

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

December 27, 2019

OXY USA Incorporated
P.O. BOX 2289
Houston, TX 77252

Re:

CLIENT: OXY USA Inc
WELL: AVOGATO 30-31 STATE COM 31H ST01
FIELD: Red Tank; Bone Spring, East

RIG: Pioneer 82
COUNTY: LEA
API NO: 30-025-45929-01
JOB NO: 19MLH0310

S30, T22S, R33E, LEA, NM
N 32.36943 W -103.61542

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>
Katherine Ramirez FET	Avogato 30-31 State Com 31H ST01 Side Track	6628.00 Ft to 22193.00 Ft	October 31, 2019 to November 28, 2019	SlimPulse Third Party Corrected

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Well Reference:
S30, T22S, R33E, LEA, NM
N 32.36943 W -103.61542

I, Katherine Ramirez certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of October 31, 2019 through November 28, 2019, conduct or supervise the taking of the SlimPulse & Third Party Corrected surveys from a depth of 6628.00 feet to a depth of 22193.00 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 Incorporated for the AVOGATO 30-31 STATE COM 31H ST01 Well (Side Track) API No. 30-025-45929-01 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 Katherine Ramirez
Katherine Ramirez
FET

Subscribed and Sworn to before me this 27 day of December (month) 2019 (yr)

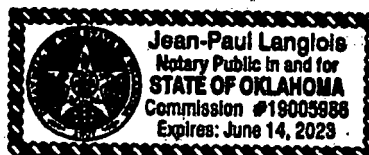
My Commission expires:

6/14/23

Jean-Paul Langlois
Notary Public

(signature)

Comanche, Oklahoma
(County State)



Schlumberger

OXY

HOBBS OGD

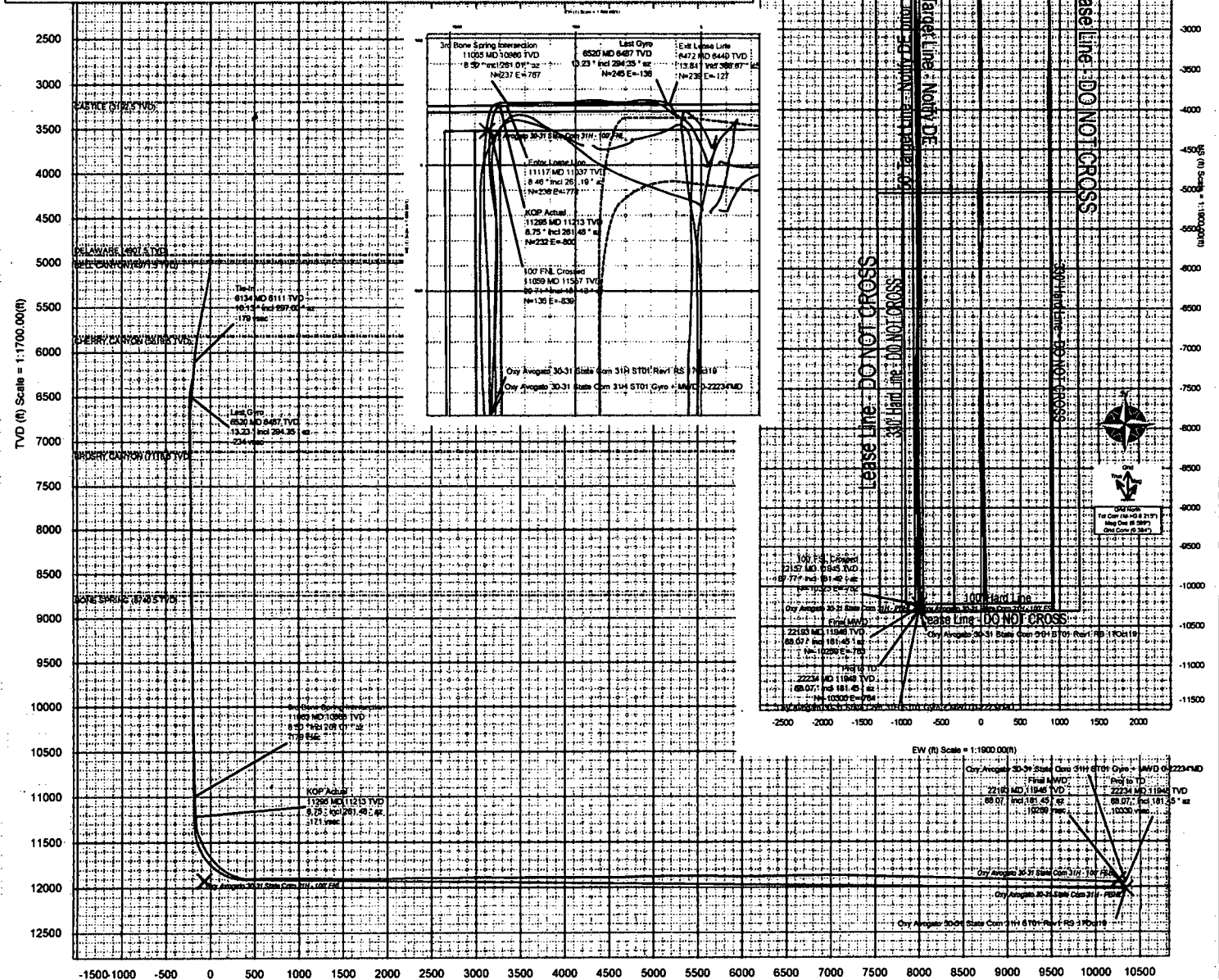
JAN 03 2020

RECEIVED

Borehole:	Well:	Field:	Structure:
ST01	Oxy Avogato 30-31 State Com 31H	NM Lea County (NAD 83)	Oxy Avogato 30-31 State Com 31H

Gravity & Magnetic Parameters	Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Miscellaneous
Model: IFR1 Dip: 60.084° Date: 27-Oct-2019	Lat: N 32 22 9.86 Northing: 48874.2103 Grid Conv: 0.3844"		Spot: Oxy Avogato 30-31 State Com 31H TVD Ref: RKB(3727.61 above MSL)
MagDec: 8.559° FS: 48041.4nT Gravity FS: 998.44mgals (9.80665 Based)	Lon: W 103 38 56.02 Easting: 762967.1103 Scale Fact: 0.99996538		Plan: Oxy Avogato 30-31 State Com 31H ST01 Gyro + MWD 0-22234' MWD

