



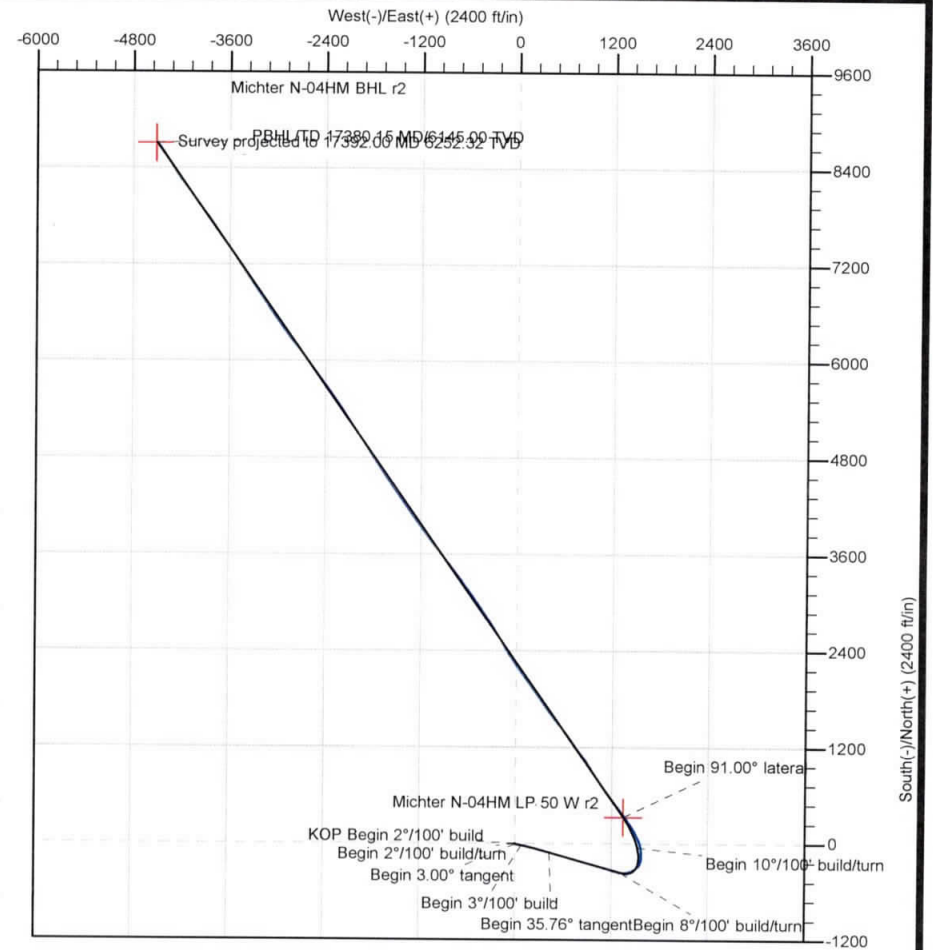
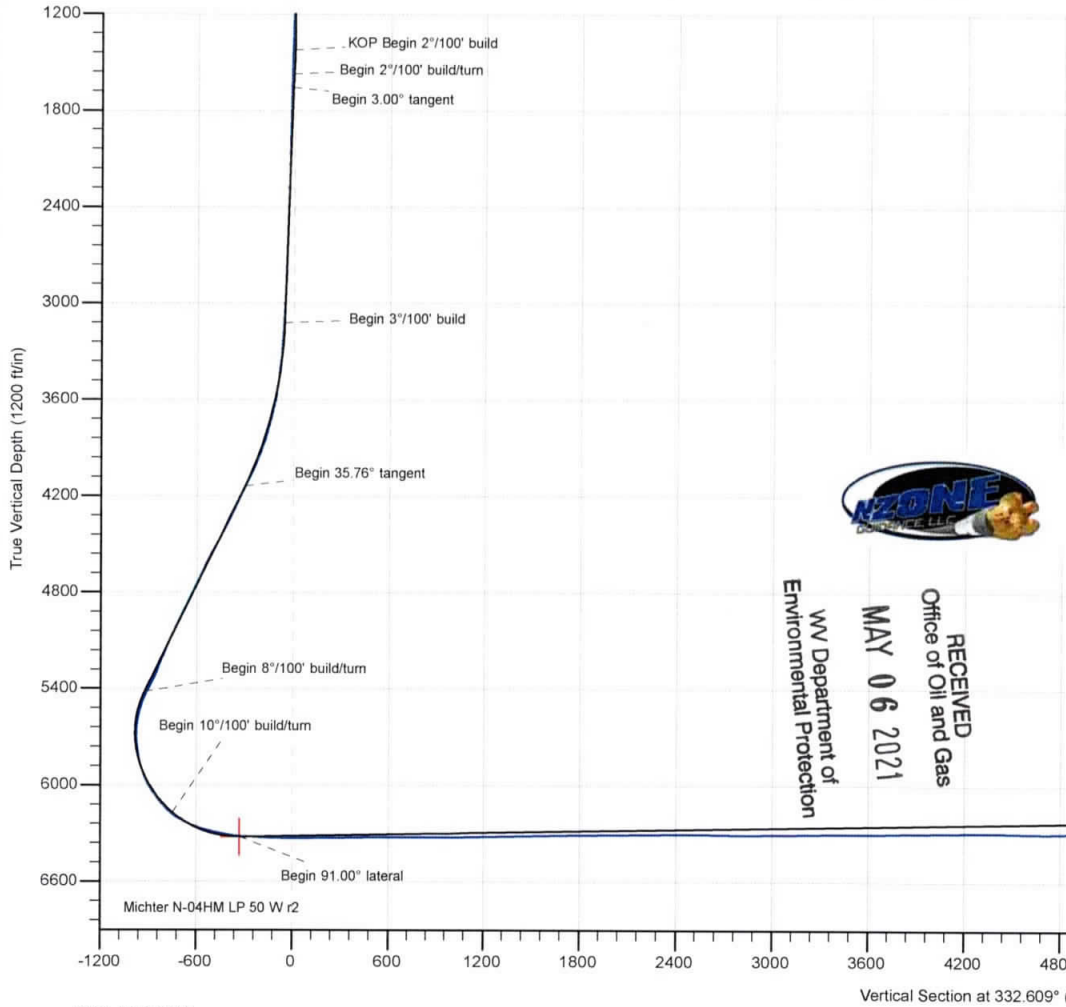
Well: Michter N-04HM (B)  
 Site: Michter  
 Project: Marshall County, West Virginia  
 Design: rev2  
 Rig: H&P 611

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.000	0.00	
2	1423.00	0.00	0.000	1423.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2°/100' build
3	1573.00	3.00	135.000	1572.93	-2.78	2.78	2.00	135.000	-3.74	Begin 2°/100' build/turn
4	1657.87	3.00	102.120	1657.69	-4.81	6.52	2.00	-106.419	-7.27	Begin 3.00° tangent
5	3125.19	3.00	102.120	3123.00	-20.94	81.60	0.00	0.000	-56.13	Begin 3°/100' build
6	4217.37	35.76	105.327	4139.33	-113.84	426.79	3.00	3.463	-297.42	Begin 35.76° tangent
7	5796.92	35.76	105.327	5421.08	-357.83	1317.04	0.00	0.000	-923.63	Begin 8°/100' build/turn
8	6691.37	50.00	348.042	6171.65	-50.77	1526.01	8.00	-134.137	-747.13	Begin 10°/100' build/turn
9	7152.12	91.00	325.029	6324.00	331.45	1347.71	10.00	-32.868	-325.73	Begin 91.00° lateral
10	17380.15	91.00	325.029	6145.00	8711.42	-4513.76	0.00	0.000	9811.36	PBHL/TD 17380.15 MD/6145.00 TVD

ANNOTATIONS SURVEYS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Annotation
190.00	0.35	277.400	190.00	0.07	-0.58	0.33	MWD surveys
17334.00	92.53	327.150	6254.88	8663.74	-4470.23	9749.01	Survey @ 17334.00 MD 6254.88 TVD
17392.00	92.53	327.150	6252.32	8712.42	-4501.66	9806.69	Survey projected to 17392.00 MD 6252.32 TVD



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Azimuths to Grid North  
 True North: -0.13°  
 Magnetic North: -8.86°  
 Magnetic Field  
 Strength: 51842.0snT  
 Dip Angle: 66.73°  
 Date: 7/2/2020  
 Model: IGRF2015

Geodetic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: NAD83 West Virginia - HARN  
 Ellipsoid: GRS 1980  
 Zone: Zone 17N (84 W to 78 W)  
 System Datum: Mean Sea Level  
 Depth Reference: RKB=1128+25 @ 1153.00ft (H&P 611)

Northing	Eastng	Latitude	Longitude
14455039.82	1697327.37	39.80293507	-80.79736584

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.856°

PBHL/TD 17380.15 MD/6145.00 TVD  
 Survey @ 17334.00 MD 6254.88 TVD  
 Survey projected to 17392.00 MD 6252.32 TVD

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Michter N-04HM (B)
<b>Project:</b>	Marshall County, West Virginia	<b>TVD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Site:</b>	Michter	<b>MD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Well:</b>	Michter N-04HM (B)	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys Original Hole	<b>Database:</b>	DB_Aug1919_v14

