



**Well: Keith Stern N-15 HU (slot P)**  
**Site: Keith Stern**  
**Project: Marshall County, West Virginia.**  
**Design: rev6**

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=747+33 @ 780.00usft (Nabors X08)

Northing: 14444879.55    Easting: 1726927.19    Latitude: 39.77480051    Longitude: -80.69209941

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.988°



Azimuths to Grid North  
 True North: -0.20°  
 Magnetic North: -8.99°

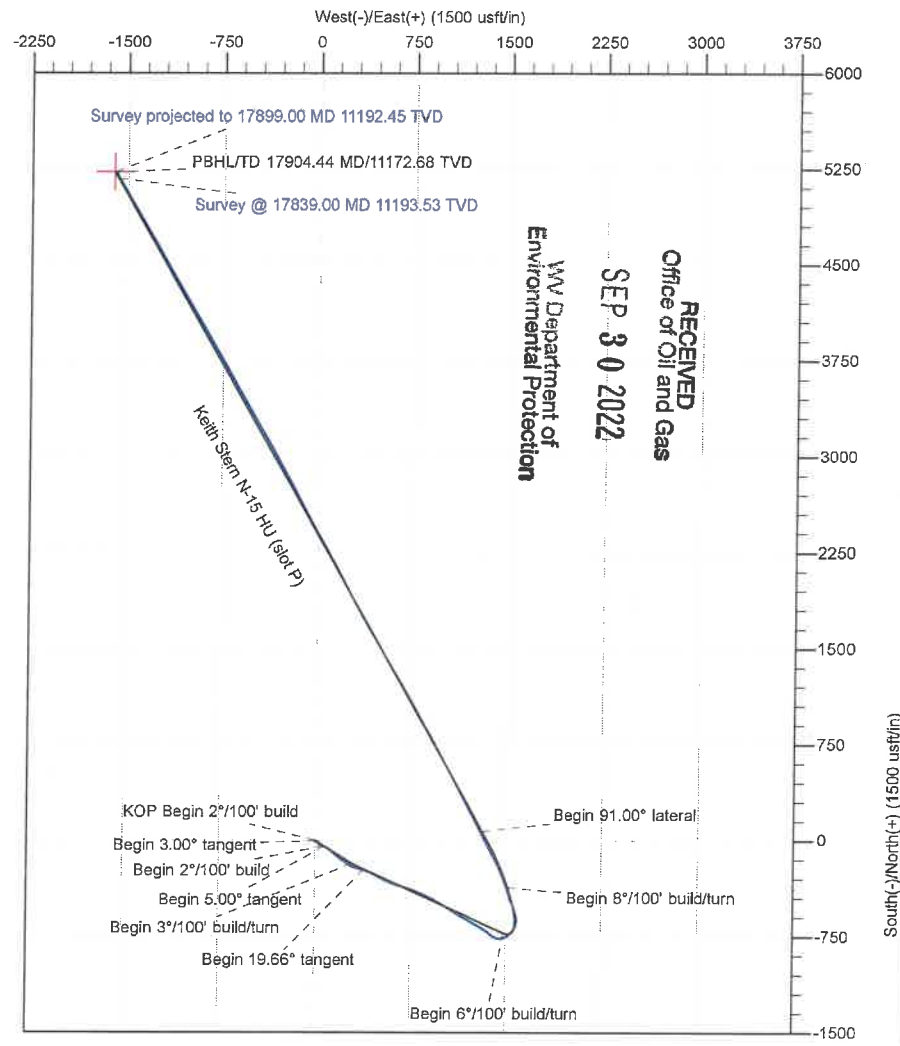
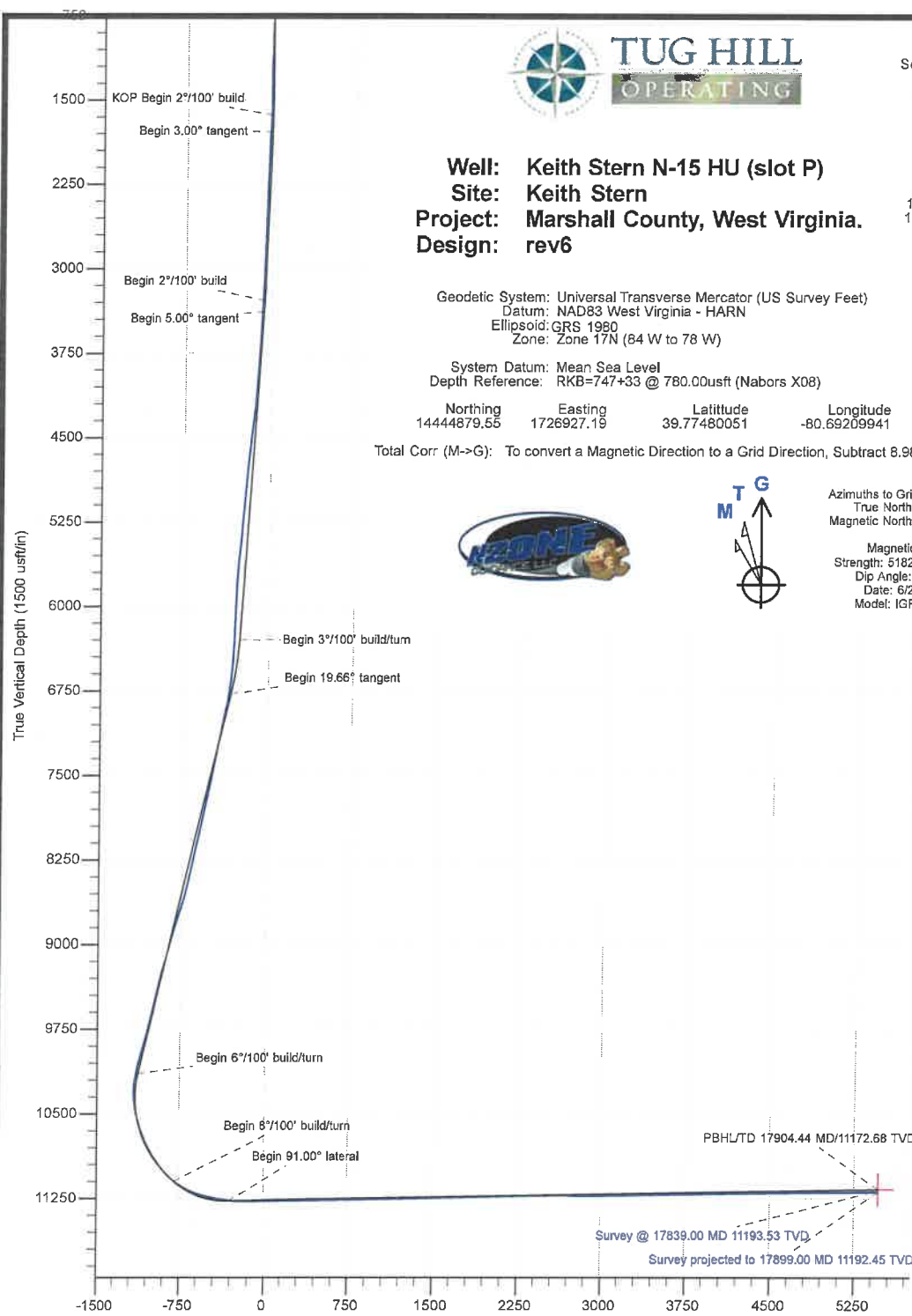
Magnetic Field  
 Strength: 51820.6snT  
 Dip Angle: 66.69°  
 Date: 6/27/2020  
 Model: IGRF2015

**SECTION DETAILS**

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
2	1636.00	0.00	0.00	1636.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2°/100' build
3	1786.00	3.00	121.45	1785.93	-2.05	3.35	2.00	121.450	-2.94	Begin 3.00° tangent
4	3286.00	3.00	121.45	3283.88	-43.01	70.32	0.00	0.000	-81.75	Begin 2°/100' build
5	3386.00	5.00	121.45	3383.63	-46.65	76.27	2.00	0.000	-86.97	Begin 5.00° tangent
6	6313.51	5.00	121.45	6300.00	-179.77	293.94	0.00	0.000	-258.11	Begin 3°/100' build/turn
7	6803.95	19.66	114.36	6777.74	-225.19	387.82	3.00	-9.412	-329.08	Begin 19.66° tangent
8	10381.16	19.66	114.36	10146.52	-721.60	1484.18	0.00	0.000	-1125.34	Begin 8°/100' build/turn
9	11458.25	50.00	341.05	11103.52	-367.82	1519.04	6.00	-141.808	-797.35	Begin 8°/100' build/turn
10	11984.80	91.00	330.47	11276.00	71.97	1314.50	8.00	-15.885	-316.91	Begin 91.00° lateral
11	17904.45	91.00	330.47	11172.68	5221.83	-1602.76	0.00	0.000	5462.27	PBHL/TD 17904.44 MD/11172.68 TVD

