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

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

Re:

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.

Name & Title of Surveyor	Drainhole Number	Surveyed Depths	Dates Performed	Type of Survey
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
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7220 W I-H 20
Midland, Texas 79706
Phone : (432) 742-5400 (Main)
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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

Jean Paul Langlois (signature)
Notary Public
Comanche Oklahoma
(County State)

Jean-Paul Langlois
Notary Public in and for
STATE OF OKLAHOMA
Commission #19005986
Expires: June 14, 2023

Schlumberger

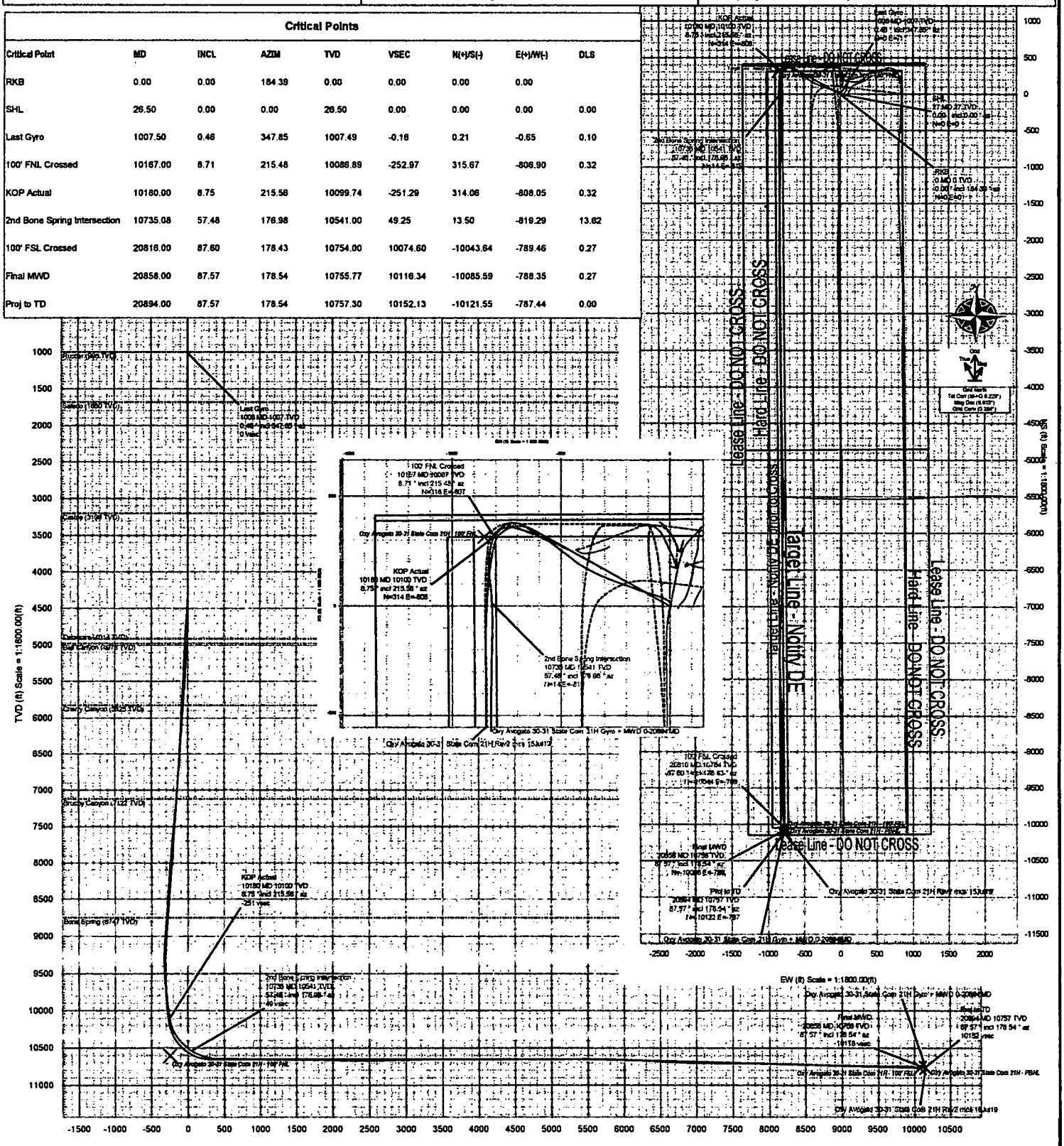
OXY

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:	IFR1	Dip: 60.087°	Date:	09-Sep-2019	Lat: N 32 22 8.17	Northing:	438894.21US	Grid Conv:	0.3846°	Slot:	Oxy Avogato 30-31 State Com 21H	TVD Ref: RKB=26.5'(3733.7ft above MSL)
MagDec:	6.613°	FS:	48094.7nT	Gravity FS:	998.449mgn (9.80665 Based)	Lon: W 103 39 56.52	Easting:	782988.47US	Scale Fact:	0.99986538	Plan:	Oxy Avogato 30-31 State Com 21H Gyro + MWD 0-20894MD

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
RKB	0.00	0.00	184.39	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	1007.50	0.46	347.85	1007.49	-0.16	0.21	-0.65	0.10
100' FNL Crossed	10167.00	8.71	215.48	10086.89	-252.97	315.67	-806.90	0.32
KOP Actual	10180.00	8.75	215.58	10099.74	-251.29	314.06	-808.05	0.32
2nd Bone Spring Intersection	10735.08	57.48	176.98	10541.00	49.25	13.50	-819.29	13.62