<b>Project</b>	Marshall County, West Virginia			<b>RECEIVED</b>
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level	Office of Oil and Gas
<b>Geo Datum:</b>	NAD83 West Virginia - HARN			<b>MAY 06 2021</b>
<b>Map Zone:</b>	Zone 17N (84 W to 78 W)			

<b>Site</b>	Michter			<b>WV Department of Environmental Protection</b>	
<b>Site Position:</b>		<b>Northing:</b>	14,454,962.42 usft	<b>Latitude:</b>	39.80272253
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,697,325.45 usft	<b>Longitude:</b>	-80.79737330
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.130 °

<b>Well</b>	Michter N-04HM (B)					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	14,455,039.82 usft	<b>Latitude:</b>	39.80293507
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	1,697,327.37 usft	<b>Longitude:</b>	-80.79736584
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	1,130.00 ft

<b>Wellbore</b>	Original Hole				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	7/2/2020	-8.726	66.726	51,842.01839787

<b>Design</b>	Surveys Original Hole				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	332.609	

<b>Survey Program</b>	<b>Date</b>	7/19/2020			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
190.00	831.00	MWD surf (Original Hole)	MWD	MWD - Standard	
872.00	2,659.00	MWD int (Original Hole)	MWD	MWD - Standard	
2,767.00	17,334.00	MWD (Original Hole)	MWD	MWD - Standard	
17,392.00	17,392.00	Projection (Original Hole)	MWD	MWD - Standard	

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
190.00	0.35	277.400	190.00	0.07	-0.58	0.33	0.18	0.18	0.00	
<b>MWD surveys</b>										
234.00	0.22	275.730	234.00	0.10	-0.79	0.45	0.30	-0.30	-3.80	
281.00	0.18	293.750	281.00	0.14	-0.95	0.56	0.16	-0.09	38.34	
325.00	0.13	288.210	325.00	0.18	-1.06	0.65	0.12	-0.11	-12.59	
372.00	0.13	297.180	372.00	0.22	-1.16	0.73	0.04	0.00	19.09	
416.00	0.18	315.630	416.00	0.30	-1.25	0.84	0.16	0.11	41.93	

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<b>Site:</b>	Michter	<b>MD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Well:</b>	Michter N-04HM (B)	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys Original Hole	<b>Database:</b>	DB_Aug1919_v14

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Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	WV Department of Environmental Protection Rate (°/100ft)
463.00	0.13	308.160	463.00	0.38	-1.35	0.96	0.11	-0.11	-15.89
506.00	0.18	314.580	506.00	0.46	-1.43	1.07	0.12	0.12	14.93
553.00	0.09	331.360	553.00	0.54	-1.50	1.17	0.21	-0.19	35.70
597.00	0.13	318.180	597.00	0.61	-1.55	1.26	0.11	0.09	-29.95
624.00	0.13	324.150	624.00	0.66	-1.59	1.32	0.05	0.00	22.11
688.00	0.17	310.620	688.00	0.78	-1.70	1.48	0.08	0.06	-21.14
735.00	0.08	261.140	735.00	0.82	-1.79	1.55	0.28	-0.19	-105.28
777.00	0.13	281.260	777.00	0.82	-1.87	1.59	0.15	0.12	47.90
831.00	0.04	81.140	831.00	0.84	-1.91	1.62	0.31	-0.17	296.07
872.00	0.04	172.810	872.00	0.83	-1.89	1.60	0.14	0.00	223.59
967.00	0.26	166.390	967.00	0.58	-1.84	1.36	0.23	0.23	-6.76
1,061.00	0.79	173.950	1,060.99	-0.27	-1.72	0.55	0.57	0.56	8.04
1,156.00	1.10	158.400	1,155.98	-1.77	-1.31	-0.96	0.42	0.33	-16.37
1,251.00	1.19	141.700	1,250.96	-3.39	-0.37	-2.84	0.36	0.09	-17.58
1,345.00	1.49	129.740	1,344.93	-4.94	1.18	-4.92	0.43	0.32	-12.72
1,440.00	1.93	129.040	1,439.89	-6.73	3.37	-7.53	0.46	0.46	-0.74
1,535.00	1.85	123.860	1,534.84	-8.59	5.89	-10.34	0.20	-0.08	-5.45
1,630.00	1.67	99.250	1,629.80	-9.67	8.53	-12.51	0.81	-0.19	-25.91
1,724.00	2.15	101.000	1,723.74	-10.23	11.61	-14.42	0.51	0.51	1.86
1,819.00	2.55	96.170	1,818.66	-10.80	15.46	-16.70	0.47	0.42	-5.08
1,914.00	2.90	91.600	1,913.56	-11.09	19.96	-19.03	0.43	0.37	-4.81
2,009.00	2.94	93.530	2,008.43	-11.31	24.80	-21.45	0.11	0.04	2.03
2,104.00	2.68	93.620	2,103.32	-11.60	29.45	-23.84	0.27	-0.27	0.09
2,198.00	2.77	91.160	2,197.21	-11.78	33.91	-26.06	0.16	0.10	-2.62
2,293.00	2.55	104.870	2,292.11	-12.37	38.25	-28.58	0.71	-0.23	14.43
2,388.00	2.68	108.030	2,387.01	-13.60	42.40	-31.58	0.20	0.14	3.33
2,483.00	2.94	103.550	2,481.90	-14.86	46.88	-34.76	0.36	0.27	-4.72
2,577.00	2.99	102.940	2,575.77	-15.97	51.61	-37.93	0.06	0.05	-0.65
2,659.00	2.94	97.580	2,657.66	-16.73	55.78	-40.52	0.34	-0.06	-6.54
2,767.00	2.86	94.850	2,765.52	-17.32	61.21	-43.54	0.15	-0.07	-2.53
2,861.00	3.91	109.880	2,859.36	-18.61	66.56	-47.15	1.45	1.12	15.99
2,956.00	3.69	101.710	2,954.15	-20.33	72.60	-51.45	0.61	-0.23	-8.60
3,051.00	3.12	95.730	3,048.99	-21.21	78.17	-54.80	0.71	-0.60	-6.29
3,146.00	5.41	95.110	3,143.72	-21.87	85.20	-58.61	2.41	2.41	-0.65
3,240.00	8.09	95.380	3,237.06	-22.88	96.20	-64.58	2.85	2.85	0.29
3,335.00	9.98	98.540	3,330.87	-24.73	111.00	-73.03	2.06	1.99	3.33
3,430.00	10.81	103.820	3,424.32	-28.08	127.79	-83.73	1.33	0.87	5.56
3,524.00	12.83	107.600	3,516.32	-33.34	146.30	-96.91	2.30	2.15	4.02
3,619.00	15.29	105.660	3,608.47	-39.92	168.42	-112.93	2.64	2.59	-2.04
3,714.00	20.30	104.960	3,698.89	-47.56	196.42	-132.59	5.28	5.27	-0.74
3,809.00	23.77	104.430	3,786.94	-56.58	230.90	-156.47	3.66	3.65	-0.56
3,904.00	25.80	104.700	3,873.18	-66.60	269.44	-183.09	2.14	2.14	0.28
3,998.00	29.53	105.750	3,956.42	-78.09	311.54	-212.66	4.00	3.97	1.12

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<b>Site:</b>	Michter	<b>MD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Well:</b>	Michter N-04HM (B)	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys Original Hole	<b>Database:</b>	DB_Aug1919_v14

