



Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Evad 03HM (H)
Project:	Marshall County, West Virginia	TVD Reference:	RKB=1291+18 @ 1309.00ft (Precision 528)
Site:	Accettolo/Evad Pad	MD Reference:	RKB=1291+18 @ 1309.00ft (Precision 528)
Well:	Evad 03HM (H)	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Jul2216dt_v14

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

Site	Accettolo/Evad Pad				
Site Position:		Northing:	14,433,724.12 usft	Latitude:	39.74438861
From:	Lat/Long	Easting:	1,698,524.31 usft	Longitude:	-80.79327927
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.13 "

Well	Evad 03HM (H)					
Well Position	+N/-S	0.00 ft	Northing:	14,433,729.71 usft	Latitude:	39.74440389
	+E/-W	0.00 ft	Easting:	1,698,534.92 usft	Longitude:	-80.79324146
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	1,291.00 ft

Wellbore	Original Hole			
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/17/2019	-8.68	66.79	51,959.64839878

Design	Surveys Original Hole				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	145.83	

Survey Program	Date	3/30/2019			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	<p style="text-align: center;">RECEIVED Office of Oil and Gas</p> <p style="text-align: center; font-size: 24px;">JUL 20 2020</p> <p style="text-align: center;">WV Department of Environmental Protection</p>
187.00	1,078.00	MWD surf (Original Hole)	MWD	MWD - Standard	
1,173.00	2,785.00	MWD int (Original Hole)	MWD	MWD - Standard	
2,877.00	14,431.00	MWD (Original Hole)	MWD	MWD - Standard	
14,480.00	14,480.00	Projection (Original Hole)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	14,433,729.71	1,698,534.92	39.74440389	-80.79324146	
187.00	0.15	121.57	187.00	-0.13	0.21	14,433,729.58	1,698,535.13	39.74440354	-80.79324072	
MWD surveys										
217.00	0.34	197.37	217.00	-0.23	0.22	14,433,729.48	1,698,535.14	39.74440325	-80.79324070	
248.00	0.39	209.26	248.00	-0.41	0.14	14,433,729.30	1,698,535.06	39.74440276	-80.79324098	
279.00	0.45	188.99	279.00	-0.63	0.07	14,433,729.08	1,698,534.99	39.74440217	-80.79324123	
309.00	0.38	215.20	309.00	-0.82	-0.01	14,433,728.89	1,698,534.91	39.74440163	-80.79324150	
340.00	0.54	128.46	340.00	-1.00	0.05	14,433,728.71	1,698,534.97	39.74440115	-80.79324131	
370.00	0.37	181.70	370.00	-1.18	0.15	14,433,728.53	1,698,535.08	39.74440064	-80.79324093	

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Well:	Evad 03HM (H)	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Jul2216dt_v14

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Survey									WV Department of Environmental Protection	
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
400.00	0.30	140.58	400.00	-1.34	0.20	14,433,728.37	1,698,535.12	39.74440021	-80.79324076	
