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:
S19, T22S, R32E Lea, NM
N 32.38391 W -103.71895

I, Jeremy James certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of December 06, 2019 through December 22, 2019, conduct or supervise the taking of the SlimPulse & Third Party Corrected surveys from adepth of 1002.00 feet to a depth of 20250.00 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 Lost Tank 30-19 Federal Com 1H Well (Original Hole) API No. 30-025-46474 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.

HOBBS OCD
FEB 03 2020
RECEIVED

By
Jeremy James
FS

Jeremy James

Subscribed and Sworn to before me this 2 day of January (month) 2020 (yr)

My Commission expires:
6/14/23

Jean Paul Langlois (signature)
Notary Public

Comanche, Oklahoma
(County State)

Jean-Paul Langlois
Notary Public in and for
STATE OF OKLAHOMA
Commission #19005988
Expires: June 14, 2023

Final PvA - Rev1

H&P 617 (RKB=26.5')

Schlumberger

OXY

Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Lost Tank 30-19 Federal Com 1H	NM Lea County (NAD 83)	Oxy Lost Tank 30-19 Federal Com 1H

Gravity & Magnetic Parameters

Model: IFR1 Dip: 60.13° Date: 04-dic.-2019

MagDec: 6.798° FS: 48044.7nT Gravity FS: 998.468mgn (9.80665 Based)

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

Lat: N 32 23 2.07 Northing: 603341.825ftUS Grid Conv: 0.3291°

Lon: W 103 43 8.21 Easting: 730993.557ftUS Scale Fact: 0.99996729

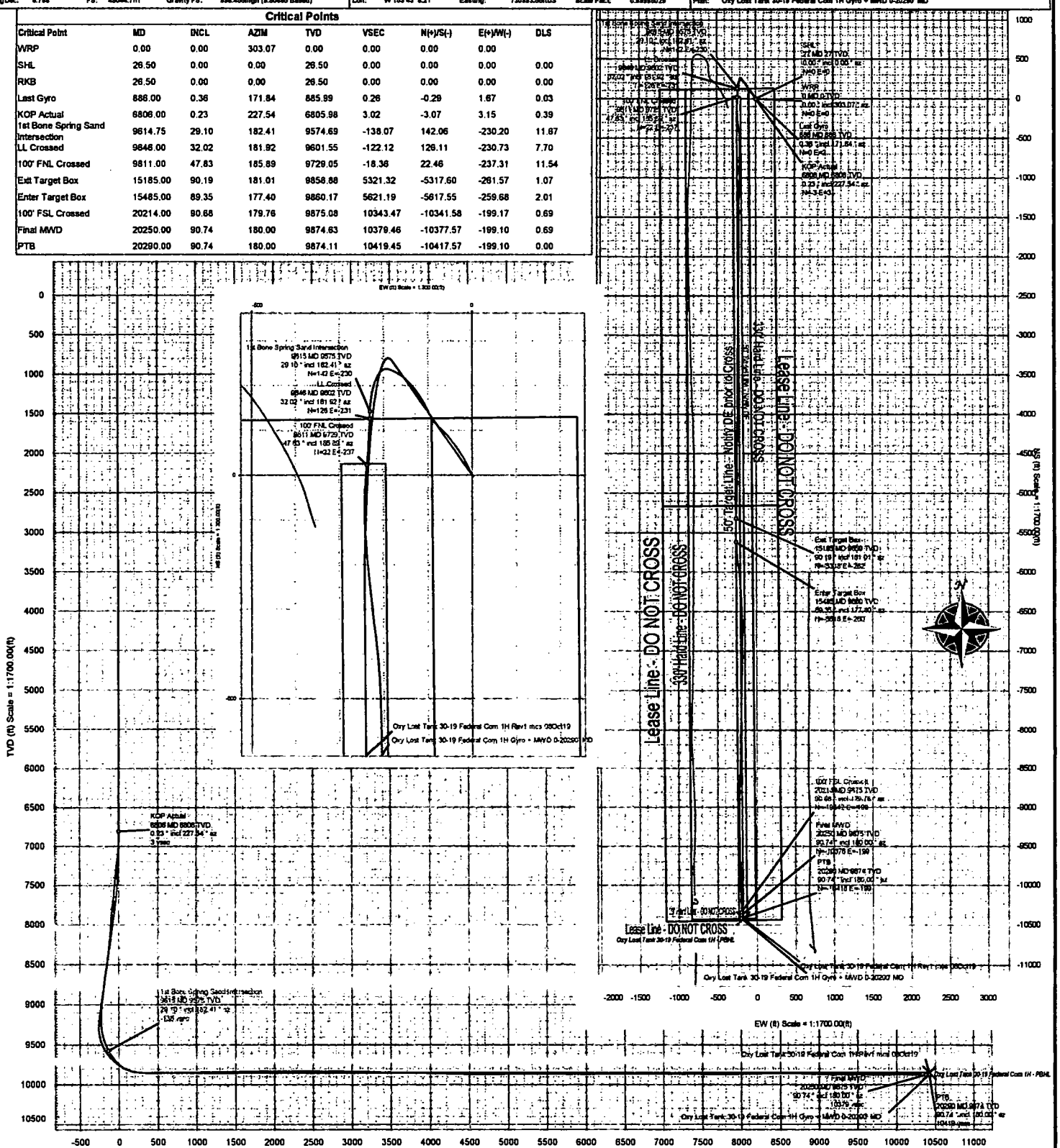
Miscellaneous

Slot: Oxy Lost Tank 30-19 Federal Com 1H TVD Ref: RKB(3842.5ft above MSL)