Critical Points							
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)
Tie-In	6134.00	10.13	297.00	6110.84	-179.00	185.33	-77.27
Exit Lease Line	6472.00	13.84	308.67	6439.85	-229.15	239.34	-126.62
Last Gyro	6520.10	13.23	294.35	6486.63	-234.05	244.97	-136.21
3rd Bone Spring Intersection	11065.39	8.50	261.01	10986.00	-178.84	237.07	-768.60
Enter Lease Line	11117.00	8.46	261.19	11037.04	-177.10	235.89	-774.12
KOP Actual	11295.00	8.75	261.48	11213.10	-171.13	231.87	-800.06
100' FNL Crossed	11659.00	29.71	187.13	11557.01	-71.93	135.29	-838.78
100' FSL Crossed	22157.00	87.77	181.42	11944.82	10253.10	-10223.26	-781.82
Final MWD	22193.00	88.07	181.45	11946.21	10289.03	-10259.22	-782.69
Proj to TD	22234.00	88.07	181.45	11947.59	10329.95	-10300.18	-783.72



Oxy Avogato 30-31 State Com 31H ST01 Gyro + MWD 0-22234 MD Survey

Geodetic Report

(Def Survey)



Report Date: December 03, 2019 - 10:42 AM Client: OXY Field: NM Lea County (NAD 83) Structure / Slot: Oxy Avogato 30-31 State Com 31H / Oxy Avogato 30-31 State Com 31H Well: Oxy Avogato 30-31 State Com 31H Borehole: ST01 UWI / API#: Unknown / 30-025-45929 Survey Name: Oxy Avogato 30-31 State Com 31H ST01 Gyro + MWD 0-22234 MD Survey Date: October 27, 2019 Tort / AHD / DDI / ERD Ratio: 285.616" / 11571.132 R / 6.789 / 0.968 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet Location Lat / Long: N 32° 22' 9.95239", W 103° 36' 55.51811" Location Grid N/E Y/X: N 498874.200 NUS, E 762987.100 NUS 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: 184.307° (Grid North) Vertical Section Origin: 0.000 ft, 0.000 ft TVD Reference Datum: RKB TVD Reference Elevation: 3727.600 ft above MSL Seabed / Ground Elevation: 3702.600 ft above MSL Magnetic Declination: 6.599° Total Gravity Field Strength: 986.4486mgn (9.80665 Based) Gravity Model: GARM Total Magnetic Field Strength: 48041.400 nT Magnetic Dip Angle: 60.084° Declination Date: October 27, 2019 Magnetic Declination Model: IFR1 North Reference: Grid North Grid Convergence Used: 0.3844° Total Corr Mag North->Grid North: 6.2146° Local Coord Referenced To: Well Head	
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Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (NUS)	Easting (EUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
WRP	0.00	0.00	281.80	0.00	0.00	0.00	0.00	N/A	498874.20	762987.10	N 32 22 9.95 W 103 36 55.52	
SHL	25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	498874.20	762987.10	N 32 22 9.95 W 103 36 55.52	
	98.20	0.14	235.83	98.20	0.06	-0.05	-0.07	0.19	498874.15	762987.03	N 32 22 9.95 W 103 36 55.52	
	126.40	0.21	228.70	126.40	0.11	-0.10	-0.14	0.26	498874.10	762986.96	N 32 22 9.95 W 103 36 55.52	
	153.60	0.23	237.67	153.60	0.18	-0.17	-0.22	0.15	498874.03	762986.88	N 32 22 9.95 W 103 36 55.52	
	181.90	0.27	233.45	181.90	0.26	-0.24	-0.33	0.16	498873.96	762986.77	N 32 22 9.95 W 103 36 55.52	
	211.20	0.28	232.40	211.20	0.35	-0.32	-0.44	0.04	498873.88	762986.66	N 32 22 9.95 W 103 36 55.52	
	238.50	0.33	231.72	238.50	0.45	-0.41	-0.55	0.18	498873.79	762986.55	N 32 22 9.95 W 103 36 55.52	
	264.70	0.35	230.81	264.70	0.56	-0.51	-0.67	0.08	498873.69	762986.43	N 32 22 9.95 W 103 36 55.53	
	296.20	0.38	229.17	296.20	0.69	-0.63	-0.82	0.05	498873.57	762986.28	N 32 22 9.95 W 103 36 55.53	
	327.70	0.38	227.39	327.70	0.84	-0.77	-0.98	0.07	498873.43	762986.12	N 32 22 9.94 W 103 36 55.53	
	359.20	0.41	224.05	359.20	1.00	-0.92	-1.13	0.12	498873.28	762985.97	N 32 22 9.94 W 103 36 55.53	
	390.70	0.40	222.91	390.70	1.17	-1.08	-1.28	0.04	498873.12	762985.82	N 32 22 9.94 W 103 36 55.53	
	422.20	0.39	220.59	422.19	1.35	-1.24	-1.43	0.06	498872.96	762985.67	N 32 22 9.94 W 103 36 55.53	
	453.80	0.38	219.27	453.79	1.52	-1.41	-1.57	0.04	498872.79	762985.54	N 32 22 9.94 W 103 36 55.54	
	485.30	0.38	217.73	485.29	1.69	-1.57	-1.70	0.03	498872.63	762985.40	N 32 22 9.94 W 103 36 55.54	
	516.80	0.38	216.94	516.79	1.87	-1.74	-1.82	0.02	498872.48	762985.28	N 32 22 9.94 W 103 36 55.54	
	548.30	0.38	216.36	548.29	2.04	-1.90	-1.95	0.07	498872.30	762985.15	N 32 22 9.93 W 103 36 55.54	
	579.80	0.33	216.08	579.79	2.20	-2.05	-2.08	0.10	498872.15	762985.04	N 32 22 9.93 W 103 36 55.54	
	611.40	0.29	216.14	611.39	2.34	-2.18	-2.17	0.13	498872.02	762984.93	N 32 22 9.93 W 103 36 55.54	
	642.90	0.28	213.91	642.89	2.47	-2.30	-2.26	0.11	498871.90	762984.84	N 32 22 9.93 W 103 36 55.54	
	674.40	0.21	213.47	674.39	2.58	-2.41	-2.33	0.16	498871.79	762984.77	N 32 22 9.93 W 103 36 55.55	
	705.90	0.15	215.51	705.89	2.66	-2.49	-2.39	0.19	498871.71	762984.71	N 32 22 9.93 W 103 36 55.55	
	737.40	0.08	216.10	737.39	2.72	-2.54	-2.42	0.22	498871.66	762984.68	N 32 22 9.93 W 103 36 55.55	
	769.00	0.03	256.66	768.99	2.74	-2.56	-2.44	0.19	498871.64	762984.66	N 32 22 9.93 W 103 36 55.55	
	800.50	0.04	359.59	800.49	2.73	-2.55	-2.45	0.17	498871.65	762984.65	N 32 22 9.93 W 103 36 55.55	
