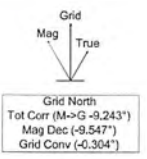


Borehole:	Well:	Field:	Structure:
Original Borehole	MIP 5H	WV Monongalia County (NAD 83)	Patterson 254

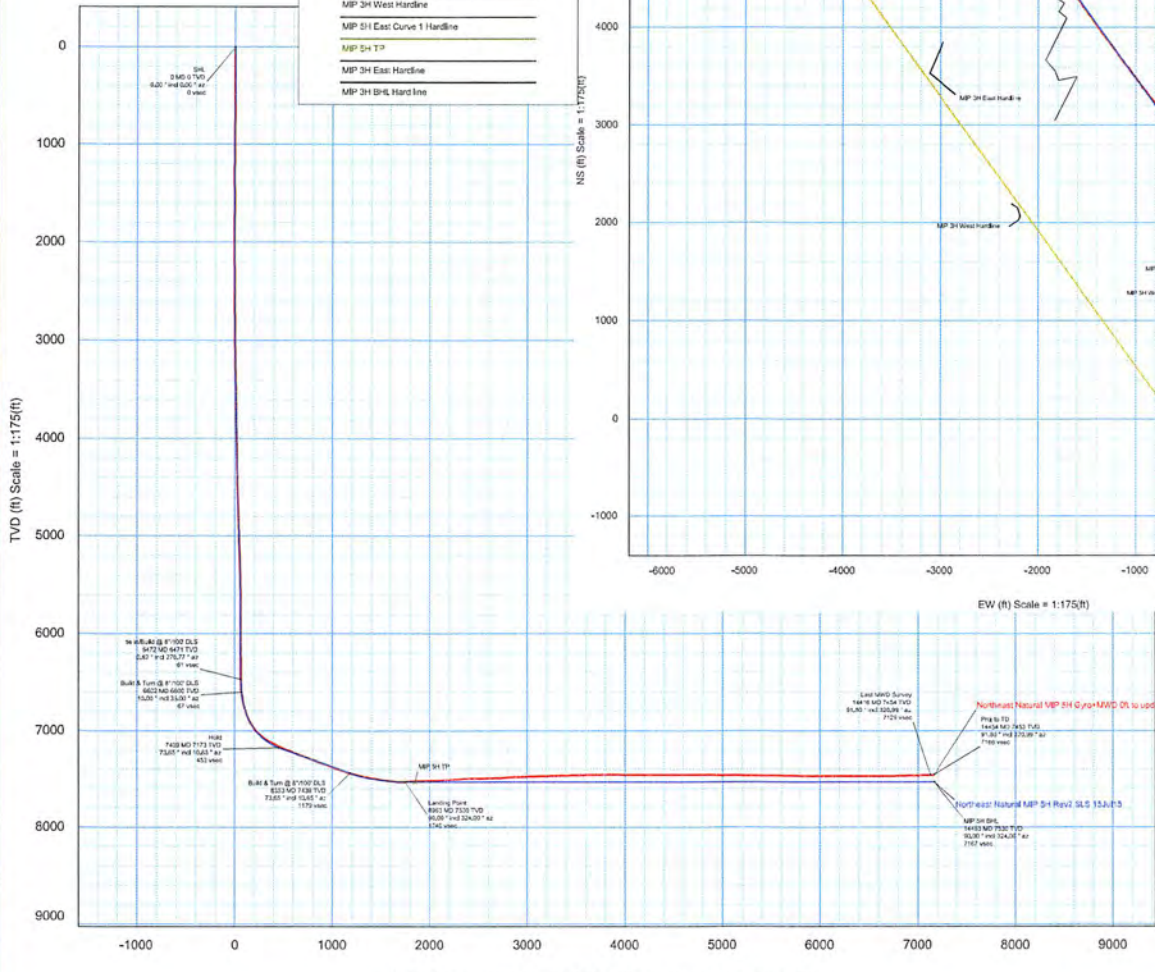
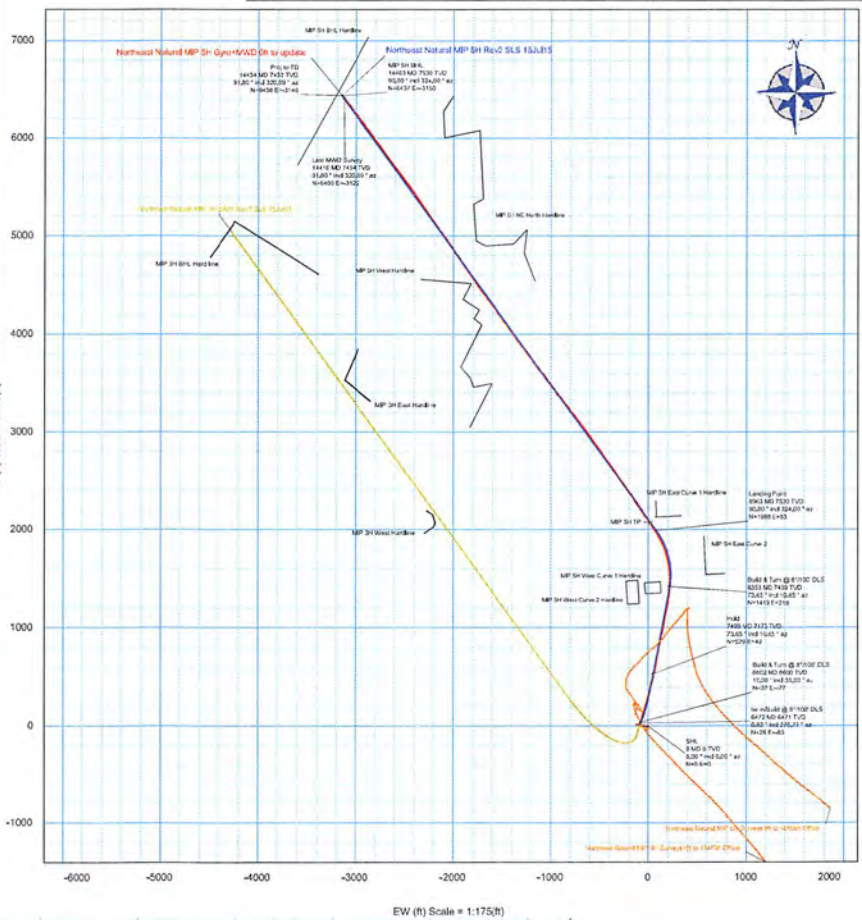
Gravity & Magnetic Parameters		Surface Location		NAD83 West Virginia State Plane, Northern Zone, US Feet		Miscellaneous	
Model: HDGM 2015	Dip: 66.855°	Date: 01-Sep-2015	Lat: N 39 36 6.60	Northing: 401674.96US	Grid Conv: -0.3037*	Slot: MIP 5H	TVD Ref: KB(1082ft above MSL)
MagDec: -9.547°	FS: 52526.702mT	Gravity FB: 999.345mgm (9.80665 Based)	Lon: W 79 58 34.15	Eastings: 1834336.96US	Scale Fact: 0.99904083	Plan: MIP 5H Gyro-MWD DR to update	

Northings		Eastings		Surface Location		Grid Conv		VSec Azimuth		Grid Conv	
401674.9	1834336.9	Latitude	N 39 36 6.60	Longitude	W 79 58 34.15	VSec Azimuth	333.925				
Target Name	Strike	Dimension	Latitude	Longitude	Northings	Eastings	VSec	VSec	N+1000	E+1000	
MIP 5H East Curve 2	Polylines	N/A	N 29 36 6.60	W 79 58 34.15	401674.90	1834336.90	1382.00	0.00	0.00	0.00	
MIP 5H East Hardline	Polylines	N/A	N 29 36 6.60	W 79 58 34.15	401674.90	1834336.90	1382.00	0.00	0.00	0.00	
MIP 5H West Curve 1 Hardline	Polylines	N/A	N 29 36 6.60	W 79 58 34.15	401674.90	1834336.90	1382.00	0.00	0.00	0.00	
MIP 5H West Curve 2 Hardline	Polylines	N/A	N 29 36 6.60	W 79 58 34.15	401674.90	1834336.90	1382.00	0.00	0.00	0.00	
MIP 5H West Hardline	Polylines	N/A	N 29 36 6.60	W 79 58 34.15	401674.90	1834336.90	1382.00	0.00	0.00	0.00	
MIP 5H East Curve 1 Hardline	Polylines	N/A	N 29 36 6.60	W 79 58 34.15	401674.90	1834336.90	1382.00	0.00	0.00	0.00	
MIP 5H East Hardline	Polylines	N/A	N 29 36 6.60	W 79 58 34.15	401674.90	1834336.90	1382.00	0.00	0.00	0.00	
MIP 5H East Curve 2 Hardline	Polylines	N/A	N 29 36 6.60	W 79 58 34.15	401674.90	1834336.90	1382.00	0.00	0.00	0.00	
MIP 5H East Hardline	Polylines	N/A	N 29 36 6.60	W 79 58 34.15	401674.90	1834336.90	1382.00	0.00	0.00	0.00	
MIP 5H East Curve 1 Hardline	Polylines	N/A	N 29 36 6.60	W 79 58 34.15	401674.90	1834336.90	1382.00	0.00	0.00	0.00	
MIP 5H East Hardline	Polylines	N/A	N 29 36 6.60	W 79 58 34.15	401674.90	1834336.90	1382.00	0.00	0.00	0.00	
MIP 5H East Curve 2 Hardline	Polylines	N/A	N 29 36 6.60	W 79 58 34.15	401674.90	1834336.90	1382.00	0.00	0.00	0.00	
MIP 5H East Hardline	Polylines	N/A	N 29 36 6.60	W 79 58 34.15	401674.90	1834336.90	1382.00	0.00	0.00	0.00	
MIP 5H TTP	Point	N/A	N 29 36 23.24	W 79 58 30.19	403336.20	184600.00	1354.27	186.00	245.32		
MIP 5H TTP	Point	N/A	N 29 36 27.04	W 79 58 33.07	403742.00	183400.00	1344.00	206.00	244.00		

PART	Seq.	Survey Tool	Vendor/Tool	Rate Size (in)	Casing Size (in)	MD From (ft)	MD To (ft)	Survey Frequency (Hz)	EDU Size (ft)	EDU Size (ft)	Comments