Plan: Oxy Lost Tank 30-19 Federal Com 1H Gyro + MWD 0-20290' MD

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
WRP	0.00	0.00	303.07	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
RKB	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00
Last Gyro	886.00	0.36	171.84	885.99	0.26	-0.29	1.67	0.03
KOP Actual	6806.00	0.23	227.54	6805.98	3.02	-3.07	3.15	0.39
1st Bone Spring Sand Intersection	9614.75	29.10	182.41	9574.69	-138.07	142.06	-230.20	11.87
LL Crossed	9846.00	32.02	181.92	9601.55	-122.12	126.11	-230.73	7.70
100' FNL Crossed	9811.00	47.83	185.89	9729.05	-18.36	22.46	-237.31	11.54
Exit Target Box	15185.00	90.19	181.01	9858.88	5321.32	-5317.60	-261.57	1.07
Enter Target Box	15485.00	89.35	177.40	9860.17	5621.19	-5617.55	-259.68	2.01
100' FSL Crossed	20214.00	90.68	179.76	9875.08	10343.47	-10341.58	-199.17	0.69
Final MWD	20250.00	90.74	180.00	9874.63	10379.46	-10377.57	-199.10	0.69
PTB	20290.00	90.74	180.00	9874.11	10419.45	-10417.57	-199.10	0.00



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Oxy Lost Tank 30-19 Federal Com 1H Gyro + MWD 0-20290' MD Survey
Geodetic Report
(Def Survey)