	832.00	0.10	14.96	831.99	2.69	-2.52	-2.44	0.20	498871.68	762984.66	N 32 22 9.93 W 103 36 55.55	
	863.50	0.17	9.85	863.49	2.62	-2.44	-2.43	0.23	498871.76	762984.67	N 32 22 9.93 W 103 36 55.55	
	895.00	0.23	18.22	894.99	2.51	-2.34	-2.40	0.21	498871.86	762984.70	N 32 22 9.93 W 103 36 55.55	
	926.50	0.32	344.81	926.49	2.37	-2.19	-2.41	0.57	498872.01	762984.69	N 32 22 9.93 W 103 36 55.55	
	958.00	0.35	24.47	957.99	2.19	-2.02	-2.39	0.73	498872.18	762984.71	N 32 22 9.93 W 103 36 55.55	
	989.50	0.44	18.84	989.49	1.99	-1.82	-2.31	0.31	498872.38	762984.79	N 32 22 9.93 W 103 36 55.55	
	1009.50	0.48	17.45	1009.49	1.83	-1.67	-2.26	0.21	498872.54	762984.84	N 32 22 9.94 W 103 36 55.54	
	1201.00	0.44	2.05	1200.98	0.31	-0.16	-1.99	0.07	498874.04	762985.11	N 32 22 9.95 W 103 36 55.54	
	1293.00	0.04	278.64	1292.98	-0.04	0.19	-2.01	0.48	498874.39	762985.09	N 32 22 9.95 W 103 36 55.54	
	1385.00	0.11	353.08	1384.98	-0.13	0.29	-2.05	0.12	498874.49	762985.05	N 32 22 9.96 W 103 36 55.54	
	1480.00	0.07	267.59	1479.98	-0.21	0.37	-2.12	0.13	498874.57	762984.98	N 32 22 9.96 W 103 36 55.54	
	1575.00	0.12	45.06	1574.98	-0.28	0.44	-2.11	0.19	498874.64	762984.99	N 32 22 9.96 W 103 36 55.54	
	1670.00	0.12	30.09	1669.98	-0.45	0.60	-1.99	0.03	498874.80	762985.11	N 32 22 9.96 W 103 36 55.54	
	1765.00	0.07	57.03	1764.98	-0.57	0.72	-1.89	0.07	498874.92	762985.21	N 32 22 9.96 W 103 36 55.54	
	1861.00	0.06	91.35	1860.98	-0.61	0.75	-1.79	0.04	498874.95	762985.31	N 32 22 9.96 W 103 36 55.54	
	1955.00	0.06	165.11	1954.98	-0.57	0.70	-1.73	0.08	498874.90	762985.37	N 32 22 9.96 W 103 36 55.54	
	2070.00	0.02	148.29	2069.98	-0.49	0.62	-1.70	0.04	498874.82	762985.40	N 32 22 9.96 W 103 36 55.54	
	2145.00	0.20	98.64	2144.98	-0.47	0.59	-1.57	0.25	498874.79	762985.53	N 32 22 9.96 W 103 36 55.54	
	2276.00	0.20	90.37	2275.98	-0.47	0.56	-1.11	0.02	498874.76	762985.99	N 32 22 9.96 W 103 36 55.53	
	2336.00	0.11	120.27	2335.98	-0.45	0.53	-0.86	0.20	498874.73	762986.14	N 32 22 9.96 W 103 36 55.53	
	2430.00	0.11	149.31	2429.98	-0.34	0.40	-0.84	0.06	498874.60	762986.26	N 32 22 9.96 W 103 36 55.53	
	2543.00	0.12	70.64	2542.98	-0.30	0.35	-0.87	0.13	498874.55	762986.43	N 32 22 9.96 W 103 36 55.53	
	2620.00	0.11	47.68	2619.98	-0.38	0.43	-0.54	0.06	498874.63	762986.56	N 32 22 9.96 W 103 36 55.52	
	2715.00	0.11	91.68	2714.98	-0.45	0.48	-0.38	0.09	498874.68	762986.72	N 32 22 9.96 W 103 36 55.52	
	2811.00	0.10	29.10	2810.98	-0.53	0.55	-0.25	0.11	498874.75	762986.85	N 32 22 9.96 W 103 36 55.52	
	2905.00	0.15	65.37	2904.98	-0.67	0.68	-0.09	0.10	498874.88	762987.01	N 32 22 9.96 W 103 36 55.52	
	3000.00	0.11	8.15	2999.98	-0.82	0.82	0.03	0.14	498875.02	762987.13	N 32 22 9.96 W 103 36 55.52	
	3096.00	0.19	67.46	3095.98	-0.98	0.97	0.19	0.17	498875.17	762987.29	N 32 22 9.96 W 103 36 55.52	
	3191.00	0.17	100.58	3190.98	-1.04	1.01	0.48	0.11	498875.21	762987.58	N 32 22 9.96 W 103 36 55.51	
	3286.00	0.11	153.85	3285.98	-0.94	0.90	0.85	0.14	498875.10	762987.75	N 32 22 9.96 W 103 36 55.51	
	3381.00	0.06	195.06	3380.98	-0.82	0.77	0.88	0.08	498874.97	762987.87	N 32 22 9.96 W 103 36 55.51	
	3477.00	0.17	120.31	3476.98	-0.71	0.65	0.79	0.17	498874.85	762987.89	N 32 22 9.96 W 103 36 55.51	
	3571.00	0.20	35.40	3570.98	-0.78	0.71	1.01	0.27	498874.91	762988.11	N 32 22 9.96 W 103 36 55.51	
	3666.00	0.07	51.59	3665.98	-0.97	0.88	1.15	0.14	498875.08	762988.25	N 32 22 9.96 W 103 36 55.50	
	3761.00	0.07	62.42	3760.98	-1.04	0.95	1.25	0.01	498875.15	762988.35	N 32 22 9.96 W 103 36 55.50	
	3856.00	0.24	85.77	3855.97	-1.10	0.99	1.50	0.19	498875.19	762988.60	N 32 22 9.96 W 103 36 55.50	
	3952.00	0.43	53.16	3951.97	-1.36	1.22	1.98	0.27	498875.42	762989.08	N 32 22 9.96 W 103 36 55.49	
	4046.00	0.11	348.39	4045.97	-1.68	1.52	2.25	0.43	498875.72	762989.35	N 32 22 9.97 W 103 36 55.49	
	4141.00	0.25	77.85	4140.97	-1.83	1.65	2.43	0.29	498875.85	762989.53	N 32 22 9.97 W 103 36 55.49	
	4237.00	0.68	113.01	4236.97	-1.71	1.48	3.14	0.50	498875.68	762990.24	N 32 22 9.97 W 103 36 55.48	
	4332.00	1.57	108.35	4331.95	-1.22	0.85	4.88	0.96	498875.05	762991.98	N 32 22 9.96 W 103 36 55.48	
	4427.00	2.29	106.99	4426.90	-0.49	-0.11	7.93	0.76	498874.09	762995.03	N 32 22 9.95 W 103 36 55.43	
	4522.00	3.08	108.28	4521.79	0.55	-1.47	12.17	0.83	498872.73	762999.27	N 32 22 9.94 W 103 36 55.38	
	4618.00	3.01	107.75	4617.65	1.78	-3.04	17.02	0.08	498871.16	763004.12	N 32 22 9.92 W 103 36 55.32	
	4713.00	2.67	107.38	4712.54	2.84	-4.46	21.50	0.36	498869.74	763008.60	N 32 22 9.91 W 103 36 55.27	
	4807.00	2.45	111.29	4806.44	3.92	-5.85	25.47	0.30	498868.35	763012.57	N 32 22 9.89 W 103 36 55.22	
	4901.00	1.14	68.09	4900.40	4.08	-6.20	28.19	1.95	498868.00	763015.29	N 32 22 9.89 W 103 36 55.19	
	4996.00	3.34	354.25	4995.33	0.89	-3.06	28.78	3.34	498871.14	763015.88	N 32 22 9.92 W 103 36 55.18	

