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

Schlumberger

September 6, 2019

Oxy USA Incorporated
PO Box 4294
Houston, TX 77210-4294

Re:

S30, T22S, R33E Lea, NM
N 32.368929 W -103.608836

CLIENT: Oxy USA Incorporated
WELL: Avogato 30-31 State Com 25H
FIELD: Red Tank; Bone Spring, East

RIG: H&P 656
COUNTY: Lea
API NO: 30-025-45961
JOB NO: 19MLH0325

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
Devon Kurtz FS	Avogato 30-31 State Com 25H Original Hole	1149.00 Ft to 20946.00 Ft	August 9, 2019 to August 21, 2019	Telepacer, SlimPulse 3rd Party Corrected

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Well Reference:
S30, T22S, R33E Lea, NM
N 32.368929 W -103.608836

I, Devon Kurtz certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of August 09, 2019 through August 21, 2019, conduct or supervise the taking of the Telepacer, SlimPulse & 3rd Party Corrected surveys from a depth of 1149.00 feet to a depth of 20946.00 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 25H Well (Original Hole) API No. 30-025-45961 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

By
Devon Kurtz
FS

Subscribed and Sworn to before me this 9 day of September (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 Avogato 30-31 State Com 25H Gyro + MWD 0-20988'MD Survey
Geodetic Report
(Def Survey)

