FINAL PVA - REV3 — Page 007 (NAD-27)

Schlumberger

OXY

HOBBS OCD

NOV 28 2018

RECEIVED

Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Lost Tank 30-19 Fed Com 31H	NM Lea County (NAD 83)	Oxy Lost Tank 30-19 Fed Com 31H

Gravity & Magnetic Parameters

Model: IFR1 Dip: 60.195° Date: 08-Oct-2018
MagDec: 6.941° FS: 48170nT Gravity FS: 998.466mgn (9.80665 Based)

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

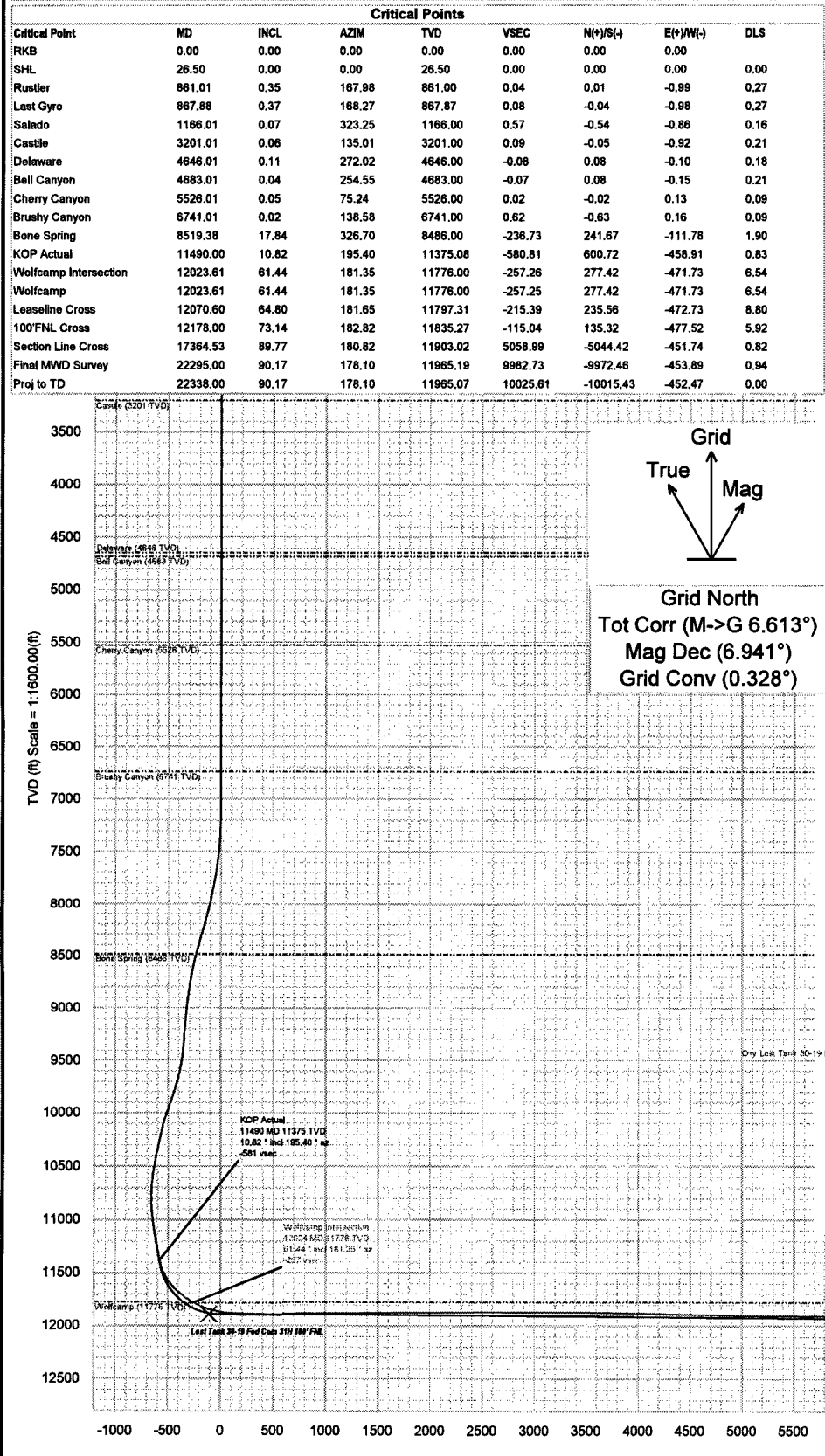
Lat: N 32 23 0.84 Northing: 503826.03fUS Grid Conv: 0.3284°
Lon: W 103 43 12.35 Easting: 730639.19fUS Scale Fact: 0.99996013

