

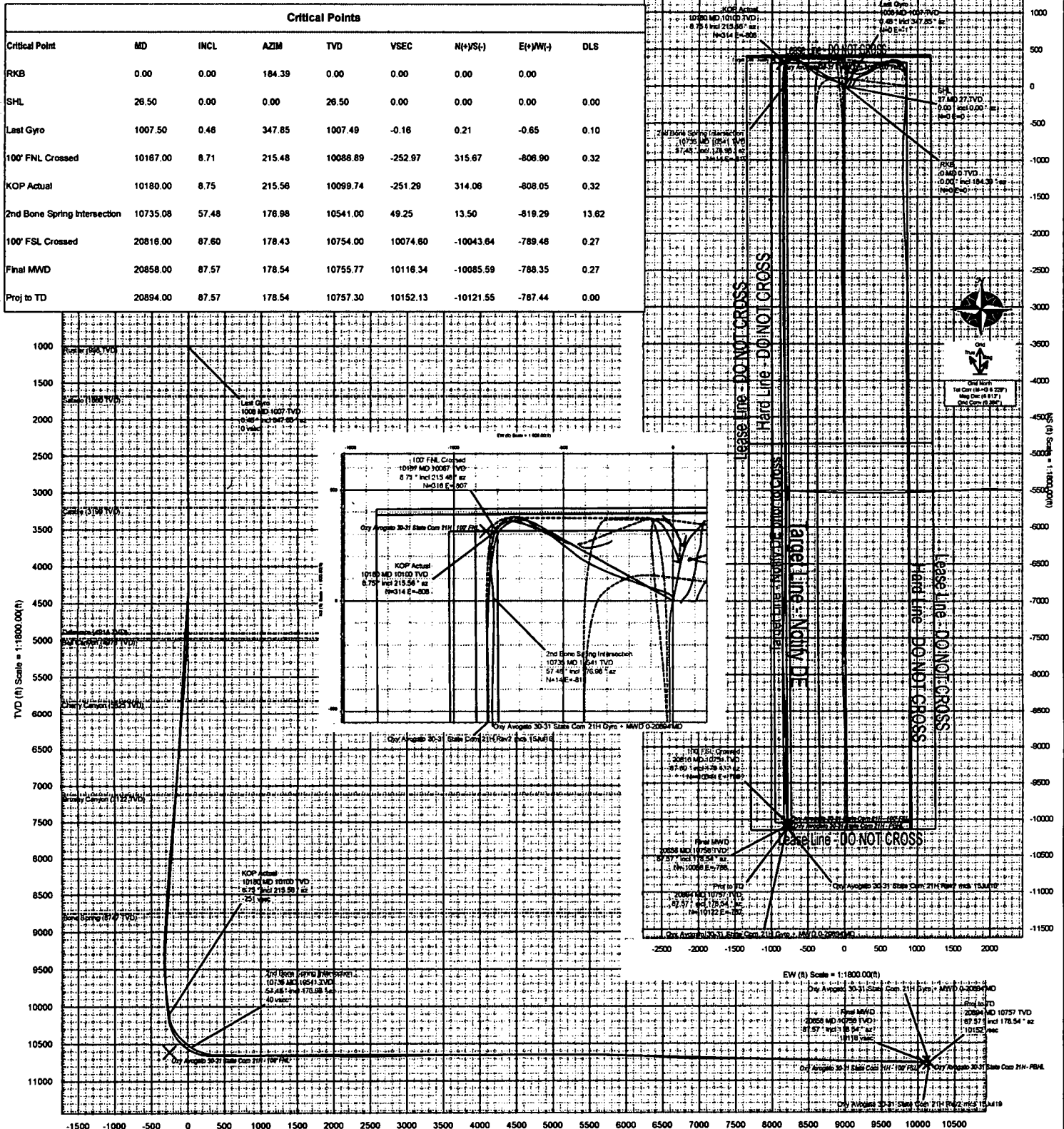
Schlumberger

OXY



Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Avogato 30-31 State Com 21H	NM Lea County (NAD 83)	Oxy Avogato 30-31 State Com 21H

Gravity & Magnetic Parameters	Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Miscellaneous
Model: IPR1 MagDec: 8.81° Dip: 80.087° Date: 09-Sep-2018 F8: 43064.7nT Gravity F8: 938.448mgals (9.80665 Based)	Lat: N 32 22 8.17 Lon: W 103 38 58.52	Northing: 488634.27US Easting: 762263.47US Grid Conv: 0.3844° Scale Fact: 0.99999538	Stat: Oxy Avogato 30-31 State Com 21H Plan: Oxy Avogato 30-31 State Com 21H Gyro + MWD 0-20894' MWD TVD Ref: RKB=26.5' (733.7 ft above MSL)



Oxy Avogato 30-31 State Com 21H Gyro + MWD 0-20894' MD Survey Geodetic Report (Def Survey)