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 ° ' '')
	5374.00	13.00	336.76	5367.99	-54.16	53.59	9.63	0.92	498927.79	762996.73	N 32 22 10.48	W 103 36 55.40
	5468.00	13.00	335.82	5459.59	-72.83	72.95	1.13	0.22	498947.15	762988.23	N 32 22 10.67	W 103 36 55.50
	5564.00	13.07	335.15	5553.11	-91.80	92.65	-7.85	0.17	498968.85	762979.25	N 32 22 10.87	W 103 36 55.60
	5658.00	12.73	334.01	5644.74	-110.02	111.60	-16.86	0.45	498985.80	762970.24	N 32 22 11.06	W 103 36 55.71
	5754.00	12.65	332.36	5738.39	-128.08	130.42	-26.37	0.39	499004.62	762960.73	N 32 22 11.24	W 103 36 55.82
	5848.00	12.41	327.65	5830.16	-144.91	148.08	-36.55	1.12	499022.27	762950.55	N 32 22 11.42	W 103 36 55.93
	5944.00	11.45	316.48	5924.10	-159.59	163.70	-46.63	2.60	499037.89	762936.47	N 32 22 11.58	W 103 36 56.07
	6039.00	11.14	306.81	6017.26	-170.85	176.04	-62.48	2.01	499050.23	762924.62	N 32 22 11.70	W 103 36 56.23
Tie-In	6134.00	10.13	297.00	6110.64	-179.00	185.33	-77.27	2.18	499059.52	762909.83	N 32 22 11.79	W 103 36 56.40
	6150.00	9.82	295.45	6126.40	-180.04	186.55	-79.76	2.58	499060.75	762907.35	N 32 22 11.80	W 103 36 56.43
	6175.00	9.58	291.98	6151.04	-181.44	188.25	-83.61	2.53	499062.44	762903.49	N 32 22 11.82	W 103 36 56.48
	6200.00	9.79	293.05	6175.68	-182.75	189.86	-87.50	1.11	499064.05	762899.61	N 32 22 11.84	W 103 36 56.52
	6225.00	10.69	299.37	6200.29	-184.42	191.83	-91.47	5.75	499068.02	762895.63	N 32 22 11.86	W 103 36 56.57
	6250.00	11.76	309.26	6224.81	-186.88	194.58	-95.47	8.79	499068.77	762891.64	N 32 22 11.88	W 103 36 56.62
	6275.00	12.95	318.13	6249.23	-190.26	198.28	-99.31	8.95	499072.47	762887.79	N 32 22 11.92	W 103 36 56.66
	6300.00	14.10	328.60	6273.54	-194.61	202.91	-102.86	9.15	499077.10	762884.25	N 32 22 11.97	W 103 36 56.70
	6325.00	15.02	331.80	6297.74	-199.75	208.30	-106.06	6.39	499082.50	762881.04	N 32 22 12.02	W 103 36 56.74
	6350.00	15.52	334.00	6321.88	-205.37	214.16	-109.06	3.06	499088.36	762878.04	N 32 22 12.08	W 103 36 56.77
	6375.00	15.42	333.77	6345.95	-211.12	220.15	-112.00	0.47	499094.34	762875.11	N 32 22 12.14	W 103 36 56.81
	6400.00	14.97	329.34	6370.08	-216.83	225.91	-115.11	4.98	499100.10	762871.99	N 32 22 12.20	W 103 36 56.84
	6425.00	14.37	322.39	6394.26	-221.58	231.15	-118.85	7.43	499105.34	762868.45	N 32 22 12.25	W 103 36 56.88
	6450.00	14.13	315.46	6418.50	-225.90	235.78	-122.69	6.89	499109.87	762864.42	N 32 22 12.29	W 103 36 56.93
Exit Lease Line	6472.00	13.84	308.67	6439.65	-229.15	239.34	-126.62	7.57	499113.53	762860.48	N 32 22 12.33	W 103 36 56.98
	6475.00	13.81	307.73	6442.76	-229.55	239.78	-127.19	7.57	499113.97	762859.92	N 32 22 12.33	W 103 36 56.98
	6500.00	13.28	297.87	6467.07	-232.34	242.95	-130.08	9.48	499117.14	762855.02	N 32 22 12.37	W 103 36 57.04
Last Gyro.	6520.10	13.23	294.35	6488.63	-234.05	244.97	-136.21	4.01	499118.16	762850.89	N 32 22 12.39	W 103 36 57.09
	6628.00	13.06	278.31	6591.74	-239.14	251.63	-159.53	3.37	499126.02	762827.57	N 32 22 12.45	W 103 36 57.36
	6684.00	11.23	274.22	6646.49	-239.57	253.14	-171.23	3.61	499127.34	762815.87	N 32 22 12.47	W 103 36 57.49
	6673.00	9.50	274.44	6632.40	-239.58	255.71	-205.14	0.92	499129.90	762781.97	N 32 22 12.50	W 103 36 57.69
	6968.00	9.45	274.04	6926.10	-239.56	256.86	-220.74	0.09	499131.05	762769.37	N 32 22 12.51	W 103 36 58.07
	7063.00	9.42	267.95	7019.82	-239.66	257.13	-236.29	1.05	499131.32	762756.82	N 32 22 12.51	W 103 36 58.25
	7157.00	9.22	262.96	7112.58	-239.33	255.94	-251.45	0.89	499130.13	762735.66	N 32 22 12.50	W 103 36 58.43
	7346.00	8.81	258.52	7299.25	-229.41	251.20	-280.66	0.43	499125.39	762706.45	N 32 22 12.48	W 103 36 58.77
	7441.00	9.34	265.90	7393.06	-228.31	249.20	-295.48	1.35	499123.39	762691.63	N 32 22 12.44	W 103 36 58.94
	7535.00	7.61	267.13	7486.03	-224.42	248.34	-309.30	1.85	499122.53	762677.81	N 32 22 12.43	W 103 36 59.10
	7629.00	7.25	270.16	7579.24	-223.21	248.05	-321.45	0.57	499122.24	762665.66	N 32 22 12.43	W 103 36 59.25
	7724.00	7.26	272.36	7673.48	-222.57	248.31	-333.44	0.29	499122.50	762653.67	N 32 22 12.43	W 103 36 59.39
	7819.00	7.44	273.72	7767.70	-222.31	248.96	-345.58	0.26	499123.15	762641.53	N 32 22 12.44	W 103 36 59.53