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Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	WV Department of Environmental Protection Rate (°/100ft)
4,093.00	33.84	105.130	4,037.25	-91.35	359.63	-246.56	4.55	4.54	-0.65
4,188.00	35.33	106.190	4,115.46	-105.91	411.54	-283.37	1.69	1.57	1.12
4,283.00	35.86	104.870	4,192.71	-120.71	464.82	-321.02	0.98	0.56	-1.39
4,377.00	35.33	105.570	4,269.14	-135.08	517.61	-358.06	0.71	-0.56	0.74
4,472.00	35.90	106.190	4,346.37	-150.21	570.82	-395.99	0.71	0.60	0.65
4,566.00	36.34	106.890	4,422.30	-165.99	623.94	-434.43	0.64	0.47	0.74
4,661.00	36.56	106.630	4,498.72	-182.27	677.98	-473.74	0.28	0.23	-0.27
4,756.00	36.74	106.370	4,574.94	-198.37	732.35	-513.06	0.25	0.19	-0.27
4,851.00	35.16	105.490	4,651.84	-213.69	785.98	-551.33	1.75	-1.66	-0.93
4,946.00	35.33	104.870	4,729.43	-228.04	838.89	-588.41	0.42	0.18	-0.65
5,041.00	36.12	104.340	4,806.55	-242.03	892.56	-625.52	0.89	0.83	-0.56
5,135.00	34.98	106.450	4,883.03	-256.52	945.25	-662.63	1.78	-1.21	2.24
5,230.00	35.42	106.010	4,960.66	-271.82	997.83	-700.41	0.53	0.46	-0.46
5,325.00	35.86	104.870	5,037.87	-286.56	1,051.19	-738.04	0.84	0.46	-1.20
5,420.00	34.45	105.660	5,115.54	-300.95	1,103.96	-775.10	1.56	-1.48	0.83
5,514.00	30.10	105.840	5,195.00	-314.57	1,152.26	-809.41	4.63	-4.63	0.19
5,564.00	27.16	108.030	5,238.88	-321.52	1,175.18	-826.13	6.24	-5.88	4.38
5,611.00	28.40	106.720	5,280.46	-328.06	1,196.08	-841.55	2.94	2.64	-2.79
5,659.00	33.36	106.360	5,321.64	-335.07	1,219.69	-858.63	10.34	10.33	-0.75
5,706.00	38.64	105.400	5,359.65	-342.61	1,246.26	-877.55	11.30	11.23	-2.04
5,753.00	40.00	105.050	5,396.01	-350.43	1,274.99	-897.71	2.93	2.89	-0.74
5,800.00	37.49	97.930	5,432.69	-356.33	1,303.77	-916.19	10.87	-5.34	-15.15
5,848.00	37.23	94.320	5,470.84	-359.44	1,332.72	-932.27	4.60	-0.54	-7.52
5,895.00	35.82	89.750	5,508.62	-360.45	1,360.65	-946.02	6.52	-3.00	-9.72
5,943.00	34.20	84.660	5,547.94	-359.13	1,388.14	-957.49	6.95	-3.38	-10.60
5,990.00	33.36	78.680	5,587.02	-355.36	1,413.97	-966.03	7.29	-1.79	-12.72
6,037.00	32.22	72.440	5,626.54	-349.04	1,438.59	-971.75	7.58	-2.43	-13.28
6,084.00	29.76	63.390	5,666.85	-340.03	1,460.98	-974.05	11.20	-5.23	-19.26
6,132.00	28.66	57.760	5,708.75	-328.55	1,481.37	-973.24	6.16	-2.29	-11.73
6,179.00	28.13	52.400	5,750.10	-315.78	1,499.69	-970.32	5.54	-1.13	-11.40
6,226.00	28.44	48.010	5,791.50	-301.53	1,516.79	-965.54	4.47	0.66	-9.34
6,273.00	29.14	40.620	5,832.70	-285.35	1,532.56	-958.43	7.71	1.49	-15.72
6,321.00	30.07	33.150	5,874.45	-266.41	1,546.75	-948.14	7.92	1.94	-15.56
6,368.00	31.08	24.800	5,914.93	-245.52	1,558.28	-934.90	9.28	2.15	-17.77
6,416.00	32.18	16.450	5,955.82	-222.01	1,567.11	-918.08	9.40	2.29	-17.40
6,463.00	34.42	9.160	5,995.12	-196.88	1,572.77	-898.37	9.75	4.77	-15.51
6,511.00	37.01	4.320	6,034.09	-169.07	1,576.02	-875.17	7.98	5.40	-10.08
6,558.00	40.31	0.100	6,070.80	-139.74	1,577.11	-849.64	8.98	7.02	-8.98
6,605.00	43.03	355.970	6,105.91	-108.53	1,576.01	-821.42	8.22	5.79	-8.79
6,652.00	46.46	352.280	6,139.29	-75.64	1,572.59	-790.65	9.15	7.30	-7.85
6,700.00	50.15	348.330	6,171.22	-40.34	1,566.52	-756.51	9.84	7.69	-8.23
6,747.00	54.90	342.790	6,199.82	-4.26	1,557.18	-720.18	13.77	10.11	-11.79
6,795.00	60.66	338.660	6,225.41	34.02	1,543.74	-680.00	14.03	12.00	-8.60
6,842.00	66.42	334.530	6,246.35	72.59	1,527.00	-638.06	14.56	12.26	-8.79



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6,890.00	71.74	330.930	6,263.49	112.41	1,506.45	-593.25	13.11	11.08	-7.50
6,937.00	74.24	329.520	6,277.24	151.42	1,484.13	-548.35	6.04	5.32	-3.00
6,984.00	77.01	327.850	6,288.90	190.31	1,460.46	-502.93	6.82	5.89	-3.55
7,031.00	78.55	326.880	6,298.85	228.99	1,435.69	-457.19	3.85	3.28	-2.06
7,079.00	80.04	325.650	6,307.77	268.21	1,409.50	-410.32	4.00	3.10	-2.56
7,126.00	82.29	324.860	6,314.99	306.36	1,383.03	-364.26	5.07	4.79	-1.68
7,174.00	84.48	324.070	6,320.52	345.16	1,355.32	-317.06	4.85	4.56	-1.65
7,221.00	86.55	323.100	6,324.19	382.87	1,327.51	-270.79	4.86	4.40	-2.06
7,268.00	88.70	322.490	6,326.14	420.27	1,299.11	-224.52	4.75	4.57	-1.30
7,363.00	88.92	322.490	6,328.11	495.61	1,241.28	-131.02	0.23	0.23	0.00
7,458.00	89.41	322.310	6,329.50	570.87	1,183.32	-37.53	0.55	0.52	-0.19
7,553.00	88.92	324.070	6,330.88	646.92	1,126.41	56.17	1.92	-0.52	1.85
7,647.00	89.63	324.510	6,332.07	723.24	1,071.55	149.17	0.89	0.76	0.47
7,742.00	91.91	328.730	6,330.79	802.53	1,019.30	243.62	5.05	2.40	4.44
7,837.00	91.82	327.850	6,327.70	883.31	969.39	338.30	0.93	-0.09	-0.93
7,932.00	91.08	326.620	6,325.30	963.17	918.00	432.85	1.51	-0.78	-1.29
8,027.00	90.46	324.330	6,324.02	1,041.42	864.16	527.10	2.50	-0.65	-2.41
8,121.00	91.16	323.450	6,322.69	1,117.35	808.77	620.00	1.20	0.74	-0.94
8,216.00	89.01	323.720	6,322.55	1,193.80	752.38	713.82	2.28	-2.26	0.28
8,311.00	89.54	323.720	6,323.75	1,270.38	696.17	807.67	0.56	0.56	0.00
8,406.00	90.02	323.980	6,324.12	1,347.09	640.13	901.56	0.57	0.51	0.27
8,500.00	90.07	323.540	6,324.04	1,422.90	584.56	994.44	0.47	0.05	-0.47
8,595.00	90.73	323.280	6,323.38	1,499.18	527.94	1,088.22	0.75	0.69	-0.27
8,690.00	91.25	322.930	6,321.74	1,575.14	470.91	1,181.90	0.66	0.55	-0.37
8,784.00	90.37	324.420	6,320.41	1,650.86	415.24	1,274.75	1.84	-0.94	1.59
8,879.00	91.21	324.950	6,319.10	1,728.37	360.33	1,368.83	1.05	0.88	0.56
8,974.00	91.78	325.210	6,316.62	1,806.24	305.96	1,462.98	0.66	0.60	0.27
9,068.00	90.15	325.120	6,315.04	1,883.38	252.28	1,556.17	1.74	-1.73	-0.10
9,163.00	90.81	324.420	6,314.24	1,960.98	197.48	1,650.28	1.01	0.69	-0.74
9,258.00	91.30	323.980	6,312.49	2,038.02	141.92	1,744.24	0.69	0.52	-0.46
9,353.00	91.87	323.980	6,309.87	2,114.82	86.07	1,838.13	0.60	0.60	0.00
9,447.00	90.11	325.210	6,308.24	2,191.42	31.63	1,931.19	2.28	-1.87	1.31
9,542.00	90.77	325.210	6,307.51	2,269.44	-22.58	2,025.40	0.69	0.69	0.00
9,637.00	89.93	328.020	6,306.93	2,348.76	-74.84	2,119.86	3.09	-0.88	2.96
9,731.00	90.51	328.020	6,306.57	2,428.49	-124.63	2,213.56	0.62	0.62	0.00
9,826.00	90.81	327.670	6,305.48	2,508.91	-175.19	2,308.23	0.49	0.32	-0.37
9,920.00	90.33	329.170	6,304.54	2,588.98	-224.41	2,401.97	1.68	-0.51	1.60
10,015.00	89.80	327.410	6,304.43	2,669.80	-274.34	2,496.69	1.93	-0.56	-1.85
10,109.00	88.92	326.180	6,305.48	2,748.44	-325.81	2,590.20	1.61	-0.94	-1.31
10,203.00	89.01	325.560	6,307.18	2,826.24	-378.54	2,683.54	0.67	0.10	-0.66
10,298.00	89.49	325.650	6,308.43	2,904.62	-432.21	2,777.82	0.51	0.51	0.09
10,392.00	89.80	325.300	6,309.01	2,982.07	-485.48	2,871.09	0.50	0.33	-0.37
10,487.00	90.29	325.120	6,308.93	3,060.08	-539.68	2,965.30	0.55	0.52	-0.19

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Michter N-04HM (B)
<b>Project:</b>	Marshall County, West Virginia	<b>TVD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Site:</b>	Michter	<b>MD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Well:</b>	Michter N-04HM (B)	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys Original Hole	<b>Database:</b>	DB_Aug1919_v14