Report Date: September 26, 2019 - 04:32 PM
Client: OXY
Field: NM Lea County (NAD 83)
Structure / Slot: Oxy Avogato 30-31 State Com 21H / Oxy Avogato 30-31 State Com 21H
Well: Oxy Avogato 30-31 State Com 21H
Borehole: Original Borehole
UWI / API#: Unknown / 30-025-45924
Survey Name: Oxy Avogato 30-31 State Com 21H Gyro + MWD 0-20894' MD
Survey Date: August 01, 2019
Tort / AHD / DDI / ERD Ratio: 217.261' / 11403.648 ft / 6.682 / 1.060
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 22' 8.17120", W 103° 36' 55.51703"
Location Grid N/E Y/X: N 498694.200 RUS, E 762988.400 RUS
CRS Grid Convergence Angle: 0.3844°
Grid Scale Factor: 0.99996536
Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 184.390° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB=26.5'
TVD Reference Elevation: 3733.700 ft above MSL
Seabed / Ground Elevation: 3707.200 ft above MSL
Magnetic Declination: 6.613°
Total Gravity Field Strength: 988.4479mgm (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48054.700 nT
Magnetic Dip Angle: 60.087°
Declination Date: September 09, 2019
Magnetic Declination Model: IFR1
North Reference: Grid North
Grid Convergence Used: 0.3844°
Total Corr Mag North->Grid North: 6.2286°
Local Coord Referenced To: Well Head

