

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Bryan S-08HM (slot H)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=1191+28 @ 1219.00usft (Precision 110)
<b>Site:</b>	Bryan Pad	<b>MD Reference:</b>	RKB=1191+28 @ 1219.00usft (Precision 110)
<b>Well:</b>	Bryan S-08HM (slot H)	<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_Jul2216dt_v14

<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)		

<b>Site</b>	Bryan Pad				
<b>Site Position:</b>		<b>Northing:</b>	14,445,110.80 usft	<b>Latitude:</b>	39.77562900
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,703,181.57 usft	<b>Longitude:</b>	-80.77660992
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.14 °

<b>Well</b>	Bryan S-08HM (slot H)					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	14,445,160.23 usft	<b>Latitude:</b>	39.77576483
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,703,169.27 usft	<b>Longitude:</b>	-80.77665329
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	1,191.00 usft

<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	12/25/2018	-8.69	66.83	52,000.38263757

<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) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	144.34	

<b>Survey Program</b>	<b>Date</b>	1/28/2019			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
280.00	2,627.00	MWD surf (Original Hole)	MWD	MWD - Standard	
2,700.00	13,650.00	MWD lat (Original Hole)	MWD	MWD - Standard	
13,700.00	13,700.00	Projection (Original Hole)	MWD	MWD - Standard	

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<b>Survey</b>										
<b>Measured</b>	<b>Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Map Northing (usft)</b>	<b>Map Easting (usft)</b>	<b>Latitude</b>	<b>Longitude</b>
	0.00	0.00	0.00	0.00	0.00	0.00	14,445,160.23	1,703,169.27	39.77576483	-80.77665329
	280.00	0.47	108.50	280.00	-0.36	1.09	14,445,159.86	1,703,170.35	39.77576382	-80.77664942
<b>MWD surveys</b>										
	337.00	0.27	77.40	337.00	-0.41	1.44	14,445,159.82	1,703,170.71	39.77576370	-80.77664816
	433.00	0.59	14.27	432.99	0.12	1.78	14,445,160.35	1,703,171.05	39.77576515	-80.77664694
	527.00	0.25	52.85	526.99	0.71	2.07	14,445,160.94	1,703,171.33	39.77576677	-80.77664593
	621.00	0.56	87.08	620.99	0.86	2.69	14,445,161.09	1,703,171.96	39.77576717	-80.77664371
	716.00	0.26	193.28	715.99	0.67	3.10	14,445,160.90	1,703,172.37	39.77576666	-80.77664224
	809.00	0.44	153.76	808.99	0.15	3.21	14,445,160.37	1,703,172.48	39.77576521	-80.77664185
	899.00	0.32	255.12	898.98	-0.23	3.12	14,445,160.00	1,703,172.39	39.77576419	-80.77664218

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<b>Design:</b>	Surveys Original Hole	<b>Database:</b>	DB_Jul2216dt_v14