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Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	WV Department of Environmental Protection Rate (°/100ft)
10,582.00	90.99	324.600	6,307.87	3,137.76	-594.36	3,059.42	0.92	0.74	-0.55
10,676.00	91.38	324.250	6,305.93	3,214.20	-649.03	3,152.45	0.56	0.41	-0.37
10,771.00	90.33	323.630	6,304.51	3,290.99	-704.95	3,246.35	1.28	-1.11	-0.65
10,866.00	90.90	322.930	6,303.49	3,367.14	-761.74	3,340.09	0.95	0.60	-0.74
10,961.00	91.38	322.750	6,301.60	3,442.83	-819.12	3,433.69	0.54	0.51	-0.19
11,055.00	89.89	323.720	6,300.56	3,518.13	-875.37	3,526.43	1.89	-1.59	1.03
11,150.00	90.20	322.490	6,300.48	3,594.10	-932.40	3,620.12	1.34	0.33	-1.29
11,245.00	90.24	321.870	6,300.12	3,669.14	-990.66	3,713.55	0.65	0.04	-0.65
11,339.00	91.08	323.100	6,299.04	3,743.70	-1,047.89	3,806.08	1.58	0.89	1.31
11,434.00	90.20	324.600	6,297.98	3,820.40	-1,103.93	3,899.96	1.83	-0.93	1.58
11,529.00	90.55	324.600	6,297.35	3,897.83	-1,158.96	3,994.03	0.37	0.37	0.00
11,624.00	90.73	324.250	6,296.29	3,975.10	-1,214.22	4,088.06	0.41	0.19	-0.37
11,718.00	91.30	324.510	6,294.63	4,051.50	-1,268.96	4,181.07	0.67	0.61	0.28
11,813.00	89.98	325.120	6,293.57	4,129.13	-1,323.70	4,275.19	1.53	-1.39	0.64
11,908.00	90.29	324.860	6,293.34	4,206.94	-1,378.20	4,369.35	0.43	0.33	-0.27
12,002.00	88.62	324.950	6,294.24	4,283.85	-1,432.24	4,462.49	1.78	-1.78	0.10
12,097.00	88.75	325.210	6,296.42	4,361.72	-1,486.61	4,556.65	0.31	0.14	0.27
12,192.00	88.70	324.860	6,298.53	4,439.56	-1,541.04	4,650.80	0.37	-0.05	-0.37
12,287.00	90.46	325.920	6,299.23	4,517.74	-1,594.99	4,745.04	2.16	1.85	1.12
12,381.00	91.65	325.390	6,297.50	4,595.34	-1,648.01	4,838.33	1.39	1.27	-0.56
12,476.00	90.37	326.350	6,295.82	4,673.96	-1,701.30	4,932.65	1.68	-1.35	1.01
12,571.00	91.08	325.830	6,294.62	4,752.79	-1,754.30	5,027.03	0.93	0.75	-0.55
12,666.00	89.19	326.440	6,294.40	4,831.67	-1,807.23	5,121.42	2.09	-1.99	0.64
12,760.00	89.71	326.350	6,295.30	4,909.96	-1,859.26	5,214.86	0.56	0.55	-0.10
12,855.00	90.46	326.000	6,295.16	4,988.88	-1,912.14	5,309.26	0.87	0.79	-0.37
12,950.00	91.52	325.650	6,293.52	5,067.46	-1,965.49	5,403.58	1.18	1.12	-0.37
13,044.00	90.46	326.350	6,291.89	5,145.38	-2,018.05	5,496.94	1.35	-1.13	0.74
13,139.00	91.38	327.150	6,290.37	5,224.81	-2,070.13	5,591.43	1.28	0.97	0.84
13,234.00	89.98	326.710	6,289.24	5,304.42	-2,121.96	5,685.96	1.54	-1.47	-0.46
13,328.00	90.24	328.380	6,289.06	5,383.73	-2,172.40	5,779.59	1.80	0.28	1.78
13,423.00	90.55	326.180	6,288.40	5,463.65	-2,223.75	5,874.17	2.34	0.33	-2.32
13,518.00	90.77	324.330	6,287.31	5,541.70	-2,277.89	5,968.37	1.96	0.23	-1.95
13,613.00	89.19	324.330	6,287.34	5,618.88	-2,333.28	6,062.38	1.66	-1.66	0.00
13,707.00	89.89	324.070	6,288.10	5,695.11	-2,388.26	6,155.37	0.79	0.74	-0.28
13,802.00	90.51	324.420	6,287.77	5,772.21	-2,443.77	6,249.36	0.75	0.65	0.37
13,896.00	88.79	323.450	6,288.34	5,848.19	-2,499.11	6,342.27	2.10	-1.83	-1.03
13,991.00	89.58	323.370	6,289.69	5,924.46	-2,555.73	6,436.04	0.84	0.83	-0.08
14,086.00	89.89	323.190	6,290.13	6,000.60	-2,612.53	6,529.78	0.38	0.33	-0.19
14,181.00	90.68	322.750	6,289.66	6,076.44	-2,669.74	6,623.44	0.95	0.83	-0.46
14,275.00	91.96	322.490	6,287.49	6,151.12	-2,726.79	6,715.99	1.39	1.36	-0.28
14,370.00	91.34	323.890	6,284.76	6,227.14	-2,783.69	6,809.67	1.61	-0.65	1.47
14,465.00	89.85	324.510	6,283.77	6,304.19	-2,839.25	6,903.64	1.70	-1.57	0.65
14,560.00	90.73	324.680	6,283.29	6,381.62	-2,894.29	6,997.71	0.94	0.93	0.18

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Michter N-04HM (B)
<b>Project:</b>	Marshall County, West Virginia	<b>TVD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Site:</b>	Michter	<b>MD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Well:</b>	Michter N-04HM (B)	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys Original Hole	<b>Database:</b>	DB_Aug1919_v14

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Survey	Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	WV Department of Environmental Protection	
									Build Rate (°/100ft)	Rate (°/100ft)
	14,655.00	91.91	324.250	6,281.10	6,458.90	-2,949.49	7,091.72	1.32	1.24	-0.45
	14,749.00	90.24	325.300	6,279.34	6,535.67	-3,003.69	7,184.82	2.10	-1.78	1.12
	14,844.00	90.73	325.390	6,278.53	6,613.82	-3,057.71	7,279.06	0.52	0.52	0.09
	14,939.00	90.07	326.620	6,277.87	6,692.58	-3,110.83	7,373.42	1.47	-0.69	1.29
	15,034.00	90.29	326.090	6,277.57	6,771.66	-3,163.46	7,467.86	0.60	0.23	-0.56
	15,128.00	91.60	324.950	6,276.02	6,849.13	-3,216.67	7,561.12	1.85	1.39	-1.21
	15,223.00	89.98	324.950	6,274.71	6,926.90	-3,271.22	7,655.26	1.71	-1.71	0.00
	15,318.00	90.55	325.480	6,274.27	7,004.92	-3,325.41	7,749.47	0.82	0.60	0.56
	15,412.00	90.77	325.480	6,273.19	7,082.36	-3,378.68	7,842.74	0.23	0.23	0.00
	15,507.00	89.54	325.560	6,272.93	7,160.67	-3,432.46	7,937.01	1.30	-1.29	0.08
	15,602.00	90.07	325.560	6,273.26	7,239.02	-3,486.18	8,031.29	0.56	0.56	0.00
	15,697.00	91.03	326.180	6,272.34	7,317.65	-3,539.48	8,125.63	1.20	1.01	0.65
	15,791.00	90.02	325.920	6,271.48	7,395.62	-3,591.98	8,219.01	1.11	-1.07	-0.28
	15,886.00	90.64	326.000	6,270.94	7,474.34	-3,645.15	8,313.37	0.66	0.65	0.08
	15,981.00	91.82	325.480	6,268.90	7,552.84	-3,698.62	8,407.66	1.36	1.24	-0.55
	16,076.00	90.46	325.120	6,267.01	7,630.93	-3,752.69	8,501.87	1.48	-1.43	-0.38
	16,171.00	90.86	325.210	6,265.91	7,708.90	-3,806.95	8,596.06	0.43	0.42	0.09
	16,265.00	91.87	324.420	6,263.67	7,785.70	-3,861.10	8,689.17	1.36	1.07	-0.84
	16,360.00	90.20	325.300	6,261.96	7,863.37	-3,915.77	8,783.28	1.99	-1.76	0.93
	16,454.00	90.73	325.480	6,261.19	7,940.73	-3,969.16	8,876.53	0.60	0.56	0.19
	16,549.00	89.71	324.330	6,260.83	8,018.46	-4,023.77	8,970.67	1.62	-1.07	-1.21
	16,644.00	90.29	323.630	6,260.83	8,095.29	-4,079.64	9,064.59	0.96	0.61	-0.74
	16,739.00	91.08	323.020	6,259.69	8,171.48	-4,136.38	9,158.34	1.05	0.83	-0.64
	16,833.00	90.20	324.680	6,258.64	8,247.38	-4,191.82	9,251.23	2.00	-0.94	1.77
	16,928.00	90.77	325.300	6,257.84	8,325.18	-4,246.32	9,345.39	0.89	0.60	0.65
	17,022.00	89.01	326.440	6,258.02	8,402.99	-4,299.06	9,438.74	2.23	-1.87	1.21
	17,117.00	89.58	326.440	6,259.19	8,482.15	-4,351.57	9,533.18	0.60	0.60	0.00
	17,212.00	90.90	326.790	6,258.79	8,561.47	-4,403.84	9,627.66	1.44	1.39	0.37
	17,306.00	92.40	327.150	6,256.08	8,640.24	-4,455.06	9,721.16	1.64	1.60	0.38
	17,334.00	92.53	327.150	6,254.88	8,663.74	-4,470.23	9,749.01	0.46	0.46	0.00
<b>Survey @ 17334.00 MD 6254.88 TVD</b>										
	17,392.00	92.53	327.150	6,252.32	8,712.42	-4,501.66	9,806.69	0.00	0.00	0.00
<b>Survey projected to 17392.00 MD 6252.32 TVD</b>										