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 ° ' ")
RKB	0.00	0.00	184.39	0.00	0.00	0.00	0.00	N/A	498694.20	762988.40	N 32 22 8.17 W	103 36 55.52
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	498694.20	762988.40	N 32 22 8.17 W	103 36 55.52
	100.50	0.16	260.45	100.50	0.02	-0.02	-0.10	0.22	498694.18	762988.30	N 32 22 8.17 W	103 36 55.52
	184.50	0.17	222.20	184.50	0.15	-0.13	-0.30	0.13	498694.07	762988.10	N 32 22 8.17 W	103 36 55.52
	274.50	0.17	189.45	274.50	0.39	-0.36	-0.41	0.11	498693.84	762987.99	N 32 22 8.17 W	103 36 55.52
	368.50	0.19	194.43	368.50	0.68	-0.65	-0.47	0.03	498693.55	762987.93	N 32 22 8.16 W	103 36 55.52
	463.50	0.16	198.29	463.50	0.97	-0.93	-0.55	0.03	498693.27	762987.85	N 32 22 8.16 W	103 36 55.52
	558.50	0.10	179.20	558.50	1.18	-1.14	-0.59	0.07	498693.06	762987.81	N 32 22 8.16 W	103 36 55.52
	652.50	0.03	106.10	652.50	1.27	-1.23	-0.56	0.10	498692.97	762987.84	N 32 22 8.16 W	103 36 55.52
	747.50	0.11	14.96	747.50	1.18	-1.15	-0.51	0.12	498693.05	762987.89	N 32 22 8.16 W	103 36 55.52
	841.50	0.25	355.60	841.50	0.89	-0.85	-0.51	0.16	498693.35	762987.89	N 32 22 8.16 W	103 36 55.52
	938.50	0.40	352.96	938.50	0.36	-0.32	-0.56	0.16	498693.88	762987.84	N 32 22 8.17 W	103 36 55.52
Last Gyro	1007.50	0.46	347.85	1007.49	-0.16	0.21	-0.65	0.10	498694.41	762987.75	N 32 22 8.17 W	103 36 55.52
	1118.00	0.57	346.33	1117.99	-1.10	1.17	-0.88	0.10	498695.37	762987.52	N 32 22 8.18 W	103 36 55.53
	1210.00	0.13	32.44	1209.99	-1.63	1.71	-0.93	0.53	498695.91	762987.47	N 32 22 8.19 W	103 36 55.53
	1301.00	0.02	273.19	1300.99	-1.72	1.79	-0.89	0.15	498695.99	762987.51	N 32 22 8.19 W	103 36 55.53
	1423.00	0.07	281.54	1422.99	-1.73	1.81	-0.98	0.04	498696.01	762987.42	N 32 22 8.19 W	103 36 55.53
	1612.00	0.07	334.81	1611.99	-1.84	1.94	-1.15	0.03	498696.14	762987.25	N 32 22 8.19 W	103 36 55.53
	1706.00	0.02	114.72	1705.99	-1.89	1.98	-1.16	0.09	498696.18	762987.24	N 32 22 8.19 W	103 36 55.53
	1896.00	0.02	222.83	1895.99	-1.85	1.95	-1.15	0.02	498696.15	762987.25	N 32 22 8.19 W	103 36 55.53
	1990.00	0.02	117.27	1989.99	-1.83	1.93	-1.15	0.03	498696.13	762987.25	N 32 22 8.19 W	103 36 55.53
	2180.00	0.02	75.60	2179.99	-1.83	1.92	-1.08	0.01	498696.12	762987.32	N 32 22 8.19 W	103 36 55.53
	2275.00	0.08	91.97	2274.99	-1.84	1.92	-1.00	0.06	498696.12	762987.40	N 32 22 8.19 W	103 36 55.53
	2369.00	0.02	108.80	2368.99	-1.84	1.91	-0.82	0.07	498696.11	762987.48	N 32 22 8.19 W	103 36 55.53
	2464.00	0.05	157.41	2463.99	-1.80	1.87	-0.89	0.04	498696.07	762987.51	N 32 22 8.19 W	103 36 55.53
	2653.00	0.02	38.76	2652.99	-1.75	1.82	-0.84	0.03	498696.02	762987.56	N 32 22 8.19 W	103 36 55.53
	2748.00	0.15	147.21	2747.99	-1.66	1.73	-0.78	0.17	498695.93	762987.64	N 32 22 8.19 W	103 36 55.53
	2842.00	0.08	152.96	2841.99	-1.51	1.57	-0.66	0.08	498695.77	762987.74	N 32 22 8.19 W	103 36 55.52
	2937.00	0.06	100.62	2936.99	-1.45	1.50	-0.58	0.07	498695.70	762987.82	N 32 22 8.19 W	103 36 55.52
	3031.00	0.05	170.28	3030.99	-1.40	1.45	-0.53	0.07	498695.65	762987.87	N 32 22 8.19 W	103 36 55.52
	3126.00	0.22	135.44	3125.99	-1.24	1.27	-0.40	0.19	498695.47	762988.00	N 32 22 8.19 W	103 36 55.52
	3221.00	0.22	133.24	3220.99	-0.99	1.01	-0.15	0.02	498695.21	762988.25	N 32 22 8.18 W	103 36 55.52
	3303.00	0.06	118.10	3302.99	-0.88	0.88	0.01	0.20	498695.08	762988.41	N 32 22 8.18 W	103 36 55.52
	3410.00	0.20	119.91	3409.99	-0.78	0.78	0.22	0.13	498694.96	762988.62	N 32 22 8.18 W	103 36 55.51
	3505.00	0.16	128.73	3504.98	-0.63	0.60	0.47	0.05	498694.80	762988.87	N 32 22 8.18 W	103 36 55.51
	3599.00	0.38	127.91	3598.98	-0.38	0.32	0.81	0.23	498694.52	762989.21	N 32 22 8.17 W	103 36 55.51
	3694.00	0.16	144.08	3693.98	-0.11	0.02	1.14	0.24	498694.22	762989.54	N 32 22 8.17 W	103 36 55.50
	3789.00	0.13	172.72	3788.98	0.10	-0.19	1.23	0.08	498694.01	762989.83	N 32 22 8.17 W	103 36 55.50