Report Date:	August 23, 2019 - 10:16 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	176.591 ° (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 25H / Oxy Avogato 30-31 State Com 25H	**TVD Reference Datum:**	RKB=26.5'
Well:	Oxy Avogato 30-31 State Com 25H	**TVD Reference Elevation:**	3711.700 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3685.200 ft above MSL
UWI / API#:	Unknown / 30-025-45961	**Magnetic Declination:**	6.613 °
Survey Name:	Oxy Avogato 30-31 State Com 25H Gyro + MWD 0-20988'MD	**Total Gravity Field Strength:**	998.4499mgn (9.80665 Based)
Survey Date:	August 02, 2019	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	212.124 ° / 11129.156 ft / 6.662 / 1.032	**Total Magnetic Field Strength:**	48062.000 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	60.087 °
Location Lat / Long:	N 32° 22' 8.14445", W 103° 36' 31.80920"	**Declination Date:**	August 07, 2019
Location Grid N/E Y/X:	N 498705.200 ftUS, E 765021.700 ftUS	**Magnetic Declination Model:**	IFR1
CRS Grid Convergence Angle:	0.3879 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99996639	**Grid Convergence Used:**	0.3879 °
Version / Patch:	2.10.782.0	**Total Corr Mag North->Grid North:**	6.2251 °
		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	0.00	0.00	0.00	0.00	0.00	N/A	498705.20	765021.70	N 32 22 8.14	W 103 36 31.81
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	498705.20	765021.70	N 32 22 8.14	W 103 36 31.81
	45.00	0.32	290.37	45.00	-0.02	0.02	-0.05	1.73	498705.22	765021.65	N 32 22 8.14	W 103 36 31.81
	71.70	0.25	281.40	71.70	-0.07	0.06	-0.18	0.31	498705.26	765021.52	N 32 22 8.15	W 103 36 31.81
	104.10	0.23	281.21	104.10	-0.10	0.08	-0.31	0.06	498705.28	765021.39	N 32 22 8.15	W 103 36 31.81
	131.30	0.26	285.56	131.30	-0.13	0.11	-0.42	0.13	498705.31	765021.28	N 32 22 8.15	W 103 36 31.81
	157.90	0.24	275.54	157.90	-0.16	0.13	-0.54	0.18	498705.33	765021.16	N 32 22 8.15	W 103 36 31.82
	185.20	0.24	263.63	185.20	-0.17	0.13	-0.65	0.18	498705.33	765021.05	N 32 22 8.15	W 103 36 31.82
	215.10	0.27	245.86	215.10	-0.14	0.09	-0.78	0.28	498705.29	765020.92	N 32 22 8.15	W 103 36 31.82
	245.30	0.28	242.69	245.30	-0.09	0.03	-0.91	0.06	498705.23	765020.79	N 32 22 8.14	W 103 36 31.82
	274.70	0.27	236.76	274.70	-0.02	-0.04	-1.03	0.10	498705.16	765020.67	N 32 22 8.14	W 103 36 31.82
	306.20	0.28	239.80	306.20	0.05	-0.12	-1.16	0.06	498705.08	765020.54	N 32 22 8.14	W 103 36 31.82
	337.70	0.36	235.07	337.70	0.14	-0.21	-1.30	0.27	498704.99	765020.40	N 32 22 8.14	W 103 36 31.82
	369.20	0.35	232.21	369.20	0.24	-0.33	-1.46	0.06	498704.87	765020.24	N 32 22 8.14	W 103 36 31.83
	400.80	0.37	231.59	400.80	0.36	-0.45	-1.62	0.06	498704.75	765020.08	N 32 22 8.14	W 103 36 31.83
	432.30	0.37	233.02	432.29	0.47	-0.58	-1.78	0.03	498704.62	765019.92	N 32 22 8.14	W 103 36 31.83
	463.70	0.37	232.53	463.69	0.58	-0.70	-1.94	0.01	498704.50	765019.76	N 32 22 8.14	W 103 36 31.83
	495.20	0.37	232.47	495.19	0.70	-0.82	-2.10	0.00	498704.38	765019.60	N 32 22 8.14	W 103 36 31.83
	526.70	0.38	232.48	526.69	0.81	-0.95	-2.26	0.03	498704.25	765019.44	N 32 22 8.14	W 103 36 31.84
	558.20	0.41	235.28	558.19	0.93	-1.08	-2.44	0.11	498704.12	765019.26	N 32 22 8.13	W 103 36 31.84
	589.70	0.42	239.17	589.69	1.04	-1.20	-2.63	0.09	498704.00	765019.07	N 32 22 8.13	W 103 36 31.84
	621.20	0.41	239.18	621.19	1.15	-1.32	-2.83	0.03	498703.88	765018.87	N 32 22 8.13	W 103 36 31.84
	652.80	0.40	241.39	652.79	1.25	-1.43	-3.02	0.06	498703.77	765018.68	N 32 22 8.13	W 103 36 31.84
	684.30	0.40	254.75	684.29	1.32	-1.51	-3.22	0.30	498703.69	765018.48	N 32 22 8.13	W 103 36 31.85
	715.80	0.40	254.69	715.79	1.36	-1.57	-3.44	0.00	498703.63	765018.26	N 32 22 8.13	W 103 36 31.85
	747.40	0.41	256.83	747.39	1.40	-1.62	-3.65	0.06	498703.58	765018.05	N 32 22 8.13	W 103 36 31.85
	778.90	0.42	258.67	778.89	1.44	-1.67	-3.88	0.05	498703.53	765017.82	N 32 22 8.13	W 103 36 31.85
	810.40	0.44	260.01	810.39	1.47	-1.71	-4.11	0.07	498703.49	765017.59	N 32 22 8.13	W 103 36 31.86
	841.90	0.46	261.58	841.88	1.49	-1.75	-4.35	0.07	498703.45	765017.35	N 32 22 8.13	W 103 36 31.88
	873.40	0.50	263.20	873.38	1.51	-1.79	-4.61	0.13	498703.41	765017.09	N 32 22 8.13	W 103 36 31.86
	904.90	0.51	263.99	904.88	1.53	-1.82	-4.89	0.04	498703.38	765016.81	N 32 22 8.13	W 103 36 31.87
	936.50	0.53	259.98	936.48	1.55	-1.86	-5.17	0.13	498703.34	765016.53	N 32 22 8.13	W 103 36 31.87
	968.00	0.55	253.60	967.98	1.60	-1.93	-5.46	0.20	498703.27	765016.24	N 32 22 8.13	W 103 36 31.87