Wellpath Design Oxy Lost Tank 30-19 Fed Com 31H

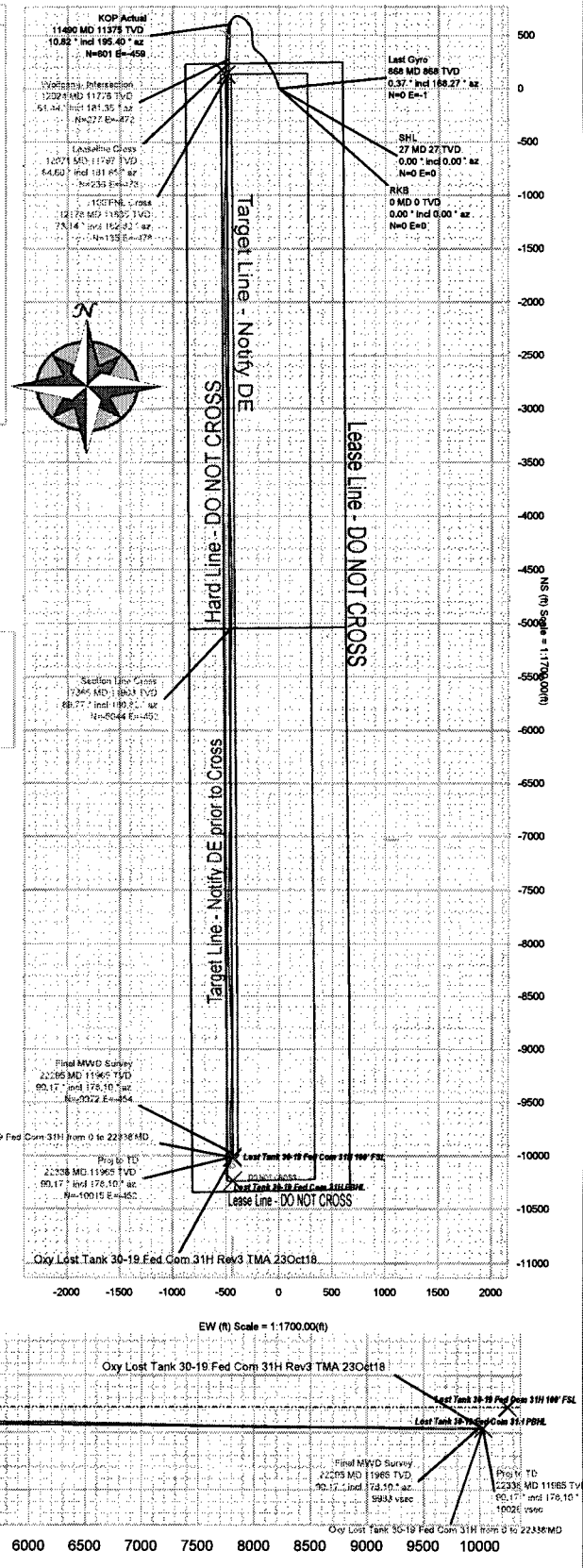
Slot: 30-19 Fed Com 31H TVD Ref: RKB 26.5 (H&P 617)(3636.5ft above MSL)
Plan: Oxy Lost Tank 30-19 Fed Com 31H from 0 to 22338'MD

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
Rustler	861.01	0.35	167.98	861.00	0.04	0.01	-0.99	0.27
Last Gyro	867.88	0.37	168.27	867.87	0.08	-0.04	-0.98	0.27
Salado	1166.01	0.07	323.25	1166.00	0.57	-0.54	-0.86	0.16
Castile	3201.01	0.06	135.01	3201.00	0.09	-0.05	-0.92	0.21
Delaware	4646.01	0.11	272.02	4646.00	-0.08	0.08	-0.10	0.18
Bell Canyon	4683.01	0.04	254.55	4683.00	-0.07	0.08	-0.15	0.21
Cherry Canyon	5526.01	0.05	75.24	5526.00	0.02	-0.02	0.13	0.09
Brushy Canyon	6741.01	0.02	138.58	6741.00	0.62	-0.63	0.16	0.09
Bone Spring	8519.38	17.84	326.70	8486.00	-236.73	241.67	-111.78	1.90
KOP Actual	11490.00	10.82	195.40	11375.08	-580.81	600.72	-458.91	0.83
Wolfcamp Intersection	12023.61	61.44	181.35	11776.00	-257.26	277.42	-471.73	6.54
Wolfcamp	12023.61	61.44	181.35	11776.00	-257.25	277.42	-471.73	6.54
Leaseline Cross	12070.60	64.80	181.65	11797.31	-215.39	235.56	-472.73	8.80
100'FNL Cross	12178.00	73.14	182.82	11835.27	-115.04	135.32	-477.52	5.92
Section Line Cross	17364.53	89.77	180.82	11903.02	5058.99	-5044.42	-451.74	0.82
Final MWD Survey	22295.00	90.17	178.10	11965.19	9982.73	-9972.46	-453.89	0.94
Proj to TD	22338.00	90.17	178.10	11965.07	10025.61	-10015.43	-452.47	0.00



Grid North
Tot Corr (M->G 6.613°)
Mag Dec (6.941°)
Grid Conv (0.328°)



Vertical Section (ft) Azim = 182.42° Scale = 1:1600.00(ft) Origin = 0N/-S, 0E/-W

Schlumberger

Oxy Lost Tank 30-19 Fed Com 31H from 0 to 22338'MD Survey Geodetic Report

(Def Survey)