	3883.00	0.13	159.46	3882.98	0.30	-0.40	1.28	0.03	498693.80	762989.68	N 32 22 8.17 W	103 36 55.50
	3978.00	0.31	83.57	3977.98	0.35	-0.47	1.58	0.32	498693.73	762989.98	N 32 22 8.17 W	103 36 55.50
	4073.00	0.22	121.14	4072.98	0.38	-0.54	1.99	0.20	498693.66	762990.39	N 32 22 8.17 W	103 36 55.49
	4167.00	0.44	103.62	4166.98	0.52	-0.71	2.49	0.25	498693.49	762990.89	N 32 22 8.16 W	103 36 55.49
	4262.00	1.14	70.43	4261.97	0.20	-0.48	3.74	0.85	498693.72	762992.14	N 32 22 8.17 W	103 36 55.47
	4356.00	1.76	6.58	4355.94	-1.63	1.26	4.78	1.72	498695.46	762993.18	N 32 22 8.18 W	103 36 55.46
	4451.00	3.17	346.29	4450.86	-5.58	5.28	4.33	1.72	498699.46	762992.73	N 32 22 8.22 W	103 36 55.47
	4546.00	4.26	338.88	4545.66	-11.21	11.06	2.32	1.31	498705.26	762990.72	N 32 22 8.28 W	103 36 55.49
	4640.00	5.80	322.87	4639.29	-17.86	18.06	-1.92	2.08	498712.26	762988.48	N 32 22 8.35 W	103 36 55.54
	4735.00	7.11	306.29	4733.70	-24.56	25.37	-9.58	2.38	498719.57	762978.84	N 32 22 8.42 W	103 36 55.63
	4830.00	9.08	296.56	4827.75	-30.50	32.20	-21.00	2.52	498726.40	762967.40	N 32 22 8.49 W	103 36 55.76
	4924.00	10.92	289.98	4920.32	-35.69	38.56	-36.01	2.30	498732.78	762952.39	N 32 22 8.56 W	103 36 55.93
	5019.00	11.28	287.95	5013.55	-40.29	44.50	-53.30	0.56	498738.70	762935.10	N 32 22 8.62 W	103 36 56.14
	5114.00	11.13	287.98	5106.73	-44.62	50.19	-70.68	0.16	498744.39	762917.54	N 32 22 8.67 W	103 36 56.34
5209.00	11.39	287.62	5199.91	-48.92	55.68	-88.53	0.28	498750.06	762899.88	N 32 22 8.73 W	103 36 56.54	
5303.00	11.38	287.62	5292.06	-53.16	61.47	-106.20	0.03	498755.67	762882.21	N 32 22 8.79 W	103 36 56.75	
5398.00	11.25	288.13	5385.22	-57.51	67.19	-123.92	0.18	498761.39	762864.49	N 32 22 8.84 W	103 36 56.96	
5493.00	11.21	289.49	5478.40	-62.11	73.15	-141.43	0.28	498767.35	762846.97	N 32 22 8.90 W	103 36 57.18	
5587.00	11.05	290.27	5570.63	-66.96	79.32	-158.49	0.23	498773.52	762829.91	N 32 22 8.97 W	103 36 57.38	
5682.00	11.13	290.36	5663.86	-71.97	85.67	-175.63	0.09	498779.86	762812.77	N 32 22 9.03 W	103 36 57.58	
5777.00	11.18	289.68	5757.06	-76.92	91.96	-192.90	0.15	498786.15	762795.51	N 32 22 9.09 W	103 36 57.76	
5871.00	11.15	288.22	5849.28	-81.50	97.87	-210.11	0.30	498792.07	762778.29	N 32 22 9.15 W	103 36 57.96	
5966.00	11.20	288.47	5942.48	-85.94	103.66	-227.59	0.07	498797.86	762760.82	N 32 22 9.21 W	103 36 58.16	
6060.00	10.89	289.90	6034.74	-90.53	109.58	-244.60	0.44	498803.77	762743.81	N 32 22 9.27 W	103 36 58.36	
6155.00	11.08	290.24	6128.00	-95.43	115.79	-261.60	0.21	498809.99	762726.81	N 32 22 9.33 W	103 36 58.56	
6250.00	11.39	292.47	6221.18	-100.83	122.53	-278.63	0.56	498816.73	762709.58	N 32 22 9.40 W	103 36 58.76	
6320.00	11.31	292.33	6289.81	-105.09	127.78	-291.57	0.12	498821.98	762696.84	N 32 22 9.45 W	103 36 58.91	
6517.00	11.19	293.56	6483.02	-117.32	142.76	-326.96	0.14	498836.96	762661.45	N 32 22 9.61 W	103 36 59.32	
6563.00	11.24	295.44	6528.15	-120.39	148.47	-335.10	0.80	498840.67	762653.31	N 32 22 9.64 W	103 36 59.41	
6657.00	11.15	296.38	6620.36	-127.09	154.45	-351.52	0.22	498848.64	762636.90	N 32 22 9.72 W	103 36 59.60	
6845.00	9.63	297.62	6805.27	-140.10	169.82	-381.74	0.82	498864.01	762606.68	N 32 22 9.88 W	103 36 59.95	
6940.00	9.56	299.79	6898.94	-146.81	177.42	-395.62	0.39	498871.61	762592.79	N 32 22 9.95 W	103 37 0.12	
7034.00	9.71	301.36	6991.62	-153.56	185.42	-409.17	0.32	498879.62	762579.25	N 32 22 10.03 W	103 37 0.27	
7129.00	9.49	304.38	7085.29	-161.11	194.01	-422.47	0.58	498888.21	762565.94	N 32 22 10.12 W	103 37 0.43	
7223.00	9.31	306.80	7178.02	-169.05	202.94	-434.95	0.46	498897.14	762553.46	N 32 22 10.21 W	103 37 0.57	
7317.00	9.19	309.20	7270.80	-177.41	212.24	-446.86	0.43	498906.44	762541.56	N 32 22 10.30 W	103 37 0.71	
7412.00	9.01	307.96	7364.61	-185.86	221.61	-458.60	0.28	498915.81	762529.81	N 32 22 10.39 W	103 37 0.86	
7506.00	8.94	307.66	7457.46	-193.94	230.60	-470.19	0.09	498924.60	762518.23			