1	1	SUR_NEO-MWD-DR	Geopac	1.75	1.315	0	24	Act	1.25	1.25	
1	2	SUR_NEO-MWD-DR	Geopac	1.75	1.315	24	530	Act	1.25	1.25	
1	3	SUR_NEO-MWD-DR	Geopac	1.75	1.315	530	1770	Act	1.25	1.25	
1	4	SUR_NEO-MWD-DR	Geopac	1.75	1.315	1770	4472	Act	1.25	1.25	
1	5	SUR_NEO-MWD-DR	Geopac	1.75	1.315	4472	14418	Act	1.25	1.25	
1	6	SUR_NEO-MWD-DR	Geopac	1.75	1.315	14418	18164	Act	1.25	1.25	



- Northeast Natural MIP 5H Gyro-MWD DR to update
- Northeast Natural MIP 5H Survey DR to 1727th Offset - Pkg
- Northeast Natural MIP 5H Rev2 SLS 15A/B/C
- Northeast Natural MIP 5H Gyro-MWD DR to update
- Northeast Natural MIP 5H Survey DR to 1021st Offset
- Northeast Natural MIP 5H ST21 Pwd SLS 15A/B/C
- Northeast Natural MIP 5H Survey DR to 1441st Offset
- MIP 5H East Curve 2
- MIP 5H TTP KOP
- MIP 5H BH/L Hardline
- MIP 5H West Curve 2 Hardline
- MIP 5H NE North Hardline
- MIP 5H D/L
- MIP 5H West Curve 1 Hardline
- MIP 5H West Hardline
- MIP 5H West Curve 1 Hardline
- MIP 5H TTP
- MIP 5H East Hardline
- MIP 5H BH/L Hardline



Received
Office of Oil & Gas
FEB 26 2016

CONTROLLED	
Plan no:	10000000000000000000
Drawing ref:	00000000000000000000
Copy number:	001
Title:	10000000000000000000
Drawn By:	John Kline
Checked By:	

Northeast Natural MIP 5H Survey 0ft to 14454ft MD

(Dot Survey)

Received
Office of Oil & Gas
FEB 26 2016

Report Date: September 14, 2015 - 06:56 AM
 Client: Northeast Natural
 Field: WV Mingoalla County (IAD 03)
 Structure / Skit: Northeast Natural MIP Pad / MIP 5H
 Well: MIP 5H
 Borehole: Original Borehole
 UTM / APW: Unknown / Unknown
 Survey Name: Northeast Natural MIP 5H Gyro+MWD 0ft to update
 Survey Date: September 01, 2015
 Turn / AHD / DI / ERD Ratio: 234.035' / 7024.484 ft / 0.035 / 1.013
 Coordinate Reference System: NAD83 West Virginia State Plane, Northern Zone, US Foot
 Location Lat / Long: N 30° 38' 6.00022", W 79° 58' 34.4691"
 Location Grid N/E Y/R: N 401674.900 BUS, E 1034336.800 BUS
 CRS Grid Convergence Angle: -0.3037"
 Grid Scale Factor: 0.99994028
 Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Closure / Lubinski
 Vertical Section Azimuth: 333.925 ° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: KB
 TVD Reference Elevation: 1062.000 ft above MSL
 Seaside / Ground Elevation: 1055.000 ft above MSL
 Magnetic Declination: -9.547 °
 Total Gravity Field Strength: 989.3447mg (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 52526.702 nT
 Magnetic Dip Angle: 66.855 °
 Declination Date: September 01, 2015
 Magnetic Declination Model: HDGM 2015
 North Reference: Grid North
 Grid Convergence Used: -0.3037"