Report Date:	December 23, 2019 - 02:16 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	180.987 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Oxy Lost Tank 30-19 Federal Com 1H / Oxy Lost Tank 30-19 Federal Com 1H	**TVD Reference Datum:**	RKB
Well:	Oxy Lost Tank 30-19 Federal Com 1H	**TVD Reference Elevation:**	3842.600 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3816.100 ft above MSL
UWI / API#:	Unknown / 30-025-46474	**Magnetic Declination:**	6.796 °
Survey Name:	Oxy Lost Tank 30-19 Federal Com 1H Gyro + MWD 0-20290' MD	**Total Gravity Field Strength:**	998.4555mgn (9.80665 Based)
Survey Date:	December 04, 2019	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	247.830 ° / 11006.847 ft / 6.749 / 1.115	**Total Magnetic Field Strength:**	48044.700 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	60.130 °
Location Lat / Long:	N 32° 23' 2.06832", W 103° 43' 8.21048"	**Declination Date:**	December 04, 2019
Location Grid N/E Y/X:	N 503941.820 ftUS, E 730993.550 ftUS	**Magnetic Declination Model:**	IFR1
CRS Grid Convergence Angle:	0.3291 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99995029	**Grid Convergence Used:**	0.3291 °
Version / Patch:	2.10.787.0	**Total Corr Mag North->Grid North:**	6.4669 °
		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 ° ' ")
WRP	0.00	0.00	303.07	0.00	0.00	0.00	0.00	N/A	503941.82	730993.55	N 32 23 2.07	W 103 43 8.21
RKB												
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	503941.82	730993.55	N 32 23 2.07	W 103 43 8.21
	104.00	0.40	30.00	104.00	-0.24	0.23	0.14	0.52	503942.05	730993.69	N 32 23 2.07	W 103 43 8.21
	133.00	0.44	6.18	133.00	-0.44	0.43	0.20	0.61	503942.25	730993.75	N 32 23 2.07	W 103 43 8.21
	160.00	0.46	17.67	160.00	-0.64	0.64	0.24	0.34	503942.46	730993.79	N 32 23 2.07	W 103 43 8.21
	188.00	0.44	28.34	188.00	-0.85	0.84	0.33	0.31	503942.66	730993.88	N 32 23 2.08	W 103 43 8.21
	217.00	0.38	34.19	217.00	-1.02	1.01	0.43	0.31	503942.83	730993.98	N 32 23 2.08	W 103 43 8.21
	243.00	0.34	31.90	243.00	-1.16	1.15	0.52	0.09	503942.97	730994.07	N 32 23 2.08	W 103 43 8.20
	272.00	0.34	38.45	272.00	-1.30	1.29	0.62	0.13	503943.11	730994.17	N 32 23 2.08	W 103 43 8.20
	304.00	0.23	36.90	303.99	-1.43	1.41	0.71	0.34	503943.23	730994.26	N 32 23 2.08	W 103 43 8.20
	335.00	0.21	51.60	334.99	-1.51	1.50	0.80	0.19	503943.32	730994.35	N 32 23 2.08	W 103 43 8.20
	367.00	0.20	61.49	368.99	-1.58	1.56	0.89	0.11	503943.38	730994.44	N 32 23 2.08	W 103 43 8.20
	398.00	0.12	65.98	397.99	-1.62	1.60	0.97	0.26	503943.42	730994.52	N 32 23 2.08	W 103 43 8.20
	430.00	0.15	80.12	429.99	-1.64	1.62	1.04	0.14	503943.44	730994.59	N 32 23 2.08	W 103 43 8.20
	461.00	0.15	87.62	460.99	-1.65	1.63	1.12	0.06	503943.45	730994.67	N 32 23 2.08	W 103 43 8.20
	494.00	0.13	140.11	493.99	-1.62	1.60	1.19	0.38	503943.42	730994.74	N 32 23 2.08	W 103 43 8.20
	524.00	0.18	147.41	523.99	-1.58	1.54	1.24	0.18	503943.36	730994.79	N 32 23 2.08	W 103 43 8.20
	556.00	0.22	149.49	555.99	-1.48	1.44	1.29	0.13	503943.26	730994.84	N 32 23 2.08	W 103 43 8.20
	587.00	0.28	162.29	586.99	-1.34	1.32	1.35	0.26	503943.14	730994.90	N 32 23 2.08	W 103 43 8.19
	619.00	0.38	163.98	618.99	-1.17	1.15	1.40	0.25	503942.97	730994.95	N 32 23 2.08	W 103 43 8.19
	650.00	0.38	164.90	649.99	-0.98	0.95	1.45	0.07	503942.77	730995.00	N 32 23 2.08	W 103 43 8.19
	682.00	0.33	164.43	681.99	-0.79	0.76	1.50	0.16	503942.58	730995.05	N 32 23 2.08	W 103 43 8.19
	713.00	0.29	166.91	712.99	-0.63	0.60	1.55	0.14	503942.42	730995.10	N 32 23 2.07	W 103 43 8.19
	745.00	0.28	174.95	744.99	-0.47	0.44	1.57	0.13	503942.26	730995.12	N 32 23 2.07	W 103 43 8.19
	777.00	0.27	174.91	776.99	-0.32	0.29	1.58	0.03	503942.11	730995.13	N 32 23 2.07	W 103 43 8.19
	809.00	0.29	171.55	808.99	-0.16	0.14	1.60	0.08	503941.96	730995.15	N 32 23 2.07	W 103 43 8.19
	839.00	0.29	168.70	838.99	-0.01	-0.01	1.63	0.05	503941.81	730995.18	N 32 23 2.07	W 103 43 8.19
	871.00	0.38	171.13	870.99	0.16	-0.19	1.66	0.22	503941.63	730995.21	N 32 23 2.07	W 103 43 8.19
Last Gyro	886.00	0.38	171.84	885.99	0.26	-0.29	1.67	0.03	503941.53	730995.22	N 32 23 2.07	W 103 43 8.19
	1002.00	0.04	181.73	1001.99	0.66	-0.69	1.73	0.28	503941.13	730995.28	N 32 23 2.06	W 103 43 8.19
	1093.00	0.05	253.69	1092.99	0.70	-0.73	1.69	0.08	503941.09	730995.24	N 32 23 2.06	W 103 43 8.19
	1183.00	0.04	58.25	1182.99	0.70	-0.72	1.68	0.10	503941.10	730995.23	N 32 23 2.06	W 103 43 8.19
	1275.00	0.04	54.89	1274.99	0.68	-0.69	1.73	0.00	503941.13	730995.28	N 32 23 2.06	W 103 43 8.19
