

Chisholm Aztec 14-23 Fed Com 3BS 2H MWD Surveys 0ft to 22185ft MD

Survey Geodetic Report

(Def Survey)

CHISHOLM
ENERGY
HOBBS OGD
DEC 31 2019
RECEIVED

Report Date: October 21, 2019 - 08:00 PM
Client: Chisholm
Field: NM Lea County (NAD 83)
Structure / Slot: Chisholm Aztec 14-23 Fed Com 3BS Pad / 3BS 2H
Well: Chisholm Aztec 14-23 Fed Com 3BS 2H
Borehole: Chisholm Aztec 14-23 Fed Com 3BS 2H
UWI / API#: Unknown / Unknown
Survey Name: Chisholm Aztec 14-23 Fed Com 3BS 2H MWD Surveys 0ft to 22185ft MD
Survey Date: September 18, 2019
Tort / AHD / DDI / ERD Ratio: 240.821 * / 11288.992 ft / 6.704 / 0.947
Coordinate Reference System: NAD83 New Mexico State Plane, Eastam Zone, US Feet
Location Lat / Long: N 32° 29' 12.54013", W 103° 38' 57.50496"
Location Grid N/E Y/X: N 541510.960 RUS, E 752251.670 RUS
CRS Grid Convergence Angle: 0.3874 *
Grid Scale Factor: 0.99996004
Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.650 * (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB=31
TVD Reference Elevation: 3875.200 ft above MSL
Seabed / Ground Elevation: 3844.200 ft above MSL
Magnetic Declination: 6.702 *
Total Gravity Field Strength: 998.4616mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48090.551 nT
Magnetic Dip Angle: 60.294 *
Declination Date: September 23, 2019
Magnetic Declination Model: HDGM 2019
North Reference: Grid North
Grid Convergence Used: 0.3874 *
Total Corr Mag North->Grid: 6.3344 *
North: Well Head
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
SHL	0.00	0.00	90.00	0.00	0.00	0.00	0.00	N/A	541510.96	752251.67	N 32 29 12.54	W 103 38 57.50
First SLB Survey	143.00	0.28	40.09	143.00	-0.27	0.27	0.23	0.20	541511.23	752251.90	N 32 29 12.54	W 103 38 57.50
	202.00	0.06	19.93	202.00	-0.40	0.41	0.33	0.38	541511.37	752252.00	N 32 29 12.54	W 103 38 57.50
	262.00	0.48	328.70	262.00	-0.65	0.85	0.21	0.74	541511.81	752251.88	N 32 29 12.55	W 103 38 57.50
	322.00	0.29	27.49	322.00	-1.00	1.00	0.15	0.69	541511.96	752251.82	N 32 29 12.55	W 103 38 57.50
	380.00	0.29	345.63	380.00	-1.27	1.27	0.18	0.38	541512.23	752251.85	N 32 29 12.55	W 103 38 57.50
	438.00	0.80	13.14	435.99	-1.69	1.70	0.21	0.68	541512.66	752251.88	N 32 29 12.56	W 103 38 57.50
	495.00	0.98	353.80	494.99	-2.49	2.49	0.23	0.75	541513.45	752251.90	N 32 29 12.56	W 103 38 57.50
	561.00	0.83	349.32	560.98	-3.51	3.51	0.08	0.22	541514.47	752251.75	N 32 29 12.57	W 103 38 57.50
	654.00	1.29	7.33	653.97	-5.21	5.21	0.08	0.60	541516.17	752251.75	N 32 29 12.59	W 103 38 57.50
	717.00	0.88	355.95	716.95	-6.38	6.38	0.14	0.78	541517.34	752251.81	N 32 29 12.60	W 103 38 57.50
	812.00	1.20	3.27	811.94	-8.09	8.09	0.15	0.38	541519.05	752251.82	N 32 29 12.62	W 103 38 57.50
	906.00	0.78	351.36	905.92	-9.68	9.69	0.11	0.51	541520.84	752251.78	N 32 29 12.64	W 103 38 57.50
	1000.00	0.83	345.77	999.92	-10.96	10.98	-0.15	0.11	541521.82	752251.52	N 32 29 12.65	W 103 38 57.51
	1095.00	0.78	346.52	1094.91	-12.28	12.28	-0.45	0.07	541523.22	752251.22	N 32 29 12.66	W 103 38 57.51
	1188.00	0.56	281.00	1187.90	-12.98	12.97	-1.02	0.82	541523.83	752250.65	N 32 29 12.67	W 103 38 57.52
	1283.00	1.41	259.52	1282.89	-12.88	12.85	-2.83	0.96	541523.80	752249.04	N 32 29 12.67	W 103 38 57.53