 Total Cor Mag North-Grid: -0.2432"
 North: Web Head
 Local Coord Referenced To: Web Head

Comments	MD (ft)	Inst (ft)	Azimuth (°)	TVD (ft)	TVD55 (ft)	VSEFC (ft)	RS (ft)	EW (ft)	DLS (ft)	BP (ft)	TR (ft)	Northing (ft)	Easting (ft)	Latitude (N/S °)	Longitude (E/W °)	Directional Difficulty Index
SHL	0.00	0.00	0.00	0.00	-1082.00	0.00	0.00	0.00	N/A	N/A	0.00	401674.50	1834336.00	N 39 36 6.50 W	79 58 34.15	0.00
	112.00	0.13	151.36	112.00	-970.00	-0.13	-0.11	0.05	0.12	0.12	0.00	401674.78	1834336.96	N 39 36 6.60 W	79 58 34.15	0.00
	212.00	0.63	245.88	212.00	-870.00	-0.22	-0.44	-0.29	0.65	0.50	0.45	401674.45	1834336.51	N 39 36 6.60 W	79 58 34.15	0.00
	312.00	0.78	245.30	311.99	-770.01	-0.19	-0.94	-1.51	0.15	0.15	-0.59	401673.95	1834335.30	N 39 36 6.58 W	79 58 34.17	0.26
	412.00	0.31	241.32	411.99	-670.21	-0.09	-1.27	-2.29	0.45	0.45	-0.47	401673.63	1834334.51	N 39 36 6.58 W	79 58 34.18	0.61
	512.00	0.57	228.56	511.99	-570.22	-0.14	-1.64	-3.03	0.35	0.26	-0.77	401673.26	1834333.87	N 39 36 6.58 W	79 58 34.18	0.61
	612.00	0.99	186.40	611.98	-470.02	-0.78	-2.57	-3.47	0.47	0.12	-0.18	401672.33	1834330.43	N 39 36 6.57 W	79 58 34.19	1.07
	712.00	0.87	173.43	711.97	-370.03	-1.84	-3.79	-3.47	0.15	-0.02	-12.97	401671.15	1834333.43	N 39 36 6.56 W	79 58 34.19	1.15
	812.00	0.90	181.64	811.96	-270.04	-2.76	-4.76	-3.46	0.21	-0.17	13.03	401670.14	1834333.44	N 39 36 6.55 W	79 58 34.19	1.25
	912.00	0.81	174.61	911.93	-170.04	-3.54	-5.64	-3.46	0.11	0.01	-12.45	401669.26	1834333.44	N 39 36 6.54 W	79 58 34.19	1.32
	1012.00	0.34	187.36	1011.96	-70.04	-4.21	-6.37	-3.45	0.20	-0.17	13.35	401668.53	1834333.45	N 39 36 6.54 W	79 58 34.19	1.39
	1112.00	0.15	184.34	1111.96	-20.04	-4.59	-7.77	-3.39	0.28	-0.18	-53.02	401668.13	1834333.51	N 39 36 6.53 W	79 58 34.19	1.45
	1212.00	0.14	168.40	1211.96	129.96	-4.81	-6.88	-3.27	0.09	-0.02	35.15	401667.02	1834333.51	N 39 36 6.53 W	79 58 34.19	1.46
	1312.00	0.16	249.25	1311.96	229.96	-4.94	-7.15	-3.17	0.19	0.02	79.75	401667.75	1834333.53	N 39 36 6.53 W	79 58 34.19	1.51
	1412.00	0.47	251.24	1411.96	329.96	-4.88	-7.33	-3.69	0.31	0.31	1.89	401667.57	1834333.01	N 39 36 6.53 W	79 58 34.20	1.58
	1512.00	0.48	265.14	1511.95	429.95	-4.67	-7.50	-4.70	0.12	0.01	13.60	401667.40	1834332.20	N 39 36 6.53 W	79 58 34.21	1.62
	1612.00	0.57	234.31	1611.90	529.95	-4.60	-7.83	-5.52	0.39	0.09	-30.83	401667.07	1834331.38	N 39 36 6.52 W	79 58 34.22	1.69
	1712.00	0.34	164.27	1711.94	629.94	-4.91	-8.41	-6.00	0.26	-0.23	-40.04	401666.49	1834330.90	N 39 36 6.52 W	79 58 34.22	1.75
	1812.00	0.18	193.17	1811.94	729.94	-5.29	-9.05	-6.11	0.10	-0.10	-1.10	401666.05	1834330.79	N 39 36 6.51 W	79 58 34.22	1.76