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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
932.00	0.37	98.06	931.98	-0.27	3.14	14,445,159.96	1,703,172.41	39.77576408	-80.77664212
989.00	0.60	149.99	988.98	-0.55	3.47	14,445,159.68	1,703,172.74	39.77576330	-80.77664094
1,079.00	0.91	124.99	1,078.97	-1.37	4.29	14,445,158.86	1,703,173.56	39.77576105	-80.77663803
1,168.00	0.91	135.52	1,167.96	-2.28	5.37	14,445,157.95	1,703,174.63	39.77575854	-80.77663421
1,258.00	0.93	110.39	1,257.95	-3.04	6.55	14,445,157.18	1,703,175.82	39.77575643	-80.77663000
1,348.00	0.96	313.28	1,347.95	-2.78	6.69	14,445,157.45	1,703,175.95	39.77575715	-80.77662951
1,438.00	2.47	321.85	1,437.90	-0.74	4.94	14,445,159.49	1,703,174.21	39.77576277	-80.77663571
1,527.00	2.49	336.38	1,526.82	2.54	2.98	14,445,162.77	1,703,172.25	39.77577179	-80.77664266
1,617.00	3.08	13.04	1,616.72	6.69	2.74	14,445,166.92	1,703,172.01	39.77578318	-80.77664347
1,707.00	4.10	23.48	1,706.55	12.00	4.57	14,445,172.22	1,703,173.84	39.77579775	-80.77663692
1,796.00	4.27	26.31	1,795.31	17.88	7.31	14,445,178.11	1,703,176.57	39.77581390	-80.77662713
1,886.00	4.67	42.09	1,885.04	23.61	11.25	14,445,183.83	1,703,180.51	39.77582959	-80.77661305
1,976.00	5.54	46.84	1,974.68	29.30	16.87	14,445,189.52	1,703,186.14	39.77584518	-80.77659298
2,065.00	6.68	46.03	2,063.17	35.83	23.73	14,445,196.06	1,703,193.00	39.77586307	-80.77656851
2,155.00	7.21	39.35	2,152.51	43.83	31.08	14,445,204.06	1,703,200.35	39.77588499	-80.77654228
2,244.00	5.88	32.07	2,240.93	52.01	37.04	14,445,212.24	1,703,206.31	39.77590742	-80.77652099
2,334.00	4.01	29.17	2,330.59	58.67	41.02	14,445,218.90	1,703,210.29	39.77592567	-80.77650676
2,424.00	3.26	33.22	2,420.41	63.56	43.96	14,445,223.78	1,703,213.23	39.77593908	-80.77649626
2,513.00	3.81	23.90	2,509.24	68.38	46.55	14,445,228.61	1,703,215.81	39.77595230	-80.77648702
2,603.00	4.11	19.85	2,599.03	74.15	48.85	14,445,234.37	1,703,218.12	39.77596812	-80.77647876
2,627.00	4.34	19.53	2,622.96	75.81	49.45	14,445,236.04	1,703,218.71	39.77597269	-80.77647663
2,707.00	4.53	18.69	2,702.72	81.66	51.47	14,445,241.88	1,703,220.74	39.77598873	-80.77646937
2,777.00	3.78	13.48	2,772.54	86.52	52.90	14,445,246.75	1,703,222.16	39.77600207	-80.77646426
2,866.00	1.44	357.60	2,861.44	90.49	53.53	14,445,250.72	1,703,222.80	39.77601297	-80.77646196
2,959.00	0.91	224.00	2,954.43	91.13	52.97	14,445,251.35	1,703,222.24	39.77601473	-80.77646395
3,050.00	2.21	190.08	3,045.40	88.88	52.16	14,445,249.11	1,703,221.43	39.77600856	-80.77646685
3,139.00	4.03	70.32	3,134.32	88.24	54.81	14,445,248.47	1,703,224.07	39.77600679	-80.77645744