	1365.00	0.04	111.27	1364.99	0.65	-0.68	1.78	0.04	503941.14	730995.33	N 32 23 2.06	W 103 43 8.19
	1455.00	0.04	182.70	1454.99	0.69	-0.72	1.81	0.05	503941.10	730995.36	N 32 23 2.06	W 103 43 8.19
	1547.00	0.04	341.30	1546.99	0.70	-0.73	1.80	0.09	503941.09	730995.35	N 32 23 2.06	W 103 43 8.19
	1641.00	0.04	339.21	1640.99	0.63	-0.66	1.78	0.00	503941.16	730995.33	N 32 23 2.06	W 103 43 8.19
	1735.00	0.04	152.22	1734.99	0.63	-0.66	1.78	0.08	503941.16	730995.33	N 32 23 2.06	W 103 43 8.19
	1830.00	0.04	356.51	1829.99	0.63	-0.66	1.79	0.08	503941.16	730995.34	N 32 23 2.06	W 103 43 8.19
	1924.00	0.04	235.10	1923.99	0.61	-0.65	1.77	0.07	503941.17	730995.32	N 32 23 2.06	W 103 43 8.19
	2019.00	0.04	52.36	2018.99	0.61	-0.64	1.78	0.08	503941.18	730995.31	N 32 23 2.06	W 103 43 8.19
	2113.00	0.08	129.45	2112.99	0.63	-0.67	1.84	0.09	503941.15	730995.39	N 32 23 2.06	W 103 43 8.19
	2208.00	0.04	62.80	2207.99	0.66	-0.69	1.92	0.08	503941.13	730995.47	N 32 23 2.06	W 103 43 8.19
	2302.00	0.04	296.08	2301.99	0.63	-0.66	1.92	0.08	503941.16	730995.47	N 32 23 2.06	W 103 43 8.19
	2397.00	0.10	354.48	2396.99	0.53	-0.57	1.88	0.09	503941.25	730995.43	N 32 23 2.06	W 103 43 8.19
	2491.00	0.10	76.13	2490.99	0.43	-0.46	1.96	0.14	503941.36	730995.51	N 32 23 2.06	W 103 43 8.19
	2585.00	0.10	225.34	2584.99	0.47	-0.50	1.98	0.21	503941.32	730995.53	N 32 23 2.06	W 103 43 8.19
	2680.00	0.10	258.38	2679.99	0.55	-0.58	1.84	0.06	503941.24	730995.39	N 32 23 2.06	W 103 43 8.19
	2774.00	0.04	150.63	2773.99	0.59	-0.62	1.77	0.13	503941.20	730995.32	N 32 23 2.06	W 103 43 8.19
	2869.00	0.10	125.13	2868.99	0.67	-0.70	1.86	0.07	503941.12	730995.41	N 32 23 2.06	W 103 43 8.19
	2963.00	0.10	123.18	2962.99	0.76	-0.79	1.89	0.00	503941.03	730995.54	N 32 23 2.06	W 103 43 8.19
	3058.00	0.03	333.38	3057.99	0.78	-0.81	2.05	0.13	503941.01	730995.60	N 32 23 2.06	W 103 43 8.19
	3152.00	0.10	24.86	3151.99	0.68	-0.72	2.07	0.09	503941.10	730995.62	N 32 23 2.06	W 103 43 8.19
	3246.00	0.10	155.77	3245.99	0.68	-0.72	2.14	0.19	503941.10	730995.69	N 32 23 2.06	W 103 43 8.19
	3341.00	0.16	270.32	3340.99	0.76	-0.79	2.04	0.23	503941.03	730995.59	N 32 23 2.06	W 103 43 8.19
	3436.00	0.10	20.26	3435.99	0.88	-0.72	1.94	0.23	503941.10	730995.49	N 32 23 2.06	W 103 43 8.19
	3530.00	0.04	16.67	3529.99	0.57	-0.61	1.98	0.06	503941.21	730995.53	N 32 23 2.06	W 103 43 8.19
	3624.00	0.25	129.00	3623.99	0.67	-0.70	2.15	0.28	503941.12	730995.70	N 32 23 2.06	W 103 43 8.19
	3719.00	0.29	116.42	3718.99	0.90	-0.94	2.52	0.08	503940.88	730996.07	N 32 23 2.06	W 103 43 8.18
	3813.00	0.21	143.58	3812.98	1.14	-1.19	2.84	0.15	503940.63	730996.39	N 32 23 2.06	W 103 43 8.18
	3908.00	0.20	301.68	3907.98	1.19	-1.24	2.80	0.42	503940.58	730996.35	N 32 23 2.06	W 103 43 8.18
	4002.00	0.04	316.93	4001.98	1.08	-1.13	2.64	0.17	503940.69	730996.19	N 32 23 2.06	W 103 43 8.18
	4097.00	0.16	61.99	4096.98	1.00	-1.04	2.73	0.18	503940.78	730996.28	N 32 23 2.06	W 103 43 8.18
	4191.00	0.21	128.74	4190.98	1.04	-1.09	2.98	0.22	503940.73	730996.53	N 32 23 2.06	W 103 43 8.18
	4286.00	0.13	130.33	4285.98	1.21	-1.27	3.20	0.08	503940.55	730996.75	N 32 23 2.06	W 103 43 8.17
	4380.00	0.05	143.44	4379.98	1.31	-1.37	3.31	0.09	503940.45	730996.86	N 32 23 2.05	W 103 43 8.17
	4475.00	0.10	219.27	4474.98	1.41	-1.47	3.28	0.11	503940.35	730996.83	N 32 23 2.05	W 103 43 8.17
	4570.00	0.08	189.35	4569.98	1.54	-1.60	3.24	0.08	503940.22	730996.79	N 32 23 2.05	W 103 43 8.17
	4660.00	0.10	171.80	4659.98	1.68	-1.74	3.26	0.02	503940.08	730996.81	N 32 23 2.05	W 103 43 8.17
	4759.00	0.10	13.82	4758.98	1.68	-1.74	3.29	0.20	503940.08	730996.84	N 32 23 2.05	W 103 43 8.17
	4854.00	0.10	8.03	4853.98	1.52	-1.57	3.33	0.01	503940.25	730996.88	N 32 23 2.05	W 103 43 8.17
	4948.00	0.10	245.52	4947.98	1.47	-1.53	3.26	0.19	503940.29	730996.81	N 32 23 2.05	W 103 43 8.17
	5042.00	0.10	171.45	5041.98	1.59	-1.64	3.20	0.13	503940.18	730996.75	N 32 23 2.05	W 103 43 8.17
	5137.00	0.10	181.61	5136.98	1.75	-1.81	3.21	0.02	503940.01	730996.76	N 32 23 2.05	W 103 43 8.17
	5232.00	0.10	77.67	5231.98	1.82	-1.87	3.29	0.17	503939.95	730996.84	N 32 23 2.05	W 103 43 8.17
	5327.00	0.10	43.48	5326.98	1.74	-1.79	3.43	0.08	503940.03	730996.98	N 32 23 2.05	W 103 43 8.17
	5421.00	0.10	276.64	5420.98	1.67	-1.73	3.40	0.19	503940.09	730996.95	N 32 23 2.05	W 103 43 8.17
	5516.00	0.10	258.49	5515.98	1.68	-1.73	3.24	0.03	503940.09	730996.79	N 32 23 2.05	W 103 43 8.17
	5611.00	0.10	72.04	5610.98	1.67	-1.72	3.24	0.21	503940.10	730996.79	N 32 23 2.05	W 103 43 8.17
	5705.00	0.10	209.91	5704.98	1.71	-1.77	3.27	0.20	503940.05	730996.82	N 32 23 2.05	W 103 43 8.17