Comments	MD (ft)	Incl (°)	Azim (°)	Grid (ft)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7769.00	8.66	308.32	7737.06	-217.54	256.96	-505.05	0.18	498951.15	762483.37	N 32 22 10.75 W 103 37	1.39	
	7864.00	8.78	308.13	7830.94	-225.65	265.97	-516.49	0.09	498960.16	762471.93	N 32 22 10.84 W 103 37	1.52	
	7978.00	8.97	307.95	7923.81	-233.69	274.90	-527.91	0.20	498969.09	762460.51	N 32 22 10.93 W 103 37	1.65	
	8072.00	8.93	307.90	8016.67	-241.77	283.89	-539.45	0.04	498978.08	762448.97	N 32 22 11.02 W 103 37	1.78	
	8166.00	9.18	305.99	8109.50	-249.72	292.78	-551.27	0.42	498986.97	762437.15	N 32 22 11.10 W 103 37	1.92	
	8261.00	8.97	302.32	8203.31	-257.16	301.19	-563.68	0.65	498995.38	762424.76	N 32 22 11.19 W 103 37	2.07	
	8355.00	9.01	297.88	8296.15	-263.53	308.55	-576.38	0.74	499002.74	762412.08	N 32 22 11.26 W 103 37	2.21	
	8450.00	9.11	297.78	8389.97	-269.48	315.54	-589.59	0.11	499009.73	762398.83	N 32 22 11.33 W 103 37	2.37	
	8544.00	8.94	296.94	8482.81	-275.24	322.31	-602.68	0.23	499016.50	762385.74	N 32 22 11.40 W 103 37	2.52	
	8638.00	8.68	299.47	8575.70	-281.04	329.11	-615.37	0.50	499023.30	762373.05	N 32 22 11.47 W 103 37	2.67	
	8732.00	8.56	304.00	8668.64	-287.51	336.52	-627.35	0.73	499030.70	762361.08	N 32 22 11.54 W 103 37	2.80	
	8827.00	8.30	305.18	8762.61	-294.51	344.42	-638.81	0.33	499038.61	762349.61	N 32 22 11.62 W 103 37	2.94	
	8921.00	8.77	304.55	8855.57	-301.58	352.39	-650.26	0.51	499046.58	762338.16	N 32 22 11.70 W 103 37	3.07	
	9015.00	8.31	304.09	8948.53	-308.55	360.28	-661.79	0.49	499054.45	762326.84	N 32 22 11.78 W 103 37	3.20	
	9110.00	8.49	297.94	9042.51	-314.75	367.40	-673.67	0.96	499061.58	762314.76	N 32 22 11.85 W 103 37	3.34	
	9204.00	8.74	289.81	9135.45	-319.42	373.07	-686.52	1.32	499067.26	762301.91	N 32 22 11.91 W 103 37	3.49	
	9298.00	9.00	284.02	9228.33	-322.55	377.27	-700.37	0.99	499071.46	762288.05	N 32 22 11.95 W 103 37	3.65	
	9392.00	8.80	275.60	9321.20	-323.93	379.75	-714.66	1.40	499073.94	762273.76	N 32 22 11.98 W 103 37	3.82	
	9487.00	9.01	284.05	9415.06	-322.75	379.69	-729.29	1.89	499073.88	762259.13	N 32 22 11.98 W 103 37	3.99	
	9581.00	8.68	254.30	9507.95	-319.00	377.01	-743.44	1.63	499071.20	762244.98	N 32 22 11.95 W 103 37	4.16	
	9675.00	8.91	244.81	9600.85	-312.97	371.99	-756.86	1.56	499068.18	762231.57	N 32 22 11.90 W 103 37	4.31	
	9770.00	9.10	230.60	9694.69	-304.13	364.09	-769.32	2.34	499058.28	762219.10	N 32 22 11.82 W 103 37	4.48	
	9864.00	8.95	222.31	9787.53	-293.22	353.96	-779.99	1.39	499048.15	762208.44	N 32 22 11.73 W 103 37	4.58	
	9958.00	9.03	213.31	9880.38	-281.00	342.39	-788.98	1.50	499036.58	762199.47	N 32 22 11.61 W 103 37	4.69	
	10052.00	8.92	213.10	9973.23	-268.15	330.12	-798.99	0.12	499024.31	762191.43	N 32 22 11.49 W 103 37	4.78	
	10147.00	8.65	215.35	10067.12	-255.56	318.13	-805.15	0.46	499012.31	762183.28	N 32 22 11.37 W 103 37	4.88	
100' FNL Crossed KOP Actual	10167.00	8.71	215.48	10086.89	-252.97	315.67	-806.90	0.32	499009.85	762181.53	N 32 22 11.35 W 103 37	4.90	
	10180.00	8.75	215.56	10099.74	-251.29	314.06	-808.05	0.32	499008.55	762180.38	N 32 22 11.33 W 103 37	4.91	
	10239.00	11.07	206.27	10157.86	-242.19	305.33	-813.16	4.76	498999.52	762175.27	N 32 22 11.25 W 103 37	4.97	
	10334.00	23.13	195.53	10248.51	-215.31	278.07	-822.23	13.07	498973.26	762166.20	N 32 22 10.99 W 103 37	5.08	
	10428.00	35.52	188.79	10330.33	-169.78	234.11	-831.39	13.62	498928.30	762157.05	N 32 22 10.54 W 103 37	5.19	
	10522.00	44.45	177.36	10402.37	-109.69	174.04	-834.05	12.27	498865.23	762154.38	N 32 22 9.95 W 103 37	5.23	
	10617.00	47.62	172.39	10468.34	-42.31	105.99	-827.67	5.03	498806.19	762160.56	N 32 22 9.27 W 103 37	5.16	
	10711.00	54.33	175.89	10527.50	29.51	33.40	-820.52	7.70	498727.60	762167.91	N 32 22 8.56 W 103 37	5.08	
2nd Bone Spring Intersection	10735.08	57.48	176.98	10541.00	49.25	13.50	-819.29	13.62	498707.70	762169.14	N 32 22 8.36 W 103 37	5.07	
	10805.00	66.68	179.77	10573.71	110.63	-48.18	-817.60	13.62	498648.02	762170.83	N 32 22 7.75 W 103 37	5.05	
	10900.00	71.93	180.34	10607.27	189.21	-137.02	-817.70	5.55	498557.18	762170.73	N 32 22 6.87 W 103 37	5.06	