3,229.00	7.54	58.35	3,223.85	92.41	62.81	14,445,252.63	1,703,232.08	39.77601818	-80.77642890
3,319.00	6.75	57.00	3,313.15	98.39	72.28	14,445,258.61	1,703,241.54	39.77603453	-80.77639517
3,408.00	6.65	37.27	3,401.56	105.34	79.79	14,445,265.56	1,703,249.05	39.77605357	-80.77636839
3,498.00	7.62	36.04	3,490.86	114.31	86.45	14,445,274.54	1,703,255.72	39.77607816	-80.77634458
3,588.00	8.74	35.88	3,579.94	124.67	93.97	14,445,284.90	1,703,263.24	39.77610658	-80.77631773
3,677.00	8.01	32.99	3,667.99	135.35	101.31	14,445,295.58	1,703,270.58	39.77613586	-80.77629151
3,767.00	8.24	32.08	3,757.09	146.08	108.15	14,445,306.31	1,703,277.42	39.77616526	-80.77626707
3,857.00	7.60	27.61	3,846.23	156.82	114.33	14,445,317.04	1,703,283.60	39.77619471	-80.77624497
3,946.00	7.05	34.98	3,934.51	166.51	120.19	14,445,326.73	1,703,289.46	39.77622128	-80.77622403
4,036.00	6.19	33.35	4,023.91	175.09	126.03	14,445,335.31	1,703,295.29	39.77624480	-80.77620319
4,125.00	7.33	30.29	4,112.29	184.00	131.53	14,445,344.22	1,703,300.79	39.77626924	-80.77618353
4,215.00	9.40	23.39	4,201.33	195.70	137.34	14,445,355.93	1,703,306.61	39.77630134	-80.77616273
4,305.00	10.65	18.58	4,289.95	210.33	142.91	14,445,370.56	1,703,312.18	39.77634148	-80.77614278
4,394.00	11.06	19.93	4,377.36	226.15	148.44	14,445,386.38	1,703,317.71	39.77638489	-80.77612296
4,484.00	11.76	28.00	4,465.59	242.37	155.69	14,445,402.59	1,703,324.96	39.77642937	-80.77609701
4,574.00	14.42	27.80	4,553.24	260.38	165.22	14,445,420.61	1,703,334.49	39.77647878	-80.77606292
4,663.00	16.97	28.51	4,638.92	281.60	176.59	14,445,441.83	1,703,345.86	39.77653698	-80.77602226
4,753.00	15.57	35.56	4,725.32	302.97	189.89	14,445,463.20	1,703,359.15	39.77659557	-80.77597475
4,842.00	13.81	36.55	4,811.40	321.22	203.16	14,445,481.45	1,703,372.43	39.77664561	-80.77592735
4,932.00	14.64	39.29	4,898.65	338.66	216.76	14,445,498.88	1,703,386.03	39.77669339	-80.77587879
5,022.00	14.64	37.45	4,985.72	356.49	230.88	14,445,516.71	1,703,400.15	39.77674226	-80.77582838
5,111.00	15.42	33.06	5,071.68	375.33	244.17	14,445,535.56	1,703,413.44	39.77679393	-80.77578090
5,201.00	15.96	26.15	5,158.34	396.47	256.16	14,445,556.70	1,703,425.42	39.77685189	-80.77573806
5,291.00	15.69	25.56	5,244.92	418.56	266.86	14,445,578.78	1,703,436.13	39.77691247	-80.77569977
5,380.00	15.15	25.74	5,330.72	439.89	277.10	14,445,600.12	1,703,446.37	39.77697099	-80.77566312
5,470.00	14.98	25.68	5,417.63	460.97	287.25	14,445,621.19	1,703,456.52	39.77702880	-80.77562681
5,560.00	15.60	25.25	5,504.44	482.39	297.45	14,445,642.62	1,703,466.72	39.77708758	-80.77559031
5,649.00	14.86	20.03	5,590.32	503.94	306.47	14,445,664.17	1,703,475.73	39.77714669	-80.77555803