100' FSL Crossed	20816.00	87.60	178.43	10754.00	10074.60	-10043.64	-789.46	0.27
Final MWD	20858.00	87.57	178.54	10755.77	10116.34	-10085.59	-788.35	0.27
Proj to TD	20894.00	87.57	178.54	10757.30	10152.13	-10121.55	-787.44	0.00



Schlumberger

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	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	184.390 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Oxy Avogato 30-31 State Com 21H / Oxy Avogato 30-31 State Com 21H	**TVD Reference Datum:**	RKB=26.5'
Well:	Oxy Avogato 30-31 State Com 21H	**TVD Reference Elevation:**	3733.700 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3707.200 ft above MSL
UWI / API#:	Unknown / 30-025-45924	**Magnetic Declination:**	6.613 °
Survey Name:	Oxy Avogato 30-31 State Com 21H Gyro + MWD 0-20894'MD	**Total Gravity Field Strength:**	998.4479mgn (9.80665 Based)
Survey Date:	August 01, 2019	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	217.261 ° / 11403.648 ft / 6.682 / 1.060	**Total Magnetic Field Strength:**	48054.700 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	60.087 °
Location Lat / Long:	N 32° 22' 8.17120", W 103° 36' 55.51703"	**Declination Date:**	September 09, 2019
Location Grid N/E Y/X:	N 498894.200 ftUS, E 762988.400 ftUS	**Magnetic Declination Model:**	IFR1
CRS Grid Convergence Angle:	0.3844 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99996536	**Grid Convergence Used:**	0.3844 °
Version / Patch:	2.10.782.0	**Total Corr Mag North->Grid North:**	6.2288 °
		Local Coord Referenced To:	Well Head