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 ° ' ")
	5800.00	0.12	154.32	5799.98	1.87	-1.93	3.27	0.11	503939.89	730998.82	N 32 23 2.05	W 103 43 8.17
	5894.00	0.10	284.46	5893.98	1.94	-2.00	3.24	0.21	503939.82	730998.79	N 32 23 2.05	W 103 43 8.17
	5989.00	0.12	245.09	5988.98	1.97	-2.02	3.07	0.08	503939.80	730998.62	N 32 23 2.05	W 103 43 8.17
	6083.00	0.10	132.14	6082.98	2.06	-2.12	3.04	0.20	503939.70	730998.59	N 32 23 2.05	W 103 43 8.18
	6178.00	0.10	288.43	6177.98	2.09	-2.15	3.02	0.21	503939.67	730998.57	N 32 23 2.05	W 103 43 8.18
	6272.00	0.12	195.96	6271.98	2.16	-2.22	2.92	0.17	503939.60	730998.47	N 32 23 2.05	W 103 43 8.18
	6367.00	0.17	344.15	6366.98	2.13	-2.18	2.85	0.29	503939.64	730998.40	N 32 23 2.05	W 103 43 8.18
	6461.00	0.12	33.89	6460.98	1.91	-1.96	2.87	0.14	503939.86	730998.42	N 32 23 2.05	W 103 43 8.18
	6616.00	0.23	164.53	6615.98	2.07	-2.12	3.04	0.21	503939.70	730998.59	N 32 23 2.05	W 103 43 8.18
	6711.00	0.40	162.80	6710.98	2.57	-2.63	3.19	0.18	503939.19	730998.74	N 32 23 2.04	W 103 43 8.17
KOP Actual	6806.00	0.23	227.54	6805.98	3.02	-3.07	3.15	0.39	503938.75	730998.70	N 32 23 2.04	W 103 43 8.17
	6995.00	4.08	329.65	6994.82	-2.47	2.48	-0.53	2.19	503944.30	730993.02	N 32 23 2.09	W 103 43 8.22
	7090.00	6.34	332.45	7089.42	-8.96	10.05	-4.67	2.39	503951.87	730988.89	N 32 23 2.17	W 103 43 8.26
	7185.00	7.83	333.62	7183.69	-20.32	20.49	-9.97	1.58	503962.31	730983.58	N 32 23 2.27	W 103 43 8.33
	7279.00	7.11	329.95	7278.89	-30.99	31.27	-15.73	0.92	503973.08	730977.83	N 32 23 2.38	W 103 43 8.39
	7374.00	7.20	329.30	7371.15	-41.09	41.47	-21.71	0.13	503983.29	730971.84	N 32 23 2.48	W 103 43 8.46
	7469.00	7.10	326.77	7465.42	-51.01	51.50	-27.97	0.35	503993.32	730965.59	N 32 23 2.58	W 103 43 8.53
	7563.00	7.01	325.29	7558.70	-60.48	61.08	-34.42	0.22	504002.90	730959.14	N 32 23 2.67	W 103 43 8.61
	7657.00	7.21	322.68	7651.98	-69.76	70.48	-41.26	0.41	504012.30	730952.29	N 32 23 2.77	W 103 43 8.69
	7752.00	7.20	321.33	7746.23	-79.02	79.87	-48.59	0.18	504021.69	730944.96	N 32 23 2.86	W 103 43 8.77
	7846.00	7.19	318.97	7839.49	-87.93	88.91	-56.14	0.31	504030.72	730937.42	N 32 23 2.95	W 103 43 8.86
	7941.00	6.95	314.45	7933.77	-96.30	97.42	-64.14	0.64	504039.23	730929.41	N 32 23 3.04	W 103 43 8.95
	8036.00	7.16	312.31	8028.05	-104.18	105.43	-72.62	0.35	504047.24	730920.93	N 32 23 3.12	W 103 43 9.05
	8130.00	7.22	316.75	8121.31	-112.26	113.67	-81.00	0.59	504055.49	730912.55	N 32 23 3.20	W 103 43 9.15
	8225.00	6.73	325.24	8215.61	-121.06	122.60	-88.27	1.20	504064.41	730905.29	N 32 23 3.29	W 103 43 9.23
	8319.00	7.11	332.92	8308.93	-130.66	132.30	-94.06	1.06	504074.11	730899.50	N 32 23 3.38	W 103 43 9.30
	8413.00	8.96	332.28	8402.00	-142.22	143.96	-100.11	1.97	504085.77	730893.44	N 32 23 3.50	W 103 43 9.37
	8508.00	10.01	331.16	8495.70	-155.87	157.74	-107.53	1.12	504098.56	730888.02	N 32 23 3.64	W 103 43 9.45
	8603.00	9.68	328.27	8589.30	-169.75	171.77	-115.72	0.63	504113.58	730877.84	N 32 23 3.77	W 103 43 9.55
	8697.00	9.95	324.25	8681.93	-182.91	185.08	-124.62	0.78	504126.89	730868.94	N 32 23 3.91	W 103 43 9.65
	8792.00	9.88	320.00	8775.51	-195.63	197.97	-134.64	0.78	504139.78	730858.91	N 32 23 4.03	W 103 43 9.77
	8887.00	10.11	315.48	8869.08	-207.61	210.15	-145.72	0.87	504151.96	730847.84	N 32 23 4.16	W 103 43 9.90
	8982.00	10.02	307.06	8962.62	-218.32	221.08	-158.16	1.55	504162.89	730835.40	N 32 23 4.26	W 103 43 10.04
	9076.00	9.80	298.08	9055.22	-226.78	229.77	-171.74	1.68	504171.58	730821.81	N 32 23 4.35	W 103 43 10.20
	9168.00	10.00	289.09	9145.86	-232.83	236.07	-186.20	1.69	504177.88	730807.38	N 32 23 4.41	W 103 43 10.37
	9251.00	7.68	254.79	9227.92	-233.52	236.97	-198.37	6.81	504178.78	730795.19	N 32 23 4.42	W 103 43 10.51
	9345.00	11.94	212.20	9320.64	-223.43	227.08	-209.64	8.65	504168.89	730783.93	N 32 23 4.33	W 103 43 10.64
	9440.00	17.95	199.94	9412.41	-201.18	204.98	-219.88	7.11	504148.79	730773.69	N 32 23 4.11	W 103 43 10.76
	9534.00	20.04	188.74	9501.31	-171.49	175.43	-227.27	4.48	504117.24	730766.30	N 32 23 3.82	W 103 43 10.85