Survey Report - Geographic



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5,722.00	15.00	19.50	5,660.85	521.64	312.83	14,445,681.87	1,703,482.09	39.77719525	-80.77553524
5,767.00	14.30	31.70	5,704.40	531.86	317.69	14,445,692.09	1,703,486.96	39.77722329	-80.77551783
5,812.00	15.70	49.80	5,747.89	540.52	325.27	14,445,700.75	1,703,494.53	39.77724703	-80.77549079
5,856.00	16.70	67.90	5,790.17	546.75	335.68	14,445,706.98	1,703,504.95	39.77726405	-80.77545368
5,901.00	15.91	73.96	5,833.36	550.89	347.60	14,445,711.11	1,703,516.86	39.77727533	-80.77541122
5,946.00	17.58	86.79	5,876.47	552.97	360.32	14,445,713.20	1,703,529.58	39.77728097	-80.77536594
5,991.00	18.64	100.15	5,919.26	552.08	374.19	14,445,712.31	1,703,543.45	39.77727844	-80.77531658
6,036.00	19.34	110.26	5,961.82	548.24	388.26	14,445,708.46	1,703,557.53	39.77726777	-80.77526652
6,081.00	20.66	114.22	6,004.11	542.40	402.49	14,445,702.63	1,703,571.76	39.77725164	-80.77521592
6,126.00	22.77	119.84	6,045.92	534.81	417.29	14,445,695.03	1,703,586.55	39.77723069	-80.77516332
6,170.00	25.67	124.94	6,086.04	525.11	432.49	14,445,685.34	1,703,601.76	39.77720396	-80.77510930
6,215.00	28.97	126.70	6,126.02	513.01	449.22	14,445,673.24	1,703,618.49	39.77717061	-80.77504985
6,260.00	31.65	129.16	6,164.87	499.04	467.12	14,445,659.27	1,703,636.39	39.77713212	-80.77498628
6,305.00	34.73	132.67	6,202.52	482.89	485.71	14,445,643.12	1,703,654.97	39.77708764	-80.77492028
6,350.00	38.42	135.13	6,238.66	464.29	505.00	14,445,624.51	1,703,674.27	39.77703642	-80.77485176
6,395.00	43.16	135.13	6,272.72	443.46	525.74	14,445,603.68	1,703,695.00	39.77697907	-80.77477815
6,440.00	46.15	135.22	6,304.72	421.03	548.03	14,445,581.25	1,703,717.30	39.77691732	-80.77469900
6,485.00	49.14	136.80	6,335.04	397.10	571.12	14,445,557.32	1,703,740.38	39.77685144	-80.77461706
6,529.00	52.00	139.62	6,362.99	371.75	593.74	14,445,531.98	1,703,763.01	39.77678169	-80.77453674
6,574.00	54.07	142.96	6,390.05	343.70	616.21	14,445,503.92	1,703,785.48	39.77670448	-80.77445703
6,619.00	57.85	143.75	6,415.23	313.78	638.46	14,445,474.01	1,703,807.72	39.77662217	-80.77437811
6,664.00	61.67	146.03	6,437.90	281.98	660.80	14,445,442.20	1,703,830.07	39.77653467	-80.77429888
6,709.00	66.29	146.74	6,457.63	248.31	683.18	14,445,408.53	1,703,852.44	39.77644205	-80.77421954
6,754.00	70.11	146.03	6,474.34	213.52	706.31	14,445,373.75	1,703,875.57	39.77634636	-80.77413753
6,799.00	73.32	145.86	6,488.46	178.13	730.23	14,445,338.35	1,703,899.50	39.77624899	-80.77405270
6,843.00	76.13	146.03	6,500.05	142.96	754.00	14,445,303.19	1,703,923.26	39.77615226	-80.77396843
6,888.00	79.12	147.44	6,509.69	106.22	778.10	14,445,266.44	1,703,947.37	39.77605117	-80.77388297
6,933.00	83.16	149.11	6,516.62	68.40	801.47	14,445,228.63	1,703,970.74	39.77594716	-80.77380013