431.00	0.16	168.54	431.00	-1.45	0.26	14,433,728.26	1,698,535.18	39.74439992	-80.79324055	
461.00	0.36	191.37	460.99	-1.58	0.25	14,433,728.13	1,698,535.17	39.74439955	-80.79324058	
490.00	0.15	148.88	489.99	-1.70	0.25	14,433,728.01	1,698,535.17	39.74439922	-80.79324058	
521.00	0.21	162.27	520.99	-1.79	0.29	14,433,727.92	1,698,535.21	39.74439897	-80.79324044	
551.00	0.37	187.65	550.99	-1.94	0.29	14,433,727.77	1,698,535.22	39.74439857	-80.79324043	
582.00	0.19	57.62	581.99	-2.01	0.32	14,433,727.70	1,698,535.25	39.74439837	-80.79324033	
613.00	0.36	163.31	612.99	-2.08	0.40	14,433,727.63	1,698,535.32	39.74439819	-80.79324007	
643.00	0.26	187.26	642.99	-2.23	0.41	14,433,727.48	1,698,535.34	39.74439776	-80.79324001	
673.00	0.10	98.46	672.99	-2.30	0.43	14,433,727.40	1,698,535.35	39.74439756	-80.79323995	
703.00	0.47	108.66	702.99	-2.35	0.57	14,433,727.36	1,698,535.50	39.74439744	-80.79323944	
733.00	0.14	135.11	732.99	-2.41	0.72	14,433,727.30	1,698,535.64	39.74439726	-80.79323893	
763.00	0.28	107.78	762.99	-2.46	0.81	14,433,727.25	1,698,535.73	39.74439713	-80.79323859	
793.00	0.20	122.44	792.99	-2.51	0.93	14,433,727.20	1,698,535.85	39.74439699	-80.79323819	
825.00	0.21	190.79	824.99	-2.60	0.96	14,433,727.11	1,698,535.88	39.74439675	-80.79323806	
857.00	0.17	118.88	856.99	-2.68	0.99	14,433,727.03	1,698,535.92	39.74439652	-80.79323795	
888.00	0.13	310.97	887.99	-2.68	1.01	14,433,727.03	1,698,535.93	39.74439653	-80.79323790	
920.00	0.02	263.69	919.99	-2.66	0.97	14,433,727.05	1,698,535.90	39.74439659	-80.79323802	
952.00	0.34	159.13	951.99	-2.75	1.00	14,433,726.96	1,698,535.92	39.74439635	-80.79323792	
993.00	0.19	123.87	992.99	-2.90	1.10	14,433,726.81	1,698,536.02	39.74439593	-80.79323757	
1,078.00	0.48	47.82	1,077.99	-2.74	1.48	14,433,726.97	1,698,536.40	39.74439637	-80.79323621	
1,173.00	0.36	44.25	1,172.99	-2.26	1.99	14,433,727.45	1,698,536.91	39.74439768	-80.79323442	
1,268.00	0.55	41.50	1,267.98	-1.70	2.50	14,433,728.01	1,698,537.42	39.74439921	-80.79323260	
1,363.00	0.61	66.77	1,362.98	-1.16	3.26	14,433,728.55	1,698,538.19	39.74440069	-80.79322987	
1,456.00	0.44	52.63	1,455.98	-0.75	4.00	14,433,728.96	1,698,538.92	39.74440181	-80.79322723	
1,552.00	1.69	101.03	1,551.96	-0.79	5.68	14,433,728.91	1,698,540.61	39.74440167	-80.79322125	
1,646.00	4.00	105.33	1,645.84	-1.93	10.21	14,433,727.78	1,698,545.13	39.74439854	-80.79320517	
1,740.00	5.47	104.40	1,739.51	-3.91	17.71	14,433,725.80	1,698,552.63	39.74439305	-80.79317850	
1,835.00	4.84	109.00	1,834.13	-6.34	25.88	14,433,723.37	1,698,560.81	39.74438632	-80.79314943	
1,930.00	2.99	109.46	1,928.90	-8.47	32.01	14,433,721.24	1,698,566.93	39.74438043	-80.79312766	
2,025.00	2.26	118.55	2,023.80	-10.19	35.99	14,433,719.52	1,698,570.91	39.74437568	-80.79311351	