Report Date:	November 05, 2018 - 10:36 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	182.420 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Oxy Lost Tank 30-19 Fed Com 31H / Oxy Lost Tank 30-19 Fed Com 31H	**TVD Reference Datum:**	RKB 26.5 (H&P 617)
Well:	Oxy Lost Tank 30-19 Fed Com 31H	**TVD Reference Elevation:**	3635.500 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3609.000 ft above MSL
UWI / API#:	Unknown / 30-025-45182	**Magnetic Declination:**	6.941 °
Survey Name:	Oxy Lost Tank 30-19 Fed Com 31H from 0 to 22338'MD	**Total Gravity Field Strength:**	998.4559mgn (9.80665 Based)
Survey Date:	October 08, 2018	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	261.837 ° / 11565.678 ft / 6.752 / 0.966	**Total Magnetic Field Strength:**	48170.000 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	60.195 °
Location Lat / Long:	N 32° 23' 0.94267", W 103° 43' 12.35071"	**Declination Date:**	October 08, 2018
Location Grid N/E Y/X:	N 503826.030 ftUS, E 730639.180 ftUS	**Magnetic Declination Model:**	IFR1
CRS Grid Convergence Angle:	0.3284 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99995013	**Grid Convergence Used:**	0.3284 °
Version / Patch:	2.10.740.0	**Total Corr Mag North->Grid North:**	6.6126 °
		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	503826.03	730639.18	N 32 23 0.94	W 103 43 12.35
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	503826.03	730639.18	N 32 23 0.94	W 103 43 12.35
	120.03	0.51	329.36	120.03	-0.35	0.36	-0.21	0.55	503826.39	730638.97	N 32 23 0.95	W 103 43 12.35
	208.78	0.39	294.00	208.78	-0.79	0.82	-0.69	0.33	503826.85	730638.49	N 32 23 0.95	W 103 43 12.36
	301.70	0.29	296.07	301.69	-1.00	1.05	-1.19	0.11	503827.08	730637.99	N 32 23 0.95	W 103 43 12.36
	396.24	0.06	288.16	396.23	-1.11	1.17	-1.45	0.24	503827.20	730637.73	N 32 23 0.95	W 103 43 12.37
	490.62	0.15	134.84	490.61	-1.04	1.10	-1.41	0.22	503827.13	730637.77	N 32 23 0.95	W 103 43 12.37
	585.07	0.20	156.58	585.06	-0.81	0.86	-1.26	0.09	503826.89	730637.92	N 32 23 0.95	W 103 43 12.37
	679.62	0.17	164.77	679.61	-0.53	0.58	-1.16	0.04	503826.61	730638.02	N 32 23 0.95	W 103 43 12.36
	774.10	0.12	156.64	774.09	-0.30	0.35	-1.08	0.06	503826.38	730638.10	N 32 23 0.95	W 103 43 12.36
Last Gyro	867.88	0.37	168.27	867.87	0.08	-0.04	-0.98	0.27	503825.99	730638.20	N 32 23 0.94	W 103 43 12.36
	953.00	0.06	173.76	952.99	0.39	-0.35	-0.92	0.36	503825.68	730638.26	N 32 23 0.94	W 103 43 12.36
	1015.00	0.16	158.19	1014.99	0.50	-0.46	-0.88	0.17	503825.57	730638.30	N 32 23 0.94	W 103 43 12.36
	1076.00	0.09	130.23	1075.99	0.61	-0.57	-0.81	0.15	503825.46	730638.37	N 32 23 0.94	W 103 43 12.36
	1138.00	0.11	306.92	1137.99	0.60	-0.57	-0.82	0.32	503825.46	730638.36	N 32 23 0.94	W 103 43 12.36
	1261.00	0.11	70.80	1260.99	0.49	-0.46	-0.81	0.16	503825.57	730638.37	N 32 23 0.94	W 103 43 12.36
	1384.00	0.07	121.26	1383.99	0.48	-0.46	-0.63	0.07	503825.57	730638.55	N 32 23 0.94	W 103 43 12.36
	1445.00	0.12	85.74	1444.99	0.50	-0.47	-0.54	0.12	503825.56	730638.64	N 32 23 0.94	W 103 43 12.36
	1507.00	0.11	30.16	1506.99	0.43	-0.42	-0.44	0.17	503825.61	730638.74	N 32 23 0.94	W 103 43 12.36
	1701.00	0.15	261.88	1700.99	0.32	-0.29	-0.60	0.12	503825.74	730638.58	N 32 23 0.94	W 103 43 12.36
	1796.00	0.07	57.44	1795.99	0.31	-0.28	-0.67	0.23	503825.75	730638.51	N 32 23 0.94	W 103 43 12.36
	1891.00	0.09	319.93	1890.99	0.22	-0.19	-0.67	0.13	503825.84	730638.51	N 32 23 0.94	W 103 43 12.36
	2081.00	0.09	15.66	2080.99	-0.04	0.07	-0.73	0.04	503826.10	730638.45	N 32 23 0.94	W 103 43 12.36
	2177.00	0.07	189.63	2176.99	-0.05	0.08	-0.72	0.17	503826.11	730638.46	N 32 23 0.94	W 103 43 12.36
	2367.00	0.09	283.60	2366.99	0.03	0.00	-0.88	0.06	503826.03	730638.30	N 32 23 0.94	W 103 43 12.36
	2462.00	0.11	118.99	2461.99	0.06	-0.02	-0.87	0.21	503826.01	730638.31	N 32 23 0.94	W 103 43 12.36
	2557.00	0.07	180.59	2556.99	0.16	-0.13	-0.80	0.10	503825.90	730638.38	N 32 23 0.94	W 103 43 12.36
	2652.00	0.07	348.52	2651.99	0.16	-0.13	-0.81	0.15	503825.90	730638.37	N 32 23 0.94	W 103 43 12.36
	2748.00	0.07	200.51	2747.99	0.16	-0.12	-0.84	0.14	503825.91	730638.34	N 32 23 0.94	W 103 43 12.36
	2843.00	0.11	71.07	2842.99	0.18	-0.15	-0.77	0.17	503825.88	730638.41	N 32 23 0.94	W 103 43 12.36
	2938.00	0.03	155.78	2937.99	0.17	-0.14	-0.88	0.12	503825.89	730638.50	N 32 23 0.94	W 103 43 12.36
	3033.00	0.11	293.16	3032.99	0.16	-0.13	-0.75	0.14	503825.90	730638.43	N 32 23 0.94	W 103 43 12.36
	3128.00	0.09	304.01	3127.99	0.09	-0.05	-0.90	0.03	503825.98	730638.28	N 32 23 0.94	W 103 43 12.36