	999.50	0.64	245.41	999.48	1.70	-2.04	-5.77	0.39	498703.16	765015.93	N 32 22 8.12	W 103 36 31.88
Last Gyro	1006.30	0.65	243.82	1006.28	1.73	-2.08	-5.84	0.30	498703.12	765015.86	N 32 22 8.12	W 103 36 31.88
	1149.00	0.58	217.91	1148.97	2.58	-3.00	-7.01	0.20	498702.20	765014.69	N 32 22 8.12	W 103 36 31.89
	1241.00	0.61	212.13	1240.96	3.33	-3.79	-7.55	0.07	498701.41	765014.15	N 32 22 8.11	W 103 36 31.90
	1331.00	0.63	215.11	1330.96	4.11	-4.60	-8.09	0.04	498700.60	765013.61	N 32 22 8.10	W 103 36 31.90
	1421.00	0.53	216.60	1420.95	4.81	-5.33	-8.63	0.11	498699.87	765013.08	N 32 22 8.09	W 103 36 31.91
	1610.00	0.24	176.86	1609.95	5.88	-6.43	-9.12	0.20	498698.77	765012.58	N 32 22 8.08	W 103 36 31.92
	1705.00	0.18	85.45	1704.95	6.07	-6.62	-8.98	0.32	498698.58	765012.74	N 32 22 8.08	W 103 36 31.91
	1799.00	0.09	77.33	1798.95	6.06	-6.59	-8.75	0.10	498698.61	765012.95	N 32 22 8.08	W 103 36 31.91
	1894.00	0.15	27.63	1893.95	5.94	-6.46	-8.62	0.12	498698.74	765013.09	N 32 22 8.08	W 103 36 31.91
	1988.00	0.16	353.78	1987.95	5.70	-6.22	-8.57	0.10	498698.98	765013.13	N 32 22 8.08	W 103 36 31.91
	2083.00	0.15	302.21	2082.95	5.50	-6.03	-8.69	0.14	498699.17	765013.01	N 32 22 8.09	W 103 36 31.91
	2178.00	0.09	312.58	2177.95	5.37	-5.91	-8.85	0.07	498699.29	765012.85	N 32 22 8.09	W 103 36 31.91
	2367.00	0.23	10.78	2366.95	4.90	-5.44	-8.89	0.10	498699.76	765012.81	N 32 22 8.09	W 103 36 31.91
	2464.00	0.21	9.87	2463.95	4.54	-5.07	-8.82	0.02	498700.13	765012.88	N 32 22 8.09	W 103 36 31.91
	2558.00	0.21	347.94	2557.95	4.20	-4.73	-8.83	0.08	498700.47	765012.87	N 32 22 8.10	W 103 36 31.91
	2653.00	0.16	330.48	2652.95	3.91	-4.45	-8.93	0.08	498700.75	765012.77	N 32 22 8.10	W 103 36 31.91
	2747.00	0.13	354.02	2746.95	3.68	-4.23	-9.01	0.07	498700.97	765012.69	N 32 22 8.10	W 103 36 31.91
	2842.00	0.18	11.04	2841.95	3.43	-3.97	-8.99	0.07	498701.23	765012.71	N 32 22 8.11	W 103 36 31.91
	2936.00	0.26	179.41	2935.95	3.50	-4.04	-8.98	0.47	498701.16	765012.74	N 32 22 8.11	W 103 36 31.91
	3046.00	0.71	69.01	3045.94	3.54	-4.05	-8.32	0.76	498701.15	765013.38	N 32 22 8.10	W 103 36 31.91
	3125.00	1.23	65.44	3124.93	3.09	-3.52	-7.09	0.66	498701.68	765014.61	N 32 22 8.11	W 103 36 31.89
	3314.00	3.20	56.45	3313.78	-0.29	0.24	-0.85	1.06	498705.44	765020.85	N 32 22 8.15	W 103 36 31.82
	3409.00	3.80	57.04	3408.60	-3.17	3.42	4.00	0.63	498708.62	765025.70	N 32 22 8.18	W 103 36 31.76
	3503.00	3.07	58.09	3502.43	-5.91	6.44	8.75	0.78	498711.64	765030.45	N 32 22 8.21	W 103 36 31.71
	3598.00	2.33	55.38	3597.33	-8.13	8.89	12.50	0.79	498714.09	765034.20	N 32 22 8.23	W 103 36 31.66
	3692.00	1.46	51.61	3691.28	-9.80	10.71	15.01	0.93	498715.91	765036.71	N 32 22 8.25	W 103 36 31.63
	3882.00	0.29	56.60	3881.25	-11.43	12.48	17.31	0.62	498717.68	765039.01	N 32 22 8.27	W 103 36 31.61
	3976.00	0.28	53.84	3975.25	-11.67	12.75	17.69	0.02	498717.95	765039.39	N 32 22 8.27	W 103 36 31.60
	4166.00	0.13	276.90	4165.25	-11.96	13.05	17.85	0.20	498718.25	765039.55	N 32 22 8.27	W 103 36 31.60
	4260.00	0.12	20.79	4259.25	-12.07	13.15	17.78	0.21	498718.35	765039.48	N 32 22 8.27	W 103 36 31.60
	4355.00	0.28	76.63	4354.25	-12.20	13.30	18.04	0.25	498718.50	765039.74	N 32 22 8.27	W 103 36 31.60
	4450.00	0.25	83.10	4449.25	-12.28	13.38	18.48	0.04	498718.58	765040.18	N 32 22 8.28	W 103 36 31.59
	4544.00	0.29	83.21	4543.25	-12.28	13.43	18.92	0.04	498718.63	765040.62	N 32 22 8.28	W 103 36 31.59
	4639.00	0.21	74.94	4638.24	-12.33	13.51	19.32	0.09	498718.70	765041.02	N 32 22 8.28	W 103 36 31.58
	4733.00	0.13	46.67	4732.24	-12.44	13.62	19.57	0.12	498718.82	765041.27	N 32 22 8.28	W 103 36 31.58
	4828.00	0.21	21.78	4827.24	-12.68	13.86	19.71	0.11	498719.06	765041.41	N 32 22 8.28	W 103 36 31.58
	4922.00	0.18	329.81	4921.24	-12.95	14.15	19.70	0.18	498719.35	765041.40	N 32 22 8.28	W 103 36 31.58
	5017.00	0.16	325.64	5016.24	-13.20	14.39	19.55	0.02	498719.58	765041.25	N 32 22 8.29	W 103 36 31.58
	5111.00	0.06	356.54	5110.24	-13.36	14.54	19.47	0.12	498719.74	765041.17	N 32 22 8.29	W 103 36 31.58
	5206.00	0.06	19.08	5205.24	-13.45	14.64	19.49	0.02	498719.84	765041.18	N 32 22 8.29	W 103 36 31.58
	5300.00	0.06	205.06	5299.24	-13.48	14.64	19.48	0.13	498719.84	765041.18	N 32 22 8.29	W 103 36 31.58
	5395.00	0.05	8.54	5394.24	-13.45	14.64	19.47	0.11	498719.84	765041.17	N 32 22 8.29	W 103 36 31.58
	5489.00	0.06	294.37	5488.24	-13.52	14.70	19.43	0.07	498719.90	765041.13	N 32 22 8.29	W 103 36 31.58
	5584.00	0.05	12.18	5583.24	-13.58	14.76	19.39	0.07	498719.96	765041.09	N 32 22 8.29	W 103 36 31.58