**ANNOTATIONS SURVEYS**

MD	Inc	Azi	TVD	+N/-S	+E/-W	V Sect	Annotation
272.00	0.75	229.56	271.99	-1.15	-1.35	-0.71	MWD surveys
17839.00	91.03	330.44	11193.53	5173.13	-1564.71	5404.55	Survey @ 17839.00 MD 11193.53 TVD
17899.00	91.03	330.44	11192.45	5225.32	-1594.31	5463.12	Survey projected to 17899.00 MD 11192.45 TVD



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Survey Report

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Keith Stem N-15 HU (slot P)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Site:</b>	Keith Stem	<b>MD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Well:</b>	Keith Stem N-15 HU (slot P)	<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> Office of Oil and Gas
<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>SEP 30 2022</b>

<b>Site</b>	Keith Stem				WV Department of Environmental Protection
<b>Site Position:</b>		<b>Northing:</b>	14,444,890.33 usft	<b>Latitude:</b>	39.77483004
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,726,932.47 usft	<b>Longitude:</b>	-80.69208048
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.197 °

<b>Well</b>	Keith Stem N-15 HU (slot P)					
<b>Well Position</b>	+N/-S	0.00 usft	<b>Northing:</b>	14,444,879.56 usft	<b>Latitude:</b>	39.77480051
	+E/-W	0.00 usft	<b>Easting:</b>	1,726,927.19 usft	<b>Longitude:</b>	-80.69209941
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	747.00 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</b>
	IGRF2015	6/27/2020	(°) -8.791	(°) 66.690	(nT) 51,820.58351390

<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)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>	
	(usft)	(usft)	(usft)	(°)	
	0.00	0.00	0.00	342.94	

<b>Survey Program</b>	<b>Date</b>	7/25/2020			
<b>From</b>	<b>To</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
(usft)	(usft)				
272.00	506.00	MWD surf (Original Hole)	MWD	MWD - Standard	
580.00	2,205.00	MWD int (Original Hole)	MWD	MWD - Standard	
2,284.00	10,209.00	MWD int2 (Original Hole)	MWD	MWD - Standard	
10,275.00	17,839.00	MWD lat (Original Hole)	MWD	MWD - Standard	
17,899.00	17,899.00	Projection (Original Hole)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Vertical</b>	<b>Dogleg</b>	<b>Build</b>	<b>Turn</b>	
<b>Depth</b>	(°)	(°)	<b>Depth</b>	<b>(usft)</b>	<b>(usft)</b>	<b>Section</b>	<b>Rate</b>	<b>Rate</b>	<b>Rate</b>	
<b>(usft)</b>			<b>(usft)</b>			<b>(usft)</b>	<b>(°/100usft)</b>	<b>(°/100usft)</b>	<b>(°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
272.00	0.75	229.56	271.99	-1.15	-1.35	-0.71	0.28	0.28	0.00	
<b>MWD surveys</b>										
299.00	0.66	233.33	298.99	-1.36	-1.61	-0.83	0.37	-0.33	13.96	
329.00	0.70	244.23	328.99	-1.55	-1.92	-0.91	0.45	0.13	36.33	
376.00	0.75	248.80	375.98	-1.78	-2.46	-0.98	0.16	0.11	9.72	
424.00	0.75	249.15	423.98	-2.01	-3.05	-1.02	0.01	0.00	0.73	

10/21/2022

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Keith Stern N-15 HU (slot P)
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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
470.00	1.05	259.09	469.97	-2.19	-3.74	-1.00	0.73	0.65	21.61
506.00	0.97	261.02	505.97	-2.30	-4.37	-0.92	0.24	-0.22	5.36
580.00	0.83	350.14	579.96	-1.87	-5.08	-0.30	1.71	-0.19	120.43
611.00	1.27	19.58	610.96	-1.33	-5.00	0.20	2.20	1.42	94.97
706.00	2.24	59.57	705.92	0.60	-3.05	1.47	1.59	1.02	42.09
801.00	2.42	90.25	800.84	1.54	0.56	1.30	1.31	0.19	32.29
895.00	1.98	124.00	894.77	0.62	3.89	-0.55	1.43	-0.47	35.90
989.00	1.58	174.97	988.73	-1.58	5.35	-3.08	1.67	-0.43	54.22
1,084.00	1.98	203.63	1,083.69	-4.39	4.80	-5.61	1.01	0.42	30.17
1,178.00	1.54	203.72	1,177.65	-7.03	3.65	-7.79	0.47	-0.47	0.10
1,272.00	0.97	129.27	1,271.63	-8.69	3.75	-9.41	1.69	-0.61	-79.20
1,367.00	1.71	65.02	1,366.61	-8.60	5.66	-9.89	1.64	0.78	-67.63
1,462.00	2.81	63.79	1,461.53	-6.98	9.04	-9.32	1.16	1.16	-1.29
1,556.00	3.91	87.70	1,555.37	-5.83	14.31	-9.77	1.87	1.17	25.44
1,651.00	5.27	104.31	1,650.07	-6.78	21.77	-12.87	1.99	1.43	17.48
1,746.00	4.26	131.12	1,744.75	-10.18	28.66	-18.14	2.54	-1.06	28.22
1,840.00	2.50	151.60	1,838.59	-14.28	32.26	-23.11	2.24	-1.87	21.79
1,935.00	1.89	162.14	1,933.52	-17.59	33.73	-26.71	0.77	-0.64	11.09
2,030.00	1.80	170.32	2,028.47	-20.55	34.46	-29.76	0.29	-0.09	8.61
2,124.00	1.93	174.01	2,122.42	-23.58	34.87	-32.78	0.19	0.14	3.93
2,205.00	1.80	159.68	2,203.38	-26.13	35.46	-35.38	0.60	-0.16	-17.69
2,284.00	2.37	151.86	2,282.32	-28.74	36.66	-38.23	0.80	0.72	-9.90
2,316.00	2.33	150.63	2,314.30	-29.89	37.29	-39.51	0.20	-0.13	-3.84
2,410.00	2.02	137.62	2,408.23	-32.78	39.34	-42.88	0.62	-0.33	-13.84
2,504.00	2.11	124.53	2,502.17	-34.98	41.89	-45.73	0.51	0.10	-13.93
2,598.00	2.68	116.79	2,596.09	-36.95	45.27	-48.61	0.70	0.61	-8.23
2,693.00	2.94	112.05	2,690.97	-38.87	49.51	-51.68	0.37	0.27	-4.99
2,788.00	3.21	111.87	2,785.84	-40.77	54.24	-54.89	0.28	0.28	-0.19
2,882.00	3.34	111.34	2,879.68	-42.75	59.23	-58.25	0.14	0.14	-0.56
2,977.00	3.52	110.46	2,974.51	-44.78	64.54	-61.74	0.20	0.19	-0.93
3,072.00	3.69	106.33	3,069.32	-46.65	70.21	-65.20	0.33	0.18	-4.35
3,169.00	4.22	106.77	3,166.09	-48.56	76.62	-68.90	0.55	0.55	0.45
3,264.00	4.31	111.87	3,260.83	-50.90	83.28	-73.09	0.41	0.09	5.37
3,358.00	4.04	116.53	3,354.58	-53.69	89.52	-77.60	0.46	-0.29	4.96
3,453.00	4.00	115.74	3,449.35	-56.63	95.50	-82.15	0.07	-0.04	-0.83
3,547.00	4.04	121.10	3,543.12	-59.76	101.29	-86.85	0.40	0.04	5.70
3,642.00	4.13	126.37	3,637.88	-63.52	106.91	-92.09	0.41	0.09	5.55
3,736.00	4.22	128.57	3,731.63	-67.68	112.34	-97.66	0.20	0.10	2.34
3,831.00	4.31	131.73	3,826.36	-72.24	117.74	-103.60	0.26	0.09	3.33
3,925.00	4.66	130.50	3,920.07	-77.07	123.28	-109.84	0.39	0.37	-1.31
4,020.00	4.79	129.36	4,014.75	-82.09	129.28	-116.41	0.17	0.14	-1.20
4,114.00	6.33	127.95	4,108.31	-87.77	136.40	-123.92	1.64	1.64	-1.50
4,209.00	7.56	126.46	4,202.61	-94.70	145.55	-133.24	1.31	1.29	-1.57
4,304.00	7.51	127.69	4,296.79	-102.21	155.49	-143.33	0.18	-0.05	1.29