	3224.00	0.11	132.19	3223.99	0.11	-0.07	-0.89	0.21	503825.96	730638.29	N 32 23 0.94	W 103 43 12.36
	3319.00	0.07	187.27	3318.99	0.22	-0.19	-0.83	0.10	503825.84	730638.35	N 32 23 0.94	W 103 43 12.36
	3414.00	0.11	256.88	3413.99	0.31	-0.27	-0.93	0.11	503825.76	730638.25	N 32 23 0.94	W 103 43 12.36
	3509.00	0.11	92.46	3508.99	0.33	-0.29	-0.92	0.23	503825.74	730638.26	N 32 23 0.94	W 103 43 12.36
	3604.00	0.07	69.90	3603.99	0.31	-0.28	-0.78	0.06	503825.75	730638.40	N 32 23 0.94	W 103 43 12.36
	3699.00	0.16	108.10	3698.99	0.32	-0.30	-0.60	0.12	503825.73	730638.58	N 32 23 0.94	W 103 43 12.36
	3794.00	0.07	70.12	3793.99	0.34	-0.32	-0.42	0.12	503825.71	730638.76	N 32 23 0.94	W 103 43 12.36
	3889.00	0.07	309.36	3888.99	0.28	-0.26	-0.41	0.13	503825.77	730638.77	N 32 23 0.94	W 103 43 12.36
	3984.00	0.12	81.71	3983.99	0.23	-0.21	-0.35	0.18	503825.82	730638.83	N 32 23 0.94	W 103 43 12.35
	4079.00	0.07	56.95	4078.99	0.17	-0.17	-0.21	0.07	503825.86	730638.97	N 32 23 0.94	W 103 43 12.35
	4173.00	0.02	68.27	4172.99	0.13	-0.13	-0.14	0.05	503825.90	730639.04	N 32 23 0.94	W 103 43 12.35
	4268.00	0.07	38.90	4267.99	0.08	-0.08	-0.09	0.06	503825.95	730639.09	N 32 23 0.94	W 103 43 12.35
	4363.00	0.02	224.70	4362.99	0.05	-0.04	-0.07	0.09	503825.99	730639.11	N 32 23 0.94	W 103 43 12.35
	4458.00	0.03	150.48	4457.99	0.08	-0.08	-0.07	0.03	503825.95	730639.11	N 32 23 0.94	W 103 43 12.35
	4552.00	0.11	12.77	4551.99	0.01	-0.01	-0.04	0.14	503826.02	730639.14	N 32 23 0.94	W 103 43 12.35
	4647.00	0.11	271.43	4646.99	-0.08	0.08	-0.11	0.18	503826.11	730639.07	N 32 23 0.94	W 103 43 12.35
	4742.00	0.09	110.09	4741.99	-0.05	0.06	-0.13	0.21	503826.09	730639.05	N 32 23 0.94	W 103 43 12.35
	4837.00	0.02	64.63	4836.99	-0.04	0.04	-0.04	0.08	503826.07	730639.14	N 32 23 0.94	W 103 43 12.35
	5027.00	0.09	185.79	5026.99	0.10	-0.09	-0.03	0.05	503825.94	730639.15	N 32 23 0.94	W 103 43 12.35
	5224.00	0.11	31.70	5223.99	0.09	-0.09	0.06	0.10	503825.94	730639.24	N 32 23 0.94	W 103 43 12.35
	5312.00	0.03	120.07	5311.99	0.02	-0.03	0.12	0.13	503826.00	730639.30	N 32 23 0.94	W 103 43 12.35
	5407.00	0.03	269.49	5406.99	0.04	-0.04	0.12	0.06	503825.99	730639.30	N 32 23 0.94	W 103 43 12.35
	5502.00	0.03	58.33	5501.99	0.02	-0.03	0.11	0.06	503826.00	730639.29	N 32 23 0.94	W 103 43 12.35
	5597.00	0.11	88.81	5596.99	0.00	-0.01	0.23	0.09	503826.02	730639.41	N 32 23 0.94	W 103 43 12.35
	5692.00	0.09	262.00	5691.99	0.01	-0.02	0.24	0.21	503826.01	730639.42	N 32 23 0.94	W 103 43 12.35
	5882.00	0.03	109.37	5881.99	0.05	-0.06	0.14	0.06	503825.97	730639.32	N 32 23 0.94	W 103 43 12.35
	5977.00	0.03	137.21	5976.99	0.08	-0.08	0.18	0.02	503825.95	730639.36	N 32 23 0.94	W 103 43 12.35
	6071.00	0.07	114.34	6070.99	0.12	-0.13	0.25	0.05	503825.90	730639.43	N 32 23 0.94	W 103 43 12.35
	6166.00	0.03	121.55	6165.99	0.15	-0.16	0.33	0.04	503825.87	730639.51	N 32 23 0.94	W 103 43 12.35
	6261.00	0.09	160.94	6260.99	0.23	-0.25	0.37	0.07	503825.78	730639.55	N 32 23 0.94	W 103 43 12.35
	6399.00	0.03	178.76	6398.99	0.37	-0.39	0.41	0.05	503825.64	730639.59	N 32 23 0.94	W 103 43 12.35
	6569.00	0.13	220.58	6568.99	0.56	-0.58	0.28	0.06	503825.45	730639.46	N 32 23 0.94	W 103 43 12.35
	6664.00	0.05	306.13	6663.99	0.63	-0.63	0.18	0.14	503825.40	730639.36	N 32 23 0.94	W 103 43 12.35
	6759.00	0.04	134.97	6758.99	0.63	-0.63	0.17	0.09	503825.40	730639.35	N 32 23 0.94	W 103 43 12.35
	6853.00	0.07	238.08	6852.99	0.68	-0.69	0.14	0.09	503825.34	730639.32	N 32 23 0.94	W 103 43 12.35
	6948.00	0.04	136.08	6947.99	0.74	-0.74	0.12	0.09	503825.29	730639.30	N 32 23 0.94	W 103 43 12.35
	7042.00	0.15	204.33	7041.99	0.87	-0.88	0.09	0.15	503825.15	730639.27	N 32 23 0.93	W 103 43 12.35
	7137.00	0.99	338.40	7136.98	0.24	-0.23	-0.26	1.16	503825.80	730638.92	N 32 23 0.94	W 103 43 12.35
	7232.00	2.41	340.24	7231.94	-2.36	2.42	-1.24	1.50	503828.45	730637.94	N 32 23 0.97	W 103 43 12.37
	7326.00	3.68	339.91	7325.80	-6.98	7.11	-2.95	1.35	503833.14	730636.23	N 32 23 1.01	W 103 43 12.38
	7421.00	5.23	341.86	7420.51	-13.85	14.09	-5.34	1.64	503840.12	730633.84	N 32 23 1.08	W 103 43 12.41
	7515.00	6.43	342.17	7514.03	-22.80	23.17	-8.29	1.28	503849.20	730630.89	N 32 23 1.17	W 103 43 12.45
	7610.00	7.95	343.06	7608.28	-33.99	34.52	-11.83	1.60	503860.55	730627.35	N 32 23 1.28	W 103 43 12.49
	7705.00	9.65	343.34	7702.15	-47.71	48.43	-16.03	1.79	503874.46	730623.15	N 32 23 1.42	W 103 43 12.53
	7799.00	11.16	342.52	7794.61	-63.71	64.66	-21.02	1.61	503890.69	730618.16	N 32 23 1.58	W 103 43 12.59