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 ° ' ")
	5679.00	0.05	254.84	5678.24	-13.61	14.79	19.36	0.09	498719.99	765041.06	N 32 22 8.29	W 103 36 31.58
	5773.00	0.06	76.95	5772.24	-13.61	14.79	19.37	0.12	498719.99	765041.07	N 32 22 8.29	W 103 36 31.58
	5868.00	0.09	0.02	5867.24	-13.69	14.87	19.42	0.10	498720.07	765041.12	N 32 22 8.29	W 103 36 31.58
	5962.00	1.44	15.44	5961.23	-14.89	16.09	19.73	1.44	498721.29	765041.43	N 32 22 8.30	W 103 36 31.58
	6057.00	3.18	10.74	6056.15	-18.57	19.83	20.54	1.84	498725.03	765042.24	N 32 22 8.34	W 103 36 31.57
	6151.00	4.36	11.18	6149.95	-24.56	25.89	21.72	1.26	498731.09	765043.42	N 32 22 8.40	W 103 36 31.55
	6246.00	5.09	16.85	6244.62	-31.95	33.42	23.78	1.01	498738.62	765045.48	N 32 22 8.47	W 103 36 31.53
	6331.00	5.56	19.57	6329.26	-39.23	40.87	26.38	0.56	498746.07	765048.08	N 32 22 8.55	W 103 36 31.50
	6530.00	6.54	25.34	6527.15	-58.04	60.20	34.46	0.58	498765.40	765056.16	N 32 22 8.74	W 103 36 31.40
	6624.00	7.34	26.62	6620.46	-67.94	70.41	39.44	0.87	498775.60	765061.14	N 32 22 8.84	W 103 36 31.34
	6719.00	8.01	28.86	6714.61	-78.79	81.63	45.35	0.77	498786.83	765067.05	N 32 22 8.95	W 103 36 31.27
	6813.00	9.37	28.86	6807.53	-90.80	94.07	52.21	1.45	498799.26	765073.91	N 32 22 9.07	W 103 36 31.19
	6908.00	9.99	31.20	6901.17	-104.12	107.89	60.21	0.77	498813.08	765081.91	N 32 22 9.21	W 103 36 31.10
	7003.00	9.89	33.99	6994.75	-117.38	121.70	69.04	0.52	498826.90	765090.74	N 32 22 9.34	W 103 36 30.99
	7192.00	9.40	42.65	7181.09	-140.99	146.51	88.57	0.81	498851.71	765110.27	N 32 22 9.59	W 103 36 30.76
	7381.00	10.66	49.74	7367.20	-162.18	169.16	112.37	0.93	498874.36	765134.07	N 32 22 9.81	W 103 36 30.49
	7475.00	10.59	47.78	7459.59	-172.81	180.59	125.40	0.39	498885.78	765147.10	N 32 22 9.92	W 103 36 30.33
	7570.00	10.75	48.06	7552.95	-183.80	192.37	138.46	0.18	498897.57	765160.15	N 32 22 10.04	W 103 36 30.18
	7759.00	10.40	47.30	7738.74	-205.58	215.72	164.10	0.20	498920.92	765185.80	N 32 22 10.27	W 103 36 29.88
	7949.00	10.43	47.33	7925.61	-227.33	239.01	189.35	0.02	498944.20	765211.05	N 32 22 10.50	W 103 36 29.58
	8138.00	10.50	49.91	8111.46	-248.44	261.70	215.11	0.25	498966.89	765236.80	N 32 22 10.72	W 103 36 29.28
	8327.00	10.56	52.37	8297.28	-268.47	283.36	242.00	0.24	498988.55	765263.69	N 32 22 10.93	W 103 36 28.97
	8516.00	10.14	52.71	8483.20	-287.48	304.01	268.95	0.22	499009.20	765290.64	N 32 22 11.13	W 103 36 28.65
	8705.00	10.49	53.26	8669.15	-306.21	324.38	295.97	0.19	499029.57	765317.66	N 32 22 11.33	W 103 36 28.33
	8800.00	10.40	54.83	8762.58	-315.48	334.50	309.91	0.31	499039.68	765331.60	N 32 22 11.43	W 103 36 28.17
	8989.00	9.24	58.54	8948.81	-331.59	352.24	336.80	0.70	499057.43	765358.49	N 32 22 11.61	W 103 36 27.85
	9084.00	7.71	65.31	9042.77	-337.49	358.89	349.10	1.92	499064.07	765370.79	N 32 22 11.67	W 103 36 27.71
	9178.00	6.69	72.29	9136.03	-341.13	363.19	360.04	1.43	499068.37	765381.73	N 32 22 11.71	W 103 36 27.58
	9273.00	6.67	81.35	9230.38	-343.00	365.70	370.77	1.11	499070.89	765392.46	N 32 22 11.74	W 103 36 27.46
	9367.00	6.57	86.69	9323.77	-342.56	365.89	381.51	1.88	499071.08	765403.20	N 32 22 11.74	W 103 36 27.33
	9462.00	6.11	108.60	9418.19	-339.71	363.65	391.70	1.46	499068.83	765413.39	N 32 22 11.72	W 103 36 27.21
	9557.00	5.91	117.68	9512.67	-335.29	359.76	400.82	1.02	499064.95	765422.51	N 32 22 11.68	W 103 36 27.11
	9746.00	6.73	129.05	9700.53	-322.79	348.27	418.04	0.79	499053.45	765439.73	N 32 22 11.56	W 103 36 26.91
	9840.00	6.68	130.69	9793.88	-315.27	341.23	426.46	0.21	499046.42	765448.15	N 32 22 11.49	W 103 36 26.81
	9935.00	6.79	131.39	9888.23	-307.47	333.92	434.87	0.14	499039.10	765456.55	N 32 22 11.42	W 103 36 26.71
100' FNL Crossed	*10064.00*	*9.19*	*127.94*	*10015.97*	*-295.28*	*322.54*	*448.72*	*1.90*	*499027.72*	*765470.40*	*N 32 22 11.31*	*W 103 36 26.55*