	8007.00	7.45	276.62	7954.11	-222.67	251.15	-369.83	0.20	499125.34	762617.28	N 32 22 12.46	W 103 36 59.81
	8102.00	6.94	277.77	8048.37	-223.27	252.64	-381.64	0.56	499126.83	762605.48	N 32 22 12.48	W 103 36 59.95
	8196.00	7.42	278.33	8141.63	-224.04	254.29	-393.27	0.52	499128.48	762593.84	N 32 22 12.49	W 103 37 0.08
	8291.00	7.49	274.16	8235.83	-224.45	255.62	-405.51	0.57	499129.81	762581.60	N 32 22 12.51	W 103 37 0.23
	8385.00	7.91	270.32	8328.98	-223.99	256.10	-418.09	0.71	499130.30	762569.02	N 32 22 12.51	W 103 37 0.37
	8480.00	8.22	269.89	8423.04	-223.01	256.13	-431.42	0.33	499130.32	762555.69	N 32 22 12.52	W 103 37 0.53
	8575.00	7.81	268.68	8517.13	-221.87	255.97	-444.50	0.87	499130.16	762542.61	N 32 22 12.51	W 103 37 0.68
	8669.00	7.23	267.59	8610.35	-220.57	255.58	-456.63	0.43	499129.77	762530.48	N 32 22 12.51	W 103 37 0.82
	8764.00	7.44	265.85	8704.57	-218.96	254.88	-468.74	0.32	499129.07	762518.38	N 32 22 12.51	W 103 37 0.96
	8859.00	7.00	263.67	8798.82	-216.99	253.80	-480.63	0.55	499127.99	762506.49	N 32 22 12.50	W 103 37 1.10
	8954.00	6.74	258.72	8893.14	-214.42	252.07	-491.85	0.68	499126.26	762495.27	N 32 22 12.48	W 103 37 1.23
	9049.00	6.66	253.67	8987.49	-210.88	249.43	-502.60	0.63	499123.62	762484.51	N 32 22 12.45	W 103 37 1.36
	9143.00	6.87	255.67	9080.83	-207.29	246.53	-513.29	0.36	499120.73	762473.83	N 32 22 12.43	W 103 37 1.48
	9238.00	6.72	261.79	9175.17	-204.30	244.36	-524.30	0.74	499118.55	762462.82	N 32 22 12.41	W 103 37 1.61
	9332.00	6.74	261.24	9268.52	-201.86	242.74	-535.20	0.07	499116.93	762451.92	N 32 22 12.39	W 103 37 1.74
	9521.00	5.99	266.27	9456.35	-197.98	240.41	-556.00	0.49	499114.60	762431.12	N 32 22 12.37	W 103 37 1.88
	9616.00	6.90	276.76	9550.76	-197.53	240.76	-566.61	1.56	499114.95	762420.51	N 32 22 12.37	W 103 37 2.11
	9710.00	7.08	285.65	9644.06	-198.91	242.98	-577.80	1.17	499117.17	762409.32	N 32 22 12.39	W 103 37 2.24
	9804.00	7.33	285.03	9737.32	-201.16	246.10	-589.17	0.28	499120.29	762397.95	N 32 22 12.43	W 103 37 2.37
	9899.00	7.51	274.57	9831.53	-202.32	248.17	-601.21	1.43	499122.38	762385.91	N 32 22 12.45	W 103 37 2.51
	9993.00	8.23	269.02	9924.64	-201.73	248.54	-614.06	1.11	499122.73	762373.06	N 32 22 12.45	W 103 37 2.66
	10088.00	8.14	263.74	10018.68	-199.87	247.69	-627.55	0.80	499121.88	762359.58	N 32 22 12.44	W 103 37 2.82
	10183.00	7.73	262.61	10112.77	-197.34	246.14	-640.57	0.46	499120.33	762346.55	N 32 22 12.43	W 103 37 2.97
	10277.00	7.43	261.39	10205.94	-194.70	244.41	-652.85	0.36	499118.61	762334.28	N 32 22 12.41	W 103 37 3.11
	10372.00	8.07	261.99	10300.08	-191.91	242.57	-665.52	0.68	499116.76	762321.60	N 32 22 12.40	W 103 37 3.26
	10466.00	7.85	262.62	10393.17	-189.20	240.82	-678.42	0.25	499115.01	762308.70	N 32 22 12.38	W 103 37 3.41
	10561.00	8.39	264.70	10487.22	-186.73	239.35	-691.76	0.85	499113.54	762295.37	N 32 22 12.37	W 103 37 3.56
	10656.00	9.01	267.94	10581.12	-184.75	238.44	-706.09	0.83	499112.63	762281.03	N 32 22 12.36	W 103 37 3.73
	10750.00	8.21	271.22	10674.07	-183.57	238.32	-720.16	1.00	499112.51	762268.97	N 32 22 12.36	W 103 37 3.90
	10845.00	8.59	271.91	10768.05	-182.91	238.70	-734.03	0.41	499112.89	762255.09	N 32 22 12.36	W 103 37 4.06
	10939.00	8.53	269.92	10861.00	-182.08	238.92	-748.02	0.32	499113.12	762239.11	N 32 22 12.37	W 103 37 4.22
	11034.00	8.52	260.90	10954.95	-179.91	237.80	-762.01	1.41	499111.99	762225.11	N 32 22 12.36	W 103 37 4.38
3rd Bone Spring Intersection	11065.39	8.50	261.01	10986.00	-178.84	237.07	-766.60	0.09	499111.26	762220.53	N 32 22 12.35	W 103 37 4.44
Enter Lease Line	11117.00	8.48	261.19	11037.04	-177.10	235.89	-774.12	0.09	499110.09	762213.01	N 32 22 12.34	W 103 37 4.53
	11128.00	8.45	261.23	11047.82	-176.73	235.65	-775.72	0.09	499109.84	762211.41	N 32 22 12.34	W 103 37 4.54
	11223.00	8.39	261.00	11141.90	-173.56	233.50	-789.46	0.07	499107.69	762197.87	N 32 22 12.32	W 103 37 4.70
KOP Actual	11295.00	8.75	261.48	11213.10	-171.13	231.87	-800.06	0.51	499106.08	762187.07	N 32 22 12.30	W 103 37 4.83
	11420.00	10.49	217.66	11336.49	-159.50	221.43	-816.44	5.86	499095.93	762170.69	N 32 22 12.20	W 103 37