	1377.00	2.01	254.28	1376.84	-12.22	12.19	-5.35	0.68	541523.15	752248.32	N 32 29 12.66	W 103 38 57.57
	1472.00	2.83	247.78	1471.78	-10.91	10.85	-9.12	0.91	541521.81	752242.55	N 32 29 12.65	W 103 38 57.61
	1670.00	2.53	238.05	1669.54	-8.79	8.69	-17.36	0.27	541517.65	752234.31	N 32 29 12.61	W 103 38 57.71
	1763.00	1.11	188.43	1762.50	-4.83	4.71	-19.23	2.15	541515.67	752232.44	N 32 29 12.59	W 103 38 57.73
	1858.00	1.60	134.23	1857.48	-2.99	2.88	-18.42	1.38	541513.84	752233.25	N 32 29 12.57	W 103 38 57.72
	1953.00	1.82	118.51	1952.44	-1.41	1.31	-16.20	0.48	541512.27	752235.39	N 32 29 12.55	W 103 38 57.69
	2047.00	1.67	121.50	2046.40	-0.05	-0.04	-13.95	0.11	541510.92	752237.72	N 32 29 12.54	W 103 38 57.67
	2142.00	1.57	122.59	2141.38	1.39	-1.46	-11.87	0.11	541509.50	752240.00	N 32 29 12.53	W 103 38 57.64
	2236.00	1.53	118.01	2235.33	2.71	-2.76	-9.49	0.11	541508.20	752242.18	N 32 29 12.51	W 103 38 57.62
	2330.00	1.31	105.59	2329.30	3.61	-3.66	-7.36	0.42	541507.30	752244.31	N 32 29 12.50	W 103 38 57.59
	2425.00	2.08	98.92	2424.26	4.19	-4.22	-4.61	0.84	541506.74	752247.06	N 32 29 12.50	W 103 38 57.56
	2519.00	2.59	83.42	2518.18	4.24	-4.24	-0.81	0.88	541506.72	752250.86	N 32 29 12.50	W 103 38 57.51
	2614.00	2.86	76.97	2613.07	3.48	-3.46	3.83	0.43	541507.50	752255.30	N 32 29 12.51	W 103 38 57.48
	2708.00	4.45	65.49	2706.88	1.47	-1.42	9.23	1.85	541509.54	752260.90	N 32 29 12.53	W 103 38 57.40
	2803.00	6.41	64.51	2801.45	-2.29	2.39	17.37	2.07	541513.35	752269.04	N 32 29 12.56	W 103 38 57.30
	2897.00	0.74	65.29	2894.83	-6.79	6.98	27.12	0.38	541517.92	752278.79	N 32 29 12.61	W 103 38 57.19
	2992.00	6.37	63.33	2989.21	-11.43	11.65	36.89	0.48	541522.61	752288.56	N 32 29 12.65	W 103 38 57.07
	3086.00	5.51	53.02	3082.71	-16.43	16.71	45.16	1.45	541527.67	752296.83	N 32 29 12.70	W 103 38 56.98
	3181.00	5.66	59.31	3177.26	-21.52	21.84	52.83	0.68	541532.80	752304.50	N 32 29 12.75	W 103 38 56.89
	3275.00	3.88	64.47	3270.93	-25.21	25.57	59.87	1.97	541536.53	752311.34	N 32 29 12.76	W 103 38 56.81
	3370.00	2.31	60.78	3365.79	-28.86	27.26	64.45	1.88	541538.22	752316.12	N 32 29 12.81	W 103 38 56.75
	3458.00	2.67	79.77	3451.71	-27.48	27.89	68.13	0.42	541538.85	752319.80	N 32 29 12.81	W 103 38 56.71
	3550.00	3.11	63.57	3545.59	-28.97	29.42	72.57	0.98	541540.37	752324.24	N 32 29 12.83	W 103 38 56.68
	3581.00	3.60	63.81	3578.54	-29.77	30.22	74.20	1.58	541541.18	752325.86	N 32 29 12.83	W 103 38 56.64
	3737.00	3.39	60.74	3732.25	-34.13	34.84	82.61	0.18	541545.59	752334.28	N 32 29 12.88	W 103 38 56.54
	3831.00	3.03	58.70	3826.10	-36.82	37.38	87.12	0.45	541548.32	752338.78	N 32 29 12.90	W 103 38 56.49
	3926.00	2.72	48.32	3920.98	-39.68	40.24	90.90	0.55	541551.19	752342.56	N 32 29 12.93	W 103 38 56.44
	4021.00	1.78	84.42	4015.91	-41.30	41.88	94.05	1.74	541552.84	752345.72	N 32 29 12.95	W 103 38 56.40
	4115.00	1.87	81.98	4109.88	-41.64	42.23	97.02	0.13	541553.19	752348.69	N 32 29 12.95	W 103 38 56.37
	4209.00	2.68	73.61	4203.79	-42.45	43.07	100.65	0.93	541554.03	752352.31	N 32 29 12.96	W 103 38 56.33
	4304.00	3.41	82.35	4298.65	-43.42	44.07	105.58	0.91	541555.03	752357.25	N 32 29 12.97	W 103 38 56.27
	4399.00	3.42	89.62	4393.48	-43.79	44.47	111.21	0.48	541555.42	752362.88	N 32 29 12.97	W 103 38 56.20