	10124.00	10.32	126.88	10075.10	-288.64	316.36	456.80	1.90	499021.55	765478.48	N 32 22 11.24	W 103 36 26.46
Second Bone Spring Intersection	*10191.12*	*11.49*	*126.81*	*10141.00*	*-280.43*	*308.75*	*466.96*	*1.75*	*499013.94*	*765488.64*	*N 32 22 11.17*	*W 103 36 26.34*
	10219.00	11.98	126.78	10168.30	-276.77	305.35	471.50	1.75	499010.54	765493.19	N 32 22 11.13	W 103 36 26.29
	10265.00	12.56	126.30	10213.25	-270.50	299.53	479.36	1.28	499004.72	765501.04	N 32 22 11.08	W 103 36 26.20
KOP Actual	10296.00	12.44	124.71	10243.51	-266.28	295.64	484.82	1.18	499000.82	765506.50	N 32 22 11.04	W 103 36 26.13
	10390.00	18.72	145.84	10334.09	-247.04	277.36	501.64	8.90	498982.55	765523.32	N 32 22 10.86	W 103 36 25.94
	10485.00	24.94	166.29	10422.36	-214.15	245.20	514.98	10.25	498950.40	765536.66	N 32 22 10.54	W 103 36 25.79
	10580.00	32.55	174.46	10505.62	-168.82	200.23	522.21	9.00	498905.42	765543.89	N 32 22 10.09	W 103 36 25.70
	10675.00	45.09	174.10	10579.49	-109.43	141.09	528.16	13.20	498846.28	765549.84	N 32 22 9.51	W 103 36 25.64
	10769.00	52.87	173.44	10641.14	-38.68	70.64	535.87	8.29	498775.84	765557.55	N 32 22 8.81	W 103 36 25.56
	10864.00	63.22	174.20	10691.35	41.75	-9.38	544.51	10.92	498695.82	765566.19	N 32 22 8.02	W 103 36 25.46
	10958.00	74.72	175.78	10725.03	129.30	-96.64	552.11	12.33	498608.56	765573.79	N 32 22 7.15	W 103 36 25.38
	11053.00	85.60	177.67	10741.24	222.76	-189.95	557.42	11.62	498515.26	765579.10	N 32 22 6.23	W 103 36 25.33
	11125.00	87.97	179.52	10745.28	294.59	-261.81	559.18	4.17	498443.40	765580.86	N 32 22 5.52	W 103 36 25.31
	11158.00	87.66	180.12	10746.53	327.52	-294.78	559.29	2.05	498410.43	765580.97	N 32 22 5.19	W 103 36 25.31
	11253.00	87.52	182.70	10750.53	422.09	-389.66	556.95	2.72	498315.55	765578.63	N 32 22 4.25	W 103 36 25.35
	11442.00	88.14	185.61	10757.69	609.29	-578.01	543.27	1.57	498127.21	765564.95	N 32 22 2.39	W 103 36 25.52
	11536.00	88.69	185.92	10760.29	702.05	-671.49	533.83	0.67	498033.73	765555.51	N 32 22 1.46	W 103 36 25.64
	11631.00	88.73	183.73	10762.43	796.04	-766.13	525.84	2.31	497939.10	765547.52	N 32 22 0.53	W 103 36 25.74
	11726.00	88.90	182.65	10764.39	890.39	-860.96	520.56	1.15	497844.27	765542.24	N 32 21 59.59	W 103 36 25.81
	11820.00	88.52	181.02	10766.51	983.97	-954.88	517.55	1.78	497750.35	765539.23	N 32 21 58.66	W 103 36 25.85
	11914.00	88.69	180.13	10768.80	1077.71	-1048.85	516.60	0.96	497656.39	765538.29	N 32 21 57.73	W 103 36 25.87
	12103.00	89.55	179.43	10771.70	1266.40	-1237.82	517.33	0.59	497467.42	765539.01	N 32 21 55.86	W 103 36 25.88
	12292.00	89.90	178.36	10772.61	1455.32	-1426.67	524.27	1.63	497278.58	765545.95	N 32 21 53.99	W 103 36 25.81
	12481.00	90.03	174.40	10772.72	1644.27	-1615.05	539.49	1.04	497090.21	765561.18	N 32 21 52.13	W 103 36 25.65
	12670.00	90.03	176.57	10772.62	1833.22	-1803.45	554.37	1.15	496901.81	765576.05	N 32 21 50.26	W 103 36 25.49
	12859.00	90.69	178.70	10771.43	2022.18	-1992.27	562.17	1.18	496713.00	765583.85	N 32 21 48.39	W 103 36 25.41
	13049.00	90.17	180.46	10770.01	2211.90	-2182.26	563.56	0.97	496523.02	765585.24	N 32 21 46.51	W 103 36 25.41
	13237.00	90.72	180.97	10768.55	2399.41	-2370.23	561.22	0.40	496335.05	765582.90	N 32 21 44.65	W 103 36 25.45
	13427.00	90.62	180.11	10768.33	2588.95	-2560.21	559.43	0.46	496145.08	765581.11	N 32 21 42.77	W 103 36 25.49
	13615.00	90.65	181.18	10764.24	2776.46	-2748.18	557.31	0.57	495957.11	765578.99	N 32 21 40.91	W 103 36 25.53
	13810.00	90.89	181.77	10761.62	2970.73	-2943.10	552.29	0.33	495762.20	765573.97	N 32 21 38.99	W 103 36 25.60
	13904.00	90.93	181.65	10760.13	3064.35	-3037.05	549.49	0.13	495668.26	765571.17	N 32 21 38.06	W 103 36 25.64
	14093.00	90.86	181.54	10757.18	3252.60	-3225.95	544.23	0.07	495479.36	765565.91	N 32 21 36.19	W 103 36 25.72
	14283.00	90.89	181.43	10754.28	3441.89	-3415.86	539.30	0.06	495289.46	765560.98	N 32 21 34.31	W 103 36 25.79