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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,398.00	8.44	130.15	4,389.88	-110.42	165.63	-154.15	1.05	0.99	2.62
4,493.00	8.44	131.29	4,483.85	-119.51	176.19	-165.94	0.18	0.00	1.20
4,587.00	7.47	129.97	4,576.94	-127.99	186.06	-176.94	1.05	-1.03	-1.40
4,682.00	6.77	125.84	4,671.21	-135.23	195.33	-186.59	0.91	-0.74	-4.35
4,777.00	7.08	123.65	4,765.52	-141.76	204.75	-195.59	0.43	0.33	-2.31
4,871.00	7.29	123.56	4,858.78	-148.26	214.54	-204.68	0.22	0.22	-0.10
4,966.00	6.81	122.59	4,953.06	-154.63	224.31	-213.63	0.52	-0.51	-1.02
5,060.00	5.98	123.91	5,046.48	-160.36	233.07	-221.68	0.90	-0.88	1.40
5,155.00	5.89	124.70	5,140.97	-165.90	241.18	-229.36	0.13	-0.09	0.83
5,253.00	5.19	125.76	5,238.51	-171.35	248.91	-236.84	0.72	-0.71	1.08
5,348.00	6.72	120.48	5,332.99	-176.68	257.19	-244.36	1.71	1.61	-5.56
5,443.00	6.77	122.50	5,427.34	-182.51	266.70	-252.72	0.26	0.05	2.13
5,538.00	6.94	125.93	5,521.66	-188.89	276.07	-261.57	0.47	0.18	3.61
5,633.00	5.93	124.88	5,616.06	-195.06	284.74	-270.02	1.07	-1.06	-1.11
5,728.00	5.45	117.76	5,710.59	-199.97	292.76	-277.06	0.90	-0.51	-7.49
5,823.00	5.01	111.96	5,805.20	-203.62	300.60	-282.85	0.72	-0.46	-6.11
5,917.00	4.92	107.65	5,898.84	-206.38	308.25	-287.73	0.41	-0.10	-4.59
6,012.00	4.66	106.33	5,993.51	-208.70	315.84	-292.17	0.30	-0.27	-1.39
6,107.00	4.17	106.51	6,088.23	-210.77	322.85	-296.21	0.52	-0.52	0.19
6,201.00	3.74	106.86	6,182.01	-212.63	329.06	-299.81	0.46	-0.46	0.37
6,296.00	3.21	106.33	6,276.83	-214.27	334.58	-303.00	0.56	-0.56	-0.56
6,386.00	4.00	109.15	6,366.65	-216.01	339.96	-306.24	0.90	0.88	3.13
6,481.00	6.64	105.89	6,461.23	-218.60	348.38	-311.19	2.80	2.78	-3.43
6,576.00	8.96	104.31	6,555.35	-221.94	360.83	-318.03	2.45	2.44	-1.66
6,671.00	11.12	106.60	6,648.89	-226.38	376.78	-326.96	2.31	2.27	2.41
6,766.00	13.40	109.50	6,741.72	-232.67	395.94	-338.59	2.49	2.40	3.05
6,860.00	15.78	113.80	6,832.68	-241.47	417.90	-353.45	2.78	2.53	4.57
6,953.00	16.66	117.58	6,921.98	-252.75	441.29	-371.09	1.48	0.95	4.06
7,048.00	17.67	117.49	7,012.75	-265.71	466.15	-390.77	1.06	1.06	-0.09
7,142.00	16.04	117.67	7,102.71	-278.32	490.31	-409.92	1.73	-1.73	0.19
7,237.00	15.12	115.56	7,194.22	-289.76	513.11	-427.55	1.14	-0.97	-2.22
7,426.00	16.57	115.12	7,376.03	-311.84	559.75	-462.34	0.77	0.77	-0.23
7,521.00	16.92	113.10	7,467.00	-323.01	584.73	-480.35	0.71	0.37	-2.13
7,615.00	17.80	110.81	7,556.72	-333.49	610.75	-497.99	1.19	0.94	-2.44
7,710.00	19.47	108.44	7,646.74	-343.65	639.34	-516.10	1.93	1.76	-2.49
7,804.00	20.79	107.39	7,735.00	-353.60	670.12	-534.63	1.46	1.40	-1.12
7,899.00	21.01	105.01	7,823.75	-363.05	702.66	-553.21	0.92	0.23	-2.51
7,993.00	20.43	107.91	7,911.67	-372.46	734.55	-571.56	1.25	-0.62	3.09
8,087.00	20.87	110.90	7,999.63	-383.47	765.81	-591.27	1.22	0.47	3.18
8,181.00	20.26	114.07	8,087.64	-396.09	796.31	-612.27	1.35	-0.65	3.37
8,274.00	18.24	114.07	8,175.44	-408.59	824.30	-632.44	2.17	-2.17	0.00
8,370.00	15.91	114.86	8,267.20	-420.25	849.96	-651.11	2.44	-2.43	0.82
8,464.00	17.84	116.00	8,357.15	-431.98	874.60	-669.56	2.08	2.05	1.21

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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,559.00	19.69	115.21	8,447.10	-445.18	902.16	-690.26	1.97	1.95	-0.83
8,653.00	21.01	116.00	8,535.23	-459.31	931.63	-712.42	1.43	1.40	0.84
8,747.00	22.54	118.72	8,622.52	-475.36	962.58	-736.83	1.95	1.63	2.89
8,843.00	22.76	122.50	8,711.12	-494.18	994.38	-764.16	1.53	0.23	3.94
8,937.00	21.84	122.86	8,798.09	-513.43	1,024.40	-791.37	0.99	-0.98	0.38
9,032.00	21.67	121.54	8,886.32	-532.20	1,054.20	-818.05	0.55	-0.18	-1.39
9,126.00	21.01	119.78	8,973.88	-549.64	1,083.61	-843.36	0.98	-0.70	-1.87
9,218.00	20.17	121.19	9,060.00	-566.05	1,111.50	-867.23	1.06	-0.91	1.53
9,313.00	20.04	122.42	9,149.21	-583.26	1,139.25	-891.82	0.47	-0.14	1.29
9,407.00	19.69	119.96	9,237.62	-599.80	1,166.56	-915.65	0.96	-0.37	-2.62
9,501.00	18.94	118.99	9,326.33	-615.10	1,193.63	-938.22	0.87	-0.80	-1.03
9,596.00	18.24	119.34	9,416.37	-629.86	1,220.07	-960.08	0.75	-0.74	0.37
9,691.00	17.18	118.02	9,506.87	-643.74	1,245.42	-980.79	1.19	-1.12	-1.39
9,784.00	17.58	117.93	9,595.62	-656.77	1,269.96	-1,000.44	0.43	0.43	-0.10
9,879.00	19.16	119.87	9,685.78	-671.25	1,296.15	-1,021.97	1.78	1.66	2.04
9,973.00	19.91	122.50	9,774.37	-687.54	1,323.03	-1,045.42	1.23	0.80	2.80
10,068.00	19.56	123.21	9,863.79	-704.94	1,349.98	-1,069.97	0.45	-0.37	0.75
10,162.00	18.68	127.60	9,952.61	-722.74	1,375.07	-1,094.35	1.79	-0.94	4.67
10,209.00	18.33	128.31	9,997.18	-731.92	1,386.83	-1,106.57	0.89	-0.74	1.51
10,275.00	17.93	131.81	10,059.91	-745.12	1,402.55	-1,123.81	1.76	-0.61	5.30
10,322.00	18.11	117.75	10,104.62	-753.35	1,414.41	-1,135.15	9.24	0.38	-29.91
10,369.00	19.21	105.71	10,149.17	-758.85	1,428.32	-1,144.49	8.51	2.34	-25.62
10,416.00	21.05	97.09	10,193.30	-761.99	1,444.15	-1,152.13	7.42	3.91	-18.34
10,463.00	21.54	88.66	10,237.10	-762.83	1,461.16	-1,157.92	6.59	1.04	-17.94
10,510.00	21.89	79.78	10,280.78	-761.07	1,478.41	-1,161.31	7.02	0.74	-18.89
10,558.00	21.80	70.02	10,325.35	-756.43	1,495.60	-1,161.92	7.56	-0.19	-20.33
10,605.00	22.15	61.41	10,368.95	-749.21	1,511.58	-1,159.70	6.89	0.74	-18.32
10,653.00	23.47	54.38	10,413.20	-739.31	1,527.30	-1,154.85	6.30	2.75	-14.65
10,700.00	22.81	51.39	10,456.42	-728.17	1,542.03	-1,148.52	2.87	-1.40	-6.36
10,747.00	21.32	40.58	10,499.99	-715.99	1,554.71	-1,140.60	9.19	-3.17	-23.00
10,794.00	20.84	32.14	10,543.86	-702.42	1,564.72	-1,130.56	6.53	-1.02	-17.96
10,841.00	21.71	27.57	10,587.66	-687.64	1,573.19	-1,118.91	3.98	1.85	-9.72
10,888.00	22.73	21.42	10,631.17	-671.48	1,580.53	-1,105.61	5.40	2.17	-13.09
10,937.00	24.13	15.88	10,676.14	-653.03	1,586.73	-1,089.80	5.32	2.86	-11.31
10,984.00	25.05	6.48	10,718.89	-633.89	1,590.48	-1,072.60	8.54	1.96	-20.00
11,031.00	26.37	355.58	10,761.26	-613.59	1,590.80	-1,053.29	10.43	2.81	-23.19
11,078.00	27.65	346.35	10,803.15	-592.57	1,587.42	-1,032.20	9.32	2.72	-19.64
11,125.00	30.07	345.91	10,844.31	-570.55	1,581.98	-1,009.55	5.17	5.15	-0.94
11,172.00	31.47	341.96	10,884.70	-547.46	1,575.32	-985.53	5.23	2.98	-8.40
11,220.00	33.54	337.74	10,925.18	-523.27	1,566.41	-959.79	6.39	4.31	-8.79
11,267.00	37.27	338.88	10,963.49	-497.97	1,556.36	-932.65	8.06	7.94	2.43
11,315.00	41.36	337.56	11,000.61	-469.74	1,545.07	-902.35	8.70	8.52	-2.75
11,362.00	44.22	341.96	11,035.11	-439.79	1,534.06	-870.49	8.80	6.09	9.36