6,978.00	86.64	150.16	6,520.62	29.74	824.13	14,445,189.96	1,703,993.39	39.77584081	-80.77371985
7,068.00	88.66	150.08	6,524.31	-48.23	868.92	14,445,112.00	1,704,038.19	39.77562638	-80.77356111
7,158.00	87.80	150.20	6,527.09	-126.24	913.71	14,445,033.98	1,704,082.98	39.77541182	-80.77340241
7,247.00	89.93	150.34	6,528.85	-203.51	957.83	14,444,956.72	1,704,127.10	39.77519933	-80.77324606
7,337.00	89.85	150.08	6,529.03	-281.62	1,002.55	14,444,878.61	1,704,171.81	39.77498451	-80.77308762
7,427.00	90.20	149.46	6,528.99	-359.38	1,047.86	14,444,800.85	1,704,217.13	39.77477064	-80.77292705
7,516.00	89.85	150.69	6,528.95	-436.51	1,092.26	14,444,723.72	1,704,261.52	39.77455851	-80.77276973
7,606.00	90.20	151.22	6,528.91	-515.19	1,135.95	14,444,645.04	1,704,305.22	39.77434212	-80.77261493
7,696.00	90.29	151.22	6,528.52	-594.07	1,179.28	14,444,566.15	1,704,348.55	39.77412519	-80.77246143
7,785.00	90.86	150.87	6,527.63	-671.94	1,222.37	14,444,488.28	1,704,391.63	39.77391103	-80.77230880
7,875.00	89.32	148.67	6,527.49	-749.70	1,267.68	14,444,410.53	1,704,436.94	39.77369718	-80.77214825
7,965.00	89.01	147.62	6,528.80	-826.13	1,315.17	14,444,334.09	1,704,484.44	39.77348694	-80.77197991
8,055.00	88.92	147.26	6,530.43	-901.98	1,363.60	14,444,258.25	1,704,532.86	39.77327832	-80.77180824
8,144.00	88.97	148.76	6,532.07	-977.44	1,410.74	14,444,182.78	1,704,580.00	39.77307073	-80.77164115
8,234.00	89.19	148.67	6,533.51	-1,054.35	1,457.47	14,444,105.88	1,704,626.73	39.77285920	-80.77147554
8,324.00	89.54	148.67	6,534.51	-1,131.22	1,504.26	14,444,029.01	1,704,673.53	39.77264776	-80.77130970
8,413.00	89.05	149.72	6,535.60	-1,207.66	1,549.84	14,443,952.57	1,704,719.10	39.77243752	-80.77114819
8,503.00	87.96	150.25	6,537.95	-1,285.56	1,594.84	14,443,874.67	1,704,764.11	39.77222327	-80.77098873
8,592.00	88.22	153.42	6,540.92	-1,363.97	1,636.82	14,443,796.26	1,704,806.09	39.77200764	-80.77084004
8,682.00	88.66	152.80	6,543.37	-1,444.21	1,677.51	14,443,716.02	1,704,846.78	39.77178700	-80.77069596
8,772.00	91.43	154.03	6,543.30	-1,524.68	1,717.78	14,443,635.55	1,704,887.05	39.77156571	-80.77055337
8,861.00	88.57	150.78	6,543.30	-1,603.54	1,759.00	14,443,556.69	1,704,928.27	39.77134885	-80.77040740
8,951.00	89.10	147.26	6,545.13	-1,680.67	1,805.31	14,443,479.56	1,704,974.58	39.77113670	-80.77024329
9,041.00	90.37	149.90	6,545.54	-1,757.46	1,852.22	14,443,402.76	1,705,021.49	39.77092547	-80.77007704
9,131.00	90.46	148.93	6,544.89	-1,834.94	1,898.01	14,443,325.29	1,705,067.28	39.77071238	-80.76991478
9,220.00	90.02	144.98	6,544.52	-1,909.53	1,946.54	14,443,250.70	1,705,115.80	39.77050720	-80.76974278
9,310.00	91.16	143.31	6,543.59	-1,982.47	1,999.25	14,443,177.76	1,705,168.51	39.77030652	-80.76955586