	4493.00	3.40	92.90	4487.32	-43.63	44.34	116.80	0.21	541555.30	752368.47	N 32 29 12.97	W 103 38 56.14
	4588.00	3.70	92.54	4582.14	-43.31	44.08	122.58	0.32	541555.02	752374.34	N 32 29 12.97	W 103 38 56.07
	4682.00	4.22	100.21	4675.91	-42.53	43.32	129.11	0.79	541554.28	752380.78	N 32 29 12.98	W 103 38 55.99
	4777.00	4.11	99.87	4770.68	-41.29	42.13	135.91	0.12	541553.08	752387.57	N 32 29 12.95	W 103 38 55.92
	4871.00	4.27	99.97	4864.41	-40.08	40.95	142.87	0.17	541551.91	752394.34	N 32 29 12.94	W 103 38 55.84
	4966.00	4.48	99.64	4959.13	-38.60	39.72	149.82	0.22	541550.88	752401.48	N 32 29 12.92	W 103 38 55.75
	5060.00	4.73	98.20	5052.83	-37.59	38.65	157.27	0.29	541549.51	752408.93	N 32 29 12.91	W 103 38 55.67
	5154.00	5.03	104.71	5146.49	-35.94	36.95	165.09	0.67	541547.91	752416.76	N 32 29 12.90	W 103 38 55.57
	5249.00	5.11	117.29	5241.12	-32.90	33.96	172.88	1.17	541544.91	752424.54	N 32 29 12.87	W 103 38 55.48
	5344.00	6.42	133.82	5335.64	-27.24	28.34	180.47	2.21	541539.30	752432.14	N 32 29 12.81	W 103 38 55.40
	5438.00	6.40	131.77	5429.06	-20.06	21.21	188.17	0.24	541532.17	752439.84	N 32 29 12.74	W 103 38 55.31
	5533.00	6.42	130.00	5523.48	-13.07	14.27	196.19	0.21	541525.23	752447.85	N 32 29 12.67	W 103 38 55.21
	5627.00	6.34	134.28	5616.88	-6.02	7.27	203.93	0.51	541518.23	752455.59	N 32 29 12.60	W 103 38 55.12
	5722.00	6.24	142.48	5711.31	1.78	-0.49	210.83	0.95	541510.47	752462.49	N 32 29 12.52	W 103 38 55.04
	5816.00	6.10	141.21	5804.77	9.78	-8.43	217.07	0.21	541502.53	752468.73	N 32 29 12.44	W 103 38 54.97
	5911.00	6.02	140.71	5899.24	17.59	-16.22	223.39	0.10	541494.74	752475.05	N 32 29 12.37	W 103 38 54.90
	6072.00	5.88	155.30	6059.38	31.67	-30.25	232.18	0.94	541480.71	752483.84	N 32 29 12.23	W 103 38 54.80
	6168.00	3.55	188.32	6153.07	38.94	-37.61	233.77	3.71	541473.45	752485.43	N 32 29 12.15	W 103 38 54.78
	6260.00	2.40	202.84	6246.94	43.62	-42.20	232.59	1.45	541468.76	752484.25	N 32 29 12.11	W 103 38 54.79
	6355.00	4.23	242.69	6341.79	47.04	-45.64	228.70	2.98	541465.32	752480.36	N 32 29 12.07	W 103 38 54.84
	6449.00	6.81	272.69	6435.37	48.32	-46.97	220.05	4.03	541463.99	752471.71	N 32 29 12.08	W 103 38 54.94
	6544.00	7.93	280.32	6529.58	46.80	-45.53	207.98	1.56	541465.43	752459.64	N 32 29 12.06	W 103 38 55.08
	6638.00	6.93	300.26	6622.81	42.71	-41.51	198.70	2.92	541469.45	752448.38	N 32 29 12.12	W 103 38 55.21
	6733.00	6.88	312.51	6717.12	35.94	-34.79	187.56	1.55	541476.17	752439.23	N 32 29 12.18	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (s)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ° ' '')	Longitude (E/W ° ° ' '')
	7112.00	4.42	318.75	7094.18	7.65	-8.85	182.77	0.17	541504.31	752414.44	N 32 29 12.46	W 103 38 55.61
	7206.00	4.15	313.73	7187.91	2.63	-1.68	157.83	0.37	541509.30	752409.50	N 32 29 12.51	W 103 38 55.66
	7301.00	4.16	312.47	7282.66	-2.11	3.04	152.81	0.10	541514.00	752404.47	N 32 29 12.56	W 103 38 55.72
	7395.00	3.94	310.31	7376.43	-6.53	7.43	147.83	0.28	541518.39	752399.49	N 32 29 12.60	W 103 38 55.78
	7490.00	3.73	308.68	7471.22	-10.60	11.47	142.93	0.25	541522.43	752394.69	N 32 29 12.64	W 103 38 55.84