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Keith Stern N-15 HU (slot P)
<b>Project:</b>	Marshall County, West Virginia	<b>TVD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Site:</b>	Keith Stern	<b>MD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Well:</b>	Keith Stern N-15 HU (slot P)	<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 (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,409.00	47.47	341.52	11,067.85	-407.77	1,523.49	-836.78	6.95	6.91	-0.94
11,456.00	52.18	341.34	11,098.16	-373.74	1,512.05	-800.89	10.03	10.02	-0.38
11,504.00	56.13	339.23	11,126.26	-337.13	1,498.92	-762.04	8.97	8.23	-4.40
11,551.00	59.87	338.00	11,151.17	-300.03	1,484.38	-722.30	8.26	7.96	-2.62
11,599.00	62.81	337.21	11,174.18	-261.09	1,468.33	-680.37	6.29	6.13	-1.65
11,646.00	67.69	335.80	11,193.86	-221.96	1,451.31	-637.97	10.73	10.38	-3.00
11,693.00	71.82	334.66	11,210.12	-181.94	1,432.83	-594.29	9.08	8.79	-2.43
11,740.00	74.86	333.87	11,223.59	-141.38	1,413.28	-549.78	6.67	6.47	-1.68
11,787.00	75.03	332.55	11,235.80	-100.87	1,392.82	-505.05	2.74	0.36	-2.81
11,834.00	76.70	332.11	11,247.28	-60.51	1,371.66	-460.25	3.67	3.55	-0.94
11,882.00	78.86	331.50	11,257.44	-19.16	1,349.50	-414.22	4.67	4.50	-1.27
11,929.00	82.73	330.62	11,264.95	21.43	1,327.05	-368.83	8.44	8.23	-1.87
11,976.00	82.81	331.32	11,270.87	62.20	1,304.42	-323.22	1.49	0.17	1.49
12,023.00	85.32	331.85	11,275.73	103.31	1,282.18	-277.39	5.46	5.34	1.13
12,071.00	89.67	332.55	11,277.82	145.72	1,259.82	-230.29	9.18	9.06	1.46
12,166.00	90.68	332.03	11,277.53	229.82	1,215.65	-136.93	1.20	1.06	-0.55
12,260.00	90.37	332.47	11,276.67	313.01	1,171.88	-44.56	0.57	-0.33	0.47
12,355.00	91.03	331.85	11,275.51	397.01	1,127.52	48.75	0.95	0.69	-0.65
12,449.00	91.16	331.06	11,273.72	479.56	1,082.61	140.85	0.85	0.14	-0.84
12,544.00	90.81	331.32	11,272.08	562.79	1,036.84	233.85	0.46	-0.37	0.27
12,639.00	90.29	331.23	11,271.17	646.10	991.18	326.88	0.56	-0.55	-0.09
12,733.00	90.33	330.97	11,270.66	728.39	945.75	418.88	0.28	0.04	-0.28
12,827.00	90.46	331.15	11,270.01	810.65	900.27	510.86	0.24	0.14	0.19
12,922.00	90.33	331.50	11,269.36	894.00	854.68	603.92	0.39	-0.14	0.37
13,016.00	91.56	330.53	11,267.81	976.21	809.14	695.87	1.67	1.31	-1.03
13,111.00	91.25	329.92	11,265.48	1,058.64	761.98	788.51	0.72	-0.33	-0.64
13,206.00	90.59	330.09	11,263.95	1,140.91	714.49	881.09	0.72	-0.69	0.18
13,300.00	92.13	329.65	11,261.72	1,222.18	667.32	972.63	1.70	1.64	-0.47
13,395.00	91.74	329.30	11,258.52	1,303.97	619.10	1,064.96	0.55	-0.41	-0.37
13,489.00	91.47	329.30	11,255.88	1,384.76	571.13	1,156.28	0.29	-0.29	0.00
13,584.00	91.43	329.92	11,253.48	1,466.68	523.08	1,248.69	0.65	-0.04	0.65
13,679.00	91.43	329.92	11,251.11	1,548.86	475.48	1,341.22	0.00	0.00	0.00
13,774.00	91.08	330.27	11,249.03	1,631.19	428.13	1,433.82	0.52	-0.37	0.37
13,868.00	90.95	330.53	11,247.36	1,712.91	381.71	1,525.56	0.31	-0.14	0.28
13,963.00	90.68	331.15	11,246.01	1,795.86	335.42	1,618.44	0.71	-0.28	0.65
14,057.00	90.77	331.76	11,244.82	1,878.43	290.51	1,710.55	0.66	0.10	0.65
14,151.00	90.46	331.85	11,243.81	1,961.27	246.10	1,802.77	0.34	-0.33	0.10
14,246.00	91.38	331.67	11,242.29	2,044.95	201.16	1,895.96	0.99	0.97	-0.19
14,341.00	91.60	331.15	11,239.82	2,128.34	155.71	1,989.01	0.59	0.23	-0.55
14,436.00	91.30	331.15	11,237.41	2,211.52	109.89	2,081.97	0.32	-0.32	0.00
14,530.00	91.52	330.71	11,235.10	2,293.66	64.23	2,173.89	0.52	0.23	-0.47
14,624.00	91.56	331.15	11,232.57	2,375.79	18.57	2,265.80	0.47	0.04	0.47
14,718.00	91.16	330.36	11,230.34	2,457.78	-27.34	2,357.65	0.94	-0.43	-0.84
14,813.00	91.34	331.94	11,228.27	2,540.97	-73.17	2,450.62	1.67	0.19	1.66

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Keith Stem N-15 HU (slot P)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Site:</b>	Keith Stem	<b>MD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Well:</b>	Keith Stem N-15 HU (slot P)	<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 (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,907.00	90.77	333.26	11,226.54	2,624.41	-116.42	2,543.08	1.53	-0.61	1.40
15,002.00	90.07	331.76	11,225.84	2,708.67	-160.26	2,636.50	1.74	-0.74	-1.58
15,096.00	89.67	331.23	11,226.06	2,791.28	-205.12	2,728.63	0.71	-0.43	-0.56
15,191.00	89.49	331.23	11,226.75	2,874.55	-250.85	2,821.65	0.19	-0.19	0.00
15,286.00	89.36	331.41	11,227.71	2,957.89	-296.44	2,914.70	0.23	-0.14	0.19
15,380.00	90.20	330.80	11,228.07	3,040.19	-341.86	3,006.70	1.10	0.89	-0.65
15,475.00	90.68	331.32	11,227.34	3,123.32	-387.82	3,099.66	0.74	0.51	0.55
15,569.00	91.30	330.27	11,225.71	3,205.36	-433.68	3,191.54	1.30	0.66	-1.12
15,663.00	91.25	329.65	11,223.62	3,286.71	-480.73	3,283.12	0.66	-0.05	-0.66
15,758.00	91.12	329.83	11,221.66	3,368.75	-528.59	3,375.59	0.23	-0.14	0.19
15,853.00	91.30	330.62	11,219.65	3,451.19	-575.76	3,468.24	0.85	0.19	0.83
15,948.00	91.12	330.62	11,217.65	3,533.95	-622.35	3,561.03	0.19	-0.19	0.00
16,042.00	91.08	329.83	11,215.84	3,615.52	-669.02	3,652.71	0.84	-0.04	-0.84
16,137.00	90.81	330.27	11,214.27	3,697.83	-716.44	3,745.30	0.54	-0.28	0.46
16,232.00	90.59	330.36	11,213.11	3,780.35	-763.49	3,838.00	0.25	-0.23	0.09
16,326.00	90.64	331.15	11,212.10	3,862.37	-809.41	3,929.87	0.84	0.05	0.84
16,421.00	90.51	330.18	11,211.15	3,945.18	-855.95	4,022.70	1.03	-0.14	-1.02
16,516.00	90.46	330.09	11,210.35	4,027.56	-903.25	4,115.33	0.11	-0.05	-0.09
16,610.00	90.20	329.30	11,209.81	4,108.71	-950.68	4,206.83	0.88	-0.28	-0.84
16,705.00	90.46	329.39	11,209.26	4,190.44	-999.12	4,299.16	0.29	0.27	0.09
16,800.00	90.86	331.41	11,208.16	4,273.03	-1,046.04	4,391.89	2.17	0.42	2.13
16,895.00	90.59	330.09	11,206.96	4,355.91	-1,092.45	4,484.73	1.42	-0.28	-1.39
16,989.00	90.86	330.62	11,205.77	4,437.60	-1,138.94	4,576.47	0.63	0.29	0.56
17,084.00	90.95	330.18	11,204.27	4,520.19	-1,185.86	4,669.19	0.47	0.09	-0.46
17,178.00	90.73	330.71	11,202.89	4,601.95	-1,232.22	4,760.95	0.61	-0.23	0.56
17,273.00	90.81	329.21	11,201.62	4,684.18	-1,279.78	4,853.52	1.58	0.08	-1.58
17,367.00	90.68	329.04	11,200.39	4,764.85	-1,328.01	4,944.79	0.23	-0.14	-0.18
17,462.00	91.08	329.65	11,198.94	4,846.56	-1,376.44	5,037.11	0.77	0.42	0.64
17,557.00	90.64	329.56	11,197.51	4,928.50	-1,424.50	5,129.54	0.47	-0.46	-0.09
17,650.00	90.86	330.18	11,196.29	5,008.92	-1,471.18	5,220.13	0.71	0.24	0.67
17,745.00	90.73	330.36	11,194.97	5,091.41	-1,518.29	5,312.80	0.23	-0.14	0.19
17,839.00	91.03	330.44	11,193.53	5,173.13	-1,564.71	5,404.55	0.33	0.32	0.09
<b>Survey @ 17839.00 MD 11193.53 TVD</b>									
17,899.00	91.03	330.44	11,192.45	5,225.32	-1,594.31	5,463.12	0.00	0.00	0.00
<b>Survey projected to 17899.00 MD 11192.45 TVD</b>									