	1912.00	0.35	100.83	1911.94	829.94	-5.57	-8.65	-5.84	0.46	0.17	-92.28	401665.64	1834331.00	N 39 36 6.51 W	79 58 34.22	1.83
	2012.00	0.23	83.42	2011.94	929.94	-5.82	-9.09	-5.34	0.15	-0.12	-17.47	401665.81	1834331.56	N 39 36 6.51 W	79 58 34.21	1.86
	2112.00	0.36	2.23	2111.94	1029.94	-5.41	-9.75	-5.13	0.40	0.13	-81.19	401665.15	1834331.77	N 39 36 6.51 W	79 58 34.21	1.91
	2212.00	0.50	314.64	2211.94	1129.94	-4.92	-9.13	-5.43	0.37	0.14	-47.99	401666.77	1834331.47	N 39 36 6.52 W	79 58 34.21	1.95
	2312.00	0.79	359.17	2311.88	1229.83	-4.34	-7.95	-6.42	0.65	0.25	-25.47	401666.94	1834333.40	N 39 36 6.52 W	79 58 34.23	2.03
	2412.00	0.76	205.01	2411.92	1329.82	-3.91	-6.14	-7.75	0.68	-0.03	5.64	401666.78	1834332.15	N 39 36 6.52 W	79 58 34.24	2.07
	2512.00	0.84	271.49	2511.91	1429.91	-3.33	-6.18	-9.15	0.12	0.08	6.48	401666.72	1834327.75	N 39 36 6.52 W	79 58 34.26	2.11
	2612.00	0.76	270.24	2611.90	1529.90	-2.70	-6.16	-10.54	0.08	-0.06	-1.25	401666.74	1834326.30	N 39 36 6.52 W	79 58 34.26	2.15
	2712.00	0.89	271.89	2711.89	1629.89	-2.06	-6.12	-11.91	0.67	0.65	2.86	401666.76	1834324.94	N 39 36 6.52 W	79 58 34.30	2.18
	2812.00	1.03	273.06	2811.88	1729.88	-1.42	-6.03	-13.52	0.22	0.22	-0.04	401666.67	1834323.38	N 39 36 6.53 W	79 58 34.32	2.22
	2912.00	1.19	268.99	2911.86	1829.86	-0.45	-6.00	-15.45	0.21	0.16	-7.07	401666.64	1834321.45	N 39 36 6.53 W	79 58 34.34	2.27
	3012.00	1.43	275.17	3011.84	1929.84	0.58	-6.07	-17.73	0.32	0.34	8.16	401666.66	1834319.17	N 39 36 6.45 W	79 58 34.37	2.33
	3112.00	1.11	286.78	3111.81	2029.81	1.80	-7.63	-19.80	0.41	-0.32	11.62	401667.27	1834317.00	N 39 36 6.53 W	79 58 34.40	2.38
	3212.00	1.09	283.78	3211.79	2129.79	3.14	-7.13	-21.72	0.66	-0.06	-0.01	401667.77	1834315.18	N 39 36 6.53 W	79 58 34.42	2.42
	3312.00	1.34	289.87	3311.77	2229.77	4.57	-6.51	-23.70	0.32	0.29	6.19	401668.39	1834313.20	N 39 36 6.53 W	79 58 34.45	2.46
	3412.00	1.48	284.98	3411.74	2329.74	6.26	-5.76	-26.09	0.19	0.14	-4.99	401668.12	1834310.85	N 39 36 6.54 W	79 58 34.48	2.50
	3512.00	1.88	288.55	3511.70	2429.70	8.16	-4.85	-28.68	0.24	0.20	-4.57	401668.95	1834308.22	N 39 36 6.55 W	79 58 34.51	2.54
	3612.00	1.22	287.80	3611.67	2529.67	9.94	-4.14	-31.07	0.48	-0.46	-1.75	401670.79	1834305.83	N 39 36 6.56 W	79 58 34.54	2.59
	3712.00	1.66	278.88	3711.64	2629.64	11.81	-3.59	-33.52	0.40	0.44	-8.42	401671.31	1834303.38	N 39 36 6.56 W	79 58 34.57	2.64
	3812.00	1.81	278.98	3811.60	2729.60	13.15	-3.14	-36.34	0.05	-0.05	-0.02	401671.78	1834300.56	N 39 36 6.57 W	79 58 34.61	2.67
	3912.00	1.70	282.12	3911.58	2829.58	14.87	-2.61	-39.17	0.13	0.09	3.04	401672.29	1834297.73	N 39 36 6.57 W	79 58 34.65	2.70