2,120.00	2.85	117.82	2,118.71	-12.19	39.73	14,433,717.52	1,698,574.65	39.74437017	-80.79310024	
2,215.00	4.46	121.01	2,213.51	-15.19	44.98	14,433,714.52	1,698,579.90	39.74436188	-80.79308157	
2,311.00	5.33	116.70	2,309.16	-19.12	52.16	14,433,710.59	1,698,587.09	39.74435105	-80.79305605	
2,406.00	6.32	114.42	2,403.67	-23.26	60.87	14,433,706.45	1,698,595.79	39.74433962	-80.79302512	
2,501.00	6.03	111.71	2,498.12	-27.27	70.26	14,433,702.44	1,698,605.19	39.74432855	-80.79299172	
2,596.00	4.50	104.00	2,592.72	-30.02	78.52	14,433,699.69	1,698,613.44	39.74432095	-80.79296239	
2,691.00	4.38	93.48	2,687.43	-31.14	85.75	14,433,698.57	1,698,620.68	39.74431783	-80.79293665	
2,785.00	4.95	94.90	2,781.12	-31.70	93.38	14,433,698.00	1,698,628.30	39.74431623	-80.79290953	
2,877.00	5.13	100.71	2,872.77	-32.81	101.37	14,433,696.90	1,698,636.30	39.74431315	-80.79288110	
2,973.00	4.73	114.31	2,968.41	-35.24	109.20	14,433,694.47	1,698,644.12	39.74430643	-80.79285328	
3,068.00	4.54	114.69	3,063.10	-38.42	116.18	14,433,691.29	1,698,651.11	39.74429765	-80.79282845	
3,161.00	6.52	114.24	3,155.66	-42.12	124.34	14,433,687.59	1,698,659.27	39.74428742	-80.79279946	
3,256.00	9.06	114.91	3,249.78	-47.49	136.05	14,433,682.22	1,698,670.97	39.74427261	-80.79275786	
3,351.00	10.65	111.89	3,343.38	-53.91	150.98	14,433,675.80	1,698,685.90	39.74425487	-80.79270480	
3,446.00	11.86	110.76	3,436.55	-60.65	168.25	14,433,669.06	1,698,703.17	39.74423627	-80.79264340	
3,540.00	12.88	110.08	3,528.36	-67.67	187.12	14,433,662.04	1,698,722.05	39.74421687	-80.79257632	
3,637.00	13.98	108.68	3,622.71	-75.13	208.38	14,433,654.58	1,698,743.30	39.74419623	-80.79250077	
3,732.00	14.24	109.17	3,714.84	-82.64	230.29	14,433,647.06	1,698,765.21	39.74417546	-80.79242290	
3,826.00	14.61	109.29	3,805.88	-90.36	252.40	14,433,639.35	1,698,787.32	39.74415414	-80.79234430	
3,921.00	14.94	110.39	3,897.74	-98.58	275.18	14,433,631.13	1,698,810.11	39.74413141	-80.79226331	
4,016.00	15.38	110.19	3,989.43	-107.20	298.49	14,433,622.51	1,698,833.41	39.74410760	-80.79218048	
4,111.00	15.42	111.77	4,081.02	-116.23	322.04	14,433,613.48	1,698,856.96	39.74408265	-80.79209676	
4,206.00	13.88	110.96	4,172.93	-124.99	344.41	14,433,604.72	1,698,879.33	39.74405845	-80.79201725	
4,301.00	14.15	118.04	4,265.11	-134.52	365.30	14,433,595.18	1,698,900.22	39.74403213	-80.79194301	



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Survey									WV Department of Environmental Protection	
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
4,396.00	13.75	116.21	4,357.31	-144.97	385.68	14,433,584.74	1,698,920.60	39.74400331	-80.79187060	
4,491.00	14.82	112.57	4,449.37	-154.62	407.03	14,433,575.09	1,698,941.95	39.74397667	-80.79179473	