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 ° ' ")
	7894.00	12.49	341.08	7887.59	-81.93	83.15	-27.11	1.43	503909.17	730812.07	N 32 23 1.77	W 103 43 12.66
	7988.00	13.41	336.45	7979.20	-101.20	102.75	-34.76	1.47	503928.78	730804.42	N 32 23 1.96	W 103 43 12.75
	8083.00	15.53	334.39	8071.18	-122.33	124.32	-44.66	2.30	503950.35	730594.52	N 32 23 2.18	W 103 43 12.86
	8178.00	17.58	332.89	8162.24	-146.04	148.57	-56.70	2.20	503974.59	730582.48	N 32 23 2.42	W 103 43 13.00
	8272.00	18.68	330.72	8251.57	-171.20	174.33	-70.53	1.37	504000.35	730568.65	N 32 23 2.67	W 103 43 13.16
	8367.00	18.60	328.75	8341.59	-196.75	200.56	-85.83	0.67	504026.58	730553.35	N 32 23 2.93	W 103 43 13.34
	8462.00	18.90	327.50	8431.55	-221.98	226.48	-101.96	0.53	504052.50	730537.23	N 32 23 3.19	W 103 43 13.52
	8556.00	17.16	326.14	8520.93	-245.64	250.84	-117.86	1.90	504076.86	730521.32	N 32 23 3.43	W 103 43 13.71
	8651.00	15.31	324.21	8612.14	-266.80	272.65	-133.01	2.03	504098.67	730506.18	N 32 23 3.65	W 103 43 13.88
	8746.00	12.97	322.03	8704.25	-284.77	291.24	-146.91	2.53	504117.25	730492.28	N 32 23 3.83	W 103 43 14.04
	8841.00	12.02	317.92	8797.00	-299.95	306.98	-160.09	1.37	504133.00	730479.09	N 32 23 3.99	W 103 43 14.20
	8935.00	10.89	315.81	8889.13	-313.03	320.61	-172.84	1.28	504146.63	730466.35	N 32 23 4.12	W 103 43 14.34
	9030.00	9.78	309.81	8982.59	-324.10	332.22	-185.30	1.63	504158.23	730453.89	N 32 23 4.24	W 103 43 14.49
	9125.00	9.12	305.48	9076.30	-333.10	341.75	-197.63	1.02	504167.76	730441.56	N 32 23 4.34	W 103 43 14.63
	9219.00	7.98	306.94	9169.25	-340.86	350.00	-208.91	1.23	504176.01	730430.28	N 32 23 4.42	W 103 43 14.76
	9315.00	6.93	309.70	9264.44	-348.15	357.70	-218.69	1.16	504183.71	730420.50	N 32 23 4.49	W 103 43 14.88
	9410.00	6.66	317.26	9358.78	-355.50	365.41	-226.84	0.98	504191.42	730412.35	N 32 23 4.57	W 103 43 14.97
	9505.00	8.61	330.56	9452.94	-365.43	375.65	-234.07	2.76	504201.66	730405.12	N 32 23 4.67	W 103 43 15.06
	9600.00	10.81	337.68	9546.57	-379.56	390.09	-240.95	2.63	504216.10	730398.24	N 32 23 4.82	W 103 43 15.13
	9695.00	14.10	348.23	9639.34	-398.88	409.66	-246.70	4.20	504235.67	730392.49	N 32 23 5.01	W 103 43 15.20
	9790.00	17.21	354.26	9730.81	-424.02	434.98	-250.47	3.69	504260.99	730388.73	N 32 23 5.26	W 103 43 15.24
	9886.00	18.39	357.57	9822.21	-453.17	464.25	-252.53	1.62	504290.25	730386.66	N 32 23 5.55	W 103 43 15.26
	9981.00	19.11	359.93	9912.17	-483.64	494.77	-253.18	1.10	504320.77	730386.01	N 32 23 5.85	W 103 43 15.27
	10076.00	19.10	355.95	10001.94	-514.62	525.83	-254.30	1.37	504351.83	730384.89	N 32 23 6.16	W 103 43 15.28
	10171.00	17.21	340.81	10092.26	-543.15	554.62	-260.02	5.33	504380.62	730379.17	N 32 23 6.45	W 103 43 15.35
	10266.00	14.45	335.48	10183.65	-566.79	578.68	-269.56	3.28	504404.68	730369.63	N 32 23 6.68	W 103 43 15.46
	10361.00	15.99	325.85	10275.33	-587.87	600.30	-281.83	3.11	504426.30	730357.36	N 32 23 6.90	W 103 43 15.60
	10456.00	16.42	318.67	10366.57	-608.08	621.21	-298.05	2.16	504447.21	730341.15	N 32 23 7.11	W 103 43 15.78
	10551.00	16.27	311.16	10457.74	-626.11	640.06	-316.93	2.23	504466.06	730322.26	N 32 23 7.29	W 103 43 16.00
	10645.00	17.18	302.83	10547.78	-641.38	656.25	-338.52	2.72	504482.25	730300.68	N 32 23 7.46	W 103 43 16.25
	10740.00	14.45	294.66	10639.18	-652.97	668.81	-361.08	3.70	504494.81	730278.11	N 32 23 7.58	W 103 43 16.52
	10835.00	12.16	285.39	10731.64	-659.70	676.41	-381.51	3.29	504502.41	730257.69	N 32 23 7.66	W 103 43 16.75
	10930.00	9.44	264.50	10824.98	-660.87	678.32	-398.92	4.97	504504.32	730240.28	N 32 23 7.68	W 103 43 16.96
	11025.00	10.26	241.74	10918.61	-655.48	673.57	-414.13	4.16	504499.56	730225.07	N 32 23 7.63	W 103 43 17.13
	11120.00	11.06	227.38	11011.99	-644.71	663.39	-428.29	2.91	504489.39	730210.91	N 32 23 7.53	W 103 43 17.30
	11215.00	11.22	216.37	11105.21	-630.60	649.78	-440.48	2.24	504475.77	730198.72	N 32 23 7.40	W 103 43 17.44