	4012.00	1.59	260.99	4011.52	2929.52	16.62	-1.80	-41.76	0.39	-0.31	8.67	401673.04	1834295.15	N 39 36 6.56 W	79 58 34.68	2.74
	4112.00	1.42	294.63	4111.49	3029.49	18.53	-0.91	-44.02	0.09	-0.02	3.64	401673.99	1834292.98	N 39 36 6.56 W	79 58 34.71	2.76
	4212.00	1.62	289.64	4211.46	3129.46	20.50	0.08	-46.47	0.24	0.20	-4.78	401674.98	1834290.94	N 39 36 6.60 W	79 58 34.74	2.79
	4312.00	1.53	286.12	4311.42	3229.42	22.41	0.93	-48.08	0.14	-0.09	-3.72	401675.83	1834287.82	N 39 36 6.61 W	79 58 34.77	2.82
	4412.00	1.93	301.20	4411.37	3329.37	24.73	2.18	-51.81	0.60	0.40	15.14	401677.08	1834285.10	N 39 36 6.62 W	79 58 34.81	2.86
	4512.00	1.98	303.84	4511.32	3429.32	27.61	3.97	-54.88	0.65	0.63	1.28	401678.87	1834282.22	N 39 36 6.64 W	79 58 34.85	2.89
	4612.00	1.80	302.15	4611.26	3529.26	30.60	5.79	-57.58	0.63	0.62	-0.02	401680.69	1834279.35	N 39 36 6.65 W	79 58 34.88	2.91
	4712.00	2.10	298.50	4711.20	3629.20	33.42	7.50	-60.99	0.21	0.17	-3.59	401682.46	1834276.31	N 39 36 6.67 W	79 58 34.92	2.94
	4812.00	2.01	297.61	4811.13	3729.13	36.33	9.20	-64.75	0.09	-0.09	-0.65	401684.10	1834273.18	N 39 36 6.68 W	79 58 34.96	2.97
	4912.00	2.05	296.30	4911.07	3829.07	39.21	10.93	-68.67	0.04	0.04	0.44	401685.83	1834270.03	N 39 36 6.71 W	79 58 35.00	2.99
	5012.00	2.84	298.95	5010.98	3928.98	42.68	12.97	-70.81	0.70	0.70	0.60	401687.87	1834266.29	N 39 36 6.73 W	79 58 35.05	3.04
	5112.00	3.58	306.48	5110.87	4028.87	46.71	15.48	-74.02	1.45	1.45	6.53	401690.38	1834262.28	N 39 36 6.75 W	79 58 35.10	3.07
	5212.00	3.18	304.14	5210.78	4128.78	50.35	17.86	-78.04	0.41	-0.41	-1.34	401692.76	1834258.07	N 39 36 6.77 W	79 58 35.14	3.11
	5312.00	1.89	303.10	5310.72	4228.72	53.26	19.74	-80.85	0.49	-0.49	-1.04	401694.64	1834254.06	N 39 36 6.79 W	79 58 35.16	3.14
	5412.00	1.14	312.23	5410.69	4328.69	55.45	21.21	-82.82	0.59	-0.55	9.13	401696.11	1834250.00	N 39 36 6.81 W	79 58 35.21	3.17
	5512.00	1.04	327.61	5510.67	4428.67	57.28	22.65	-84.04	0.31	-0.10	15.38	401697.54	1834245.86	N 39 36 6.82 W	79 58 35.22	3.19
	5612.00	0.69	356.40	5610.66	4528.66	58.74	24.01	-84.56	0.55	-0.25	28.79	401698.91	1834242.34	N 39 36 6.83 W	79 58 35.23	3.21
	5712.00	0.42	42.87	5710.66	4628.65	59.44	24.91	-84.32	0.50	-0.22	46.47	401699.61	1834238.58	N 39 36 6.84 W	79 58 35.23	3.22
	5812.00	0.47	63.45	5810.65	4728.65	59.67	25.46	-83.72	0.64	0.60	10.28	401700.36	1834234.19	N		

Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	BR (ft/100ft)	TR (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (E/W ° ' ")	Longitude (E/W ° ' ")	Directional Difficulty Index
	8664.00	80.11	344.11	7502.31	6420.31	1481.95	1740.71	185.64	6.42	0.37	-6.51	403415.51	1834522.52	N 39 36 23.81 W	79 58 31.89	5.42