	14472.00	90.51	181.28	10751.97	3630.22	-3604.80	534.83	0.22	495100.53	765556.52	N 32 21 32.44	W 103 36 25.86
	14568.00	90.93	181.74	10750.79	3723.87	-3698.76	532.36	0.66	495006.57	765554.04	N 32 21 31.51	W 103 36 25.90
	14755.00	91.03	179.86	10747.55	3912.32	-3887.70	529.72	1.00	494817.64	765551.40	N 32 21 29.64	W 103 36 25.94
	14944.00	90.86	179.04	10744.44	4101.06	-4076.67	531.53	0.44	494628.68	765553.21	N 32 21 27.77	W 103 36 25.93
	15134.00	89.86	177.57	10743.24	4290.96	-4266.57	537.15	0.84	494438.78	765558.83	N 32 21 25.89	W 103 36 25.88
	15323.00	89.31	176.73	10744.61	4479.95	-4455.33	546.55	0.53	494250.03	765568.23	N 32 21 24.02	W 103 36 25.79
	15512.00	90.10	177.58	10745.58	4668.93	-4644.09	555.93	0.61	494061.27	765577.61	N 32 21 22.16	W 103 36 25.70
	15701.00	90.38	180.84	10744.79	4857.71	-4833.05	558.54	1.73	493872.33	765580.22	N 32 21 20.29	W 103 36 25.68
	15890.00	90.62	180.88	10743.14	5046.18	-5022.02	555.70	0.13	493683.36	765577.38	N 32 21 18.42	W 103 36 25.73
	16079.00	90.34	181.20	10741.56	5234.60	-5210.98	552.27	0.22	493494.41	765573.95	N 32 21 16.55	W 103 36 25.78
	16174.00	91.03	181.35	10740.42	5329.27	-5305.95	550.16	0.74	493399.44	765571.84	N 32 21 15.61	W 103 36 25.81
	16363.00	90.79	180.95	10737.42	5517.65	-5494.89	548.36	0.25	493210.51	765568.04	N 32 21 13.74	W 103 36 25.87
	16458.00	90.34	181.19	10736.49	5612.36	-5589.86	544.59	0.54	493115.53	765568.27	N 32 21 12.80	W 103 36 25.90
	16552.00	90.79	181.18	10735.56	5706.05	-5683.84	542.64	0.48	493021.56	765564.33	N 32 21 11.87	W 103 36 25.93
	16647.00	90.79	180.00	10734.25	5800.81	-5778.82	541.67	1.24	492926.58	765563.35	N 32 21 10.93	W 103 36 25.95
	16836.00	89.72	176.67	10733.41	5989.69	-5967.71	547.16	1.85	492737.70	765568.84	N 32 21 9.06	W 103 36 25.90
	16931.00	89.07	176.16	10734.41	6084.68	-6062.52	553.10	0.87	492642.89	765574.78	N 32 21 8.12	W 103 36 25.84
	17120.00	88.79	176.47	10737.94	6273.65	-6251.10	565.24	0.22	492454.33	765588.92	N 32 21 6.25	W 103 36 25.71
	17309.00	88.93	176.31	10741.70	6462.61	-6439.68	577.14	0.11	492265.74	765598.82	N 32 21 4.39	W 103 36 25.59
	17499.00	88.11	176.40	10746.61	6652.54	-6629.24	589.22	0.43	492076.20	765610.89	N 32 21 2.51	W 103 36 25.46
	17593.00	88.59	178.06	10749.31	6746.48	-6723.11	592.94	2.87	491982.33	765614.62	N 32 21 1.58	W 103 36 25.43
	17782.00	88.76	181.71	10753.69	6934.99	-6912.04	591.67	1.40	491793.40	765613.35	N 32 20 59.71	W 103 36 25.46
	17877.00	88.80	181.69	10755.71	7029.59	-7006.98	588.85	0.05	491698.47	765610.53	N 32 20 58.77	W 103 36 25.50
	17971.00	89.04	181.46	10757.48	7123.22	-7100.93	586.27	0.35	491604.53	765607.95	N 32 20 57.84	W 103 36 25.54
	18066.00	88.76	181.19	10759.30	7217.88	-7195.88	584.07	0.41	491509.57	765605.75	N 32 20 56.90	W 103 36 25.57
	18161.00	88.73	181.46	10761.38	7312.53	-7290.84	581.87	0.29	491414.62	765603.55	N 32 20 55.96	W 103 36 25.60
	18255.00	88.56	181.39	10763.61	7406.17	-7384.78	579.54	0.20	491320.68	765601.22	N 32 20 55.04	W 103 36 25.64
	18350.00	89.21	181.10	10765.48	7500.84	-7479.74	577.47	0.75	491225.73	765599.15	N 32 20 54.10	W 103 36 25.67
	18445.00	88.93	180.70	10767.00	7595.56	-7574.71	575.98	0.51	491130.76	765597.66	N 32 20 53.16	W 103 36 25.69
	18539.00	88.66	181.38	10768.81	7689.26	-7668.68	574.28	0.73	491036.79	765595.95	N 32 20 52.23	W 103 36 25.72
	18729.00	88.56	181.25	10773.09	7878.57	-7858.58	569.92	0.17	490846.90	765591.60	N 32 20 50.35	W 103 36 25.79
	18823.00	89.72	180.47	10774.50	7972.29	-7952.56	568.51	1.49	490752.92	765590.18	N 32 20 49.42	W 103 36 25.81
	19012.00	89.24	179.43	10776.21	8160.96	-8141.55	568.67	0.61	490563.94	765590.35	N 32 20 47.55	W 103 36 25.82
	19202.00	88.28	181.70	10780.33	8350.44	-8331.48	568.80	1.30	490374.02	765588.48	N 32 20 45.67	W 103 36 25.86
	19390.00	90.34	181.25	10782.59	8537.73	-8519.39	567.96	1.12	490186.11	765583.64	N 32 20 43.81	W 103 36 25.93