4,585.00	16.25	111.31	4,539.94	-164.01	430.38	14,433,565.69	1,698,965.31	39.74395072	-80.79171172	
4,680.00	15.29	107.96	4,631.36	-172.71	454.68	14,433,557.00	1,698,989.61	39.74392669	-80.79162534	
4,776.00	16.01	111.34	4,723.80	-181.43	479.06	14,433,548.28	1,699,013.98	39.74390259	-80.79153871	
4,870.00	15.52	109.21	4,814.27	-190.28	503.01	14,433,539.43	1,699,037.93	39.74387812	-80.79145358	
4,966.00	14.72	106.69	4,906.94	-198.01	526.82	14,433,531.70	1,699,061.74	39.74385674	-80.79136893	
5,061.00	14.54	111.65	4,998.87	-205.88	549.46	14,433,523.83	1,699,084.39	39.74383499	-80.79128844	
5,156.00	13.96	111.92	5,090.94	-214.56	571.18	14,433,515.15	1,699,106.10	39.74381102	-80.79121126	
5,249.00	15.71	112.46	5,180.84	-223.56	593.22	14,433,506.15	1,699,128.15	39.74378617	-80.79113291	
5,344.00	15.60	111.62	5,272.32	-233.18	616.98	14,433,496.53	1,699,151.91	39.74375959	-80.79104846	
5,439.00	14.97	107.94	5,363.96	-241.66	640.53	14,433,488.05	1,699,175.46	39.74373614	-80.79096476	
5,533.00	14.00	105.47	5,454.97	-248.43	663.04	14,433,481.28	1,699,197.96	39.74371739	-80.79088473	
5,628.00	12.29	107.04	5,547.48	-254.46	683.79	14,433,475.25	1,699,218.71	39.74370071	-80.79081099	
5,723.00	12.30	112.06	5,640.30	-261.23	702.83	14,433,468.48	1,699,237.75	39.74368201	-80.79074329	
5,818.00	14.60	112.23	5,732.69	-269.56	723.30	14,433,460.15	1,699,258.22	39.74365900	-80.79067056	
5,912.00	15.88	110.58	5,823.38	-278.56	746.30	14,433,451.15	1,699,281.23	39.74363412	-80.79058879	
5,971.00	17.11	109.58	5,879.95	-284.31	762.04	14,433,445.40	1,699,296.96	39.74361824	-80.79053286	
6,015.00	17.85	108.61	5,921.92	-288.63	774.53	14,433,441.08	1,699,309.45	39.74360630	-80.79048846	
6,047.00	16.97	107.73	5,952.46	-291.62	783.62	14,433,438.09	1,699,318.55	39.74359803	-80.79045613	
6,094.00	16.62	107.47	5,997.45	-295.72	796.57	14,433,433.99	1,699,331.49	39.74358667	-80.79041011	
6,142.00	18.95	110.37	6,043.15	-300.50	810.43	14,433,429.21	1,699,345.35	39.74357347	-80.79036086	
6,189.00	21.19	113.80	6,087.30	-306.58	825.35	14,433,423.13	1,699,360.28	39.74355666	-80.79030780	
6,237.00	23.82	118.02	6,131.64	-314.64	841.85	14,433,415.07	1,699,376.77	39.74353443	-80.79024918	
6,284.00	25.71	123.73	6,174.32	-324.76	858.71	14,433,404.95	1,699,393.63	39.74350653	-80.79018928	
6,332.00	29.80	128.12	6,216.80	-337.91	876.77	14,433,391.80	1,699,411.69	39.74347029	-80.79012517	
6,379.00	33.63	130.50	6,256.77	-353.58	895.86	14,433,376.13	1,699,430.78	39.74342714	-80.79005738	
6,426.00	37.32	133.13	6,295.04	-371.78	916.16	14,433,357.93	1,699,451.08	39.74337703	-80.78998530	
6,473.00	40.97	137.18	6,331.50	-392.83	937.04	14,433,336.88	1,699,471.96	39.74331908	-80.78991119	
6,521.00	45.85	139.90	6,366.36	-417.56	958.84	14,433,312.15	1,699,493.77	39.74325102	-80.78983384	