	11395.00	11.30	192.15	11281.85	-598.67	618.42	-454.58	2.61	504444.42	730184.62	N 32 23 7.09	W 103 43 17.61
KOP Actual	11490.00	10.82	195.40	11375.08	-580.81	600.72	-458.91	0.83	504426.72	730180.29	N 32 23 6.91	W 103 43 17.66
	11584.00	21.29	188.68	11465.30	-555.17	575.27	-463.84	11.29	504401.27	730175.36	N 32 23 6.66	W 103 43 17.72
	11678.00	32.72	177.28	11548.96	-512.74	532.86	-465.22	13.30	504358.86	730173.99	N 32 23 6.24	W 103 43 17.74
	11773.00	41.85	180.54	11624.48	-455.37	475.39	-464.30	9.83	504301.40	730174.91	N 32 23 5.67	W 103 43 17.73
	11867.00	51.06	183.77	11689.17	-387.32	407.41	-467.00	10.11	504233.41	730172.20	N 32 23 5.00	W 103 43 17.77
	11961.00	57.35	181.45	11744.13	-311.13	331.28	-470.41	6.98	504157.30	730168.79	N 32 23 4.25	W 103 43 17.81
Wolfcamp Intersection	*12023.61*	*61.44*	*181.35*	*11776.00*	*-257.26*	*277.42*	*-471.73*	*6.54*	*504103.44*	*730167.48*	*N 32 23 3.71*	*W 103 43 17.83*
	12056.00	63.56	181.30	11790.95	-228.53	248.70	-472.39	6.54	504074.72	730166.81	N 32 23 3.43	W 103 43 17.84
Leaseline Cross	*12070.60*	*64.80*	*181.65*	*11797.31*	*-215.39*	*235.56*	*-472.73*	*8.80*	*504061.58*	*730166.48*	*N 32 23 3.30*	*W 103 43 17.85*
	12151.00	71.67	183.49	11827.11	-140.77	161.02	-476.11	8.80	503987.04	730163.10	N 32 23 2.56	W 103 43 17.89
100'FNL Cross	*12178.00*	*73.14*	*182.82*	*11835.27*	*-115.04*	*135.32*	*-477.52*	*5.92*	*503961.34*	*730161.68*	*N 32 23 2.31*	*W 103 43 17.91*
	12245.00	76.78	181.19	11852.66	-50.35	70.67	-479.78	5.92	503896.70	730159.43	N 32 23 1.67	W 103 43 17.94
	12339.00	82.80	180.74	11869.31	42.09	-21.79	-481.33	6.42	503804.25	730157.88	N 32 23 0.75	W 103 43 17.96
	12434.00	88.05	180.68	11876.88	136.71	-116.44	-482.50	5.53	503709.59	730156.70	N 32 22 59.82	W 103 43 17.98
	12453.00	88.15	180.26	11877.51	155.69	-135.43	-482.66	2.27	503690.61	730156.55	N 32 22 59.63	W 103 43 17.99
	12528.00	88.08	179.50	11879.98	230.58	-210.39	-482.50	1.02	503615.65	730156.70	N 32 22 58.89	W 103 43 17.99
	12717.00	88.77	182.72	11885.18	419.43	-399.26	-486.16	1.74	503426.79	730153.04	N 32 22 57.02	W 103 43 18.05
	12898.00	90.07	181.87	11887.01	600.41	-580.10	-493.41	0.86	503245.96	730145.80	N 32 22 55.23	W 103 43 18.14
	12993.00	91.55	182.48	11885.67	695.40	-675.02	-497.01	1.69	503151.05	730142.19	N 32 22 54.29	W 103 43 18.19
	13087.00	90.52	182.78	11883.97	789.38	-768.90	-501.33	1.14	503057.17	730137.88	N 32 22 53.36	W 103 43 18.25
	13276.00	90.42	183.50	11882.42	978.36	-957.61	-511.68	0.38	502868.47	730127.53	N 32 22 51.50	W 103 43 18.38
	13371.00	90.38	182.61	11881.76	1073.35	-1052.47	-516.74	0.94	502773.61	730122.47	N 32 22 50.56	W 103 43 18.45
	13561.00	90.49	180.92	11880.31	1263.33	-1242.37	-522.59	0.89	502583.73	730116.61	N 32 22 48.68	W 103 43 18.53
	13655.00	90.42	179.27	11879.57	1357.24	-1336.36	-522.75	1.76	502489.74	730116.46	N 32 22 47.75	W 103 43 18.54
	13750.00	90.38	179.59	11878.90	1452.11	-1431.35	-521.80	0.34	502394.75	730117.40	N 32 22 46.81	W 103 43 18.53
	13845.00	90.62	178.73	11878.07	1546.95	-1526.34	-520.41	0.94	502299.77	730118.80	N 32 22 45.87	W 103 43 18.52
	13939.00	90.69	179.38	11877.00	1640.78	-1620.32	-518.86	0.70	502205.79	730120.35	N 32 22 44.94	W 103 43 18.51
	14034.00	90.28	179.47	11876.20	1735.65	-1715.31	-517.91	0.44	502110.81	730121.30	N 32 22 44.00	W 103 43 18.50
	14224.00	90.35	179.70	11875.15	1925.41	-1905.30	-516.53	0.13	501920.82	730122.68	N 32 22 42.12	W 103 43 18.50
	14319.00	90.07	178.72	11874.80	2020.26	-2000.29	-515.22	1.07	501825.84	730123.99	N 32 22 41.18	W 103 43 18.49
	14508.00	90.66	179.52	11873.60	2208.94	-2189.26	-512.32	0.53	501636.88	730126.89	N 32 22 39.31	W 103 43 18.47
	14602.00	90.38	179.14	11872.75	2302.80	-2283.25	-511.22	0.50	501542.89	730127.99	N 32 22 38.38	W 103 43 18.46
	14697.00	90.73	179.25	11871.83	2397.65	-2378.24	-509.89	0.39	501447.91	730129.32	N 32 22 37.44	W 103 43 18.45
	14791.00	89.97	179.19	11871.25	2491.50	-2472.23	-508.61	0.81	501353.93	730130.60	N 32 22 36.51	W 103 43 18.45