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 ° ' ")
	19580.00	90.34	178.65	10781.46	8727.39	-8709.37	562.13	1.37	489996.14	765583.81	N 32 20 41.93	W 103 36 25.94
	19769.00	90.17	177.37	10780.62	8916.32	-8898.25	568.69	0.68	489807.26	765590.37	N 32 20 40.06	W 103 36 25.88
	19863.00	90.27	178.11	10780.26	9010.30	-8992.18	572.39	0.79	489713.34	765594.07	N 32 20 39.13	W 103 36 25.85
	19958.00	90.45	176.53	10779.66	9105.29	-9087.07	576.84	1.67	489618.45	765598.52	N 32 20 38.19	W 103 36 25.80
	20052.00	90.58	175.90	10778.82	9199.28	-9180.86	583.04	0.68	489524.67	765604.72	N 32 20 37.26	W 103 36 25.74
	20147.00	91.10	175.55	10777.43	9294.26	-9275.59	590.12	0.66	489429.94	765611.80	N 32 20 36.33	W 103 36 25.66
	20242.00	90.58	175.05	10776.03	9389.23	-9370.26	597.91	0.76	489335.28	765619.58	N 32 20 35.39	W 103 36 25.58
	20336.00	89.76	176.15	10775.75	9483.21	-9463.98	605.12	1.46	489241.56	765626.80	N 32 20 34.46	W 103 36 25.50
	20431.00	90.10	177.69	10775.87	9578.21	-9558.84	610.22	1.66	489146.70	765631.90	N 32 20 33.52	W 103 36 25.45
	20526.00	89.31	178.49	10776.36	9673.17	-9653.78	613.39	1.18	489051.76	765635.07	N 32 20 32.58	W 103 36 25.42
	20715.00	88.49	178.49	10779.99	9862.03	-9842.68	618.37	0.43	488862.87	765640.04	N 32 20 30.71	W 103 36 25.38
	20809.00	89.35	179.22	10781.76	9955.94	-9936.64	620.24	1.20	488768.91	765641.92	N 32 20 29.78	W 103 36 25.36
	20903.00	89.21	179.55	10782.94	10049.82	-10030.63	621.25	0.38	488674.93	765642.93	N 32 20 28.85	W 103 36 25.36
100' FSL Crossed	*20908.00*	*89.17*	*179.56*	*10783.01*	*10054.81*	*-10035.63*	*621.29*	*0.89*	*488669.93*	*765642.97*	*N 32 20 28.80*	*W 103 36 25.36*
Final MWD	20946.00	88.83	179.60	10783.68	10092.76	-10073.62	621.57	0.89	488631.94	765643.25	N 32 20 28.43	W 103 36 25.36
Proj to TD	20988.00	88.83	179.60	10784.53	10134.69	-10115.61	621.87	0.00	488589.95	765643.54	N 32 20 28.01	W 103 36 25.36