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
190.00	190.00	0.07	-0.58	MWD surveys
17,334.00	6,254.88	8,663.74	-4,470.23	Survey @ 17334.00 MD 6254.88 TVD



<b>Company:</b> Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b> Well Michter N-04HM (B)
<b>Project:</b> Marshall County, West Virginia	<b>TVD Reference:</b> RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Site:</b> Michter	<b>MD Reference:</b> RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Well:</b> Michter N-04HM (B)	<b>North Reference:</b> Grid
<b>Wellbore:</b> Original Hole	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> Surveys Original Hole	<b>Database:</b> DB_Aug1919_v14

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<b>Project</b> Marshall County, West Virginia	<b>Map System:</b> Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b> Mean Sea Level
<b>Geo Datum:</b> NAD83 West Virginia - HARN	<b>Map Zone:</b> Zone 17N (84 W to 78 W)	

WV Department of  
Environmental Protection

<b>Site</b> Michter		
<b>Site Position:</b>	<b>Northing:</b> 14,454,962.42 usft	<b>Latitude:</b> 39.80272253
<b>From:</b> Lat/Long	<b>Easting:</b> 1,697,325.45 usft	<b>Longitude:</b> -80.79737330
<b>Position Uncertainty:</b> 0.00 ft	<b>Slot Radius:</b> 13-3/16 "	<b>Grid Convergence:</b> 0.130 °

<b>Well</b> Michter N-04HM (B)			
<b>Well Position</b>	<b>+N/-S</b> 0.00 ft	<b>Northing:</b> 14,455,039.82 usft	<b>Latitude:</b> 39.80293507
	<b>+E/-W</b> 0.00 ft	<b>Easting:</b> 1,697,327.37 usft	<b>Longitude:</b> -80.79736584
<b>Position Uncertainty</b> 0.00 ft	<b>Wellhead Elevation:</b> ft	<b>Ground Level:</b> 1,130.00 ft	

<b>Wellbore</b> Original Hole					
<b>Magnetics</b>	<b>Model Name</b> IGRF2015	<b>Sample Date</b> 7/2/2020	<b>Declination (°)</b> -8.726	<b>Dip Angle (°)</b> 66.726	<b>Field Strength (nT)</b> 51,842.01839787

<b>Design</b> Surveys Original Hole				
<b>Audit Notes:</b>				
<b>Version:</b> 1.0	<b>Phase:</b> ACTUAL	<b>Tie On Depth:</b> 0.00		
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b> 0.00	<b>+N/-S (ft)</b> 0.00	<b>+E/-W (ft)</b> 0.00	<b>Direction (°)</b> 332.609

<b>Survey Program</b>	<b>Date</b> 7/19/2020			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
190.00	831.00	MWD surf (Original Hole)	MWD	MWD - Standard
872.00	2,659.00	MWD int (Original Hole)	MWD	MWD - Standard
2,767.00	17,334.00	MWD (Original Hole)	MWD	MWD - Standard
17,392.00	17,392.00	Projection (Original Hole)	MWD	MWD - Standard

<b>Survey</b>									
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Map Northing (usft)</b>	<b>Map Easting (usft)</b>	<b>Latitude</b>	<b>Longitude</b>
0.00	0.00	0.000	0.00	0.00	0.00	14,455,039.82	1,697,327.37	39.80293507	-80.79736584
190.00	0.35	277.400	190.00	0.07	-0.58	14,455,039.89	1,697,326.79	39.80293528	-80.79736789
<b>MWD surveys</b>									
234.00	0.22	275.730	234.00	0.10	-0.79	14,455,039.92	1,697,326.58	39.80293535	-80.79736866
281.00	0.18	293.750	281.00	0.14	-0.95	14,455,039.96	1,697,326.42	39.80293546	-80.79736922
325.00	0.13	288.210	325.00	0.18	-1.06	14,455,040.00	1,697,326.31	39.80293558	-80.79736962
372.00	0.13	297.180	372.00	0.22	-1.16	14,455,040.04	1,697,326.21	39.80293569	-80.79736997
416.00	0.18	315.630	416.00	0.30	-1.25	14,455,040.11	1,697,326.12	39.80293589	-80.79737030
463.00	0.13	308.160	463.00	0.38	-1.35	14,455,040.20	1,697,326.02	39.80293613	-80.79737063



<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Michter N-04HM (B)
<b>Project:</b>	Marshall County, West Virginia	<b>TVD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Site:</b>	Michter	<b>MD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Well:</b>	Michter N-04HM (B)	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys Original Hole	<b>Database:</b>	DB_Aug1919_v14

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Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
506.00	0.18	314.580	506.00	0.46	-1.43	14,455,040.28	1,697,325.94	39.80293634	-80.79737093
553.00	0.09	331.360	553.00	0.54	-1.50	14,455,040.36	1,697,325.87	39.80293657	-80.79737118
597.00	0.13	318.180	597.00	0.61	-1.55	14,455,040.43	1,697,325.82	39.80293676	-80.79737136
624.00	0.13	324.150	624.00	0.66	-1.59	14,455,040.48	1,697,325.78	39.80293689	-80.79737150
688.00	0.17	310.620	688.00	0.78	-1.70	14,455,040.60	1,697,325.66	39.80293722	-80.79737190
735.00	0.08	261.140	735.00	0.82	-1.79	14,455,040.64	1,697,325.58	39.80293733	-80.79737221
777.00	0.13	281.260	777.00	0.82	-1.87	14,455,040.64	1,697,325.50	39.80293735	-80.79737248
831.00	0.04	81.140	831.00	0.84	-1.91	14,455,040.66	1,697,325.46	39.80293739	-80.79737263
872.00	0.04	172.810	872.00	0.83	-1.89	14,455,040.65	1,697,325.48	39.80293736	-80.79737257
967.00	0.26	166.390	967.00	0.58	-1.84	14,455,040.40	1,697,325.53	39.80293669	-80.79737238
1,061.00	0.79	173.950	1,060.99	-0.27	-1.72	14,455,039.55	1,697,325.65	39.80293435	-80.79737196
1,156.00	1.10	158.400	1,155.98	-1.77	-1.31	14,455,038.05	1,697,326.05	39.80293023	-80.79737053
1,251.00	1.19	141.700	1,250.96	-3.39	-0.37	14,455,036.43	1,697,327.00	39.80292577	-80.79736717
1,345.00	1.49	129.740	1,344.93	-4.94	1.18	14,455,034.88	1,697,328.55	39.80292151	-80.79736168
1,440.00	1.93	120.040	1,439.89	-6.73	3.37	14,455,033.09	1,697,330.74	39.80291656	-80.79735389
1,535.00	1.85	123.860	1,534.84	-8.59	5.89	14,455,031.22	1,697,333.25	39.80291143	-80.79734495
1,630.00	1.67	99.250	1,629.80	-9.67	8.53	14,455,030.15	1,697,335.89	39.80290846	-80.79733556
1,724.00	2.15	101.000	1,723.74	-10.23	11.61	14,455,029.59	1,697,338.98	39.80290691	-80.79732459
1,819.00	2.55	96.170	1,818.66	-10.80	15.46	14,455,029.02	1,697,342.83	39.80290533	-80.79731088
1,914.00	2.90	91.600	1,913.56	-11.09	19.96	14,455,028.73	1,697,347.33	39.80290449	-80.79729485
2,009.00	2.94	93.530	2,008.43	-11.31	24.80	14,455,028.51	1,697,352.16	39.80290387	-80.79727764
2,104.00	2.68	93.620	2,103.32	-11.60	29.45	14,455,028.22	1,697,356.81	39.80290304	-80.79726109
2,198.00	2.77	91.160	2,197.21	-11.78	33.91	14,455,028.04	1,697,361.28	39.80290251	-80.79724520
2,293.00	2.55	104.870	2,292.11	-12.37	38.25	14,455,027.45	1,697,365.61	39.80290086	-80.79722976
2,388.00	2.68	108.030	2,387.01	-13.60	42.40	14,455,026.22	1,697,369.77	39.80289746	-80.79721498
2,483.00	2.94	103.550	2,481.90	-14.86	46.88	14,455,024.96	1,697,374.25	39.80289398	-80.79719904
2,577.00	2.99	102.940	2,575.77	-15.97	51.61	14,455,023.85	1,697,378.98	39.80289089	-80.79718219
2,659.00	2.94	97.580	2,657.66	-16.73	55.78	14,455,023.09	1,697,383.15	39.80288878	-80.79716736
2,767.00	2.86	94.850	2,765.52	-17.32	61.21	14,455,022.50	1,697,388.58	39.80288712	-80.79714803
2,861.00	3.91	109.880	2,859.36	-18.61	66.56	14,455,021.21	1,697,393.93	39.80288355	-80.79712899
2,956.00	3.69	101.710	2,954.15	-20.33	72.60	14,455,019.49	1,697,399.97	39.80287878	-80.79710750
3,051.00	3.12	95.730	3,048.99	-21.21	78.17	14,455,018.61	1,697,405.54	39.80287634	-80.79708769
3,146.00	5.41	95.110	3,143.72	-21.87	85.20	14,455,017.95	1,697,412.57	39.80287449	-80.79706265
3,240.00	8.09	95.380	3,237.06	-22.88	96.20	14,455,016.94	1,697,423.57	39.80287163	-80.79702349
3,335.00	9.98	98.540	3,330.87	-24.73	111.00	14,455,015.09	1,697,438.37	39.80286646	-80.79697082
3,430.00	10.81	103.820	3,424.32	-28.08	127.79	14,455,011.74	1,697,455.16	39.80285715	-80.79691105
3,524.00	12.83	107.600	3,516.32	-33.34	146.30	14,455,006.47	1,697,473.67	39.80284259	-80.79684519
3,619.00	15.29	105.660	3,608.47	-39.92	168.42	14,454,999.90	1,697,495.79	39.80282440	-80.79676649
3,714.00	20.30	104.960	3,698.89	-47.56	196.42	14,454,992.26	1,697,523.79	39.80280325	-80.79666686
3,809.00	23.77	104.430	3,786.94	-56.58	230.90	14,454,983.24	1,697,558.26	39.80277824	-80.79654419
3,904.00	25.80	104.700	3,873.18	-66.60	269.44	14,454,973.22	1,697,596.81	39.80275049	-80.79640704
3,998.00	29.53	105.750	3,956.42	-78.09	311.54	14,454,961.73	1,697,638.90	39.80271869	-80.79625724
4,093.00	33.84	105.130	4,037.25	-91.35	359.63	14,454,948.47	1,697,686.99	39.80268196	-80.79608612
4,188.00	35.33	106.190	4,115.46	-105.91	411.54	14,454,933.91	1,697,738.91	39.80264164	-80.79590139
4,283.00	35.86	104.870	4,192.71	-120.71	464.82	14,454,919.11	1,697,792.18	39.80260066	-80.79571182
4,377.00	35.33	105.570	4,269.14	-135.08	517.61	14,454,904.74	1,697,844.98	39.80256089	-80.79552397
4,472.00	35.90	106.190	4,346.37	-150.21	570.82	14,454,889.60	1,697,898.19	39.80251898	-80.79533464
4,566.00	36.34	106.890	4,422.30	-165.99	623.94	14,454,873.83	1,697,951.30	39.80247532	-80.79514565
4,661.00	36.56	106.630	4,498.72	-182.27	677.98	14,454,857.55	1,698,005.35	39.80243028	-80.79495336
4,756.00	36.74	106.370	4,574.94	-198.37	732.35	14,454,841.45	1,698,059.72	39.80238571	-80.79475989
4,851.00	35.16	105.490	4,651.84	-213.69	785.98	14,454,826.13	1,698,113.34	39.80234331	-80.79456908
4,946.00	35.33	104.870	4,729.43	-228.04	838.89	14,454,811.78	1,698,166.25	39.80230356	-80.79438082
5,041.00	36.12	104.340	4,806.55	-242.03	892.56	14,454,797.79	1,698,219.93	39.80226481	-80.79418982
5,135.00	34.98	106.450	4,883.03	-256.52	945.25	14,454,783.30	1,698,272.62	39.80222468	-80.79400234
5,230.00	35.42	106.010	4,960.66	-271.82	997.83	14,454,768.00	1,698,325.20	39.80218232	-80.79381526