	8778.00	81.51	338.37	7517.33	6433.33	1573.94	1828.53	159.80	6.21	1.49	-6.11	403503.32	1834492.69	N 39 36 24.68 W	79 58 32.28	5.47
	8873.00	85.92	320.48	7526.92	6444.92	1659.35	1913.89	115.02	10.03	5.69	-6.31	403588.46	1834451.91	N 39 36 25.52 W	79 58 32.81	5.52
	8967.00	94.70	327.66	7525.59	6443.59	1781.92	1984.23	66.75	8.80	8.28	-3.00	403693.01	1834403.65	N 39 36 26.31 W	79 58 33.43	5.57
	9062.00	91.89	324.69	7520.13	6438.13	1855.87	2073.00	13.96	4.30	-2.96	-3.13	403747.76	1834350.96	N 39 36 27.09 W	79 58 34.11	5.61
	9157.00	92.24	326.01	7516.71	6434.71	1949.75	2151.10	-40.01	1.44	0.37	1.39	403825.87	1834296.89	N 39 36 27.86 W	79 58 34.80	5.63
	9251.00	93.74	325.94	7511.80	6428.80	2042.72	2228.90	-92.54	1.60	1.60	-0.07	403933.98	1834244.37	N 39 36 28.62 W	79 58 35.48	5.66
	9346.00	92.33	324.57	7506.77	6424.77	2136.49	2306.85	-146.60	2.07	-1.48	-1.44	403981.61	1834190.31	N 39 36 29.39 W	79 58 36.18	5.69
	9441.00	93.47	322.71	7501.97	6419.97	2229.84	2383.25	-202.85	2.29	1.20	-1.96	404068.00	1834134.06	N 39 36 30.14 W	79 58 36.90	5.71
	9536.00	94.44	325.83	7495.41	6413.41	2323.23	2460.08	-258.32	3.23	1.02	3.07	404134.83	1834078.59	N 39 36 30.90 W	79 58 37.61	5.74
	9631.00	90.66	324.23	7491.19	6409.19	2416.95	2537.74	-312.84	4.24	-3.98	-1.47	404212.48	1834024.08	N 39 36 31.66 W	79 58 38.32	5.77
	9725.00	91.36	325.84	7489.53	6407.53	2509.81	2614.75	-366.70	1.87	0.74	1.71	404289.49	1833970.22	N 39 36 32.42 W	79 58 39.01	5.79
	9820.00	91.98	324.62	7486.76	6404.76	2603.87	2692.76	-420.85	1.44	0.65	-1.28	404367.49	1833916.07	N 39 36 33.19 W	79 58 39.71	5.82
	9915.00	92.51	325.76	7483.04	6401.04	2697.50	2770.70	-475.04	1.32	0.56	1.20	404445.43	1833861.89	N 39 36 33.96 W	79 58 40.40	5.84
	10010.00	92.77	324.23	7478.66	6396.66	2791.24	2848.43	-529.48	1.63	0.27	-1.61	404523.15	1833807.45	N 39 36 34.72 W	79 58 41.10	5.86
	10105.00	92.59	325.57	7474.22	6392.22	2884.96	2926.06	-584.04	1.42	-0.19	1.41	404600.76	1833752.89	N 39 36 35.49 W	79 58 41.81	5.88
	10200.00	92.42	324.50	7470.07	6388.07	2978.73	3003.84	-638.43	1.14	-0.18	-1.13	404678.56	1833698.50	N 39 36 36.25 W	79 58 42.51	5.90
	10295.00	91.45	322.11	7466.86	6384.86	3072.04	3079.96	-695.17	2.71	-1.02	-2.62	404754.67	1833644.79	N 39 36 37.00 W	79 58 43.24	5.92
	10390.00	91.89	322.70	7464.69	6382.69	3165.09	3155.20	-753.10	0.77	0.46	0.62	404830.91	1833590.85	N 39 36 37.74 W	79 58 43.96	5.94
	10485.00	90.92	321.58	7461.76	6379.76	3258.05	3230.18	-811.38	1.56	-1.02	-1.18	404904.88	1833532.57	N 39 36 38.48 W	79 58 44.73	5.96
	10580.00	92.51	323.86	7458.92	6376.92	3351.19	3305.73	-868.89	2.93	1.67	2.40	404980.43	1833478.06	N 39 36 39.22 W	79 58 45.47	5.98