	14886.00	89.83	177.63	11871.42	2586.26	-2567.19	-505.97	1.65	501258.97	730133.24	N 32 22 35.57	W 103 43 18.42
	14980.00	89.80	178.34	11871.72	2679.98	-2661.13	-502.66	0.76	501165.04	730136.54	N 32 22 34.64	W 103 43 18.39
	15074.00	89.97	178.41	11871.91	2773.75	-2755.09	-500.00	0.20	501071.08	730139.21	N 32 22 33.71	W 103 43 18.36
	15169.00	89.63	178.10	11872.24	2868.50	-2850.05	-497.11	0.48	500976.13	730142.10	N 32 22 32.77	W 103 43 18.34
	15263.00	89.76	179.03	11872.74	2962.28	-2944.02	-494.75	1.00	500882.17	730144.45	N 32 22 31.84	W 103 43 18.32
	15358.00	90.11	178.28	11872.85	3057.07	-3038.99	-492.52	0.87	500787.20	730146.68	N 32 22 30.90	W 103 43 18.30
	15547.00	90.07	178.74	11872.55	3245.63	-3227.92	-487.61	0.24	500598.27	730151.60	N 32 22 29.03	W 103 43 18.25
	15641.00	89.76	178.50	11872.69	3339.43	-3321.90	-485.34	0.42	500504.31	730153.86	N 32 22 28.10	W 103 43 18.23
	15831.00	89.35	177.86	11874.17	3528.90	-3511.79	-479.31	0.40	500314.42	730159.89	N 32 22 26.22	W 103 43 18.17
	15925.00	89.39	179.06	11875.20	3622.67	-3605.75	-476.78	1.28	500220.47	730162.42	N 32 22 25.29	W 103 43 18.15
	16020.00	89.14	179.07	11876.42	3717.50	-3700.73	-475.23	0.26	500125.49	730163.97	N 32 22 24.35	W 103 43 18.14
	16114.00	88.97	177.24	11877.97	3811.22	-3794.67	-472.21	1.95	500031.56	730167.00	N 32 22 23.42	W 103 43 18.11
	16303.00	89.01	177.47	11881.30	3999.45	-3983.43	-463.49	0.12	499842.80	730175.72	N 32 22 21.55	W 103 43 18.02
	16492.00	88.15	178.10	11885.99	4187.77	-4172.23	-456.18	0.56	499654.01	730183.02	N 32 22 19.69	W 103 43 17.95
	16587.00	89.01	178.30	11888.34	4282.49	-4267.16	-453.20	0.93	499559.10	730186.00	N 32 22 18.75	W 103 43 17.92
	16776.00	88.94	178.65	11891.72	4471.01	-4456.06	-448.17	0.19	499370.20	730191.03	N 32 22 16.88	W 103 43 17.87
	16965.00	88.56	180.43	11895.84	4659.72	-4645.00	-446.66	0.96	499181.27	730192.55	N 32 22 15.01	W 103 43 17.87
	17154.00	89.21	181.36	11899.52	4848.61	-4833.94	-449.61	0.60	498992.34	730189.60	N 32 22 13.14	W 103 43 17.92
	17248.00	88.42	180.12	11901.47	4942.55	-4927.91	-450.82	1.56	498898.38	730188.38	N 32 22 12.21	W 103 43 17.94
	17343.00	89.80	180.65	11902.94	5037.47	-5022.89	-451.46	1.56	498803.40	730187.74	N 32 22 11.27	W 103 43 17.95
Section Line Cross	*17364.53*	*89.77*	*180.82*	*11903.02*	*5058.99*	*-5044.42*	*-451.74*	*0.82*	*498781.87*	*730187.47*	*N 32 22 11.06*	*W 103 43 17.95*
	17437.00	89.66	181.41	11903.38	5131.44	-5116.87	-453.15	0.82	498709.42	730186.05	N 32 22 10.34	W 103 43 17.98
	17532.00	89.49	180.73	11904.09	5226.41	-5211.85	-454.92	0.74	498614.45	730184.28	N 32 22 9.40	W 103 43 18.00
	17721.00	89.63	179.94	11905.54	5415.28	-5400.84	-456.03	0.42	498425.47	730183.18	N 32 22 7.53	W 103 43 18.03
	17815.00	89.32	180.05	11906.40	5509.19	-5494.84	-456.02	0.35	498331.48	730183.18	N 32 22 6.60	W 103 43 18.03
	18005.00	89.56	180.61	11908.26	5699.06	-5684.83	-457.11	0.32	498141.50	730182.09	N 32 22 4.72	W 103 43 18.06
	18194.00	89.49	180.00	11909.83	5887.92	-5873.82	-458.12	0.32	497952.52	730181.08	N 32 22 2.85	W 103 43 18.08
	18289.00	89.80	180.48	11910.41	5982.85	-5968.81	-458.52	0.60	497857.53	730180.69	N 32 22 1.91	W 103 43 18.10
	18478.00	90.28	180.57	11910.28	6171.75	-6157.80	-460.25	0.26	497668.54	730178.95	N 32 22 0.04	W 103 43 18.13
	18667.00	88.11	180.27	11912.94	6360.60	-6346.77	-461.64	1.16	497479.59	730177.57	N 32 21 58.17	W 103 43 18.16
	18856.00	89.42	179.67	11917.01	6549.38	-6535.72	-461.54	0.76	497290.65	730177.67	N 32 21 56.30	W 103 43 18.17
	18951.00	90.42	180.22	11917.14	6644.29	-6630.72	-461.45	1.20	497195.66	730177.76	N 32 21 55.36	W 103 43 18.17
	19046.00	88.32	180.04	11918.19	6739.20	-6725.71	-461.66	2.22	497100.67	730177.54	N 32 21 54.42	W 103 43 18.18
	19234.00	88.66	181.03	11923.14	6927.03	-6913.63	-463.42	0.56	496912.76	730175.79	N 32 21 52.56	W 103 43 18.22
	19329.00	88.35	181.37	11925.62	7021.98	-7008.58	-465.40	0.48	496817.82	730173.80	N 32 21 51.62	W 103 43 18.24