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 ° ' ")
RKB	0.00	0.00	184.39	0.00	0.00	0.00	0.00	N/A	498894.20	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	498894.20	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	498894.18	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	498894.07	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	498893.84	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	498893.55	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	498893.27	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	498893.06	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	498892.97	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	498893.05	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	498893.35	762987.89	N 32 22 8.16	W 103 36 55.52
	936.50	0.40	352.96	936.50	0.36	-0.32	-0.56	0.18	498893.88	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	498894.41	762987.75	N 32 22 8.17	W 103 36 55.52
	1118.00	0.57	348.33	1117.99	-1.10	1.17	-0.88	0.10	498895.37	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	498895.91	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	498895.99	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	498896.01	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	498896.14	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	498896.18	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	498896.15	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	498896.13	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	498896.12	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	498896.12	762987.40	N 32 22 8.19	W 103 36 55.53
	2369.00	0.02	108.80	2368.99	-1.84	1.91	-0.92	0.07	498896.11	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	498896.07	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	498896.02	762987.56	N 32 22 8.19	W 103 36 55.53
	2748.00	0.15	147.21	2747.99	-1.66	1.73	-0.76	0.17	498895.93	762987.64	N 32 22 8.19	W 103 36 55.53
	2842.00	0.08	152.98	2841.99	-1.51	1.57	-0.68	0.08	498895.77	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	498895.70	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	498895.65	762987.87	N 32 22 8.19	W 103 36 55.52
	3126.00	0.22	138.44	3125.99	-1.24	1.27	-0.40	0.19	498895.47	762988.00	N 32 22 8.18	W 103 36 55.52
	3221.00	0.22	133.24	3220.99	-0.99	1.01	-0.15	0.02	498895.21	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	498895.08	762988.41	N 32 22 8.18	W 103 36 55.52
	3410.00	0.20	119.91	3409.99	-0.78	0.76	0.22	0.13	498894.96	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	498894.80	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	498894.52	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	498894.22	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	498894.01	762989.63	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	498893.80	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	498893.73	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	498893.66	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	498893.49	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	498893.72	762992.14	N 32 22 8.17	W 103 36 55.47
	4356.00	1.78	6.58	4355.94	-1.63	1.26	4.78	1.72	498895.46	762993.18	N 32 22 8.18	W 103 36 55.48
	4451.00	3.17	348.29	4450.86	-5.58	5.26	4.33	1.72	498899.46	762992.73	N 32 22 8.22	W 103 36 55.47
	4546.00	4.26	336.86	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	18.08	-1.92	2.08	498712.26	762988.48	N 32 22 8.35	W 103 36 55.54
	4735.00	7.11	308.29	4733.70	-24.56	25.37	-9.56	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 55.78
	4924.00	10.92	289.98	4920.32	-35.69	38.56	-36.01	2.30	498732.76	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	-44.82	50.19	-70.86	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	55.86	-88.53	0.28	498750.06	762899.88	N 32 22 8.73	W 103 36 56.54
	5303.00	11.36	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	0.16	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 57.16
	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 57.36
	5682.00	11.13	290.38	5663.88	-71.97	85.67	-175.63	0.09	498779.88	762812.77	N 32 22 9.03	W 103 36 57.56
	5777.00	11.18	289.68	5757.08	-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	-278.83	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	-328.96	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	146.47	-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	-146.61	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	-446.88	0.43	498906.44	762541.56	N 32 22 10.30	W 103 37 0.71
	7412.00	9.01	307.96	7364.61	-185.88	221.61	-458.60	0.28	498915.81	762529.81	N 32 22 10.39	W 103 37 0.85
	7506.00	8.94	307.66	7457.46	-193.94	230.60	-470.19	0.09	498924.80	762518.23	N 32 22 10.48	W 103 37 0.98
	7600.00	8.87	308.08	7550.32	-201.75	239.33	-481.83	0.27	498933.53	762506.59	N 32 22 10.57	W 103 37 1.12
	7695.00	8.88	307.20	7644.18	-209.57	248.08	-493.59	0.18	498942.27	762494.83	N 32 22 10.66	W 103 37 1.25