	7584.00	0.93	325.97	7565.13	-13.16	14.02	140.12	3.04	541524.98	752391.78	N 32 29 12.67	W 103 38 55.87
	7679.00	0.20	309.85	7660.13	-13.91	14.78	139.56	0.78	541525.72	752391.22	N 32 29 12.68	W 103 38 55.87
	7773.00	0.39	256.56	7754.12	-13.94	14.79	139.12	0.33	541525.75	752390.78	N 32 29 12.68	W 103 38 55.88
	7868.00	0.32	270.26	7849.12	-13.87	14.72	138.54	0.12	541525.68	752390.20	N 32 29 12.68	W 103 38 55.89
	7962.00	0.11	197.24	7943.12	-13.79	14.83	138.25	0.33	541525.59	752389.91	N 32 29 12.68	W 103 38 55.89
	8055.00	0.30	242.74	8036.12	-13.59	14.44	138.01	0.25	541525.40	752389.67	N 32 29 12.67	W 103 38 55.89
	8149.00	0.06	167.21	8130.12	-13.43	14.28	137.80	0.31	541525.23	752389.48	N 32 29 12.67	W 103 38 55.90
	8244.00	0.38	244.64	8225.12	-13.25	14.09	137.53	0.39	541525.06	752389.19	N 32 29 12.67	W 103 38 55.90
	8339.00	0.87	131.20	8320.12	-12.59	13.43	137.85	1.24	541524.39	752389.51	N 32 29 12.66	W 103 38 55.89
	8433.00	1.41	130.84	8414.10	-11.30	12.15	139.32	0.47	541523.11	752390.98	N 32 29 12.65	W 103 38 55.88
	8527.00	1.29	136.40	8508.07	-9.78	10.82	140.82	0.19	541521.58	752392.59	N 32 29 12.64	W 103 38 55.84
	8622.00	1.33	125.58	8603.04	-8.34	9.21	142.58	0.26	541520.17	752394.22	N 32 29 12.62	W 103 38 55.84
	8716.00	1.39	123.41	8697.02	-7.06	7.95	144.40	0.08	541518.91	752396.06	N 32 29 12.61	W 103 38 55.82
	8811.00	1.43	132.49	8791.99	-5.62	6.51	146.23	0.24	541517.47	752397.90	N 32 29 12.60	W 103 38 55.80
	8906.00	1.00	103.49	8886.97	-4.61	5.52	147.91	0.78	541516.48	752399.58	N 32 29 12.59	W 103 38 55.78
	9001.00	0.58	120.23	8981.96	-4.17	5.08	149.13	0.50	541516.04	752400.80	N 32 29 12.58	W 103 38 55.76
	9096.00	0.48	127.14	9076.96	-3.68	4.60	149.87	0.12	541515.56	752401.53	N 32 29 12.58	W 103 38 55.76
	9190.00	0.99	111.65	9170.95	-3.14	4.06	150.94	0.58	541515.02	752402.60	N 32 29 12.57	W 103 38 55.74
	9285.00	1.30	123.88	9265.93	-2.23	3.16	152.59	0.41	541514.12	752404.26	N 32 29 12.56	W 103 38 55.72
	9379.00	1.26	120.86	9359.91	-1.09	2.03	154.37	0.08	541512.99	752406.03	N 32 29 12.55	W 103 38 55.70
	9474.00	0.45	81.31	9454.89	-0.60	1.55	155.63	1.01	541512.51	752407.29	N 32 29 12.55	W 103 38 55.69
	9569.00	1.54	44.46	9549.88	-1.56	2.52	156.89	1.27	541513.48	752408.58	N 32 29 12.56	W 103 38 55.67
	9664.00	1.71	56.45	9644.84	-3.25	4.22	158.97	0.40	541515.18	752410.63	N 32 29 12.57	W 103 38 55.65
	9758.00	2.08	42.26	9738.79	-5.27	6.25	161.29	0.63	541517.21	752412.95	N 32 29 12.59	W 103 38 55.62
	9853.00	1.52	12.02	9833.75	-7.77	8.76	162.71	1.14	541519.72	752414.37	N 32 29 12.62	W 103 38 55.60
	9948.00	1.43	3.90	9926.71	-10.13	11.13	163.04	0.24	541522.09	752414.71	N 32 29 12.64	W 103 38 55.60
	10041.00	0.45	351.08	10021.70	-11.68	12.68	163.07	1.05	541523.64	752414.73	N 32 29 12.66	W 103 38 55.60
	10135.00	0.50	357.50	10115.70	-12.46	13.45	162.99	0.08	541524.41	752414.65	N 32 29 12.66	W 103 38 55.60
	10230.00	1.33	38.95	10210.69	-13.72	14.72	163.67	1.06	541525.68	752415.33	N 32 29 12.68	W 103 38 55.59
	10324.00	2.68	32.65	10304.63	-16.40	17.41	165.53	1.43	541528.37	752417.19	N 32 29 12.70	W 103 38 55.57
	10418.00	2.11	47.67	10398.55	-19.38	20.41	167.88	0.88	541531.37	752419.65	N 32 29 12.73	W 103 38 55.54