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<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Michter N-04HM (B)
<b>Project:</b>	Marshall County, West Virginia	<b>TVD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Site:</b>	Michter	<b>MD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Well:</b>	Michter N-04HM (B)	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys Original Hole	<b>Database:</b>	DB_Aug1919_v14

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Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,325.00	35.86	104.870	5,037.87	-286.56	1,051.19	14,454,753.26	1,698,378.55	39.80214152	-80.79362540
5,420.00	34.45	105.660	5,115.54	-300.95	1,103.96	14,454,738.87	1,698,431.32	39.80210165	-80.79343764
5,514.00	30.10	105.840	5,195.00	-314.57	1,152.26	14,454,725.25	1,698,479.62	39.80206395	-80.79326578
5,564.00	27.16	108.030	5,238.88	-321.52	1,175.18	14,454,718.30	1,698,502.54	39.80204470	-80.79318423
5,611.00	28.40	106.720	5,280.46	-328.06	1,196.08	14,454,711.76	1,698,523.45	39.80202662	-80.79310985
5,659.00	33.36	106.360	5,321.64	-335.07	1,219.69	14,454,704.75	1,698,547.06	39.80200723	-80.79302585
5,706.00	38.64	105.400	5,359.65	-342.61	1,246.26	14,454,697.21	1,698,573.62	39.80198635	-80.79293132
5,753.00	40.00	105.050	5,396.01	-350.43	1,274.99	14,454,689.39	1,698,602.36	39.80196469	-80.79282907
5,800.00	37.49	97.930	5,432.69	-356.33	1,303.77	14,454,683.49	1,698,631.13	39.80194831	-80.79272668
5,848.00	37.23	94.320	5,470.84	-359.44	1,332.72	14,454,680.38	1,698,660.08	39.80193958	-80.79262363
5,895.00	35.82	89.750	5,508.62	-360.45	1,360.65	14,454,679.37	1,698,688.02	39.80193663	-80.79252417
5,943.00	34.20	84.660	5,547.94	-359.13	1,388.14	14,454,680.69	1,698,715.50	39.80194007	-80.79242630
5,990.00	33.36	78.680	5,587.02	-355.36	1,413.97	14,454,684.46	1,698,741.33	39.80195025	-80.79233429
6,037.00	32.22	72.440	5,626.54	-349.04	1,438.59	14,454,690.78	1,698,765.96	39.80196745	-80.79224657
6,084.00	29.76	63.390	5,666.85	-340.03	1,460.98	14,454,699.79	1,698,788.35	39.80199205	-80.79216677
6,132.00	28.66	57.760	5,708.75	-328.55	1,481.37	14,454,711.27	1,698,808.74	39.80202345	-80.79209407
6,179.00	28.13	52.400	5,750.10	-315.78	1,499.69	14,454,724.04	1,698,827.05	39.80205841	-80.79202876
6,226.00	28.44	48.010	5,791.50	-301.53	1,516.79	14,454,738.29	1,698,844.15	39.80209743	-80.79196776
6,273.00	29.14	40.620	5,832.70	-285.35	1,532.56	14,454,754.47	1,698,859.93	39.80214176	-80.79191147
6,321.00	30.07	33.150	5,874.45	-266.41	1,546.75	14,454,773.41	1,698,874.12	39.80219370	-80.79186079
6,368.00	31.08	24.800	5,914.93	-245.52	1,558.28	14,454,794.29	1,698,885.65	39.80225098	-80.79181955
6,416.00	32.18	16.450	5,955.82	-222.01	1,567.11	14,454,817.81	1,698,894.47	39.80231551	-80.79178795
6,463.00	34.42	9.160	5,995.12	-196.88	1,572.77	14,454,842.94	1,698,900.13	39.80238448	-80.79176758
6,511.00	37.01	4.320	6,034.09	-169.07	1,576.02	14,454,870.75	1,698,903.38	39.80246084	-80.79175578
6,558.00	40.31	0.100	6,070.80	-139.74	1,577.11	14,454,900.07	1,698,904.47	39.80254135	-80.79175165
6,605.00	43.03	355.970	6,105.91	-108.53	1,576.01	14,454,931.29	1,698,903.37	39.80262707	-80.79175531
6,652.00	46.46	352.280	6,139.29	-75.64	1,572.59	14,454,964.18	1,698,899.96	39.80271743	-80.79176720
6,700.00	50.15	348.330	6,171.22	-40.34	1,566.52	14,454,999.48	1,698,893.89	39.80281442	-80.79178852
6,747.00	54.90	342.790	6,199.82	-4.26	1,557.18	14,455,035.55	1,698,884.54	39.80291355	-80.79182150
6,795.00	60.66	338.660	6,225.41	34.02	1,543.74	14,455,073.84	1,698,871.10	39.80301878	-80.79186903
6,842.00	66.42	334.530	6,246.35	72.59	1,527.00	14,455,112.41	1,698,854.37	39.80312481	-80.79192830
6,890.00	71.74	330.930	6,263.49	112.41	1,506.45	14,455,152.23	1,698,833.81	39.80323430	-80.79200116
6,937.00	74.24	329.520	6,277.24	151.42	1,484.13	14,455,191.24	1,698,811.49	39.80334156	-80.79208030
6,984.00	77.01	327.850	6,288.90	190.31	1,460.46	14,455,230.12	1,698,787.83	39.80344850	-80.79216424
7,031.00	78.55	326.880	6,298.85	228.99	1,435.69	14,455,268.81	1,698,763.06	39.80355489	-80.79225212
7,079.00	80.04	325.650	6,307.77	268.21	1,409.50	14,455,308.03	1,698,736.86	39.80366277	-80.79234506
7,126.00	82.29	324.860	6,314.99	306.36	1,383.03	14,455,346.18	1,698,710.40	39.80376773	-80.79243898
7,174.00	84.48	324.070	6,320.52	345.16	1,355.32	14,455,384.98	1,698,682.69	39.80387445	-80.79253733
7,221.00	86.55	323.100	6,324.19	382.87	1,327.51	14,455,422.68	1,698,654.87	39.80397817	-80.79263605
7,268.00	88.70	322.490	6,326.14	420.27	1,299.11	14,455,460.08	1,698,626.48	39.80408106	-80.79273684
7,363.00	88.92	322.490	6,328.11	495.61	1,241.28	14,455,535.43	1,698,568.65	39.80428834	-80.79294214
7,458.00	89.41	322.310	6,329.50	570.87	1,183.32	14,455,610.69	1,698,510.69	39.80449539	-80.79314788
7,553.00	88.92	324.070	6,330.88	646.92	1,126.41	14,455,686.73	1,698,453.78	39.80470460	-80.79334990
7,647.00	89.63	324.510	6,332.07	723.24	1,071.55	14,455,763.05	1,698,398.92	39.80491454	-80.79354461
7,742.00	91.91	328.730	6,330.79	802.53	1,019.30	14,455,842.35	1,698,346.67	39.80513265	-80.79373000
7,837.00	91.82	327.850	6,327.70	883.31	969.39	14,455,923.13	1,698,296.76	39.80535479	-80.79390704
7,932.00	91.08	326.620	6,325.30	963.17	918.00	14,456,002.98	1,698,245.36	39.80557442	-80.79408939
8,027.00	90.46	324.330	6,324.02	1,041.42	864.16	14,456,081.24	1,698,191.53	39.80578967	-80.79428043
8,121.00	91.16	323.450	6,322.69	1,117.35	808.77	14,456,157.17	1,698,136.14	39.80599856	-80.79447704
8,216.00	89.01	323.720	6,322.55	1,193.80	752.38	14,456,233.62	1,698,079.75	39.80620885	-80.79467721
8,311.00	89.54	323.720	6,323.75	1,270.38	696.17	14,456,310.19	1,698,023.54	39.80641950	-80.79487673
8,406.00	90.02	323.980	6,324.12	1,347.09	640.13	14,456,386.90	1,697,967.50	39.80663052	-80.79507565
8,500.00	90.07	323.540	6,324.04	1,422.90	584.56	14,456,462.72	1,697,911.93	39.80683908	-80.79527290
8,595.00	90.73	323.280	6,323.38	1,499.18	527.94	14,456,538.99	1,697,855.30	39.80704890	-80.79547391
8,690.00	91.25	322.930	6,321.74	1,575.14	470.91	14,456,614.95	1,697,798.28	39.80725788	-80.79567634