1st Bone Spring Sand Intersection	*9614.75*	*29.10*	*182.41*	*9574.69*	*-138.07*	*142.06*	*-230.20*	*11.67*	*504083.87*	*730763.36*	*N 32 23 3.49*	*W 103 43 10.89*
	9629.00	30.72	181.66	9587.04	-130.97	134.98	-230.45	11.67	504076.77	730763.11	N 32 23 3.42	W 103 43 10.89
LL Crossed	*9648.00*	*32.02*	*181.92*	*9601.55*	*-122.12*	*126.11*	*-230.73*	*7.70*	*504067.93*	*730762.83*	*N 32 23 3.33*	*W 103 43 10.89*
	9724.00	38.00	182.89	9665.41	-77.41	81.42	-232.63	7.70	504023.24	730760.93	N 32 23 2.89	W 103 43 10.92
100' FNL Crossed	*9811.00*	*47.63*	*185.89*	*9729.05*	*-18.38*	*22.46*	*-237.31*	*11.54*	*503964.27*	*730756.26*	*N 32 23 2.30*	*W 103 43 10.98*
	9818.00	48.74	186.12	9734.38	-12.42	16.52	-237.93	11.54	503958.34	730755.63	N 32 23 2.25	W 103 43 10.98
	9914.00	58.86	181.18	9789.68	64.54	-60.38	-242.60	12.54	503881.45	730750.96	N 32 23 1.48	W 103 43 11.04
	10008.00	71.78	175.87	9828.06	150.05	-145.84	-240.21	13.58	503795.89	730753.35	N 32 23 0.64	W 103 43 11.02
	10103.00	85.01	173.99	9847.13	242.38	-238.42	-231.97	14.06	503703.42	730761.59	N 32 22 59.72	W 103 43 10.93
	10197.00	88.61	173.31	9852.38	335.45	-331.68	-221.59	3.90	503610.16	730771.97	N 32 22 58.80	W 103 43 10.82
	10251.00	88.85	173.43	9853.56	388.96	-385.30	-215.38	0.50	503556.54	730778.20	N 32 22 58.27	W 103 43 10.75
	10346.00	90.85	177.74	9853.81	483.51	-479.99	-208.05	5.00	503461.85	730785.51	N 32 22 57.33	W 103 43 10.67
	10440.00	91.09	179.39	9852.22	577.41	-573.95	-205.70	1.77	503367.90	730787.87	N 32 22 56.40	W 103 43 10.65
	10535.00	91.05	180.75	9850.44	672.37	-668.93	-205.81	1.43	503272.93	730787.75	N 32 22 55.46	W 103 43 10.66
	10630.00	90.71	180.43	9848.98	767.36	-763.91	-206.79	0.49	503177.95	730786.77	N 32 22 54.52	W 103 43 10.67
	10724.00	91.19	180.31	9847.42	861.34	-857.90	-207.40	0.53	503083.97	730786.16	N 32 22 53.59	W 103 43 10.69
	10818.00	90.98	180.40	9845.64	955.32	-951.88	-207.98	0.24	502989.99	730785.58	N 32 22 52.66	W 103 43 10.70
	10913.00	91.09	181.29	9843.93	1050.30	-1046.85	-209.38	0.94	502895.02	730784.18	N 32 22 51.72	W 103 43 10.72
	11008.00	90.85	183.01	9842.32	1145.27	-1141.77	-212.84	1.83	502800.11	730780.62	N 32 22 50.78	W 103 43 10.77
	11102.00	90.43	179.67	9841.27	1239.25	-1235.72	-215.14	3.58	502706.16	730778.42	N 32 22 49.85	W 103 43 10.80
	11196.00	89.78	180.56	9841.10	1333.23	-1329.72	-215.33	1.17	502612.17	730778.23	N 32 22 48.92	W 103 43 10.81
	11291.00	90.71	180.90	9840.89	1428.23	-1424.71	-216.54	1.04	502517.18	730777.02	N 32 22 47.98	W 103 43 10.83
	11385.00	91.19	179.83	9839.13	1522.21	-1518.70	-217.14	1.25	502423.20	730776.42	N 32 22 47.05	W 103 43 10.84
	11480.00	90.98	179.98	9837.33	1617.18	-1613.68	-216.98	0.27	502328.23	730776.58	N 32 22 46.11	W 103 43 10.85
	11575.00	90.33	179.36	9836.25	1712.14	-1708.67	-216.43	0.95	502233.24	730777.13	N 32 22 45.17	W 103 43 10.85
	11653.00	90.64	179.14	9835.59	1790.10	-1786.66	-215.41	0.49	502155.25	730778.15	N 32 22 44.40	W 103 43 10.84
	11670.00	90.64	179.35	9835.40	1807.10	-1803.66	-215.19	1.24	502138.26	730778.37	N 32 22 44.23	W 103 43 10.84
	11764.00	90.33	180.13	9834.60	1901.07	-1897.65	-214.76	0.89	502044.27	730778.80	N 32 22 43.30	W 103 43 10.84
	11858.00	89.95	180.86	9834.37	1995.06	-1991.65	-215.57	0.88	501950.28	730777.99	N 32 22 42.37	W 103 43 10.88
	11953.00	90.26	181.84	9834.20	2090.06	-2086.62	-217.81	1.08	501855.31	730775.75	N 32 22 41.43	W 103 43 10.89
	12047.00	90.74	181.78	9833.38	2184.05	-2180.57	-220.78	0.51	501761.36	730772.78	N 32 22 40.50	W 103 43 10.93
	12142.00	90.15	181.56	9832.64	2279.04	-2275.52	-223.55	0.66	501666.41	730770.01	N 32 22 39.57	W 103 43 10.97
	12236.00	90.02	180.92	9832.50	2373.04	-2369.50	-225.58	0.69	501572.44	730767.98	N 32 22 38.64	W 103 43 11.00
	12330.00	90.12	180.70	9832.39	2467.04	-2463.49	-226.91	0.26	501478.45	730766.65	N 32 22 37.71	W 103 43 11.02
	12425.00	89.12	180.37	9833.02	2562.03	-2558.49	-227.80	1.11	501383.47	730765.76	N 32 22 36.77	W 103 43 11.04
	12519.00	89.36	180.94	9834.26	2656.02	-2652.47	-228.67	0.68	501289.49	730764.89	N 32 22 35.84	W 103 43 11.06