	10513.00	1.92	44.18	10493.49	-21.69	22.73	170.39	0.24	541533.69	752422.05	N 32 29 12.75	W 103 38 55.51
	10608.00	2.11	35.69	10588.43	-24.24	25.29	172.52	0.37	541536.25	752424.18	N 32 29 12.78	W 103 38 55.49
	10703.00	1.23	27.47	10683.39	-28.55	27.62	174.01	0.96	541538.58	752425.67	N 32 29 12.80	W 103 38 55.47
	10798.00	0.99	41.89	10778.37	-28.06	29.13	175.03	0.39	541540.09	752426.69	N 32 29 12.82	W 103 38 55.48
	10892.00	0.81	43.30	10872.36	-29.14	30.22	176.02	0.19	541541.18	752427.69	N 32 29 12.83	W 103 38 55.45
	10986.00	1.01	53.76	10938.35	-29.82	30.90	176.81	0.39	541541.88	752428.47	N 32 29 12.83	W 103 38 55.44
	11038.00	2.07	140.34	11018.33	-29.12	30.21	178.30	2.81	541541.17	752429.97	N 32 29 12.83	W 103 38 55.42
	11085.00	6.23	178.12	11065.20	-25.91	27.00	178.93	10.14	541537.96	752430.59	N 32 29 12.80	W 103 38 55.41
	11132.00	9.54	179.50	11111.75	-19.46	20.58	179.05	7.05	541531.52	752430.71	N 32 29 12.73	W 103 38 55.41
	11179.00	13.37	178.73	11157.80	-10.14	11.24	179.39	8.23	541522.19	752431.05	N 32 29 12.64	W 103 38 55.41
	11227.00	17.59	178.48	11204.05	2.66	-1.56	179.90	8.84	541509.40	752431.68	N 32 29 12.51	W 103 38 55.40
	11274.00	20.91	177.85	11248.42	18.15	-17.05	180.40	7.08	541493.91	752432.07	N 32 29 12.36	W 103 38 55.40
	11322.00	23.28	180.83	11292.89	36.20	-35.09	180.59	5.46	541475.87	752432.25	N 32 29 12.18	W 103 38 55.40
	11369.00	26.24	181.55	11335.57	55.87	-54.77	180.17	8.33	541456.19	752431.83	N 32 29 11.99	W 103 38 55.41
	11418.00	27.34	179.97	11377.52	77.05	-75.95	179.90	2.79	541435.01	752431.56	N 32 29 11.78	W 103 38 55.41
	11511.00	38.65	181.83	11457.12	128.81	-127.52	178.91	11.85	541383.45	752430.57	N 32 29 11.27	W 103 38 55.43
	11558.00	45.73	182.19	11491.95	160.09	-159.01	177.77	15.28	541351.96	752429.43	N 32 29 10.96	W 103 38 55.44
	11605.00	51.87	181.57	11522.89	195.41	-194.34	176.62	13.10	541316.83	752428.28	N 32 29 10.61	W 103 38 55.46
	11652.00	54.98	181.88	11550.90	233.13	-232.08	175.45	8.65	541278.91	752427.11	N 32 29 10.23	W 103 38 55.47
LL Crossing	11672.31	56.78	181.57	11562.29	249.93	-248.87	174.93	9.01	541262.11	752426.59	N 32 29 10.07	W 103 38 55.48
	11700.00	59.23	181.03	11576.96	273.40	-272.34	174.40	9.01	541236.83	752426.08	N 32 29 9.83	W 103 38 55.49
	11747.00	63.96	180.67	11599.31	314.72	-313.67	173.79	10.10	541197.31	752425.45	N 32 29 9.43	W 103 38 55.50
HL Crossing	11785.81	65.86	179.04	11615.82	348.84	-348.79	173.68	5.83	541162.19	752425.54	N 32 29 9.08	W 103 38 55.50
	11794.00	66.05	178.71	11619.17	357.32	-356.26	174.03	6.83	541154.72	752425.69	N 32 29 8.90	W 103 38 55.50
	11841.00	68.67	177.97	11637.26	400.68	-399.62	175.28	5.76	541111.36	752428.95	N 32 29 8.57	W 103 38 55.49
	11889.00	72.49	176.14	11653.21	445.89	-444.81	177.62	8.75	541066.16	752429.28	N 32 29 8.13	W 103 38 55.48
	11936.00	76.19	175.61	11665.90	491.04	-489.94	180.88	7.94	541021.04	752432.54	N 32 29 7.68	W 103 38 55.43
	11983.00	79.40	176.40	11675.83	536.88	-535.77	184.07	7.03	540975.22	752435.74	N 32 29 7.23	W 103 38 55.40
	12030.00	83.14	178.29	11682.96	583.29	-582.16	186.22	8.89	540928.82	752437.88	N 32 29 6.77	W 103 38 55.37
	12077.00	85.06	177.99	11687.79	630.02	-628.89	187.74	4.13	540882.10	752439.40	N 32 29 6.31	W 103 38 55.36