Survey Report - Geographic



<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Bryan S-08HM (slot H)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=1191+28 @ 1219.00usft (Precision 110)
<b>Site:</b>	Bryan Pad	<b>MD Reference:</b>	RKB=1191+28 @ 1219.00usft (Precision 110)
<b>Well:</b>	Bryan S-08HM (slot H)	<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_Jul2216dt_v14

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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,399.00	93.54	150.30	6,539.94	-2,056.83	2,047.90	14,443,103.40	1,705,217.17	39.77010196	-80.76938338
9,489.00	91.47	151.66	6,536.01	-2,135.44	2,091.52	14,443,024.78	1,705,260.78	39.76988574	-80.76922888
9,579.00	91.82	151.13	6,533.42	-2,214.43	2,134.59	14,442,945.80	1,705,303.85	39.76966853	-80.76907633
9,668.00	89.58	151.57	6,532.33	-2,292.52	2,177.25	14,442,867.71	1,705,346.52	39.76945376	-80.76892520
9,758.00	88.26	150.87	6,534.03	-2,371.39	2,220.57	14,442,788.84	1,705,389.84	39.76923687	-80.76877176
9,848.00	88.75	150.52	6,536.38	-2,449.84	2,264.61	14,442,710.39	1,705,433.88	39.76902109	-80.76861576
9,938.00	89.41	150.52	6,537.82	-2,528.18	2,308.90	14,442,632.05	1,705,478.16	39.76880564	-80.76845888
10,027.00	90.46	150.34	6,537.93	-2,605.58	2,352.82	14,442,554.64	1,705,522.08	39.76859275	-80.76830329
10,117.00	90.29	150.43	6,537.34	-2,683.83	2,397.29	14,442,476.40	1,705,566.56	39.76837756	-80.76814574
10,207.00	89.89	151.31	6,537.20	-2,762.44	2,441.10	14,442,397.78	1,705,610.37	39.76816135	-80.76799055
10,296.00	89.01	151.75	6,538.05	-2,840.67	2,483.52	14,442,319.55	1,705,652.79	39.76794620	-80.76784030
10,386.00	89.71	152.10	6,539.05	-2,920.08	2,525.88	14,442,240.15	1,705,695.14	39.76772783	-80.76769031
10,476.00	88.26	151.66	6,540.65	-2,999.44	2,568.29	14,442,160.79	1,705,737.55	39.76750958	-80.76754011
10,565.00	89.19	151.83	6,542.63	-3,077.82	2,610.41	14,442,082.41	1,705,779.68	39.76729404	-80.76739094
10,655.00	90.29	151.04	6,543.04	-3,156.86	2,653.44	14,442,003.37	1,705,822.71	39.76707666	-80.76723853
10,744.00	88.09	151.04	6,544.30	-3,234.72	2,696.53	14,441,925.51	1,705,865.79	39.76686253	-80.76708592
10,834.00	89.19	151.48	6,546.43	-3,313.61	2,739.79	14,441,846.62	1,705,909.06	39.76664557	-80.76693269
10,924.00	90.11	151.39	6,546.98	-3,392.65	2,782.82	14,441,767.58	1,705,952.09	39.76642819	-80.76678029
11,014.00	91.16	151.66	6,545.98	-3,471.75	2,825.73	14,441,688.47	1,705,995.00	39.76621064	-80.76662833
11,103.00	89.45	150.08	6,545.51	-3,549.49	2,869.05	14,441,610.74	1,706,038.32	39.76599684	-80.76647489
11,193.00	90.55	150.16	6,545.51	-3,627.53	2,913.89	14,441,532.70	1,706,083.15	39.76578221	-80.76631806
11,283.00	89.10	150.25	6,545.79	-3,705.63	2,958.61	14,441,454.60	1,706,127.87	39.76556741	-80.76615764
11,372.00	89.71	150.25	6,546.71	-3,782.89	3,002.77	14,441,377.34	1,706,172.03	39.76535490	-80.76600121
11,462.00	89.98	149.20	6,546.95	-3,860.62	3,048.14	14,441,299.61	1,706,217.41	39.76514112	-80.76584047
11,551.00	87.91	149.29	6,548.59	-3,937.08	3,093.64	14,441,223.14	1,706,262.91	39.76493079	-80.76567926
11,641.00	88.75	149.46	6,551.21	-4,014.49	3,139.47	14,441,145.73	1,706,308.74	39.76471787	-80.76551690
11,731.00	89.58	149.55	6,552.53	-4,092.04	3,185.14	14,441,068.19	1,706,354.40	39.76450459	-80.76535512