	12614.00	89.19	180.48	9835.46	2751.01	-2747.46	-230.05	0.52	501194.51	730763.51	N 32 22 34.90	W 103 43 11.08
	12709.00	90.39	181.50	9835.81	2846.01	-2842.44	-231.69	1.66	501099.53	730761.87	N 32 22 33.96	W 103 43 11.10
	12803.00	88.71	180.66	9836.55	2940.00	-2936.41	-233.48	1.99	501005.56	730760.08	N 32 22 33.03	W 103 43 11.13
	12897.00	88.71	180.63	9838.67	3033.97	-3030.38	-234.66	0.05	500911.59	730759.01	N 32 22 32.10	W 103 43 11.15
	12992.00	89.40	181.86	9840.23	3128.96	-3125.35	-236.62	1.48	500816.64	730756.94	N 32 22 31.16	W 103 43 11.18
	13086.00	88.92	181.35	9841.61	3222.94	-3219.30	-239.25	0.75	500722.69	730754.31	N 32 22 30.23	W 103 43 11.22
	13181.00	89.05	180.95	9843.30	3317.93	-3314.26	-241.16	0.44	500627.73	730752.40	N 32 22 29.29	W 103 43 11.24
	13275.00	89.01	178.71	9845.23	3411.88	-3408.24	-240.82	1.86	500533.76	730752.74	N 32 22 28.16	W 103 43 11.25
	13389.00	89.40	181.59	9846.53	3525.85	-3522.22	-241.07	3.09	500419.78	730752.50	N 32 22 27.23	W 103 43 11.26
	13579.00	89.15	179.67	9848.93	3715.82	-3712.18	-243.15	1.02	500229.83	730750.41	N 32 22 25.35	W 103 43 11.29
	13674.00	89.15	178.65	9850.34	3810.78	-3807.16	-241.76	1.07	500134.85	730751.80	N 32 22 24.41	W 103 43 11.28
	13883.00	88.15	180.39	9854.80	3999.64	-3996.09	-240.18	1.06	499945.93	730753.38	N 32 22 22.54	W 103 43 11.28
	13957.00	89.22	181.50	9856.95	4093.61	-4090.05	-241.73	1.64	499851.98	730751.83	N 32 22 21.61	W 103 43 11.30
	14052.00	89.08	180.33	9858.36	4188.60	-4185.03	-243.25	1.24	499757.01	730750.32	N 32 22 20.67	W 103 43 11.33
	14146.00	89.15	181.42	9859.82	4282.58	-4278.01	-244.68	1.16	499663.04	730748.88	N 32 22 19.74	W 103 43 11.35
	14335.00	89.01	180.21	9862.85	4471.56	-4467.98	-247.37	0.64	499474.09	730746.19	N 32 22 17.87	W 103 43 11.39
	14429.00	90.18	179.25	9863.51	4565.53	-4561.95	-248.93	1.61	499380.10	730744.64	N 32 22 16.94	W 103 43 11.39
	14618.00	90.42	179.56	9862.52	4754.45	-4750.94	-244.96	0.21	499191.13	730748.60	N 32 22 15.07	W 103 43 11.38
	14713.00	90.01	180.49	9862.17	4849.44	-4845.94	-245.00	1.07	499096.13	730748.56	N 32 22 14.13	W 103 43 11.39
	14807.00	90.45	181.88	9861.79	4943.43	-4939.91	-248.95	1.55	499002.16	730744.61	N 32 22 13.20	W 103 43 11.42
	14996.00	90.56	182.99	9860.12	5132.38	-5128.73	-254.98	0.59	498813.35	730738.59	N 32 22 11.34	W 103 43 11.53
Exit Target Box	15185.00	90.19	181.01	9858.88	5321.32	-5317.60	-261.57	1.07	498624.49	730732.00	N 32 22 9.47	W 103 43 11.62
	15374.00	89.83	179.61	9859.17	5510.30	-5506.60	-262.58	0.80	498435.51	730730.98	N 32 22 7.60	W 103 43 11.64
Enter Target Box	*15485.00*	*89.35*	*177.40*	*9860.17*	*5621.19*	*-5617.55*	*-259.68*	*2.01*	*498324.56*	*730733.88*	*N 32 22 6.50*	*W 103 43 11.61*
	15562.00	89.15	175.88	9861.18	5697.95	-5694.40	-255.15	2.01	498247.71	730738.41	N 32 22 5.74	W 103 43 11.57
	15751.00	89.42	172.76	9863.54	5885.83	-5882.44	-236.42	1.65	498059.69	730757.14	N 32 22 3.88	W 103 43 11.38
	15940.00	91.21	173.22	9862.50	6072.79	-6070.01	-213.36	0.98	497872.12	730780.21	N 32 22 2.02	W 103 43 11.10
	16129.00	90.52	178.46	9859.64	6260.94	-6258.43	-199.65	2.80	497683.72	730793.91	N 32 22 0.15	W 103 43 10.96
	16224.00	90.60	177.03	9858.71	6355.78	-6353.34	-195.91	1.51	497588.80	730797.65	N 32 21 59.21	W 103 43 10.92
	16318.00	89.71	178.36	9858.46	6449.51	-6447.19	-190.50	1.19	497494.97	730803.06	N 32 21 58.29	W 103 43 10.86
	16413.00	88.78	175.37	9859.71	6544.12	-6541.93	-183.65	1.43	497400.23	730809.91	N 32 21 57.35	W 103 43 10.79
	16508.00	90.19	178.82	9860.57	6638.88	-6636.79	-178.83	3.92	497305.38	730814.73	N 32 21 56.41	W 103 43 10.74
	16602.00	90.71	180.78	9859.83	6732.85	-6730.78	-178.50	2.16	497211.39	730815.05	N 32 21 55.48	W 103 43 10.74
	16696.00	90.40	181.24	9858.92	6826.85	-6824.76	-180.16	0.59	497117.41	730813.40	N 32 21 54.55	W 103 43 10.77
	16791.00	90.26	180.58	9858.37	6921.85	-6919.74	-181.67	0.71	497022.43	730811.89	N 32 21 53.61	W 103 43 10.79
	16885.00	89.44	180.14	9858.62	7015.84	-7013.74	-182.26	0.99	496928.44	730811.30	N 32 21 52.68	W 103 43 10.80