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	14146.00	91.54	180.09	11891.48	2273.65	-2216.91	-838.99	0.44	496857.37	762148.14	N 32 21 48.07 W 103 37 5.47	
	14240.00	90.16	177.63	11890.09	2387.21	-2210.87	-837.12	3.00	496563.41	N 32 21 47.14 W 103 37 5.48		
	14429.00	90.71	178.76	11888.65	2554.74	-2499.64	-827.87	0.54	496374.68	762159.26	N 32 21 45.27 W 103 37 5.37	
	14618.00	89.58	178.28	11888.17	2742.41	-2688.45	-819.70	1.00	496185.85	762167.43	N 32 21 43.41 W 103 37 5.28	
	14712.00	91.68	177.80	11887.14	2835.84	-2782.38	-816.48	2.29	496091.92	762170.85	N 32 21 42.48 W 103 37 5.25	
	14807.00	90.75	178.59	11885.13	2930.28	-2877.31	-813.49	1.28	495996.99	762173.84	N 32 21 41.54 W 103 37 5.23	
	14901.00	90.03	177.71	11884.49	3023.73	-2871.26	-810.46	1.21	495903.05	762176.87	N 32 21 40.61 W 103 37 5.20	
	14996.00	89.92	178.37	11884.53	3118.16	-3068.20	-807.21	0.70	495808.11	762179.92	N 32 21 39.67 W 103 37 5.17	
	15091.00	89.78	177.98	11884.78	3212.62	-3161.16	-804.18	0.44	495713.16	762182.95	N 32 21 38.73 W 103 37 5.14	
	15185.00	87.14	177.12	11887.30	3305.92	-3255.03	-800.16	2.95	495619.29	762186.96	N 32 21 37.80 W 103 37 5.10	
	15279.00	91.40	177.79	11888.50	3399.22	-3348.90	-795.99	4.59	495525.42	762191.14	N 32 21 36.87 W 103 37 5.06	
	15374.00	91.82	180.06	11885.83	3493.76	-3443.84	-794.21	2.43	495430.48	762192.92	N 32 21 35.93 W 103 37 5.05	
	15469.00	89.89	180.08	11884.41	3588.48	-3538.83	-794.33	2.03	495335.50	762192.80	N 32 21 34.99 W 103 37 5.05	
	15563.00	90.23	179.54	11884.31	3682.19	-3632.83	-794.01	0.68	495241.51	762193.11	N 32 21 34.06 W 103 37 5.06	
	15658.00	90.06	179.85	11884.07	3776.89	-3727.82	-793.51	0.37	495146.51	762193.62	N 32 21 33.12 W 103 37 5.06	
	15752.00	90.13	180.42	11883.92	3870.84	-3821.82	-793.73	0.81	495052.52	762193.40	N 32 21 32.19 W 103 37 5.07	
	15846.00	90.27	180.24	11883.59	3964.41	-3915.82	-794.27	0.24	494958.52	762192.88	N 32 21 31.26 W 103 37 5.08	
	15941.00	89.92	179.96	11883.43	4059.15	-4010.82	-794.44	0.47	494863.53	762192.69	N 32 21 30.32 W 103 37 5.09	
	16036.00	90.44	180.32	11883.13	4153.90	-4105.82	-794.67	0.87	494768.53	762192.46	N 32 21 29.38 W 103 37 5.10	
	16131.00	90.03	180.17	11882.74	4248.66	-4200.82	-795.08	0.46	494673.54	762192.05	N 32 21 28.44 W 103 37 5.12	
	16226.00	89.51	179.34	11883.13	4343.36	-4295.82	-794.87	1.03	494578.54	762192.46	N 32 21 27.50 W 103 37 5.12	
	16320.00	90.20	179.37	11883.36	4437.01	-4389.81	-793.81	0.73	494484.55	762193.52	N 32 21 26.57 W 103 37 5.11	
	16415.00	90.06	179.01	11883.15	4531.63	-4484.80	-792.27	0.41	494389.57	762194.86	N 32 21 25.63 W 103 37 5.10	
	16510.00	90.51	179.87	11882.67	4626.28	-4579.79	-791.34	1.02	494294.58	762195.79	N 32 21 24.69 W 103 37 5.10	
	16604.00	92.28	180.50	11880.40	4720.01	-4673.78	-791.64	1.88	494200.61	762195.49	N 32 21 23.76 W 103 37 5.11	
	16699.00	91.88	180.53	11876.97	4814.74	-4768.69	-792.50	0.40	494105.68	762194.83	N 32 21 22.82 W 103 37 5.13	
	16793.00	89.82	179.62	11875.58	4908.47	-4862.68	-792.62	2.40	494011.70	762194.51	N 32 21 21.89 W 103 37 5.14	
	16887.00	91.06	179.02	11874.88	5002.11	-4956.67	-791.50	1.47	493917.72	762195.82	N 32 21 20.96 W 103 37 5.13	
	16982.00	91.06	179.43	11873.10	5096.72	-5051.64	-790.22	0.43	493822.74	762196.91	N 32 21 20.02 W 103 37 5.12	
	17076.00	90.44	180.16	11871.87	5190.42	-5145.63	-789.88	1.02	493728.76	762197.25	N 32 21 19.09 W 103 37 5.13	
	17171.00	90.71	180.49	11870.91	5285.18	-5240.62	-790.42	0.45	493633.77	762198.71	N 32 21 18.15 W 103 37 5.14	
	17265.00	89.10	179.30	11871.07	5378.90	-5334.62	-790.25	2.13	493539.78	762198.88	N 32 21 17.22 W 103 37 5.15	
	17454.00	90.64	179.29	11871.50	5567.17	-5523.60	-787.92	0.81	493350.80	762199.20	N 32 21 15.35 W 103 37 5.13	
	17549.00	88.86	179.09	11871.91	5661.79	-5618.58	-786.58	1.89	493255.82	762200.55	N 32 21 14.41 W 103 37 5.13	
	17739.00	88.41	177.72	11878.44	5850.72	-5808.45	-781.29	0.76	493065.96	762205.83	N 32 21 12.53 W 103 37 5.08	
	17833.00	90.92	180.43	11876.99	5944.31	-5902.42	-779.78	3.93	492971.99	762207.35	N 32 21 11.60 W 103 37 5.07	
	18023.00	90.20	181.11	11875.13	6133.84	-6092.38	-782.33	0.52	492782.03	762204.80	N 32 21 9.72 W 103 37 5.11	
	18211.00	90.54	180.83	11873.92	6321.82	-6280.36	-785.51	0.23	492594.07	762201.62	N 32 21 7.86 W 103 37 5.17	