6,568.00	50.42	141.66	6,397.72	-444.68	980.95	14,433,285.03	1,699,515.87	39.74317639	-80.78975541	
6,615.00	54.73	141.66	6,426.27	-473.95	1,004.10	14,433,255.76	1,699,539.02	39.74309586	-80.78967331	
6,662.00	59.82	142.27	6,451.67	-505.09	1,028.45	14,433,224.62	1,699,563.37	39.74301020	-80.78958695	
6,710.00	62.11	143.77	6,474.97	-538.61	1,053.69	14,433,191.10	1,699,588.61	39.74291796	-80.78949745	
6,757.00	65.10	146.76	6,495.87	-573.21	1,077.66	14,433,156.50	1,699,612.58	39.74282280	-80.78941246	
6,805.00	69.27	149.31	6,514.48	-610.74	1,101.06	14,433,118.97	1,699,635.98	39.74271957	-80.78932952	
6,852.00	72.84	151.24	6,529.73	-649.34	1,123.09	14,433,080.37	1,699,658.01	39.74261342	-80.78925148	
6,900.00	75.82	151.68	6,542.70	-689.94	1,145.17	14,433,039.77	1,699,680.09	39.74250179	-80.78917328	
6,947.00	76.35	153.17	6,554.00	-730.38	1,166.28	14,432,999.34	1,699,701.21	39.74239060	-80.78909850	
6,996.00	78.24	152.56	6,564.78	-772.91	1,188.09	14,432,956.80	1,699,723.01	39.74227365	-80.78902130	
7,043.00	82.37	150.27	6,572.69	-813.58	1,210.25	14,432,916.13	1,699,745.17	39.74216182	-80.78894279	
7,091.00	88.13	150.10	6,576.66	-855.06	1,234.02	14,432,874.65	1,699,768.95	39.74204773	-80.78885856	
7,105.00	89.23	150.36	6,576.99	-867.21	1,240.97	14,432,862.50	1,699,775.89	39.74201432	-80.78883394	
7,185.00	90.33	150.10	6,577.29	-936.65	1,280.69	14,432,793.06	1,699,815.62	39.74182336	-80.78869322	
7,281.00	88.79	149.48	6,578.03	-1,019.61	1,329.00	14,432,710.10	1,699,863.92	39.74159523	-80.78852209	
7,376.00	89.10	149.13	6,579.78	-1,101.29	1,377.48	14,432,628.42	1,699,912.40	39.74137061	-80.78835029	
7,471.00	89.14	148.51	6,581.24	-1,182.55	1,426.66	14,432,547.16	1,699,961.58	39.74114710	-80.78817603	
7,566.00	89.14	148.51	6,582.67	-1,263.55	1,476.28	14,432,466.16	1,700,011.20	39.74092433	-80.78800021	
7,659.00	89.49	148.16	6,583.78	-1,342.70	1,525.09	14,432,387.01	1,700,060.01	39.74070665	-80.78782722	
7,754.00	90.11	146.58	6,584.11	-1,422.71	1,576.32	14,432,307.01	1,700,111.24	39.74048660	-80.78764567	
7,849.00	89.05	146.84	6,584.81	-1,502.11	1,628.46	14,432,227.60	1,700,163.38	39.74026819	-80.78746086	
7,944.00	89.10	149.48	6,586.34	-1,582.80	1,678.57	14,432,146.91	1,700,213.48	39.74004627	-80.78728330	
8,038.00	89.10	151.41	6,587.82	-1,664.56	1,724.92	14,432,065.16	1,700,259.84	39.73982144	-80.78711908	
8,133.00	89.32	152.91	6,589.13	-1,748.55	1,769.28	14,431,981.16	1,700,304.20	39.73959048	-80.78696199	
8,228.00	89.80	152.47	6,589.86	-1,832.96	1,812.87	14,431,896.75	1,700,347.79	39.73935839	-80.78680766	



Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Evad 03HM (H)
Project:	Marshall County, West Virginia	TVD Reference:	RKB=1291+18 @ 1309.00ft (Precision 528)