	10675.00	90.84	321.81	7456.14	6374.14	3444.37	3381.40	-926.26	2.78	-1.76	-2.16	405056.09	1833424.10	N 39 36 39.97 W	79 58 46.21	6.00
	10770.00	91.01	323.59	7454.61	6372.61	3537.54	3456.95	-983.82	1.88	0.18	1.87	405131.64	1833369.14	N 39 36 40.71 W	79 58 46.95	6.02
	10864.00	91.10	324.47	7452.88	6370.88	3630.12	3533.02	-1039.02	0.94	0.10	0.94	405207.70	1833314.95	N 39 36 41.46 W	79 58 47.66	6.03
	10959.00	91.01	322.94	7451.13	6369.13	3723.60	3608.57	-1095.24	1.61	-0.09	-1.61	405284.25	1833260.75	N 39 36 42.22 W	79 58 48.38	6.05
	11053.00	90.66	322.86	7449.76	6367.76	3815.80	3684.39	-1152.13	0.55	-0.37	-0.40	405359.06	1833206.84	N 39 36 42.95 W	79 58 49.12	6.07
	11147.00	89.08	325.19	7449.57	6367.97	3908.35	3760.30	-1207.54	3.26	-1.68	2.80	405434.97	1833152.43	N 39 36 43.70 W	79 58 49.83	6.09
	11241.00	89.87	323.35	7450.83	6368.83	4001.01	3836.60	-1262.43	2.13	0.84	-1.96	405511.27	1833097.55	N 39 36 44.45 W	79 58 50.54	6.10
	11336.00	89.87	323.39	7451.05	6369.05	4094.40	3912.84	-1318.11	0.04	0.04	0.04	405587.50	1833043.17	N 39 36 45.20 W	79 58 51.27	6.12
	11430.00	89.67	323.18	7451.26	6369.26	4186.79	3988.19	-1373.31	0.22	0.00	-0.22	405662.85	1832988.88	N 39 36 45.94 W	79 58 51.99	6.13
	11525.00	88.78	324.42	7451.55	6369.55	4280.30	4064.85	-1431.41	1.31	-0.09	1.31	405739.57	1832934.57	N 39 36 46.70 W	79 58 52.71	6.15
	11620.00	90.13	322.81	7451.63	6369.63	4373.74	4141.23	-1487.90	1.94	0.37	-1.01	405815.88	1832880.09	N 39 36 47.45 W	79 58 53.44	6.16
	11715.00	89.87	323.62	7451.83	6369.83	4467.05	4217.21	-1544.92	1.10	-0.27	1.06	405891.66	1832825.07	N 39 36 48.20 W	79 58 54.17	6.18
	11810.00	89.76	324.24	7451.91	6369.91	4559.62	4293.19	-1600.26	0.67	-0.10	0.66	405967.83	1832770.73	N 39 36 48.95 W	79 58 54.88	6.19
	11904.00	90.22	323.58	7451.91	6369.91	4653.17	4369.96	-1656.22	0.83	0.46	-0.69	406044.53	1832716.85	N 39 36 49.70 W	79 58 55.60	6.20
	11999.00	90.04	322.96	7451.70	6369.70	4746.53	4446.10	-1713.04	0.88	-0.19	-0.65	406120.73	1832662.97	N 39 36 50.45 W	79 58 56.34	6.22
	12094.00	89.08	326.43	7452.43	6370.43	4840.29	4523.61	-1767.03	3.79	-1.01	3.65	406198.24	1832609.08	N 39 36 51.21 W	79 58 57.04	6.24
	12189.00	89.43	324.91	7453.65	6371.65	4933.30	4601.23	-1820.94	1.66	0.37	-1.62	406275.85	1832555.08	N 39 36 51.98 W	79 58 57.73	6.25
	12283.00	89.52	324.64	7454.52	6372.52	5027.09	4678.83	-1875.73	0.30	0.09	-0.28	406353.44	1832501.29	N 39 36 52.74 W	79 58 58.43	6.26
	12377.00	89.25	325.30	7455.53	6373.53	5119.94	4755.80	-1928.68	0.76	-0.29	0.70	406430.41	1832447.34	N 39 36 53.50 W	79 58 59.13	6.27
	12472.00	89.43	324.86	7456.62	6374.62	5213.80	4833.69	-1984.06	0.50	0.19	-0.46	406508.29	1832393.96	N 39 36 54.27 W	79 58 59.83	6.29