	18306.00	91.06	181.33	11872.59	6416.46	-6375.34	-787.30	0.78	492499.10	762199.62	N 32 21 6.92 W 103 37 5.19	
	18400.00	91.33	182.06	11870.63	6510.34	-6469.27	-790.08	0.83	492405.18	762197.05	N 32 21 5.99 W 103 37 5.23	
	18495.00	90.44	181.67	11869.16	6605.24	-6564.21	-793.18	1.02	492310.23	762193.95	N 32 21 5.05 W 103 37 5.28	
	18584.00	90.85	181.92	11867.04	6704.04	-6659.10	-795.99	0.25	492215.34	762188.03	N 32 21 3.19 W 103 37 5.36	
	18778.00	91.26	182.72	11865.31	6807.97	-6754.01	-802.90	0.96	492027.44	762184.23	N 32 21 2.26 W 103 37 5.41	
	18873.00	89.23	181.38	11864.90	6902.89	-6849.94	-806.28	2.57	491932.51	762180.85	N 32 21 1.32 W 103 37 5.46	
	18968.00	90.09	181.67	11865.46	7077.77	-7036.91	-808.79	0.96	491837.55	762178.34	N 32 21 0.38 W 103 37 5.50	
	19062.00	88.24	182.13	11866.83	7171.68	-7130.84	-811.91	2.03	491743.62	762175.22	N 32 20 59.45 W 103 37 5.54	
	19157.00	88.20	180.94	11869.78	7266.52	-7225.76	-814.45	1.25	491648.71	762172.68	N 32 20 58.51 W 103 37 5.58	
	19251.00	88.03	180.19	11872.88	7360.26	-7319.70	-815.38	0.82	491554.77	762171.75	N 32 20 57.56 W 103 37 5.59	
	19346.00	88.48	179.75	11875.77	7454.95	-7414.66	-815.33	0.66	491459.81	762171.80	N 32 20 56.84 W 103 37 5.60	
	19440.00	88.93	179.69	11877.89	7548.62	-7508.63	-814.87	0.48	491365.84	762172.26	N 32 20 55.71 W 103 37 5.60	
	19534.00	89.30	180.63	11879.35	7642.36	-7602.62	-815.13	1.07	491271.86	762172.00	N 32 20 54.78 W 103 37 5.61	
	19629.00	88.92	180.24	11880.82	7737.14	-7697.61	-815.85	0.57	491178.88	762171.28	N 32 20 53.84 W 103 37 5.63	
	19723.00	89.20	180.29	11882.36	7830.89	-7791.59	-816.29	0.30	491082.89	762170.84	N 32 20 52.91 W 103 37 5.64	
	19817.00	88.20	180.52	11884.50	7924.65	-7885.56	-816.95	1.09	490988.92	762170.18	N 32 20 51.98 W 103 37 5.66	
	19912.00	89.17	179.13	11886.68	8019.33	-7980.54	-816.66	1.78	490893.96	762170.47	N 32 20 51.04 W 103 37 5.68	
	20006.00	87.93	178.87	11889.05	8112.89	-8074.49	-815.02	1.35	490800.01	762172.11	N 32 20 50.11 W 103 37 5.65	
	20101.00	88.38	177.59	11892.11	8207.31	-8169.39	-812.09	1.43	490705.11	762175.04	N 32 20 49.17 W 103 37 5.62	
	20195.00	88.37	177.35	11894.78	8300.60	-8263.26	-807.94	0.26	490611.24	762179.19	N 32 20 48.24 W 103 37 5.58	
	20290.00	88.06	178.23	11897.74	8394.94	-8358.14	-804.28	0.98	490516.36	762182.85	N 32 20 47.30 W 103 37 5.55	
	20384.00	88.41	177.68	11900.63	8488.32	-8452.04	-800.93	0.69	490422.47	762186.20	N 32 20 46.37 W 103 37 5.51	
	20479.00	88.03	176.79	11903.58	8582.55	-8546.88	-796.35	1.02	490327.63	762190.78	N 32 20 45.44 W 103 37 5.47	
	20573.00	88.24	177.99	11906.64	8675.82	-8640.73	-792.07	1.30	490233.78	762195.06	N 32 20 44.51 W 103 37 5.43	
	20668.00	88.48	177.33	11909.36	8770.14	-8735.61	-788.19	0.74	490138.91	762198.94	N 32 20 43.57 W 103 37 5.39	
	20762.00	88.79	176.97	11911.60	8863.38	-8829.47	-783.52	0.51	490045.05	762203.61	N 32 20 42.64 W 103 37 5.34	
	20857.00	89.20	176.93	11913.27	8957.58	-8924.32	-778.46	0.43	489950.20	762208.66	N 32 20 41.70 W 103 37 5.29	
	20951.00	89.10	177.65	11914.66	9050.87	-9018.21	-774.02	0.77	489856.32	762213.11	N 32 20 40.77 W 103 37 5.24	
	21046.00	86.48	178.20	11918.33	9145.20	-9113.06	-770.58	2.82	489761.47	762216.54	N 32 20 39.83 W 103 37 5.21	
	21141.00	88.31	178.48	11922.64	9239.58	-9207.92	-767.83	1.95	489666.82	762219.29	N 32 20 38.89 W 103 37 5.19	
	21235.00	89.23	179.34	11924.68	9333.14	-9301.88	-766.05	1.34	489572.66	762221.08	N 32 20 37.96 W 103 37 5.17	
	21329.00	89.48	179.04	11925.72	9426.76	-9395.87	-764.72	0.42	489478.68	762222.41	N 32 20 37.03 W 103 37 5.17	
	21424.00	89.82	179.63	11926.30	9521.40	-9490.86	-763.62	0.72	489383.69	762223.51	N 32 20 36.09 W 103 37 5.16	
	21519.00	89.41	180.23	11926.94	9616.12	-9585.85	-763.50	0.78	489288.70	762223.63	N 32 20 35.15 W 103 37 5.17	
	21613.00	89.30	180.14	11928.00	9709.87	-9679.85	-763.80	0.15	489194.71	762223.33	N 32 20 34.22 W 103 37 5.18	
	21708.00	88.55	182.26	11929.78	9804.71	-9774.80	-765.79	2.37	489099.75	762221.34	N 32 20 33.28 W 103 37 5.21	
	21802.00	88.37	182.00	11932.30	9898.81	-9868.71	-769.28	0.34	489005.86	762217.84	N 32 20 32.36 W 103 37 5.26	
	21897.00	87.78	182.36	11935.51	9993.49	-9963.58						