	10994.00	77.44	181.69	10632.09	289.68	-227.63	-819.32	6.02	498456.58	762169.11	N 32 22 5.97 W 103 37	5.09	
	11088.00	88.65	180.98	10643.45	382.71	-320.77	-821.48	11.95	498373.45	762166.95	N 32 22 5.05 W 103 37	5.12	
	11130.00	89.89	181.42	10643.99	424.64	-362.75	-822.38	3.13	498331.46	762166.07	N 32 22 4.64 W 103 37	5.13	
	11217.00	90.63	180.70	10643.59	511.49	-449.74	-823.97	1.19	498244.48	762164.46	N 32 22 3.78 W 103 37	5.16	
	11311.00	89.12	178.15	10643.80	605.12	-543.72	-823.02	3.15	498150.50	762165.41	N 32 22 2.85 W 103 37	5.15	
	11406.00	88.90	178.43	10645.44	699.57	-638.66	-820.19	0.37	498055.56	762168.24	N 32 22 1.91 W 103 37	5.13	
	11500.00	88.62	180.74	10647.47	783.21	-732.63	-819.51	2.47	497961.59	762168.92	N 32 22 0.98 W 103 37	5.13	
	11594.00	89.01	180.95	10648.42	867.01	-826.60	-820.90	0.47	497867.63	762167.53	N 32 22 0.05 W 103 37	5.15	
	11689.00	88.78	181.26	10651.25	951.84	-921.57	-822.73	0.41	497772.67	762165.70	N 32 21 59.11 W 103 37	5.18	
	11783.00	88.84	181.04	10653.20	1075.67	-1015.53	-824.61	0.24	497678.71	762163.82	N 32 21 58.18 W 103 37	5.21	
	11877.00	88.95	181.31	10655.01	1169.50	-1109.49	-826.54	0.31	497584.75	762161.89	N 32 21 57.25 W 103 37	5.24	
	11972.00	89.18	180.34	10656.56	1264.31	-1204.47	-827.91	1.05	497489.78	762160.52	N 32 21 56.31 W 103 37	5.26	
	12066.00	89.12	180.65	10657.96	1358.08	-1298.45	-828.72	0.34	497395.80	762159.71	N 32 21 55.38 W 103 37	5.28	
	12160.00	90.07	181.27	10658.62	1451.91	-1392.43	-830.29	1.21	497301.82	762158.14	N 32 21 54.45 W 103 37	5.31	
	12254.00	89.96	181.64	10658.60	1545.79	-1486.40	-832.85	0.62	497207.85	762155.58	N 32 21 53.52 W 103 37	5.34	
	12349.00	89.85	182.08	10658.76	1640.70	-1581.34	-836.08	0.26	497112.91	762152.35	N 32 21 52.58 W 103 37	5.39	
	12443.00	90.07	181.57	10658.62	1734.61	-1675.30	-839.06	0.57	497018.96	762149.38	N 32 21 51.65 W 103 37	5.43	
	12537.00	90.02	181.32	10658.75	1828.48	-1769.27	-841.43	0.27	496925.00	762147.01	N 32 21 50.72 W 103 37	5.47	
	12632.00	89.46	180.90	10659.18	1923.33	-1864.25	-843.27	0.74	496830.02	762145.16	N 32 21 49.78 W 103 37	5.49	
	12726.00	88.50	180.62	10660.85	2017.12	-1958.22	-844.51	1.06	496736.05	762143.92	N 32 21 48.85 W 103 37	5.52	
	12821.00	88.39	180.42	10663.43	2111.87	-2053.18	-845.37	0.24	496641.09	762143.06	N 32 21 47.91 W 103 37	5.53	
	12915.00	88.84	179.83	10665.70	2205.57	-2147.16	-845.42	0.97	496547.12	762143.02	N 32 21 46.98 W 103 37	5.54	
	13014.00	89.96	178.84	10667.68	2393.79	-2336.12	-842.89	0.73	496356.16	762145.54	N 32 21 45.11 W 103 37	5.53	
	13198.00	91.03	179.53	10668.87	2487.40	-2430.11	-841.56	1.35	496264.18	762146.88	N 32 21 44.18 W 103 37	5.52	
	13292.00	90.91	180.15	10665.28	2581.09	-2524.09	-841.29	0.67	496170.20	762147.14	N 32 21 43.25 W 103 37	5.52	
	13387.00	91.19	180.05	10663.54	2675.80	-2619.08	-841.48	0.31	496075.22	762146.97	N 32 21 42.31 W 103 37	5.53	
	13481.00	91.08	180.34	10661.68	2769.53	-2713.06	-841.78	0.33	495981.24	762146.65	N 32 21 41.38 W 103 37	5.54	
	13575.00	90.97	180.13	10659.89	2863.27	-2807.04	-842.16	0.25	495887.26	762146.27	N 32 21 40.45 W 103 37	5.55	
	13670.00	90.97	179.54	10658.39	2957.96	-2902.03	-841.89	0.62	495792.28	762146.54	N 32 21 39.51 W 103 37	5.56	
	13764.00	90.80	179.00	10656.93	3051.57	-2996.01	-840.69	0.60	495698.30	762147.74	N 32 21 38.58 W 103 37	5.55	
	13858.00	90.71	180.48	10655.70	3145.25	-3090.00	-840.27	1.58	495604.32	762148.16	N 32 21 37.65 W 103 37	5.55	
	13952.00	91.04	178.63	10655.42	3163.18	-3107.99	-840.13	10.44	495586.32	762148.30	N 32 21 37.47 W 103 37	5.55	
	13970.00	91.83	179.16	10653.07	3256.72	-3201.95	-838.31	1.01	495492.37	762150.12	N 32 21 36.54 W 103 37	5.54	
	14065.00	91.55	179.18	10650.26	3351.29	-3296.90	-836.94	0.30	495397.43	762151.49	N 32 21 35.60 W 103 37	5.53	
	14159.00	90.54	178.31	10648.55	3444.81	-3390.85	-834.88	1.42	495303.47	762153.55	N 32 21 34.67 W 103 37	5.52	
	14254.00	89.92	178.27	10648.17	3539.27	-3485.81	-832.05	0.65	495208.52	762156.39	N 32 21 33.74 W 103 37	5.49	
	14348.00	89.31	179.39	10648.80	3632.83	-3579.79	-830.13	1.38	495114.54	762158.30	N 32 21 32.81 W 103 37	5.47	
	14442.00	88.63	178.41	10650.49	3726.38	-367							