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
272.00	271.99	-1.15	-1.35	MWD surveys
17,839.00	11,193.53	5,173.13	-1,564.71	Survey @ 17839.00 MD 11193.53 TVD

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Keith Stem N-15 HU (slot P)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Site:</b>	Keith Stem	<b>MD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Well:</b>	Keith Stem N-15 HU (slot P)	<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)		

<b>Site</b>	Keith Stem				
<b>Site Position:</b>		<b>Northing:</b>	14,444,890.33 usft	<b>Latitude:</b>	39.77483004
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,726,932.47 usft	<b>Longitude:</b>	-80.69208048
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.197 °

<b>Well</b>	Keith Stem N-15 HU (slot P)					
<b>Well Position</b>	+N/-S	0.00 usft	<b>Northing:</b>	14,444,879.56 usft	<b>Latitude:</b>	39.77480051
	+E/-W	0.00 usft	<b>Easting:</b>	1,726,927.19 usft	<b>Longitude:</b>	-80.69209941
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	747.00 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	6/27/2020	-8.791	66.690	51,820.58351390

<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	342.94	

<b>Survey Program</b>	Date 7/25/2020				
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
272.00	506.00	MWD surf (Original Hole)	MWD	MWD - Standard	
580.00	2,205.00	MWD int (Original Hole)	MWD	MWD - Standard	
2,284.00	10,209.00	MWD int2 (Original Hole)	MWD	MWD - Standard	
10,275.00	17,839.00	MWD lat (Original Hole)	MWD	MWD - Standard	
17,899.00	17,899.00	Projection (Original Hole)	MWD	MWD - Standard	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,444,879.56	1,726,927.19	39.77480051	-80.69209941
272.00	0.75	229.56	271.99	-1.15	-1.35	14,444,878.40	1,726,925.83	39.77479735	-80.69210425
<b>MWD surveys</b>									
299.00	0.66	233.33	298.99	-1.36	-1.61	14,444,878.19	1,726,925.57	39.77479679	-80.69210517
329.00	0.70	244.23	328.99	-1.55	-1.92	14,444,878.01	1,726,925.27	39.77479629	-80.69210625
376.00	0.75	248.80	375.98	-1.78	-2.46	14,444,877.77	1,726,924.73	39.77479564	-80.69210820
424.00	0.75	249.15	423.98	-2.01	-3.05	14,444,877.55	1,726,924.14	39.77479503	-80.69211029
470.00	1.05	259.09	469.97	-2.19	-3.74	14,444,877.36	1,726,923.44	39.77479452	-80.69211276

10/21/2022





Survey Report - Geographic

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Keith Stern N-15 HU (slot P)
<b>Project:</b>	Marshall County, West Virginia	<b>TVD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Site:</b>	Keith Stern	<b>MD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Well:</b>	Keith Stern N-15 HU (slot P)	<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 (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
506.00	0.97	261.02	505.97	-2.30	-4.37	14,444,877.25	1,726,922.82	39.77479423	-80.69211499
580.00	0.83	350.14	579.96	-1.87	-5.08	14,444,877.68	1,726,922.11	39.77479542	-80.69211751
611.00	1.27	19.58	610.96	-1.33	-5.00	14,444,878.23	1,726,922.18	39.77479691	-80.69211723
706.00	2.24	59.57	705.92	0.60	-3.05	14,444,880.16	1,726,924.14	39.77480220	-80.69211026
801.00	2.42	90.25	800.84	1.54	0.56	14,444,881.09	1,726,927.74	39.77480472	-80.69209741
895.00	1.98	124.00	894.77	0.62	3.89	14,444,880.17	1,726,931.08	39.77480217	-80.69208557
989.00	1.58	174.97	988.73	-1.58	5.35	14,444,877.98	1,726,932.54	39.77479612	-80.69208040
1,084.00	1.98	203.63	1,083.69	-4.39	4.80	14,444,875.17	1,726,931.99	39.77478841	-80.69208236
1,178.00	1.54	203.72	1,177.65	-7.03	3.65	14,444,872.52	1,726,930.83	39.77478116	-80.69208652
1,272.00	0.97	129.27	1,271.63	-8.69	3.75	14,444,870.86	1,726,930.94	39.77477660	-80.69208616
1,367.00	1.71	65.02	1,366.61	-8.60	5.66	14,444,870.95	1,726,932.85	39.77477683	-80.69207937
1,462.00	2.81	63.79	1,461.53	-6.98	9.04	14,444,872.58	1,726,936.22	39.77478127	-80.69206734
1,556.00	3.91	87.70	1,555.37	-5.83	14.31	14,444,873.73	1,726,941.49	39.77478437	-80.69204857
1,651.00	5.27	104.31	1,650.07	-6.78	21.77	14,444,872.78	1,726,948.96	39.77478169	-80.69202201
1,746.00	4.26	131.12	1,744.75	-10.18	28.66	14,444,869.38	1,726,955.84	39.77477229	-80.69199755
1,840.00	2.50	151.60	1,838.59	-14.28	32.26	14,444,865.28	1,726,959.45	39.77476100	-80.69198476
1,935.00	1.89	162.14	1,933.52	-17.59	33.73	14,444,861.96	1,726,960.92	39.77475188	-80.69197959
2,030.00	1.80	170.32	2,028.47	-20.55	34.46	14,444,859.00	1,726,961.65	39.77474374	-80.69197702
2,124.00	1.93	174.01	2,122.42	-23.58	34.87	14,444,855.97	1,726,962.06	39.77473542	-80.69197559
2,205.00	1.80	159.68	2,203.38	-26.13	35.46	14,444,853.42	1,726,962.64	39.77472841	-80.69197354
2,284.00	2.37	151.86	2,282.32	-28.74	36.66	14,444,850.82	1,726,963.85	39.77472125	-80.69196929
2,316.00	2.33	150.63	2,314.30	-29.89	37.29	14,444,849.67	1,726,964.48	39.77471808	-80.69196706
2,410.00	2.02	137.62	2,408.23	-32.78	39.34	14,444,846.78	1,726,966.53	39.77471013	-80.69195979
2,504.00	2.11	124.53	2,502.17	-34.98	41.89	14,444,844.58	1,726,969.07	39.77470405	-80.69195077
2,598.00	2.68	116.79	2,596.09	-36.95	45.27	14,444,842.60	1,726,972.46	39.77469861	-80.69193873
2,693.00	2.94	112.05	2,690.97	-38.87	49.51	14,444,840.69	1,726,976.70	39.77469331	-80.69192367
2,788.00	3.21	111.87	2,785.84	-40.77	54.24	14,444,838.78	1,726,981.43	39.77468803	-80.69190687
2,882.00	3.34	111.34	2,879.68	-42.75	59.23	14,444,836.81	1,726,986.42	39.77468255	-80.69188912
2,977.00	3.52	110.46	2,974.51	-44.78	64.54	14,444,834.78	1,726,991.73	39.77467694	-80.69187025
3,072.00	3.69	106.33	3,069.32	-46.65	70.21	14,444,832.90	1,726,997.40	39.77467172	-80.69185010
3,169.00	4.22	106.77	3,166.09	-48.56	76.62	14,444,830.99	1,727,003.81	39.77466642	-80.69182730
3,264.00	4.31	111.87	3,260.83	-50.90	83.28	14,444,828.66	1,727,010.47	39.77465994	-80.69180363
3,358.00	4.04	116.53	3,354.58	-53.69	89.52	14,444,825.86	1,727,016.71	39.77465221	-80.69178146
3,453.00	4.00	115.74	3,449.35	-56.63	95.50	14,444,822.93	1,727,022.69	39.77464409	-80.69176021
3,547.00	4.04	121.10	3,543.12	-59.76	101.29	14,444,819.79	1,727,028.48	39.77463543	-80.69173965
3,642.00	4.13	126.37	3,637.88	-63.52	106.91	14,444,816.04	1,727,034.10	39.77462506	-80.69171969
3,736.00	4.22	128.57	3,731.63	-67.68	112.34	14,444,811.87	1,727,039.53	39.77461357	-80.69170042
3,831.00	4.31	131.73	3,826.36	-72.24	117.74	14,444,807.32	1,727,044.92	39.77460101	-80.69168127
3,925.00	4.66	130.50	3,920.07	-77.07	123.28	14,444,802.49	1,727,050.46	39.77458769	-80.69166161
4,020.00	4.79	129.36	4,014.75	-82.09	129.28	14,444,797.46	1,727,056.46	39.77457384	-80.69164031
4,114.00	6.33	127.95	4,108.31	-87.77	136.40	14,444,791.79	1,727,063.59	39.77455819	-80.69161504
4,209.00	7.56	126.46	4,202.61	-94.70	145.55	14,444,784.85	1,727,072.74	39.77453906	-80.69158254
4,304.00	7.51	127.69	4,296.79	-102.21	155.49	14,444,777.34	1,727,082.68	39.77451834	-80.69154726
4,398.00	8.44	130.15	4,389.88	-110.42	165.63	14,444,769.14	1,727,092.81	39.77449572	-80.69151129
4,493.00	8.44	131.29	4,483.85	-119.51	176.19	14,444,760.04	1,727,103.38	39.77447064	-80.69147379
4,587.00	7.47	129.97	4,576.94	-127.99	186.06	14,444,751.57	1,727,113.25	39.77444726	-80.69143878
4,682.00	6.77	125.84	4,671.21	-135.23	195.33	14,444,744.32	1,727,122.52	39.77442728	-80.69140587
4,777.00	7.08	123.65	4,765.52	-141.76	204.75	14,444,737.80	1,727,131.93	39.77440927	-80.69137245
4,871.00	7.29	123.56	4,858.78	-148.26	214.54	14,444,731.29	1,727,141.73	39.77439131	-80.69133768
4,966.00	6.81	122.59	4,953.06	-154.63	224.31	14,444,724.93	1,727,151.49	39.77437374	-80.69130299
5,060.00	5.98	123.91	5,046.48	-160.36	233.07	14,444,719.19	1,727,160.25	39.77435791	-80.69127188
5,155.00	5.89	124.70	5,140.97	-165.90	241.18	14,444,713.66	1,727,168.37	39.77434263	-80.69124307
5,253.00	5.19	125.76	5,238.51	-171.35	248.91	14,444,708.20	1,727,176.10	39.77432758	-80.69121562
5,348.00	6.72	120.48	5,332.99	-176.68	257.19	14,444,702.87	1,727,184.38	39.77431286	-80.69118623
5,443.00	6.77	122.50	5,427.34	-182.51	266.70	14,444,697.04	1,727,193.89	39.77429677	-80.69115245