	12172.00	87.53	176.88	11693.93	724.75	-723.59	191.90	2.81	540787.40	752443.56	N 32 29 5.37	W 103 38 55.32
	12266.00	88.82	179.17	11698.92	818.68	-817.48	195.05	2.71	540693.52	752446.71	N 32 29 4.44	W 103 38 55.29
	12350.00	89.44	178.68	11698.19	902.64	-901.45	196.82	0.94	540609.54	752448.28	N 32 29 3.61	W 103 38 55.28
	12445.00	88.99	178.97	11699.49	997.62	-996.42	198.57	0.56	540514.58	752450.23	N 32 29 2.67	W 103 38 55.26
	12539.00	88.82	179.78	11701.29	1091.60	-1090.40	199.59	0.88	540420.60	752451.25	N 32 29 1.74	W 103 38 55.26
	12633.00	88.21	181.01	11703.72	1185.56	-1184.37	198.93	1.48	540326.64	752450.60	N 32 29 0.81	W 103 38 55.27
	12728.00	88.04	181.29	11706.83	1280.47	-1279.29	197.03	0.34	540231.72	752448.69	N 32 28 59.87	W 103 38 55.30
	12822.00	88.26	180.99	11709.88	1374.39	-1373.23	195.16	0.40	540137.79	752446.82	N 32 28 58.94	W 103 38 55.33
	12916.00	88.26	180.99	11712.71	1468.32	-1467.17	193.54	0.01	540043.85	752445.20	N 32 28 58.01	W 103 38 55.38
	13011.00	88.15	180.43	11715.68	1563.26	-1562.12	192.36	0.59	539948.91	752444.02	N 32 28 57.07	W 103 38 55.38
	13105.00	88.26	180.80	11718.62	1657.20	-1656.06	191.35	0.41	539854.97	752443.01	N 32 28 56.14	W 103

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S ° ° °)	Longitude (E/W ° ° °)
	16224.00	91.57	179.88	11800.07	4773.56	-4772.50	187.88	1.37	536738.66	752439.55	N 32 28 25.31	W 103 38 55.67
	16319.00	91.18	179.30	11797.79	4888.53	-4887.47	188.56	0.74	536843.69	752440.23	N 32 28 24.37	W 103 38 55.67
	16413.00	89.38	178.78	11797.34	4962.52	-4961.45	190.14	1.99	536549.71	752441.80	N 32 28 23.44	W 103 38 55.68
	16507.00	88.82	178.53	11786.81	5056.50	-5055.42	192.35	0.65	536455.78	752444.01	N 32 28 22.51	W 103 38 55.64
	16602.00	88.77	178.94	11800.81	5151.45	-5150.37	194.69	0.13	536360.81	752446.35	N 32 28 21.57	W 103 38 55.62
	16696.00	88.49	178.31	11803.08	5245.41	-5244.31	197.19	0.46	536266.87	752448.85	N 32 28 20.64	W 103 38 55.60
	16790.00	89.22	178.32	11804.94	5339.37	-5338.25	199.86	0.78	536172.94	752451.82	N 32 28 19.71	W 103 38 55.57
	16885.00	89.33	177.99	11806.14	5434.33	-5433.19	203.01	0.37	536078.00	752454.68	N 32 28 18.77	W 103 38 55.54
	16979.00	89.33	177.98	11807.24	5528.28	-5527.12	206.32	0.01	535984.07	752457.68	N 32 28 17.84	W 103 38 55.51
	17074.00	89.27	178.08	11808.40	5623.24	-5622.08	209.58	0.12	535889.13	752461.25	N 32 28 16.90	W 103 38 55.48
	17168.00	90.11	178.75	11808.91	5717.21	-5716.02	212.18	1.14	535795.18	752463.85	N 32 28 15.97	W 103 38 55.48
	17263.00	89.78	178.72	11809.00	5812.20	-5811.00	214.28	0.35	535700.20	752465.94	N 32 28 15.03	W 103 38 55.44
	17357.00	89.83	178.27	11809.32	5906.19	-5904.98	215.93	0.59	535606.22	752467.59	N 32 28 14.10	W 103 38 55.43
	17451.00	89.78	178.71	11809.64	6000.19	-5998.98	216.77	0.47	535512.23	752468.43	N 32 28 13.17	W 103 38 55.42
	17546.00	89.83	180.03	11809.98	6095.19	-6093.98	216.98	0.34	535417.24	752468.64	N 32 28 12.23	W 103 38 55.43
	17640.00	89.83	180.46	11810.24	6189.18	-6187.98	216.58	0.46	535323.24	752468.24	N 32 28 11.30	W 103 38 55.44
	17735.00	89.33	180.44	11810.94	6284.17	-6282.97	215.83	0.53	535228.25	752467.50	N 32 28 10.38	W 103 38 55.46