MAY 06 2021

WV Department of Environmental Protection

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Michter N-04HM (B)
<b>Project:</b>	Marshall County, West Virginia	<b>TVD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Site:</b>	Michter	<b>MD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Well:</b>	Michter N-04HM (B)	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys Original Hole	<b>Database:</b>	DB_Aug1919_v14

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Survey	Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	WV Department of Environmental Protection	
									Latitude	Longitude
	8,784.00	90.37	324.420	6,320.41	1,650.86	415.24	14,456,690.68	1,697,742.60	39.80746618	-80.79587397
	8,879.00	91.21	324.950	6,319.10	1,728.37	360.33	14,456,768.19	1,697,687.69	39.80767939	-80.79606887
	8,974.00	91.78	325.210	6,316.62	1,806.24	305.96	14,456,846.06	1,697,633.33	39.80789358	-80.79626181
	9,068.00	90.15	325.120	6,315.04	1,883.38	252.28	14,456,923.20	1,697,579.65	39.80810576	-80.79645234
	9,163.00	90.81	324.420	6,314.24	1,960.98	197.48	14,457,000.79	1,697,524.85	39.80831920	-80.79664684
	9,258.00	91.30	323.980	6,312.49	2,038.02	141.92	14,457,077.83	1,697,469.29	39.80853112	-80.79684407
	9,353.00	91.87	323.980	6,309.87	2,114.82	86.07	14,457,154.64	1,697,413.44	39.80874240	-80.79704230
	9,447.00	90.11	325.210	6,308.24	2,191.42	31.63	14,457,231.24	1,697,358.99	39.80895310	-80.79723556
	9,542.00	90.77	325.210	6,307.51	2,269.44	-22.58	14,457,309.26	1,697,304.79	39.80916769	-80.79742794
	9,637.00	89.93	328.020	6,306.93	2,348.76	-74.84	14,457,388.57	1,697,252.52	39.80938584	-80.79761342
	9,731.00	90.51	328.020	6,306.57	2,428.49	-124.63	14,457,468.30	1,697,202.74	39.80960511	-80.79779005
	9,826.00	90.81	327.670	6,305.48	2,508.91	-175.19	14,457,548.72	1,697,152.18	39.80982629	-80.79796943
	9,920.00	90.33	329.170	6,304.54	2,588.98	-224.41	14,457,628.80	1,697,102.96	39.81004649	-80.79814406
	10,015.00	89.80	327.410	6,304.43	2,669.80	-274.34	14,457,709.61	1,697,053.03	39.81026874	-80.79832122
	10,109.00	88.92	326.180	6,305.48	2,748.44	-325.81	14,457,788.26	1,697,001.56	39.81048504	-80.79850388
	10,203.00	89.01	325.560	6,307.18	2,826.24	-378.54	14,457,866.05	1,696,948.82	39.81069901	-80.79869103
	10,298.00	89.49	325.650	6,308.43	2,904.62	-432.21	14,457,944.44	1,696,895.16	39.81091461	-80.79888148
	10,392.00	89.80	325.300	6,309.01	2,982.07	-485.48	14,458,021.88	1,696,841.89	39.81112761	-80.79907057
	10,487.00	90.29	325.120	6,308.93	3,060.08	-539.68	14,458,099.90	1,696,787.69	39.81134221	-80.79926297
	10,582.00	90.99	324.600	6,307.87	3,137.76	-594.36	14,458,177.58	1,696,733.01	39.81155587	-80.79945705
	10,676.00	91.38	324.250	6,305.93	3,214.20	-649.03	14,458,254.02	1,696,678.34	39.81176613	-80.79965113
	10,771.00	90.33	323.630	6,304.51	3,290.99	-704.95	14,458,330.80	1,696,622.42	39.81197736	-80.79984962
	10,866.00	90.90	322.930	6,303.49	3,367.14	-761.74	14,458,406.95	1,696,565.63	39.81218681	-80.80005127
	10,961.00	91.38	322.750	6,301.60	3,442.83	-819.12	14,458,482.64	1,696,508.25	39.81239504	-80.80025497
	11,055.00	89.89	323.720	6,300.56	3,518.13	-875.37	14,458,557.94	1,696,452.00	39.81260217	-80.80045471
	11,150.00	90.20	322.490	6,300.48	3,594.10	-932.40	14,458,633.91	1,696,394.96	39.81281116	-80.80065720
	11,245.00	90.24	321.870	6,300.12	3,669.14	-990.66	14,458,708.95	1,696,336.71	39.81301761	-80.80086404
	11,339.00	91.08	323.100	6,299.04	3,743.70	-1,047.89	14,458,783.51	1,696,279.48	39.81322270	-80.80106728
	11,434.00	90.20	324.600	6,297.98	3,820.40	-1,103.93	14,458,860.21	1,696,223.44	39.81343369	-80.80126621
	11,529.00	90.55	324.600	6,297.35	3,897.83	-1,158.96	14,458,937.65	1,696,168.41	39.81364668	-80.80146157
	11,624.00	90.73	324.250	6,296.29	3,975.10	-1,214.22	14,459,014.91	1,696,113.15	39.81385920	-80.80165776
	11,718.00	91.30	324.510	6,294.63	4,051.50	-1,268.96	14,459,091.31	1,696,058.41	39.81406935	-80.80185208
	11,813.00	89.98	325.120	6,293.57	4,129.13	-1,323.70	14,459,168.94	1,696,003.67	39.81428289	-80.80204639
	11,908.00	90.29	324.860	6,293.34	4,206.94	-1,378.20	14,459,246.75	1,695,949.17	39.81449691	-80.80223987
	12,002.00	88.62	324.950	6,294.24	4,283.85	-1,432.24	14,459,323.66	1,695,895.13	39.81470844	-80.80243171
	12,097.00	88.75	325.210	6,296.42	4,361.72	-1,486.61	14,459,401.53	1,695,840.76	39.81492263	-80.80262471
	12,192.00	88.70	324.860	6,298.53	4,439.56	-1,541.04	14,459,479.37	1,695,786.34	39.81513671	-80.80281792
	12,287.00	90.46	325.920	6,299.23	4,517.74	-1,594.99	14,459,557.55	1,695,732.38	39.81535175	-80.80300945
	12,381.00	91.65	325.390	6,297.50	4,595.34	-1,648.01	14,459,635.15	1,695,679.36	39.81556517	-80.80319766
	12,476.00	90.37	326.350	6,295.82	4,673.96	-1,701.30	14,459,713.77	1,695,626.07	39.81578141	-80.80338683
	12,571.00	91.08	325.830	6,294.62	4,752.79	-1,754.30	14,459,792.60	1,695,573.07	39.81599823	-80.80357494
	12,666.00	89.19	326.440	6,294.40	4,831.67	-1,807.23	14,459,871.48	1,695,520.14	39.81621517	-80.80376284
	12,760.00	89.71	326.350	6,295.30	4,909.96	-1,859.26	14,459,949.77	1,695,468.12	39.81643048	-80.80394749
	12,855.00	90.46	326.000	6,295.16	4,988.88	-1,912.14	14,460,028.69	1,695,415.23	39.81664753	-80.80413520
	12,950.00	91.52	325.650	6,293.52	5,067.46	-1,965.49	14,460,107.27	1,695,361.88	39.81686366	-80.80432460
	13,044.00	90.46	326.350	6,291.89	5,145.38	-2,018.05	14,460,185.19	1,695,309.32	39.81707795	-80.80451115
	13,139.00	91.38	327.150	6,290.37	5,224.81	-2,070.13	14,460,264.62	1,695,257.24	39.81729642	-80.80469601
	13,234.00	89.98	326.710	6,289.24	5,304.42	-2,121.96	14,460,344.22	1,695,205.41	39.81751534	-80.80487998
	13,328.00	90.24	328.380	6,289.06	5,383.73	-2,172.40	14,460,423.54	1,695,154.97	39.81773346	-80.80505900
	13,423.00	90.55	326.180	6,288.40	5,463.65	-2,223.75	14,460,503.46	1,695,103.62	39.81795324	-80.80524124
	13,518.00	90.77	324.330	6,287.31	5,541.70	-2,277.89	14,460,581.51	1,695,049.49	39.81816792	-80.80543344
	13,613.00	89.19	324.330	6,287.34	5,618.88	-2,333.28	14,460,658.69	1,694,994.09	39.81838019	-80.80563012
	13,707.00	89.89	324.070	6,288.10	5,695.11	-2,388.26	14,460,734.92	1,694,939.11	39.81859899	-80.80582534
	13,802.00	90.51	324.420	6,287.77	5,772.21	-2,443.77	14,460,812.02	1,694,883.60	39.81880194	-80.80602244
	13,896.00	88.79	323.450	6,288.34	5,848.19	-2,499.11	14,460,888.00	1,694,828.26	39.81901092	-80.80621892