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 ° ' ")
	19424.00	88.66	180.71	11928.10	7116.92	-7103.53	-467.13	0.77	496722.87	730172.08	N 32 21 50.68	W 103 43 18.27
	19614.00	89.14	180.87	11931.75	7306.81	-7293.48	-469.75	0.27	496532.93	730169.46	N 32 21 48.80	W 103 43 18.31
	19709.00	88.49	181.97	11933.71	7401.77	-7388.42	-472.10	1.34	496437.99	730167.10	N 32 21 47.86	W 103 43 18.35
	19898.00	88.18	181.44	11939.20	7590.67	-7577.26	-477.72	0.32	496249.16	730161.48	N 32 21 45.99	W 103 43 18.43
	19992.00	88.14	181.52	11942.22	7684.61	-7671.18	-480.15	0.10	496155.25	730159.06	N 32 21 45.07	W 103 43 18.46
	20087.00	87.83	181.36	11945.56	7779.54	-7766.09	-482.53	0.37	496060.34	730156.67	N 32 21 44.13	W 103 43 18.50
	20181.00	87.97	180.92	11949.01	7873.45	-7860.01	-484.40	0.49	495966.43	730154.80	N 32 21 43.20	W 103 43 18.52
	20276.00	89.31	178.96	11951.26	7968.33	-7954.98	-484.30	2.50	495871.47	730154.90	N 32 21 42.26	W 103 43 18.53
	20370.00	89.72	177.76	11952.06	8062.09	-8048.93	-481.61	1.35	495777.52	730157.59	N 32 21 41.33	W 103 43 18.50
	20559.00	89.11	177.48	11953.99	8250.42	-8237.76	-473.77	0.36	495588.70	730165.44	N 32 21 39.46	W 103 43 18.42
	20749.00	90.45	177.80	11954.72	8439.75	-8427.59	-465.94	0.73	495398.88	730173.26	N 32 21 37.58	W 103 43 18.35
	20938.00	89.48	176.86	11954.83	8628.00	-8616.38	-457.14	0.71	495210.10	730182.07	N 32 21 35.71	W 103 43 18.26
	21033.00	89.42	177.59	11955.74	8722.60	-8711.26	-452.54	0.77	495115.22	730186.67	N 32 21 34.77	W 103 43 18.21
	21188.00	90.55	177.25	11955.78	8877.01	-8866.10	-445.56	0.76	494960.39	730193.64	N 32 21 33.24	W 103 43 18.14
	21316.00	88.42	180.13	11956.93	9004.71	-8994.05	-442.63	2.80	494832.45	730196.57	N 32 21 31.97	W 103 43 18.11
	21411.00	88.45	180.64	11959.53	9099.62	-9089.01	-443.27	0.54	494737.49	730195.93	N 32 21 31.03	W 103 43 18.13
	21505.00	88.63	180.94	11961.92	9193.55	-9182.97	-444.57	0.37	494643.54	730194.63	N 32 21 30.10	W 103 43 18.15
	21600.00	88.01	180.92	11964.71	9288.48	-9277.91	-446.11	0.65	494548.60	730193.09	N 32 21 29.17	W 103 43 18.17
	21789.00	90.24	182.84	11967.60	9477.43	-9466.77	-452.31	1.56	494359.75	730186.89	N 32 21 27.30	W 103 43 18.26
	21884.00	90.59	183.31	11966.91	9572.42	-9561.63	-457.41	0.62	494264.90	730181.80	N 32 21 26.36	W 103 43 18.32
	22073.00	90.11	178.39	11965.75	9761.28	-9750.55	-460.21	2.62	494075.99	730179.00	N 32 21 24.49	W 103 43 18.37
	22264.00	90.17	178.39	11965.29	9951.81	-9941.47	-454.84	0.03	493885.07	730184.36	N 32 21 22.60	W 103 43 18.32
Final MWD Survey	22295.00	90.17	178.10	11965.19	9982.73	-9972.46	-453.89	0.94	493854.09	730185.31	N 32 21 22.29	W 103 43 18.31
Proj to TD	22338.00	90.17	178.10	11965.07	10025.61	-10015.43	-452.47	0.00	493811.12	730186.74	N 32 21 21.87	W 103 43 18.29

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 Lost Tank 30-19 Fed Com 31H from 0 to 22338'MD
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Lost Tank 30-19 Fed Com 31H from 0 to 22338'MD
	1	26.500	867.880	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Lost Tank 30-19 Fed Com 31H from 0 to
	1	867.880	9315.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Lost Tank 30-19 Fed Com 31H from 0 to
	1	9315.000	9981.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Original Borehole / Oxy Lost Tank 30-19 Fed Com 31H from 0 to
	1	9981.000	21033.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Lost Tank 30-19 Fed Com 31H from 0 to
	1	21033.000	21316.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Original Borehole / Oxy Lost Tank 30-19 Fed Com 31H from 0 to
	1	21316.000	22338.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Lost Tank 30-19 Fed Com 31H from 0 to