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 ° ' ")
	17464.00	87.35	181.06	10688.88	6738.46	-6693.97	-811.69	0.91	492000.47	762176.74	N 32 21 1.99 W	103 37 5.50
	17558.00	88.30	181.57	10692.45	6830.26	-6787.88	-813.84	1.15	491906.57	762174.59	N 32 21 1.06 W	103 37 5.53
	17652.00	88.64	181.84	10694.96	6924.12	-6881.80	-816.64	0.46	491812.65	762171.79	N 32 21 0.13 W	103 37 5.57
	17841.00	88.75	182.09	10699.26	7112.90	-7070.64	-823.12	0.14	491623.82	762165.31	N 32 20 58.26 W	103 37 5.68
	17935.00	88.75	182.10	10701.31	7206.81	-7164.56	-826.55	0.01	491529.91	762161.88	N 32 20 57.33 W	103 37 5.71
	18029.00	89.98	182.10	10702.36	7300.72	-7258.49	-830.00	1.31	491435.98	762156.43	N 32 20 56.41 W	103 37 5.76
	18123.00	89.20	182.29	10703.03	7394.65	-7352.41	-833.60	0.85	491342.06	762154.83	N 32 20 55.48 W	103 37 5.81
	18217.00	89.76	182.04	10703.88	7488.58	-7446.34	-837.15	0.65	491248.13	762151.28	N 32 20 54.55 W	103 37 5.86
	18311.00	90.04	182.13	10704.05	7582.50	-7540.28	-840.57	0.31	491154.20	762147.86	N 32 20 53.62 W	103 37 5.90
	18406.00	89.54	180.71	10704.39	7677.37	-7635.25	-842.92	1.58	491059.23	762145.51	N 32 20 52.68 W	103 37 5.94
	18500.00	89.25	179.25	10705.39	7771.08	-7729.24	-842.89	1.58	490965.24	762145.54	N 32 20 51.75 W	103 37 5.95
	18594.00	88.36	177.75	10707.35	7864.56	-7823.18	-840.43	1.88	490871.30	762148.00	N 32 20 50.82 W	103 37 5.92
	18689.00	88.81	177.31	10709.69	7958.85	-7918.07	-838.34	0.86	490776.42	762152.10	N 32 20 49.88 W	103 37 5.88
	18783.00	89.76	177.57	10710.87	8052.15	-8011.96	-832.14	1.05	490682.53	762156.29	N 32 20 48.95 W	103 37 5.84
	18877.00	89.48	177.88	10711.49	8145.52	-8105.89	-828.41	0.44	490588.61	762160.02	N 32 20 48.02 W	103 37 5.81
	18972.00	88.30	177.69	10713.33	8239.87	-8200.80	-824.74	1.26	490493.70	762163.70	N 32 20 47.08 W	103 37 5.77
	19066.00	88.08	178.13	10716.30	8333.22	-8294.69	-821.31	0.52	490399.82	762167.12	N 32 20 46.15 W	103 37 5.74
	19160.00	88.47	177.98	10719.13	8426.60	-8388.59	-818.12	0.44	490305.92	762170.31	N 32 20 45.22 W	103 37 5.71
	19255.00	88.30	178.34	10721.81	8521.00	-8483.50	-815.07	0.42	490211.01	762173.38	N 32 20 44.28 W	103 37 5.68
	19443.00	87.97	178.73	10727.92	8707.92	-8671.34	-810.27	0.27	490023.18	762178.16	N 32 20 42.42 W	103 37 5.64
	19537.00	88.75	178.92	10730.61	8801.44	-8765.28	-808.34	0.85	489929.24	762180.09	N 32 20 41.49 W	103 37 5.62
	19631.00	89.20	179.05	10732.30	8895.01	-8859.25	-806.68	0.50	489835.27	762181.75	N 32 20 40.56 W	103 37 5.61
	19726.00	89.54	179.48	10733.34	8989.62	-8954.24	-805.44	0.58	489740.29	762182.99	N 32 20 39.62 W	103 37 5.60
	19820.00	88.84	179.77	10734.83	9083.28	-9048.22	-804.81	1.01	489646.31	762183.62	N 32 20 38.69 W	103 37 5.60
	19914.00	88.86	180.35	10736.88	9176.99	-9142.20	-804.91	0.68	489552.33	762183.52	N 32 20 37.77 W	103 37 5.61
	20009.00	88.86	180.11	10738.77	9271.72	-9237.18	-805.29	0.25	489457.36	762183.14	N 32 20 36.83 W	103 37 5.63
	20103.00	89.59	181.01	10740.05	9365.50	-9331.17	-806.21	1.23	489363.38	762182.22	N 32 20 35.90 W	103 37 5.64
	20197.00	89.82	180.49	10740.53	9459.31	-9425.16	-807.44	0.80	489269.39	762180.99	N 32 20 34.97 W	103 37 5.68
	20292.00	88.92	179.24	10741.57	9554.00	-9520.15	-807.21	1.82	489174.40	762181.22	N 32 20 34.03 W	103 37 5.67
	20386.00	89.31	178.09	10743.03	9647.52	-9614.11	-805.02	1.29	489080.44	762183.41	N 32 20 33.10 W	103 37 5.65
	20481.00	89.70	177.79	10743.85	9741.92	-9709.04	-801.61	0.52	488985.51	762186.82	N 32 20 32.16 W	103 37 5.62
	20575.00	88.75	177.55	10745.12	9835.26	-9802.96	-797.79	1.04	488891.60	762190.64	N 32 20 31.23 W	103 37 5.58
	20669.00	87.74	177.93	10748.00	9928.58	-9896.84	-794.08	1.15	488797.72	762194.35	N 32 20 30.30 W	103 37 5.55
	20764.00	87.63	178.29	10751.83	10022.94	-9991.71	-790.95	0.40	488702.86	762197.48	N 32 20 29.36 W	103 37 5.52
100' FSL												
Crossed	20816.00	87.60	178.43	10754.00	10074.60	-10043.64	-789.48	0.27	488650.93	762198.96	N 32 20 28.84 W	103 37 5.50
Final MWD	20858.00	87.57	178.54	10755.77	10116.34	-10085.59	-788.35	0.27	488608.98	762200.07	N 32 20 28.43 W	103 37 5.49
Proj to TD	20894.00	87.57	178.54	10757.30	10152.13	-10121.55	-787.44	0.00	488573.02	762200.99	N 32 20 28.07 W	103 37 5.49