Site:	Accettolo/Evad Pad	MD Reference:	RKB=1291+18 @ 1309.00ft (Precision 528)
Well:	Evad 03HM (H)	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Jul2216dt_v14

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Survey									WV Department of Environmental Protection	
Measured Depth (ft)	Inclination (")	Azimuth (")	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
8,323.00	90.29	152.03	6,589.78	-1,917.03	1,857.10	14,431,812.68	1,700,392.02	39.73912721	-80.78665102	
8,418.00	90.20	152.12	6,589.37	-2,000.97	1,901.59	14,431,728.74	1,700,436.51	39.73889640	-80.78649347	
8,513.00	90.02	152.73	6,589.19	-2,085.18	1,945.57	14,431,644.54	1,700,480.49	39.73866486	-80.78633776	
8,609.00	90.86	152.56	6,588.45	-2,170.44	1,989.68	14,431,559.27	1,700,524.60	39.73843041	-80.78618157	
8,704.00	91.65	151.94	6,586.37	-2,254.49	2,033.90	14,431,475.22	1,700,568.82	39.73819929	-80.78602497	
8,799.00	90.33	150.80	6,584.73	-2,337.86	2,079.41	14,431,391.85	1,700,614.33	39.73797004	-80.78586379	
8,894.00	90.24	151.15	6,584.26	-2,420.93	2,125.50	14,431,308.79	1,700,660.42	39.73774161	-80.78570054	
8,989.00	88.79	149.39	6,585.06	-2,503.41	2,172.61	14,431,226.30	1,700,707.53	39.73751476	-80.78553367	
9,084.00	89.19	149.39	6,586.74	-2,585.16	2,220.98	14,431,144.55	1,700,755.89	39.73728994	-80.78536232	
9,179.00	89.45	149.57	6,587.87	-2,667.00	2,269.22	14,431,062.72	1,700,804.14	39.73706489	-80.78519142	
9,273.00	89.19	149.31	6,588.98	-2,747.93	2,317.01	14,430,981.78	1,700,851.93	39.73684229	-80.78502212	
9,368.00	89.36	148.43	6,590.18	-2,829.25	2,366.12	14,430,900.47	1,700,901.03	39.73661866	-80.78484812	
9,462.00	89.76	147.90	6,590.91	-2,909.10	2,415.70	14,430,820.61	1,700,950.61	39.73639902	-80.78467244	
9,557.00	90.64	149.22	6,590.57	-2,990.15	2,465.25	14,430,739.56	1,701,000.17	39.73617611	-80.78449688	
9,651.00	88.88	150.10	6,590.97	-3,071.27	2,512.73	14,430,658.44	1,701,047.64	39.73595301	-80.78432868	
9,747.00	88.92	149.31	6,592.81	-3,154.15	2,561.14	14,430,575.57	1,701,096.06	39.73572510	-80.78415717	
9,842.00	89.41	149.22	6,594.20	-3,235.79	2,609.69	14,430,493.92	1,701,144.61	39.73550055	-80.78398518	
9,937.00	89.63	148.87	6,594.99	-3,317.26	2,658.55	14,430,412.45	1,701,193.47	39.73527649	-80.78381207	
10,032.00	90.37	149.13	6,594.99	-3,398.69	2,707.48	14,430,331.02	1,701,242.40	39.73505254	-80.78363873	
10,127.00	91.08	148.51	6,593.79	-3,479.96	2,756.66	14,430,249.76	1,701,291.58	39.73482902	-80.78346450	
10,222.00	90.86	150.54	6,592.18	-3,561.82	2,804.83	14,430,167.90	1,701,339.75	39.73460389	-80.78329386	
10,318.00	88.79	151.68	6,592.47	-3,645.87	2,851.21	14,430,083.85	1,701,386.13	39.73437277	-80.78312962	
10,413.00	88.62	151.50	6,594.62	-3,729.40	2,896.40	14,430,000.31	1,701,431.31	39.73414305	-80.78296960	