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<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Keith Stern N-15 HU (slot P)
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<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 (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,538.00	6.94	125.93	5,521.66	-188.89	276.07	14,444,690.67	1,727,203.26	39.77427917	-80.69111918
5,633.00	5.93	124.88	5,616.06	-195.06	284.74	14,444,684.49	1,727,211.93	39.77426213	-80.69108838
5,728.00	5.45	117.76	5,710.59	-199.97	292.76	14,444,679.59	1,727,219.95	39.77424857	-80.69105991
5,823.00	5.01	111.96	5,805.20	-203.62	300.60	14,444,675.93	1,727,227.79	39.77423847	-80.69103205
5,917.00	4.92	107.65	5,898.84	-206.38	308.25	14,444,673.18	1,727,235.44	39.77423082	-80.69100486
6,012.00	4.66	106.33	5,993.51	-208.70	315.84	14,444,670.86	1,727,243.02	39.77422438	-80.69097790
6,107.00	4.17	106.51	6,088.23	-210.77	322.85	14,444,668.79	1,727,250.04	39.77421864	-80.69095296
6,201.00	3.74	106.86	6,182.01	-212.63	329.06	14,444,666.93	1,727,256.25	39.77421347	-80.69093087
6,296.00	3.21	106.33	6,276.83	-214.27	334.58	14,444,665.28	1,727,261.77	39.77420890	-80.69091126
6,386.00	4.00	109.15	6,366.65	-216.01	339.96	14,444,663.54	1,727,267.15	39.77420407	-80.69089212
6,481.00	6.64	105.89	6,461.23	-218.60	348.38	14,444,660.95	1,727,275.56	39.77419688	-80.69086220
6,576.00	8.96	104.31	6,555.35	-221.94	360.83	14,444,657.62	1,727,288.02	39.77418761	-80.69081792
6,671.00	11.12	106.60	6,648.89	-226.38	376.78	14,444,653.17	1,727,303.97	39.77417524	-80.69076121
6,766.00	13.40	109.50	6,741.72	-232.67	395.94	14,444,646.88	1,727,323.13	39.77415778	-80.69069311
6,860.00	15.78	113.80	6,832.68	-241.47	417.90	14,444,638.09	1,727,345.09	39.77413342	-80.69061504
6,953.00	16.66	117.58	6,921.98	-252.75	441.29	14,444,626.81	1,727,368.48	39.77410223	-80.69053194
7,048.00	17.67	117.49	7,012.75	-265.71	466.15	14,444,613.85	1,727,393.34	39.77403152	-80.69044362
7,142.00	16.04	117.67	7,102.71	-278.32	490.31	14,444,601.23	1,727,417.50	39.77399989	-80.69035779
7,237.00	15.12	115.56	7,194.22	-289.76	513.11	14,444,589.79	1,727,440.30	39.77399989	-80.69027678
7,426.00	16.57	115.12	7,376.03	-311.84	559.75	14,444,567.71	1,727,486.94	39.77393881	-80.69011106
7,521.00	16.92	113.10	7,467.00	-323.01	584.73	14,444,556.54	1,727,511.92	39.77390789	-80.69002229
7,615.00	17.80	110.81	7,556.72	-333.49	610.75	14,444,546.07	1,727,537.93	39.77387888	-80.68992983
7,710.00	19.47	108.44	7,646.74	-343.65	639.34	14,444,535.90	1,727,566.53	39.77385069	-80.68982819
7,804.00	20.79	107.39	7,735.00	-353.60	670.12	14,444,525.96	1,727,597.31	39.77382309	-80.68971876
7,899.00	21.01	105.01	7,823.75	-363.05	702.66	14,444,516.51	1,727,629.85	39.77379683	-80.68960307
7,993.00	20.43	107.91	7,911.67	-372.46	734.55	14,444,507.10	1,727,661.74	39.77377069	-80.68948969
8,087.00	20.87	110.90	7,999.63	-383.47	765.81	14,444,496.08	1,727,692.99	39.77374013	-80.68937859
8,181.00	20.26	114.07	8,087.64	-396.09	796.31	14,444,483.47	1,727,723.50	39.77370521	-80.68927019
8,274.00	18.24	114.07	8,175.44	-408.59	824.30	14,444,470.97	1,727,751.49	39.77367060	-80.68917071
8,370.00	15.91	114.86	8,267.20	-420.25	849.96	14,444,459.30	1,727,777.15	39.77363833	-80.68907953
8,464.00	17.84	116.00	8,357.15	-431.98	874.60	14,444,447.57	1,727,801.78	39.77360588	-80.68899201
8,559.00	19.69	115.21	8,447.10	-445.18	902.16	14,444,434.38	1,727,829.35	39.77356938	-80.68889408
8,653.00	21.01	116.00	8,535.23	-459.31	931.63	14,444,420.25	1,727,858.82	39.77353028	-80.68878935
8,747.00	22.54	118.72	8,622.52	-475.36	962.58	14,444,404.20	1,727,889.77	39.77348592	-80.68867941
8,843.00	22.76	122.50	8,711.12	-494.18	994.38	14,444,385.38	1,727,921.57	39.77343393	-80.68856646
8,937.00	21.84	122.86	8,798.09	-513.43	1,024.40	14,444,366.12	1,727,951.59	39.77338076	-80.68845985
9,032.00	21.67	121.54	8,886.32	-532.20	1,054.20	14,444,347.36	1,727,981.38	39.77332895	-80.68835405
9,126.00	21.01	119.78	8,973.88	-549.64	1,083.61	14,444,329.91	1,728,010.80	39.77328075	-80.68824957
9,218.00	20.17	121.19	9,060.00	-566.05	1,111.50	14,444,313.50	1,728,038.69	39.77323543	-80.68815054
9,313.00	20.04	122.42	9,149.21	-583.26	1,139.25	14,444,296.30	1,728,066.44	39.77318790	-80.68805198
9,407.00	19.69	119.96	9,237.62	-599.80	1,166.56	14,444,279.75	1,728,093.75	39.77314221	-80.68795497
9,501.00	18.94	118.99	9,326.33	-615.10	1,193.63	14,444,264.45	1,728,120.82	39.77309993	-80.68785884
9,596.00	18.24	119.34	9,416.37	-629.86	1,220.07	14,444,249.69	1,728,147.26	39.77305915	-80.68776490
9,691.00	17.18	118.02	9,506.87	-643.74	1,245.42	14,444,235.82	1,728,172.61	39.77302080	-80.68767487
9,784.00	17.58	117.93	9,595.62	-656.77	1,269.96	14,444,222.79	1,728,197.14	39.77298477	-80.68758771
9,879.00	19.16	119.87	9,685.78	-671.25	1,296.15	14,444,208.30	1,728,223.34	39.77294474	-80.68749466
9,973.00	19.91	122.50	9,774.37	-687.54	1,323.03	14,444,192.02	1,728,250.22	39.77289977	-80.68739921
10,068.00	19.56	123.21	9,863.79	-704.94	1,349.98	14,444,174.62	1,728,277.16	39.77285172	-80.68730352
10,162.00	18.68	127.60	9,952.61	-722.74	1,375.07	14,444,156.81	1,728,302.26	39.77280259	-80.68721444
10,209.00	18.33	128.31	9,997.18	-731.92	1,386.83	14,444,147.64	1,728,314.02	39.77277728	-80.68717269
10,275.00	17.93	131.81	10,059.91	-745.12	1,402.55	14,444,134.43	1,728,329.74	39.77274086	-80.68711692
10,322.00	18.11	117.75	10,104.62	-753.35	1,414.41	14,444,126.20	1,728,341.60	39.77271815	-80.68707480
10,369.00	19.21	105.71	10,149.17	-758.85	1,428.32	14,444,120.71	1,728,355.51	39.77270292	-80.68702535
10,416.00	21.05	97.09	10,193.30	-761.99	1,444.15	14,444,117.57	1,728,371.34	39.77269415	-80.68696907
10,463.00	21.54	88.66	10,237.10	-762.83	1,461.16	14,444,116.73	1,728,388.34	39.77269168	-80.68690856