	12566.00	89.69	325.60	7457.35	6375.35	5306.72	4910.90	-2037.66	0.83	0.28	0.79	406585.50	1832340.26	N 39 36 55.03 W	79 59 0.52	6.30
	12661.00	89.34	324.66	7458.15	6376.15	5400.59	4988.94	-2091.97	1.06	-0.37	-0.59	406663.44	1832286.45	N 39 36 55.79 W	79 59 1.22	6.31
	12755.00	89.87	323.45	7458.80	6376.80	5493.20	5064.94	-2147.15	1.41	0.56	-1.29	406739.53	1832232.05	N 39 36 56.54 W	79 59 1.93	6.32
	12850.00	89.43	325.13	7459.38	6377.38	5586.85	5142.07	-2202.60	1.83	-0.46	1.77	406816.66	1832178.44	N 39 36 57.30 W	79 59 2.64	6.34
	12945.00	89.25	325.39	7460.47	6378.47	5680.78	5220.13	-2256.73	0.33	-0.19	0.27	406894.71	1832124.82	N 39 36 58.07 W	79 59 3.34	6.35
	13039.00	88.61	326.24	7462.05	6380.05	5772.82	5297.05	-2308.98	1.03	-0.47	0.91	406971.63	1832071.43	N 39 36 58.83 W	79 59 4.01	6.36
	13133.00	90.04	327.09	7463.00	6381.00	5867.05	5376.42	-2361.18	1.57	1.29	0.89	407050.59	1832018.07	N 39 36 59.61 W	79 59 4.68	6.37
	13228.00	89.87	324.73	7463.07	6381.07	5961.12	5455.09	-2414.42	2.49	-0.18	-2.48	407129.65	1831964.83	N 39 37 0.38 W	79 59 5.37	6.39
	13323.00	90.22	323.54	7463.00	6381.00	6054.73	5532.07	-2470.08	1.31	0.37	-1.25	407208.63	1831911.66	N 39 37 1.14 W	79 59 6.08	6.40
	13417.00	89.76	323.26	7463.00	6381.00	6147.15	5607.54	-2528.12	0.55	-0.47	-0.30	407287.09	1831858.93	N 39 37 1.89 W	79 59 6.81	6.41
	13511.00	89.87	323.30	7463.29	6381.29	6239.63	5682.88	-2582.32	0.10	0.10	0.04	407365.44	1831806.28	N 39 37 2.63 W	79 59 7.53	6.42
	13606.00	89.78	323.77	7463.58	6381.58	6332.87	5759.28	-2636.79	0.50	-0.09	0.49	407443.83	1831753.63	N 39 37 3.38 W	79 59 8.26	6.43
	13701.00	89.96	323.50	7463.79	6381.79	6426.50	5835.98	-2694.85	0.23	0.19	0.14	407521.92	1831701.22	N 39 37 4.13 W	79 59 8.98	6.44
	13796.00	89.69	323.83	7464.68	6382.68	6520.06	5912.75	-2750.80	0.29	-0.28	0.03	407597.29	1831648.97	N 39 37 4.89 W	79 59 9.70	6.45
	13890.00	90.40	324.58	7464.01	6382.01	6612.72	5989.04	-2805.71	1.02	0.76	0.69	407673.58	1831596.81	N 39 37 5.64 W	79 59 10.40	6.46
	13985.00	90.66	323.14	7463.13	6381.13	6706.25	6065.76	-2861.74	1.54	0.27	-1.52	407749.29	1831544.94	N 39 37 6.40 W	79 59 11.13	6.47
	14079.00	91.45	324.45	7461.40	6379.40	6798.77	6141.59	-2917.25	1.63	0.84	1.39	407825.12	1831493.33	N 39 37 7.14 W	79 59 11.94	6.48
	14173.00	91.28	320.82	7459.16	6377.16	6890.91	6216.27	-2972.67	3.86	-0.18	-3.86	407900.79	1831441.29	N 39 37 7.88 W	79 59 12.57	6.50
	14268.00	91.01	322.12	7457.26	6375.26	6983.85	6290.57	-3033.43	1.40	-0.28	1.37	407976.08	1831389.65	N 39 37 8.61 W	79 59 13.34	6.51
	14363.00	91.38	324.52	7455.30	6373.30	7077.00	6366.74	-3090.17								