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 ° ' ")	
	7789.00	8.86	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
	7884.00	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	-563.66	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	-576.36	0.74	499002.74	762412.06	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	360.26	-661.79	0.49	499054.45	762326.64	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	499071.48	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	499066.18	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	4.46
	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	-788.96	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	-796.99	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	*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*
KOP Actual	10180.00	8.75	215.56	10099.74	-251.29	314.06	-808.05	0.32	499008.25	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	279.07	-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	498868.23	762154.38	N 32 22 9.95	W 103 37	5.23
	10617.00	47.62	172.39	10468.34	-42.31	105.99	-827.87	5.03	498800.19	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	498646.02	762170.83	N 32 22 7.75	W 103 37	5.05
	10900.00	71.93	180.34	10607.27	199.21	-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	498468.58	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	762168.95	N 32 22 5.05	W 103 37	5.12
	11130.00	89.89	181.42	10643.99	424.64	-362.75	-822.36	3.13	498331.48	762166.07	N 32 22 4.64	W 103 37	5.13
	11217.00	90.83	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	793.21	-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	10649.42	887.01	-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	981.84	-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	10657.98	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	181.84	10658.80	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	182.06	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	10658.82	1734.61	-1675.30	-839.06	0.57	497018.98	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	762145.18	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	179.63	10665.70	2205.57	-2147.16	-845.42	0.97	496547.12	762143.02	N 32 21 46.98	W 103 37	5.54
	13104.00	89.96	178.84	10667.68	2393.79	-2336.12	-842.69	0.73	496358.16	762145.54	N 32 21 45.11	W 103 37	5.53
	13198.00	91.03	179.53	10666.87	2487.40	-2430.11	-841.56	1.35	496264.18	762146.68	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	-841.46	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	10659.99	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
	13876.00	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	1.36	495114.54	762158.30	N 32 21 32.81	W 103 37	5.47
	14442.00	88.63	178.41	10650.49	3726.38	-3673.75	-828.32	1.27	495020.58	762160.11	N 32 21 31.88	W 103 37	5.46
	14536.00	89.70	179.32	10651.86	3819.93	-3767.72	-826.48	1.49	494926.62	762161.97	N 32 21 30.95	W 103 37	5.45
	14631.00	89.25	178.84	10652.73	3914.52	-3862.71	-824.94	0.69	494831.64	762163.50	N 32 21 30.01	W 103 37	5.44
	14725.00	90.26	178.96	10653.13	4008.09	-3956.69	-823.13	1.08	494737.66	762165.30	N 32 21 29.08	W 103 37	5.42