Comments	MD (ft)	Incl (°)	Azimuth (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
		1	6628.000	22234.000	Act Strs	30.000	30.000	A010Mb_MWD+IFR1+SAG+MS	ST01 / Oxy Avogato 30-31 State Com 31H ST01 Gyro + MWD 0- 22234'MD			

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

December 27, 2019

OXY USA Incorporated
P.O. BOX 2289
Houston, TX 77252

Re:

S30, T22S, R33E Lea, NM
N 32.36943 W -103.61542

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

RIG: Pioneer 82
COUNTY: LEA
API NO: 30-025-45929
JOB NO: 19MLH0310

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>
Jude Omokwale FS	Avogato 30-31 State Com 31H Original	1100.00 Ft to 11299.00 Ft	August 29, 2019 to September 27, 2019	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:
S30, T22S, R33E Lea, NM
N 32.36943 W -103.61542

I, Jude Omokwale certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of August 29, 2019 through September 27, 2019, conduct or supervise the taking of the SlimPulse & 3rd Party Corrected surveys from a depth of 1100.00 feet to a depth of 11299.00 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 Incorporated for the Avogato 30-31 State Com 31H Well (Original) API No. 30-025-45929 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.

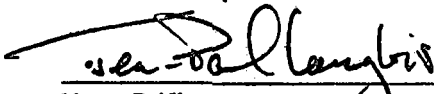
By
Jude Omokwale
FS



Subscribed and Sworn to before me this 27 day of December (month) 2019 (yr)

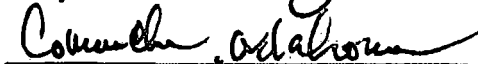
My Commission expires:

6/14/23



(signature)

Notary Public



(County State)