10,508.00	88.84	151.06	6,596.73	-3,812.70	2,942.04	14,429,917.02	1,701,476.95	39.73391400	-80.78280798	
10,603.00	89.27	150.89	6,598.29	-3,895.75	2,988.12	14,429,833.96	1,701,523.04	39.73368559	-80.78264477	
10,697.00	90.15	151.06	6,598.77	-3,977.95	3,033.73	14,429,751.77	1,701,568.65	39.73345957	-80.78248326	
10,793.00	90.99	150.71	6,597.81	-4,061.81	3,080.44	14,429,667.91	1,701,615.35	39.73322894	-80.78231785	
10,887.00	89.54	151.68	6,597.38	-4,144.18	3,125.73	14,429,585.54	1,701,660.64	39.73300244	-80.78215747	
10,982.00	89.63	151.85	6,598.07	-4,227.87	3,170.67	14,429,501.85	1,701,705.59	39.73277229	-80.78199833	
11,077.00	89.85	151.85	6,598.50	-4,311.63	3,215.49	14,429,418.09	1,701,750.40	39.73254195	-80.78183964	
11,172.00	87.87	150.45	6,600.39	-4,394.82	3,261.31	14,429,334.90	1,701,796.23	39.73231319	-80.78167736	
11,267.00	87.96	150.36	6,603.84	-4,477.37	3,308.20	14,429,252.35	1,701,843.12	39.73208617	-80.78151131	
11,361.00	88.00	148.25	6,607.16	-4,558.15	3,356.15	14,429,171.57	1,701,891.07	39.73186401	-80.78134145	
11,455.00	90.59	148.69	6,608.31	-4,638.25	3,405.30	14,429,091.46	1,701,940.22	39.73164368	-80.78116733	
11,551.00	90.64	148.07	6,607.28	-4,720.00	3,455.63	14,429,009.72	1,701,990.54	39.73141885	-80.78098903	
11,646.00	90.11	146.76	6,606.66	-4,800.04	3,506.79	14,428,929.68	1,702,041.70	39.73119869	-80.78080776	
11,741.00	90.51	145.44	6,606.15	-4,878.89	3,559.77	14,428,850.83	1,702,094.69	39.73098179	-80.78061999	
11,836.00	92.00	146.05	6,604.07	-4,957.39	3,613.23	14,428,772.33	1,702,148.15	39.73076585	-80.78043053	
11,931.00	92.22	148.69	6,600.57	-5,037.33	3,664.42	14,428,692.39	1,702,199.33	39.73054595	-80.78024917	
12,026.00	92.35	150.10	6,596.78	-5,119.03	3,712.74	14,428,610.69	1,702,247.66	39.73032126	-80.78007800	
12,120.00	90.24	151.41	6,594.66	-5,201.02	3,758.65	14,428,528.70	1,702,293.57	39.73009577	-80.77991543	
12,215.00	88.53	152.38	6,595.68	-5,284.81	3,803.40	14,428,444.91	1,702,338.32	39.72986536	-80.77975700	
12,310.00	88.79	152.12	6,597.90	-5,368.86	3,847.62	14,428,360.86	1,702,382.54	39.72963424	-80.77960045	
12,404.00	88.70	151.77	6,599.96	-5,451.80	3,891.82	14,428,277.92	1,702,426.74	39.72940617	-80.77944397	
12,499.00	88.48	151.33	6,602.30	-5,535.30	3,937.06	14,428,194.42	1,702,471.98	39.72917655	-80.77928378	
12,594.00	89.49	150.62	6,603.98	-5,618.35	3,983.15	14,428,111.37	1,702,518.06	39.72894814	-80.77912060	
12,689.00	88.92	150.01	6,605.30	-5,700.88	4,030.19	14,428,028.84	1,702,565.11	39.72872119	-80.77895400	
12,784.00	90.15	149.39	6,606.07	-5,782.90	4,078.12	14,427,946.82	1,702,613.03	39.72849562	-80.77878426	
12,879.00	89.89	148.87	6,606.03	-5,864.44	4,126.86	14,427,865.28	1,702,661.78	39.72827135	-80.77861161	