	14819.00	90.15	178.37	10652.80	4101.62	-4050.66	-820.94	0.64	494643.69	762167.49	N 32 21 28.15	W 103 37	5.40
	14914.00	90.37	179.10	10652.37	4196.15	-4145.64	-818.84	0.80	494548.72	762169.59	N 32 21 27.21	W 103 37	5.39
	15008.00	90.71	178.98	10651.48	4289.74	-4239.62	-817.27	0.38	494454.74	762171.16	N 32 21 26.28	W 103 37	5.38
	15102.00	90.48	178.85	10650.50	4383.30	-4333.60	-815.49	0.28	494360.76	762172.94	N 32 21 25.35	W 103 37	5.36
	15197.00	89.53	178.90	10650.49	4477.86	-4428.58	-813.62	1.00	494265.79	762174.81	N 32 21 24.41	W 103 37	5.35
	15291.00	89.81	178.62	10651.04	4571.41	-4522.55	-811.59	0.42	494171.81	762176.84	N 32 21 23.48	W 103 37	5.33
	15385.00	90.54	178.46	10650.75	4664.92	-4616.52	-809.19	0.80	494077.85	762179.24	N 32 21 22.55	W 103 37	5.31
	15480.00	89.92	178.39	10650.37	4759.40	-4711.48	-806.58	0.68	493982.89	762181.85	N 32 21 21.61	W 103 37	5.29
	15574.00	90.48	179.04	10650.04	4852.94	-4805.46	-804.48	0.91	493888.92	762183.95	N 32 21 20.68	W 103 37	5.27
	15668.00	90.82	179.13	10648.97	4946.53	-4899.44	-802.97	0.37	493794.94	762185.46	N 32 21 19.75	W 103 37	5.26
	15763.00	88.97	178.41	10649.15	5041.07	-4994.41	-800.94	2.09	493699.97	762187.49	N 32 21 18.81	W 103 37	5.24
	15858.00	89.75	178.82	10650.21	5135.59	-5089.38	-798.72	0.98	493605.01	762189.71	N 32 21 17.87	W 103 37	5.23
	15952.00	90.82	178.73	10649.74	5229.14	-5183.36	-796.79	1.16	493511.03	762191.63	N 32 21 16.94	W 103 37	5.21
	16046.00	89.47	178.55	10649.50	5322.67	-5277.33	-794.56	1.45	493417.06	762193.87	N 32 21 16.01	W 103 37	5.19
	16140.00	91.66	178.27	10648.58	5416.15	-5371.28	-791.96	2.35	493323.11	762196.47	N 32 21 15.08	W 103 37	5.17
	16235.00	90.82	178.43	10646.52	5510.59	-5466.22	-789.22	0.90	493228.18	762199.21	N 32 21 14.14	W 103 37	5.14
	16329.00	89.53	178.74	10646.23	5604.11	-5560.19	-788.90	1.41	493134.21	762201.53	N 32 21 13.21	W 103 37	5.12
	16424.00	89.70	180.86	10646.87	5698.80	-5655.18	-788.57	2.24	493039.23	762201.86	N 32 21 12.27	W 103 37	5.13
	16518.00	88.58	180.93	10648.28	5792.61	-5749.18	-788.04	1.19	492945.25	762200.39	N 32 21 11.34	W 103 37	5.15
	16612.00	87.62	181.44	10651.40	5886.41	-5843.08	-789.98	1.16	492851.33	762198.45	N 32 21 10.41	W 103 37	5.18
	16706.00	87.57	181.51	10655.34	5980.21	-5936.97	-792.40	0.09	492757.45	762196.03	N 32 21 9.48	W 103 37	5.22
	16801.00	87.85	181.37	10659.14	6075.00	-6031.86	-794.78	0.33	492662.56	762193.65	N 32 21 8.54	W 103 37	5.25
	16895.00	87.40	181.10	10663.03	6168.78	-6125.76	-796.81	0.56	492568.66	762191.62	N 32 21 7.61	W 103 37	5.28
	16989.00	87.51	181.59	10667.21	6262.56	-6219.64	-799.01	0.53	492474.79	762189.42	N 32 21 6.68	W 103 37	5.32
	17083.00	87.06	181.28	10671.66	6356.33	-6313.51	-801.36	0.58	492380.92	762187.07	N 32 21 5.75	W 103 37	5.35
	17178.00	87.40	181.21	10676.25	6451.07	-6408.37	-803.42	0.37	492286.06	762185.01	N 32 21 4.82	W 103 37	5.38
	17272.00	87.34	181.97	10680.57	6544.86	-6502.24	-806.03	0.81	492192.20	762182.40	N 32 21 3.89	W 103 37	5.42
	17369.00	87.69	181.86	10684.77	6641.68	-6599.09	-809.27	0.38	492095.35	762179.16	N 32 21 2.93	W 103 37	5.47