	17829.00	89.38	180.15	11811.99	6378.16	-6376.96	215.35	0.31	535134.26	752467.01	N 32 28 9.43	W 103 38 55.47
	17924.00	89.22	179.60	11813.15	6473.15	-6471.96	215.56	0.60	535039.28	752467.22	N 32 28 8.49	W 103 38 55.47
	18019.00	89.27	179.11	11814.41	6568.14	-6566.94	216.63	0.52	534944.29	752468.29	N 32 28 7.55	W 103 38 55.47
	18113.00	89.78	179.45	11815.19	6662.14	-6660.93	217.81	0.65	534850.31	752469.47	N 32 28 6.62	W 103 38 55.46
	18208.00	90.34	180.28	11815.09	6757.13	-6755.93	218.03	1.05	534755.31	752469.69	N 32 28 5.68	W 103 38 55.47
	18302.00	90.39	181.26	11814.49	6851.11	-6849.92	216.77	1.04	534661.33	752468.43	N 32 28 4.75	W 103 38 55.49
	18397.00	90.45	182.31	11813.79	6946.04	-6944.87	213.81	1.11	534566.38	752465.47	N 32 28 3.81	W 103 38 55.53
	18491.00	90.39	182.78	11813.10	7039.92	-7038.77	209.64	0.50	534472.48	752461.30	N 32 28 2.88	W 103 38 55.58
	18586.00	90.34	182.42	11812.50	7134.79	-7133.67	205.33	0.38	534377.59	752456.99	N 32 28 1.94	W 103 38 55.64
	18680.00	90.34	182.76	11811.94	7228.67	-7227.57	201.08	0.36	534283.69	752452.74	N 32 28 1.01	W 103 38 55.70
	18775.00	89.72	182.22	11811.89	7323.55	-7322.48	198.95	0.87	534188.78	752448.15	N 32 28 0.07	W 103 38 55.75
	18869.00	88.82	181.34	11813.09	7417.48	-7416.43	194.03	1.34	534094.84	752445.69	N 32 27 59.15	W 103 38 55.80
	18963.00	88.88	180.64	11814.97	7511.43	-7510.40	192.41	0.75	534000.88	752444.07	N 32 27 58.22	W 103 38 55.82
	19057.00	88.94	179.92	11816.76	7605.41	-7604.38	191.95	0.77	533906.90	752443.61	N 32 27 57.29	W 103 38 55.83
	19152.00	88.77	179.17	11818.68	7700.39	-7699.35	192.70	0.81	533811.93	752444.38	N 32 27 56.35	W 103 38 55.83
	19247.00	88.65	178.54	11820.80	7795.35	-7794.31	194.60	0.67	533716.96	752446.28	N 32 27 55.41	W 103 38 55.82
	19341.00	89.44	179.16	11822.38	7889.33	-7888.28	196.49	1.07	533623.01	752448.15	N 32 27 54.48	W 103 38 55.80
	19435.00	88.88	179.82	11823.74	7983.32	-7982.26	197.32	0.92	533529.03	752448.99	N 32 27 53.55	W 103 38 55.80
	19530.00	88.88	180.00	11825.60	8078.30	-8077.24	197.47	0.19	533434.06	752449.13	N 32 27 52.61	W 103 38 55.80
	19625.00	88.88	180.09	11827.46	8173.28	-8172.23	197.40	0.09	533339.08	752449.08	N 32 27 51.67	W 103 38 55.81
	19719.00	88.26	180.01	11829.80	8267.25	-8266.20	197.32	0.87	533245.11	752448.98	N 32 27 50.74	W 103 38 55.82
	19814.00	86.81	179.57	11833.89	8362.16	-8361.10	197.68	1.59	533150.21	752449.33	N 32 27 49.80	W 103 38 55.82
	19908.00	86.97	179.29	11838.99	8456.02	-8454.96	198.60	0.34	533056.35	752450.28	N 32 27 48.87	W 103 38 55.82
	20003.00	87.09	178.90	11843.91	8550.88	-8549.82	200.10	0.43	532961.50	752451.78	N 32 27 47.93	W 103 38 55.81
	20097.00	86.92	178.00	11848.82	8644.73	-8643.66	202.64	0.97	532867.66	752454.30	N 32 27 47.00	W 103 38 55.79
	20192.00	86.92	177.10	11853.93	8739.53	-8738.43	206.69	0.95	532772.89	752458.35	N 32 27 46.06	W 103 38 55.75
	20286.00	86.81	176.94	11859.07	8833.29	-8832.17	211.57	0.21	532678.17	752463.23	N 32 27 45.14	W 103 38 55.70
	20381.00	86.75	176.57	11864.40	8928.02	-8926.86	216.94	0.39	532584.47	752468.60	N 32 27 44.20	W 103 38 55.64
	20475.00	86.58	176.31	11869.87	9021.72	-9020.52	222.77	0.33	532490.82	752474.43	N 32 27 43.27	W 103 38 55.58