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 ° ' ")
	16979.00	90.12	180.69	9858.98	7109.83	-7107.74	-182.94	0.93	496834.45	730810.62	N 32 21 51.75	W 103 43 10.82
	17074.00	89.57	181.28	9859.23	7204.83	-7202.72	-184.57	0.85	496739.47	730808.98	N 32 21 50.81	W 103 43 10.84
	17168.00	89.75	181.14	9859.79	7298.83	-7296.70	-186.56	0.24	496645.50	730807.00	N 32 21 49.88	W 103 43 10.87
	17263.00	89.37	181.12	9860.52	7393.83	-7391.68	-188.43	0.40	496550.52	730805.13	N 32 21 48.94	W 103 43 10.90
	17357.00	89.44	181.20	9861.50	7487.82	-7485.65	-190.34	0.11	496456.55	730803.22	N 32 21 48.01	W 103 43 10.93
	17452.00	89.88	181.39	9862.06	7582.82	-7580.63	-192.48	0.50	496361.58	730801.08	N 32 21 47.07	W 103 43 10.96
	17546.00	89.68	181.23	9862.42	7676.82	-7674.60	-194.63	0.27	496267.62	730798.93	N 32 21 46.14	W 103 43 10.99
	17641.00	89.85	181.21	9862.81	7771.81	-7769.58	-196.85	0.18	496172.64	730796.91	N 32 21 45.20	W 103 43 11.02
	17735.00	90.12	181.05	9862.84	7865.81	-7863.56	-198.51	0.33	496078.67	730795.05	N 32 21 44.27	W 103 43 11.05
	17829.00	91.15	181.87	9861.79	7959.80	-7957.52	-200.90	1.40	495984.71	730792.66	N 32 21 43.34	W 103 43 11.09
	17924.00	90.74	181.47	9860.23	8054.78	-8052.47	-203.67	0.60	495889.77	730789.89	N 32 21 42.40	W 103 43 11.12
	18018.00	91.57	180.86	9858.33	8148.76	-8146.43	-205.58	1.10	495795.81	730787.98	N 32 21 41.47	W 103 43 11.15
	18113.00	91.29	180.91	9855.96	8243.73	-8241.39	-207.05	0.30	495700.86	730786.51	N 32 21 40.53	W 103 43 11.18
	18208.00	90.54	180.79	9854.44	8338.72	-8336.36	-208.46	0.80	495605.89	730785.10	N 32 21 39.59	W 103 43 11.20
	18302.00	89.37	180.66	9854.52	8432.72	-8430.36	-209.65	1.25	495511.90	730783.91	N 32 21 38.66	W 103 43 11.22
	18397.00	90.47	180.94	9854.65	8527.71	-8525.34	-210.97	1.19	495416.92	730782.59	N 32 21 37.72	W 103 43 11.24
	18491.00	89.68	181.48	9854.53	8621.71	-8619.32	-212.86	1.02	495322.94	730780.60	N 32 21 36.79	W 103 43 11.27
	18585.00	89.26	181.57	9855.40	8715.70	-8713.29	-215.48	0.46	495228.99	730778.10	N 32 21 35.86	W 103 43 11.31
	18679.00	87.48	181.10	9858.07	8809.66	-8807.22	-217.85	1.96	495135.06	730775.91	N 32 21 34.94	W 103 43 11.34
	18774.00	88.23	181.47	9861.63	8904.59	-8902.13	-219.78	0.88	495040.15	730773.78	N 32 21 34.00	W 103 43 11.37
	18868.00	88.51	180.59	9864.30	8998.55	-8996.07	-221.47	0.98	494946.21	730772.09	N 32 21 33.07	W 103 43 11.39
	18963.00	88.23	179.36	9867.00	9093.50	-9091.03	-221.43	1.33	494851.26	730772.14	N 32 21 32.13	W 103 43 11.40
	19057.00	90.57	181.30	9867.99	9187.47	-9185.01	-221.97	3.23	494757.28	730771.59	N 32 21 31.20	W 103 43 11.41
	19152.00	89.64	179.63	9867.81	9282.47	-9280.01	-222.74	2.01	494662.28	730770.82	N 32 21 30.26	W 103 43 11.43
	19246.00	90.23	178.75	9867.92	9376.42	-9374.00	-221.41	1.13	494568.31	730772.15	N 32 21 29.33	W 103 43 11.42
	19340.00	89.95	178.82	9867.77	9470.35	-9467.97	-219.42	0.31	494474.34	730774.14	N 32 21 28.40	W 103 43 11.40
	19435.00	88.47	178.23	9869.08	9565.25	-9562.93	-216.97	1.68	494379.38	730776.59	N 32 21 27.46	W 103 43 11.38
	19529.00	89.30	177.94	9870.91	9659.11	-9656.88	-213.83	0.94	494285.46	730779.73	N 32 21 26.53	W 103 43 11.35
	19624.00	90.47	178.35	9871.10	9753.99	-9751.81	-210.76	1.31	494190.52	730782.80	N 32 21 25.59	W 103 43 11.32
	19718.00	90.23	178.98	9870.53	9847.91	-9845.78	-208.57	0.72	494096.55	730784.99	N 32 21 24.66	W 103 43 11.30
	19812.00	90.47	178.59	9869.95	9941.84	-9939.76	-206.57	0.49	494002.58	730786.99	N 32 21 23.73	W 103 43 11.28
	19906.00	90.40	179.16	9869.24	10035.77	-10033.74	-204.73	0.61	493908.60	730788.83	N 32 21 22.80	W 103 43 11.27
	20001.00	88.20	178.93	9870.40	10130.71	-10128.71	-203.14	2.33	493813.63	730790.42	N 32 21 21.86	W 103 43 11.26
	20094.00	87.54	178.40	9873.88	10223.58	-10221.62	-200.98	0.91	493720.73	730792.58	N 32 21 20.94	W 103 43 11.24
	20189.00	90.64	179.59	9875.37	10318.48	-10316.58	-199.31	3.50	493625.77	730794.25	N 32 21 20.00	W 103 43 11.22
100' FSL Crossed	*20214.00*	*90.68*	*179.76*	*9875.08*	*10343.47*	*-10341.58*	*-199.17*	*0.69*	*493600.78*	*730794.39*	*N 32 21 19.75*	*W 103 43 11.22*
Final MWD	20250.00	90.74	180.00	9874.63	10379.46	-10377.57	-199.10	0.69	493564.78	730794.46	N 32 21 19.40	W 103 43 11.23
PTB	20290.00	90.74	180.00	9874.11	10419.45	-10417.57	-199.10	0.00	493524.79	730794.46	N 32 21 19.00	W 103 43 11.23

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 Lost Tank 30-19 Federal Com 1H Gyro + MWD 0-20290' MD
	1	26.500	26.500	Act Stns	30.000	30.000	GYD_GC+DROP+OH-Depth Only	Original Borehole / Oxy Lost Tank 30-19 Federal Com 1H Gyro + MWD 0-20290' MD
	1	26.500	886.000	Act Stns	30.000	30.000	GYD_GC+DROP+OH	Original Borehole / Oxy Lost Tank 30-19 Federal Com 1H Gyro +
	1	886.000	13181.000	Act Stns	30.000	30.000	A010Mb_MWD+IFR1+SAG+MS	Original Borehole / Oxy Lost Tank 30-19 Federal Com 1H Gyro + MWD 0-20290' MD
	1	13181.000	20290.000	Act Stns	30.000	30.000	A009Mb_MWD+IFR1+SAG	Original Borehole / Oxy Lost Tank 30-19 Federal Com 1H Gyro +