<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Michter N-04HM (B)
<b>Project:</b>	Marshall County, West Virginia	<b>TVD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Site:</b>	Michter	<b>MD Reference:</b>	RKB=1128+25 @ 1153.00ft (H&P 611)
<b>Well:</b>	Michter N-04HM (B)	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys Original Hole	<b>Database:</b>	DB_Aug1919_v14

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Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
13,991.00	89.58	323.370	6,289.69	5,924.46	-2,555.73	14,460,964.26	1,694,771.64	39.81922072	-80.80641998
14,086.00	89.89	323.190	6,290.13	6,000.60	-2,612.53	14,461,040.41	1,694,714.84	39.81943018	-80.80662168
14,181.00	90.68	322.750	6,289.66	6,076.44	-2,669.74	14,461,116.25	1,694,657.63	39.81963879	-80.80682485
14,275.00	91.96	322.490	6,287.49	6,151.12	-2,726.79	14,461,190.92	1,694,600.58	39.81984420	-80.80702746
14,370.00	91.34	323.890	6,284.76	6,227.14	-2,783.69	14,461,266.95	1,694,543.69	39.82005332	-80.80722950
14,465.00	89.85	324.510	6,283.77	6,304.19	-2,839.25	14,461,343.99	1,694,488.12	39.82026523	-80.80742680
14,560.00	90.73	324.680	6,283.29	6,381.62	-2,894.29	14,461,421.42	1,694,433.08	39.82047820	-80.80762222
14,655.00	91.91	324.250	6,281.10	6,458.90	-2,949.49	14,461,498.71	1,694,377.88	39.82069077	-80.80781822
14,749.00	90.24	325.300	6,279.34	6,535.67	-3,003.69	14,461,575.48	1,694,323.68	39.82090193	-80.80801068
14,844.00	90.73	325.390	6,278.53	6,613.82	-3,057.71	14,461,653.62	1,694,269.66	39.82111685	-80.80820247
14,939.00	90.07	326.620	6,277.87	6,692.58	-3,110.83	14,461,732.38	1,694,216.55	39.82133345	-80.80839103
15,034.00	90.29	326.090	6,277.57	6,771.66	-3,163.46	14,461,811.47	1,694,163.91	39.82155095	-80.80857788
15,128.00	91.60	324.950	6,276.02	6,849.13	-3,216.67	14,461,888.94	1,694,110.71	39.82176402	-80.80876678
15,223.00	89.98	324.950	6,274.71	6,926.90	-3,271.22	14,461,966.70	1,694,056.16	39.82197790	-80.80896048
15,318.00	90.55	325.480	6,274.27	7,004.92	-3,325.41	14,462,044.72	1,694,001.96	39.82219248	-80.80915290
15,412.00	90.77	325.480	6,273.19	7,082.36	-3,378.68	14,462,122.17	1,693,948.70	39.82240548	-80.80934202
15,507.00	89.54	325.560	6,272.93	7,160.67	-3,432.46	14,462,200.48	1,693,894.92	39.82262085	-80.80953297
15,602.00	90.07	325.560	6,273.26	7,239.02	-3,486.18	14,462,278.82	1,693,841.19	39.82283632	-80.80972372
15,697.00	91.03	326.180	6,272.34	7,317.65	-3,539.48	14,462,357.46	1,693,787.89	39.82305258	-80.80991296
15,791.00	90.02	325.920	6,271.48	7,395.62	-3,591.98	14,462,435.43	1,693,735.40	39.82326702	-80.81009933
15,886.00	90.64	326.000	6,270.94	7,474.34	-3,645.15	14,462,514.15	1,693,682.22	39.82348351	-80.81028813
15,981.00	91.82	325.480	6,268.90	7,552.84	-3,698.62	14,462,592.64	1,693,628.75	39.82369939	-80.81047796
16,076.00	90.46	325.120	6,267.01	7,630.93	-3,752.69	14,462,670.73	1,693,574.69	39.82391415	-80.81066995
16,171.00	90.86	325.210	6,265.91	7,708.90	-3,806.95	14,462,748.70	1,693,520.42	39.82412860	-80.81086262
16,265.00	91.87	324.420	6,263.67	7,785.70	-3,861.10	14,462,825.50	1,693,466.28	39.82433983	-80.81105490
16,360.00	90.20	325.300	6,261.96	7,863.37	-3,915.77	14,462,903.17	1,693,411.61	39.82455345	-80.81124902
16,454.00	90.73	325.480	6,261.19	7,940.73	-3,969.16	14,462,980.54	1,693,358.22	39.82476622	-80.81143859
16,549.00	89.71	324.330	6,260.83	8,018.46	-4,023.77	14,463,058.26	1,693,303.60	39.82497999	-80.81163254
16,644.00	90.29	323.630	6,260.83	8,095.29	-4,079.64	14,463,135.10	1,693,247.74	39.82519132	-80.81183094
16,739.00	91.08	323.020	6,259.69	8,171.48	-4,136.38	14,463,211.28	1,693,191.00	39.82540088	-80.81203244
16,833.00	90.20	324.680	6,258.64	8,247.38	-4,191.82	14,463,287.18	1,693,135.56	39.82560962	-80.81222935
16,928.00	90.77	325.300	6,257.84	8,325.18	-4,246.32	14,463,364.99	1,693,081.06	39.82582362	-80.81242289
17,022.00	89.01	326.440	6,258.02	8,402.99	-4,299.06	14,463,442.79	1,693,028.32	39.82603759	-80.81261015
17,117.00	89.58	326.440	6,259.19	8,482.15	-4,351.57	14,463,521.95	1,692,975.80	39.82625528	-80.81279659
17,212.00	90.90	326.790	6,258.79	8,561.47	-4,403.84	14,463,601.27	1,692,923.53	39.82647342	-80.81298218
17,306.00	92.40	327.150	6,256.08	8,640.24	-4,455.06	14,463,680.04	1,692,872.32	39.82669005	-80.81316401
17,334.00	92.53	327.150	6,254.88	8,663.74	-4,470.23	14,463,703.54	1,692,857.14	39.82675467	-80.81321789
<b>Survey @ 17334.00 MD 6254.88 TVD</b>									
17,392.00	92.53	327.150	6,252.32	8,712.42	-4,501.66	14,463,752.22	1,692,825.71	39.82688853	-80.81332947
<b>Survey projected to 17392.00 MD 6252.32 TVD</b>									

WV Department of Environmental Protection

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
190.00	190.00	0.07	-0.58	MWD surveys
17,334.00	6,254.88	8,663.74	-4,470.23	Survey @ 17334.00 MD 6254.88 TVD
17,392.00	6,252.32	8,712.42	-4,501.66	Survey projected to 17392.00 MD 6252.32 TVD