	20570.00	86.92	176.66	11875.26	9116.42	-9115.19	228.58	0.51	532396.15	752480.24	N 32 27 42.33	W 103 38 55.52
	20664.00	86.75	177.70	11880.45	9210.19	-9208.93	233.20	1.12	532302.41	752484.88	N 32 27 41.41	W 103 38 55.47
	20758.00	86.88	178.40	11885.69	9304.00	-9302.73	238.39	0.75	532208.62	752488.05	N 32 27 40.48	W 103 38 55.44
	20853.00	87.93	179.37	11890.00	9398.89	-9397.61	238.24	1.52	532113.74	752489.90	N 32 27 39.54	W 103 38 55.43
	20948.00	89.22	179.90	11892.37	9493.86	-9492.58	238.84	1.47	532018.78	752490.50	N 32 27 38.60	W 103 38 55.43
	21042.00	88.99	179.57	11893.84	9587.85	-9586.57	239.28	0.43	531924.80	752490.94	N 32 27 37.67	W 103 38 55.43
	21137.00	88.99	179.44	11895.51	9682.83	-9681.55	240.10	0.14	531829.82	752491.78	N 32 27 36.73	W 103 38 55.43
	21231.00	88.99	179.08	11897.17	9776.82	-9775.53	241.31	0.38	531735.84	752492.97	N 32 27 35.80	W 103 38 55.42
	21326.00	88.77	178.48	11899.02	9871.79	-9870.49	243.33	0.67	531640.89	752494.99	N 32 27 34.86	W 103 38 55.40
	21420.00	88.77	178.90	11901.04	9966.75	-9965.44	245.48	0.45	531546.94	752497.14	N 32 27 33.93	W 103 38 55.39
	21515.00	88.94	179.04	11902.94	10060.73	-10059.41	247.19	0.23	531451.98	752498.85	N 32 27 32.99	W 103 38 55.37
	21610.00	88.94	179.38	11906.44	10249.89	-10248.35	249.80	0.48	531359.06	752501.46	N 32 27 31.12	W 103 38 55.38
	21704.00	88.94	179.38	11906.44	10249.89	-10248.35	249.80	0.48	531359.06	752502.10	N 32 27 30.19	W 103 38 55.38
	21798.00	89.01	178.83	11908.12	10343.87	-10342.34	250.44	0.63	531274.08	752505.87	N 32 27 29.25	W 103 38 55.35
	21893.00	88.98	178.25	11909.87	10438.66	-10437.32	251.21	0.80	531189.08	752509.80	N 32 27 28.32	W 103 38 55.35
	21987.00	89.10	178.56	11911.62	10533.64	-10531.30	252.18	0.40	531098.10	752513.84	N 32 27 27.39	W 103 38 55.35
	22082.00	89.10	179.38	11913.02	10627.63	-10626.28	253.06	0.19	531008.12	752518.02	N 32 27 26.46	W 103 38 55.35
	22176.00	88.16	179.35	11914.08	10697.82	-10696.27	253.84	0.10	530915.14	752522.26	N 32 27 25.53	W 103 38 55.34
Final Survey	22169.73	89.16	179.35	11914.34	10715.35	-10714.00	254.04	0.00	530797.41	752505.70	N 32 27 26.51	W 103 38 55.34
HL Crossing												
Projection to Bit	22185.00	89.16	179.35	11914.56	10730.82	-10729.26	254.21	0.00	530782.15	752505.87	N 32 27 26.36	W 103 38 55.34

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	31.000	1/98.425	26.000	13.375	NAL_MWD_1.0_DEG-Depth Only	Chisholm Aztec 14-23 Fed Com 3BS 2H / Chisholm Aztec 14-23 Fed Com 3BS 2H MWD Surveys
	1	31.000	31.000	Act Stns	26.000	13.375	NAL_MWD_1.0_DEG-Depth Only	Chisholm Aztec 14-23 Fed Com 3BS 2H / Chisholm Aztec 14-23 Fed Com 3BS 2H MWD Surveys
	1	31.000	1545.000	Act Stns	26.000	13.375	NAL_MWD_1.0_DEG	Chisholm Aztec 14-23 Fed Com 3BS 2H / Chisholm Aztec 14-23 Chisholm Aztec 14-23 Fed Com
	1	1545.000	5982.000	Act Stns	12.250	9.625	NAL_MWD_1.0_DEG	3BS 2H / Chisholm Aztec 14-23 Chisholm Aztec 14-23 Fed Com
	1	5982.000	12128.000	Act Stns	8.750	0.000	NAL_MWD_1.0_DEG	3BS 2H / Chisholm Aztec 14-23 Chisholm Aztec 14-23 Fed Com
	1	12128.000	22185.000	Act Stns	8.500	0.000	NAL_MWD_1.0_DEG	Chisholm Aztec 14-23 Fed Com 3BS 2H / Chisholm Aztec 14-23

...Chisholm Aztec 14-23 Fed Com 3BS 2H MWD Surveys 0ft to 22185ft MD