12,974.00	89.01	148.07	6,606.95	-5,945.41	4,176.54	14,427,784.31	1,702,711.45	39.72804865	-80.77843564	
13,068.00	90.68	149.48	6,607.20	-6,025.78	4,225.26	14,427,703.94	1,702,760.18	39.72782758	-80.77826304	
13,164.00	90.90	150.62	6,605.88	-6,108.96	4,273.19	14,427,620.77	1,702,808.10	39.72759884	-80.77809333	
13,259.00	90.59	150.45	6,604.64	-6,191.66	4,319.91	14,427,538.06	1,702,854.83	39.72737139	-80.77792787	
13,353.00	90.46	150.01	6,603.78	-6,273.25	4,366.58	14,427,456.47	1,702,901.50	39.72714700	-80.77776260	
13,448.00	90.33	151.59	6,603.13	-6,356.17	4,412.93	14,427,373.55	1,702,947.84	39.72691895	-80.77759850	

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Evad 03HM (H)
Project:	Marshall County, West Virginia	TVD Reference:	RKB=1291+18 @ 1309.00ft (Precision 528)
Site:	Accettolo/Evad Pad	MD Reference:	RKB=1291+18 @ 1309.00ft (Precision 528)
Well:	Evad 03HM (H)	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Jul2216dt_v14

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Survey								WV Department of Environmental Protection		
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
13,542.00	88.84	151.59	6,603.81	-6,438.85	4,457.65	14,427,290.87	1,702,992.56	39.72669160	-80.77744018	
13,636.00	88.75	151.77	6,605.78	-6,521.58	4,502.23	14,427,208.14	1,703,037.15	39.72646409	-80.77728235	
13,731.00	88.48	151.41	6,608.08	-6,605.11	4,547.42	14,427,124.61	1,703,082.33	39.72623437	-80.77712238	
13,825.00	88.48	151.98	6,610.57	-6,687.85	4,591.97	14,427,041.88	1,703,126.89	39.72600686	-80.77696464	
13,920.00	88.13	151.33	6,613.38	-6,771.42	4,637.06	14,426,958.30	1,703,171.97	39.72577704	-80.77680504	
14,014.00	87.65	151.33	6,616.84	-6,853.84	4,682.12	14,426,875.88	1,703,217.04	39.72555038	-80.77664549	
14,109.00	88.26	150.36	6,620.23	-6,936.75	4,728.38	14,426,792.98	1,703,263.29	39.72532237	-80.77648173	
14,204.00	88.84	147.99	6,622.64	-7,018.29	4,777.04	14,426,711.43	1,703,311.95	39.72509809	-80.77630939	
14,299.00	88.75	148.43	6,624.64	-7,099.03	4,827.07	14,426,630.70	1,703,361.98	39.72487603	-80.77613215	
14,394.00	88.31	147.81	6,627.07	-7,179.67	4,877.23	14,426,550.06	1,703,412.14	39.72465422	-80.77595449	
14,431.00	88.62	148.78	6,628.06	-7,211.13	4,896.67	14,426,518.59	1,703,431.58	39.72456767	-80.77588563	
Survey @ 14431.00 MD 6628.06 TVD										
14,480.00	88.62	148.78	6,629.24	-7,253.03	4,922.06	14,426,476.70	1,703,456.97	39.72445245	-80.77579570	
Survey projected to 14480.00 MD 6629.24 TVD										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
187.00	187.00	-0.13	0.21	MWD surveys	
14,431.00	6,628.06	-7,211.13	4,896.67	Survey @ 14431.00 MD 6628.06 TVD	
14,480.00	6,629.24	-7,253.03	4,922.06	Survey projected to 14480.00 MD 6629.24 TVD	