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 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	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Avogato 30-31 State Com 25H Gyro + MWD 0-20988'MD
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Avogato 30-31 State Com 25H Gyro + MWD 0-20988'MD
	1	26.500	1006.300	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Avogato 30-31 State Com 25H Gyro +
	1	1006.300	8705.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Avogato 30-31 State Com 25H Gyro +
	1	8705.000	10265.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Original Borehole / Oxy Avogato 30-31 State Com 25H Gyro +
	1	10265.000	20988.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Avogato 30-31 State Com 25H Gyro +

Schlumberger

OXY

Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Avogato 30-31 State Com 25H	NM Lea County (NAD 83)	Oxy Avogato 30-31 State Com 25H

Gravity & Magnetic Parameters

Model: IFR1 Dip: 60.087° Date: 07-Aug-2019

MagDec: 6.613° FS: 48062nT Gravity FS: 998.48mgn (9.80665 Based)

Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet

Lat: N 32 22 8.14 Northing: 498708.27fUS Grid Conv: 0.3879°

Lon: W 103 36 31.81 Easting: 765021.77fUS Scale Fact: 0.99996639

Miscellaneous

Slot: Oxy Avogato 30-31 State Com 25H TVD Ref: RKB=26.5'(3711.7ft above MSL)

Plan: Oxy Avogato 30-31 State Com 25H Gyro + MWD 0-20988'MD

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00
Last Gyro	1006.30	0.65	243.82	1006.28	1.73	-2.08	-5.84	0.30
100' FNL Crossed	10064.00	9.19	127.94	10015.97	-295.28	322.54	448.72	1.90
Second Bone Spring Intersection	10191.12	11.49	126.81	10141.00	-280.43	308.75	466.96	1.75
KOP Actual	10296.00	12.44	124.71	10243.51	-266.28	295.64	484.82	1.18
100' FSL Crossed	20908.00	89.17	179.56	10783.01	10054.81	-10035.63	621.29	0.89
Final MWD	20946.00	88.83	179.60	10783.68	10092.76	-10073.62	621.57	0.89
Proj to TD	20988.00	88.83	179.60	10784.53	10134.69	-10115.61	621.87	0.00