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Keith Stern N-15 HU (slot P)
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<b>Well:</b>	Keith Stern N-15 HU (slot P)	<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 (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,510.00	21.89	79.78	10,280.78	-761.07	1,478.41	14,444,118.49	1,728,405.60	39.77269634	-80.68684714
10,558.00	21.80	70.02	10,325.35	-756.43	1,495.60	14,444,123.12	1,728,422.78	39.77270890	-80.68678591
10,605.00	22.15	61.41	10,368.95	-749.21	1,511.58	14,444,130.35	1,728,438.77	39.77272859	-80.68672892
10,653.00	23.47	54.38	10,413.20	-739.31	1,527.30	14,444,140.24	1,728,454.49	39.77275562	-80.68667286
10,700.00	22.81	51.39	10,456.42	-728.17	1,542.03	14,444,151.38	1,728,469.22	39.77278607	-80.68662030
10,747.00	21.32	40.58	10,499.99	-715.99	1,554.71	14,444,163.56	1,728,481.90	39.77281939	-80.68657501
10,794.00	20.84	32.14	10,543.86	-702.42	1,564.72	14,444,177.13	1,728,491.91	39.77285657	-80.68653922
10,841.00	21.71	27.57	10,587.66	-687.64	1,573.19	14,444,191.92	1,728,500.38	39.77289709	-80.68650889
10,888.00	22.73	21.42	10,631.17	-671.48	1,580.53	14,444,208.08	1,728,507.72	39.77294141	-80.68648256
10,937.00	24.13	15.88	10,676.14	-653.03	1,586.73	14,444,226.53	1,728,513.92	39.77299201	-80.68646027
10,984.00	25.05	6.48	10,718.89	-633.89	1,590.48	14,444,245.66	1,728,517.67	39.77304453	-80.68644668
11,031.00	26.37	355.58	10,761.26	-613.59	1,590.80	14,444,265.97	1,728,517.99	39.77310029	-80.68644529
11,078.00	27.65	346.35	10,803.15	-592.57	1,587.42	14,444,286.98	1,728,514.61	39.77315803	-80.68645706
11,125.00	30.07	345.91	10,844.31	-570.55	1,581.98	14,444,309.01	1,728,509.17	39.77321856	-80.68647615
11,172.00	31.47	341.96	10,884.70	-547.46	1,575.32	14,444,332.10	1,728,502.50	39.77328204	-80.68649959
11,220.00	33.54	337.74	10,925.18	-523.27	1,566.41	14,444,356.29	1,728,493.60	39.77334856	-80.68653098
11,267.00	37.27	338.88	10,963.49	-497.97	1,556.36	14,444,381.59	1,728,483.55	39.77341814	-80.68656643
11,315.00	41.36	337.56	11,000.61	-469.74	1,545.07	14,444,409.82	1,728,472.25	39.77349577	-80.68660628
11,362.00	44.22	341.96	11,035.11	-439.79	1,534.06	14,444,439.76	1,728,461.25	39.77357812	-80.68664508
11,409.00	47.47	341.52	11,067.85	-407.77	1,523.49	14,444,471.78	1,728,450.68	39.77366615	-80.68668229
11,456.00	52.18	341.34	11,098.16	-373.74	1,512.05	14,444,505.81	1,728,439.24	39.77375972	-80.68672257
11,504.00	56.13	339.23	11,126.26	-337.13	1,498.92	14,444,542.42	1,728,426.10	39.77386039	-80.68676887
11,551.00	59.87	338.00	11,151.17	-300.03	1,484.38	14,444,579.53	1,728,411.57	39.77396242	-80.68682015
11,599.00	62.81	337.21	11,174.18	-261.09	1,468.33	14,444,618.46	1,728,395.52	39.77406951	-80.68687679
11,646.00	67.69	335.80	11,193.86	-221.96	1,451.31	14,444,657.59	1,728,378.50	39.77417712	-80.68689388
11,693.00	71.82	334.66	11,210.12	-181.94	1,432.83	14,444,697.62	1,728,360.02	39.77428723	-80.68700214
11,740.00	74.86	333.87	11,223.59	-141.38	1,413.28	14,444,738.17	1,728,340.47	39.77439879	-80.68707121
11,787.00	75.03	332.55	11,235.80	-100.87	1,392.82	14,444,778.69	1,728,320.01	39.77451025	-80.68714352
11,834.00	76.70	332.11	11,247.28	-60.51	1,371.66	14,444,819.05	1,728,298.85	39.77462130	-80.68721834
11,882.00	78.86	331.50	11,257.44	-19.16	1,349.50	14,444,860.39	1,728,276.68	39.77473505	-80.68729671
11,929.00	82.73	330.62	11,264.95	21.43	1,327.05	14,444,900.99	1,728,254.24	39.77484674	-80.68737610
11,976.00	82.81	331.32	11,270.87	62.20	1,304.42	14,444,941.75	1,728,231.61	39.77495892	-80.68745612
12,023.00	85.32	331.85	11,275.73	103.31	1,282.18	14,444,982.87	1,728,209.37	39.77507203	-80.68753477
12,071.00	89.67	332.55	11,277.82	145.72	1,259.82	14,445,025.28	1,728,187.01	39.77518872	-80.68761382
12,166.00	90.68	332.03	11,277.53	229.82	1,215.65	14,445,109.38	1,728,142.83	39.77542011	-80.68777000
12,260.00	90.37	332.47	11,276.67	313.01	1,171.88	14,445,192.56	1,728,099.07	39.77564897	-80.68792473
12,355.00	91.03	331.85	11,275.51	397.01	1,127.52	14,445,276.56	1,728,054.71	39.77588008	-80.68808158
12,449.00	91.16	331.06	11,273.72	479.56	1,082.61	14,445,359.12	1,728,009.80	39.77610723	-80.68824039
12,544.00	90.81	331.32	11,272.08	562.79	1,036.84	14,445,442.35	1,727,964.02	39.77633624	-80.68840228
12,639.00	90.29	331.23	11,271.17	646.10	991.18	14,445,525.65	1,727,918.37	39.77656545	-80.68856374
12,733.00	90.33	330.97	11,270.66	728.39	945.75	14,445,607.94	1,727,872.94	39.77679188	-80.68872441
12,827.00	90.46	331.15	11,270.01	810.65	900.27	14,445,690.20	1,727,827.46	39.77701822	-80.68888528
12,922.00	90.33	331.50	11,269.36	894.00	854.68	14,445,773.55	1,727,781.87	39.77724755	-80.68904649
13,016.00	91.56	330.53	11,267.81	976.21	809.14	14,445,855.76	1,727,736.33	39.77747376	-80.68920757
13,111.00	91.25	329.92	11,265.48	1,058.64	761.98	14,445,938.20	1,727,689.17	39.77770059	-80.68937441
13,206.00	90.59	330.09	11,263.95	1,140.91	714.49	14,446,020.46	1,727,641.68	39.77792696	-80.68954241
13,300.00	92.13	329.65	11,261.72	1,222.18	667.32	14,446,101.74	1,727,594.51	39.77815061	-80.68970930
13,395.00	91.74	329.30	11,258.52	1,303.97	619.10	14,446,183.52	1,727,546.29	39.77837568	-80.68987993
13,489.00	91.47	329.30	11,255.88	1,384.76	571.13	14,446,264.32	1,727,498.31	39.77859802	-80.69004968
13,584.00	91.43	329.92	11,253.48	1,466.68	523.08	14,446,346.24	1,727,450.27	39.77882345	-80.69021967
13,679.00	91.43	329.92	11,251.11	1,548.86	475.48	14,446,428.42	1,727,402.67	39.77904959	-80.69038808
13,774.00	91.08	330.27	11,249.03	1,631.19	428.13	14,446,510.75	1,727,355.32	39.77927614	-80.69055560
13,868.00	90.95	330.53	11,247.36	1,712.91	381.71	14,446,592.47	1,727,308.90	39.77950100	-80.69071983
13,963.00	90.68	331.15	11,246.01	1,795.86	335.42	14,446,675.42	1,727,262.61	39.77972925	-80.69088355
14,057.00	90.77	331.76	11,244.82	1,878.43	290.51	14,446,757.99	1,727,217.70	39.77995642	-80.69104240