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 21H Gyro + MWD 0-20894MD
	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 21H Gyro + MWD 0-20894MD
	1	26.500	1007.500	Act Strs	30.000	30.000	GYD_GC+DROP+OH	Original Borehole / Oxy Avogato 30-31 State Com 21H Gyro + Original Borehole / Oxy Avogato
	1	1007.500	20894.000	Act Strs	30.000	30.000	AD10Mb_MWD+IFR1+SAG+MS	30-31 State Com 21H Gyro + MWD 0-20894MD

...Original Borehole/Oxy Avogato 30-31 State Com 21H Gyro + MWD 0-20894MD

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 5, 2019

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

HOBBS OCD
NOV 14 2019
RECEIVED

Re:

30, 22S, 33E, LEA NM
N 32.68936 W -103.615421

CLIENT: OXY USA INC
WELL: Avogato 30-31 State Com 21H
FIELD: Red Tank, Bone Spring, East

RIG: H&P 636
COUNTY: LEA
API NO: 30-025-45924
JOB NO: 19MLH0254

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>
Raja A. Hakeem Raja Shahreen FE	Avogato 30-31 State Com 21H Original Hole	1118.00 Ft to 20858.00 Ft	August 5, 2019 to September 26, 2019	TelePacer, SlimPulse 3rd 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:

30, 22S, 33E, LEA NM

N 32.68936 W -103.615421

I, Raja A. Hakeem Raja certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of August 05, 2019 through September 26, 2019, conduct or supervise the taking of the TelePacer, SlimPulse & 3rd Party Corrected surveys from a depth of 1118.00 feet to a depth of 20858.00 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 21H Well (Original Hole) API No. 30-025-45924 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

Raja A. Hakeem Raja

Shahreen



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

My Commission expires:

6/14/2023

Notary Public

(County State)

(signature)