11,821.00	90.46	149.72	6,552.49	-4,169.69	3,230.63	14,440,990.54	1,706,399.90	39.76429100	-80.76519395
11,910.00	90.81	150.43	6,551.51	-4,246.82	3,275.03	14,440,913.41	1,706,444.29	39.76407886	-80.76503668
12,000.00	88.66	150.08	6,551.92	-4,324.95	3,319.68	14,440,835.27	1,706,488.94	39.76386396	-80.76487852
12,090.00	89.76	150.43	6,553.17	-4,403.09	3,364.32	14,440,757.14	1,706,533.59	39.76364906	-80.76472037
12,179.00	90.64	150.52	6,552.85	-4,480.53	3,408.18	14,440,679.70	1,706,577.45	39.76343607	-80.76456503
12,269.00	88.00	150.52	6,553.92	-4,558.86	3,452.47	14,440,601.36	1,706,621.73	39.76322062	-80.76440818
12,359.00	90.02	150.43	6,555.48	-4,637.16	3,496.81	14,440,523.07	1,706,666.08	39.76300527	-80.76425111
12,448.00	90.73	150.52	6,554.89	-4,714.60	3,540.67	14,440,445.62	1,706,709.93	39.76279228	-80.76409577
12,538.00	89.54	150.69	6,554.68	-4,793.01	3,584.84	14,440,367.21	1,706,754.11	39.76257662	-80.76393932
12,628.00	90.02	152.36	6,555.03	-4,872.12	3,627.75	14,440,288.10	1,706,797.02	39.76235906	-80.76378737
12,717.00	90.86	152.89	6,554.35	-4,951.15	3,668.67	14,440,209.07	1,706,837.94	39.76214172	-80.76364250
12,807.00	89.58	150.78	6,554.00	-5,030.49	3,711.15	14,440,129.74	1,706,880.41	39.76192353	-80.76349209
12,896.00	89.76	149.46	6,554.51	-5,107.65	3,755.49	14,440,052.57	1,706,924.75	39.76171129	-80.76333505
12,986.00	90.02	148.67	6,554.68	-5,184.85	3,801.75	14,439,975.38	1,706,971.02	39.76149895	-80.76317114
13,076.00	89.23	149.11	6,555.27	-5,261.90	3,848.25	14,439,898.32	1,707,017.52	39.76128700	-80.76300640
13,166.00	89.98	149.11	6,555.89	-5,339.14	3,894.45	14,439,821.09	1,707,063.72	39.76107457	-80.76284272
13,255.00	90.73	148.67	6,555.34	-5,415.33	3,940.44	14,439,744.89	1,707,109.70	39.76086497	-80.76267981
13,345.00	88.53	149.11	6,555.92	-5,492.38	3,986.94	14,439,667.84	1,707,156.20	39.76065304	-80.76251508
13,434.00	89.27	149.46	6,557.63	-5,568.88	4,032.39	14,439,591.34	1,707,201.65	39.76044261	-80.76235408
13,524.00	90.51	149.64	6,557.81	-5,646.47	4,077.99	14,439,513.76	1,707,247.26	39.76022921	-80.76219252
13,614.00	91.25	149.64	6,556.42	-5,724.12	4,123.48	14,439,436.11	1,707,292.74	39.76001564	-80.76203140
13,650.00	91.78	149.72	6,555.47	-5,755.18	4,141.65	14,439,405.04	1,707,310.91	39.75993019	-80.76196705
<b>Survey @ 13650.00 MD 6555.47 TVD</b>									
13,700.00	91.78	149.72	6,553.92	-5,798.34	4,166.84	14,439,361.89	1,707,336.11	39.75981148	-80.76187779
<b>Survey projected to 13700.00 MD 6553.92 TVD</b>									

WV Department of Environmental Protection



<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Bryan S-08HM (slot H)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=1191+28 @ 1219.00usft (Precision 110)
<b>Site:</b>	Bryan Pad	<b>MD Reference:</b>	RKB=1191+28 @ 1219.00usft (Precision 110)
<b>Well:</b>	Bryan S-08HM (slot H)	<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_Jul2216dt_v14

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
280.00	280.00	-0.36	1.09	MWD surveys
13,650.00	6,555.47	-5,755.18	4,141.65	Survey @ 13650.00 MD 6555.47 TVD
13,700.00	6,553.92	-5,798.34	4,166.84	Survey projected to 13700.00 MD 6553.92 TVD

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