0.00
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00
Last Gyro	1006.50	0.24	70.52	1006.47	-3.75	3.84	-3.17
100' FNL Crossed	8872.00	7.92	211.30	8847.14	-48.13	58.34	-340.96
KOP Actual	8886.00	8.10	210.84	8861.01	-48.43	58.67	-341.97
100' FSL Crossed	18565.00	88.70	177.33	9424.32	10304.12	-10300.13	-287.60
Final MWD	19613.00	88.68	177.19	9425.44	10351.96	-10348.06	-285.30
Proj to TD	19645.00	88.68	177.19	9426.18	10383.85	-10380.01	-283.74



Vertical Section (V) Azim = 181.71° Scale = 1:1800.00(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

October 31, 2019

OXY USA Inc
P.O. Box 4294
Houston, TX 77210-4294

Re:

CLIENT: OXY USA Inc
WELL: Avogato 30-31 State Com 11H
FIELD: Red Tank; Bone Spring, East

S30, T22S, R33E Lea, NM
N 32.36965 W -103.61693

RIG: H&P 657
COUNTY: Lea
API NO: 30-025-45956
JOB NO: 19MLH0338

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>
Maria Zapata FE	Avogato 30-31 State Com 11H Original Hole	1199.00 Ft to 19613.00 Ft	September 17, 2019 to October 27, 2019	TelePacer, Xbolt Third Party Corrected

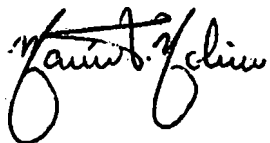
Schlumberger Drilling and Measurements
Drilling Group
Geo Market Area: South West Texas Basin
7220 W I-H 20
Midland, Texas 79706
Phone : (432) 742-5400 (Main)
Fax : (432) 742-5606 (Shared)

Schlumberger

Well Reference:
S30, T22S, R33E Lea, NM
N 32.36965 W -103.61693

I, Maria Zapata certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of September 17, 2019 through October 27, 2019, conduct or supervise the taking of the TelePacer, Xbolt and Third Party Corrected surveys from a depth of 1199.00 feet to a depth of 19613.00 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 11H Well (Original Hole) API No. 30-025-45956 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.

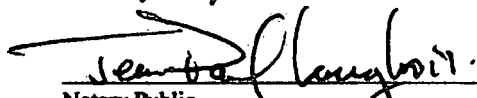
By
Maria Zapata
FE



Subscribed and Sworn to before me this 5 day of November (month) 2019 (yr)

My Commission expires:

6/14/2023



Notary Public

Comanche, Oklahoma

(County State)

(signature)



Schlumberger-Private