Survey Report - Geographic

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Keith Stern N-15 HU (slot P)
<b>Project:</b>	Marshall County, West Virginia	<b>TVD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Site:</b>	Keith Stern	<b>MD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Well:</b>	Keith Stern N-15 HU (slot P)	<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 (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,151.00	90.46	331.85	11,243.81	1,961.27	246.10	14,446,840.83	1,727,173.29	39.78018435	-80.69119945
14,246.00	91.38	331.67	11,242.29	2,044.95	201.16	14,446,924.51	1,727,128.34	39.78041458	-80.69135840
14,341.00	91.60	331.15	11,239.82	2,128.34	155.71	14,447,007.90	1,727,082.90	39.78064402	-80.69151913
14,436.00	91.30	331.15	11,237.41	2,211.52	109.89	14,447,091.08	1,727,037.07	39.78087289	-80.69168122
14,530.00	91.52	330.71	11,235.10	2,293.66	64.23	14,447,173.21	1,726,991.42	39.78109888	-80.69184273
14,624.00	91.56	331.15	11,232.57	2,375.79	18.57	14,447,255.34	1,726,945.76	39.78132486	-80.69200423
14,718.00	91.16	330.36	11,230.34	2,457.78	-27.34	14,447,337.34	1,726,899.85	39.78155047	-80.69216664
14,813.00	91.34	331.94	11,228.27	2,540.97	-73.17	14,447,420.52	1,726,854.02	39.78177936	-80.69232874
14,907.00	90.77	333.26	11,226.54	2,624.41	-116.42	14,447,503.96	1,726,810.77	39.78200891	-80.69248167
15,002.00	90.07	331.76	11,225.84	2,708.67	-160.26	14,447,588.23	1,726,766.92	39.78224074	-80.69263671
15,096.00	89.67	331.23	11,226.06	2,791.28	-205.12	14,447,670.83	1,726,722.06	39.78246802	-80.69279538
15,191.00	89.49	331.23	11,226.75	2,874.55	-250.85	14,447,754.10	1,726,676.34	39.78269713	-80.69295711
15,286.00	89.36	331.41	11,227.71	2,957.89	-296.44	14,447,837.44	1,726,630.75	39.78292644	-80.69311837
15,380.00	90.20	330.80	11,228.07	3,040.19	-341.86	14,447,919.74	1,726,585.33	39.78315287	-80.69327904
15,475.00	90.68	331.32	11,227.34	3,123.32	-387.82	14,448,002.87	1,726,539.36	39.78338161	-80.69344165
15,569.00	91.30	330.27	11,225.71	3,205.36	-433.68	14,448,084.91	1,726,493.51	39.78360733	-80.69360388
15,663.00	91.25	329.65	11,223.62	3,286.71	-480.73	14,448,166.26	1,726,446.46	39.78383119	-80.69377035
15,758.00	91.12	329.83	11,221.66	3,368.75	-528.59	14,448,248.30	1,726,398.60	39.78405694	-80.69393972
15,853.00	91.30	330.62	11,219.65	3,451.19	-575.76	14,448,330.74	1,726,351.43	39.78428378	-80.69410660
15,948.00	91.12	330.62	11,217.65	3,533.95	-622.35	14,448,413.51	1,726,304.84	39.78451151	-80.69427146
16,042.00	91.08	329.83	11,215.84	3,615.52	-669.02	14,448,495.08	1,726,258.16	39.78473597	-80.69443660
16,137.00	90.81	330.27	11,214.27	3,697.83	-716.44	14,448,577.38	1,726,210.74	39.78496244	-80.69460440
16,232.00	90.59	330.36	11,213.11	3,780.35	-763.49	14,448,659.91	1,726,163.70	39.78518952	-80.69477085
16,326.00	90.64	331.15	11,212.10	3,862.37	-809.41	14,448,741.92	1,726,117.78	39.78541518	-80.69493332
16,421.00	90.51	330.18	11,211.15	3,945.18	-855.95	14,448,824.73	1,726,071.24	39.78564304	-80.69509797
16,516.00	90.46	330.09	11,210.35	4,027.56	-903.25	14,448,907.12	1,726,023.94	39.78586972	-80.69526536
16,610.00	90.20	329.30	11,209.81	4,108.71	-950.68	14,448,988.27	1,725,976.50	39.78609303	-80.69543322
16,705.00	90.46	329.39	11,209.26	4,190.44	-999.12	14,449,069.99	1,725,928.07	39.78631791	-80.69560464
16,800.00	90.86	331.41	11,208.16	4,273.03	-1,046.04	14,449,152.58	1,725,881.15	39.78654517	-80.69577066
16,895.00	90.59	330.09	11,206.96	4,355.91	-1,092.45	14,449,235.46	1,725,834.73	39.78677321	-80.69593488
16,989.00	90.86	330.62	11,205.77	4,437.60	-1,138.94	14,449,317.15	1,725,788.24	39.78699798	-80.69609938
17,084.00	90.95	330.18	11,204.27	4,520.19	-1,185.86	14,449,399.74	1,725,741.33	39.78722524	-80.69626540
17,178.00	90.73	330.71	11,202.89	4,601.95	-1,232.22	14,449,481.50	1,725,694.96	39.78745020	-80.69642945
17,273.00	90.81	329.21	11,201.62	4,684.18	-1,279.78	14,449,563.73	1,725,647.41	39.78767647	-80.69659773
17,367.00	90.68	329.04	11,200.39	4,764.85	-1,328.01	14,449,644.40	1,725,599.18	39.78789846	-80.69676845
17,462.00	91.08	329.65	11,198.94	4,846.56	-1,376.44	14,449,726.12	1,725,550.75	39.78812332	-80.69693987
17,557.00	90.64	329.56	11,197.51	4,928.50	-1,424.50	14,449,808.05	1,725,502.69	39.78834878	-80.69710997
17,650.00	90.86	330.18	11,196.29	5,008.92	-1,471.18	14,449,888.48	1,725,456.01	39.78857008	-80.69727516
17,745.00	90.73	330.36	11,194.97	5,091.41	-1,518.29	14,449,970.97	1,725,408.90	39.78879705	-80.69744186
17,839.00	91.03	330.44	11,193.53	5,173.13	-1,564.71	14,450,052.69	1,725,362.48	39.78902191	-80.69760614
<b>Survey @ 17839.00 MD 11193.53 TVD</b>									
17,899.00	91.03	330.44	11,192.45	5,225.32	-1,594.31	14,450,104.87	1,725,332.88	39.78916549	-80.69771087
<b>Survey projected to 17899.00 MD 11192.45 TVD</b>									

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
272.00	271.99	-1.15	-1.35	MWD surveys
17,839.00	11,193.53	5,173.13	-1,564.71	Survey @ 17839.00 MD 11193.53 TVD
17,899.00	11,192.45	5,225.32	-1,594.31	Survey projected to 17899.00 MD 11192.45 TVD

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Keith Stern N-15 HU (slot P)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Site:</b>	Keith Stern	<b>MD Reference:</b>	RKB=747+33 @ 780.00usft (Nabors X08)
<b>Well:</b>	Keith Stern N-15 HU (slot P)	<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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