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 ° ' ")	
	17484.00	87.35	181.06	10688.88	6736.48	-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	5.66
	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	762158.43	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	1.86	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	-836.34	0.66	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	762173.36	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	88.64	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	0.66	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	0.60	489269.39	762180.99	N 32 20 34.97	W 103 37	5.66
	20292.00	88.92	179.24	10741.57	9554.00	-9520.15	-807.21	1.62	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*	*-789.46*	*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

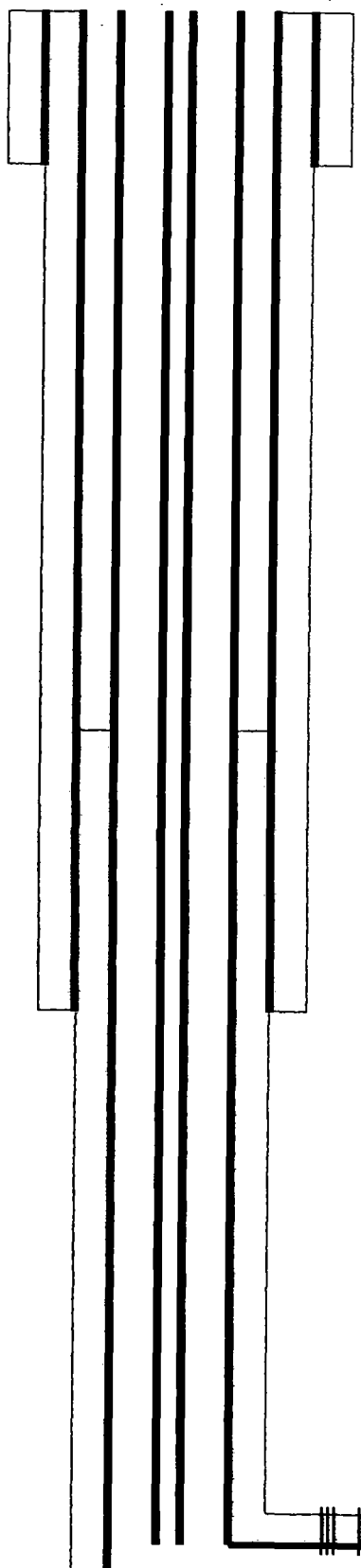
Survey Type: Def Survey

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 (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	26.500	1/98.425	30.000	30.000	GYD_GC+DROP+OH-Depth Only	Original Borehole / Oxy Avogato 30-31 State Com 21H Gyro + MWD 0-20894'MD
	1	26.500	26.500	Act Stns	30.000	30.000	GYD_GC+DROP+OH-Depth Only	Original Borehole / Oxy Avogato 30-31 State Com 21H Gyro + MWD 0-20894'MD
	1	26.500	1007.500	Act Stns	30.000	30.000	GYD_GC+DROP+OH	Original Borehole / Oxy Avogato 30-31 State Com 21H Gyro +
	1	1007.500	20894.000	Act Stns	30.000	30.000	A010Mb_MWD+IFR1+SAG+MS	Original Borehole / Oxy Avogato 30-31 State Com 21H Gyro + MWD 0-20894'MD

OXY USA Inc.
Avogato 30-31 State Com 21H
API No. 30-025-45924



17-1/2" hole @ 1062'
13-3/8" csg @ 1052'
w/ 1340sx-TOC-Surf Circ.

12-1/4" hole @ 6435'
9-5/8" csg @ 6425'
w/ 1213sx-TOC-Surf Circ.

8-1/2" hole @ 20894'
7" x 5-1/2" csg @ 20875'
w/ 2569sx-TOC-4900'

3-1/2" tbg w/ ESP @ 10412'

Perfs @ 10951-20804'

TD- 20894'M 10757'V

Telepacer and SlimPulse GR
1in/100ft Measured Depth
Final Print
Recorded Mode

Schlumberger

Company:	**OXY USA INC**
Well:	**Avogato 30 31 State Com 021H**
Field Name:	**2nd Bone Spring Sand**
County Name:	**Lea**
State Name:	**New Mexico**
Country Name:	**USA**

Latitude:	32°22'08.171"N	API Number:	30-025-45924
Longitude:	103°36'55.517"E	Rig Name:	H&P 636
Spud Date:	14-Jul-2019	Rig Type:	Land
Log Interval:	930.00--20896.62(ft)	Job Number:	19MLH0254
Depth Source:	Driller's Depth	Print Type:	Final Print
Log Measured From:	Drill Floor	Northing:	498694.2(ft)
Drill Floor Elevation:	3733.7(ft)	Easting:	762988.4(ft)
Ground Level Elevation:	3707.2(ft)	Coordinate System:	NAD83 New Mexico, State Plane, Eastern Zone, US Feet
Permanent Datum:	Sea Level		