



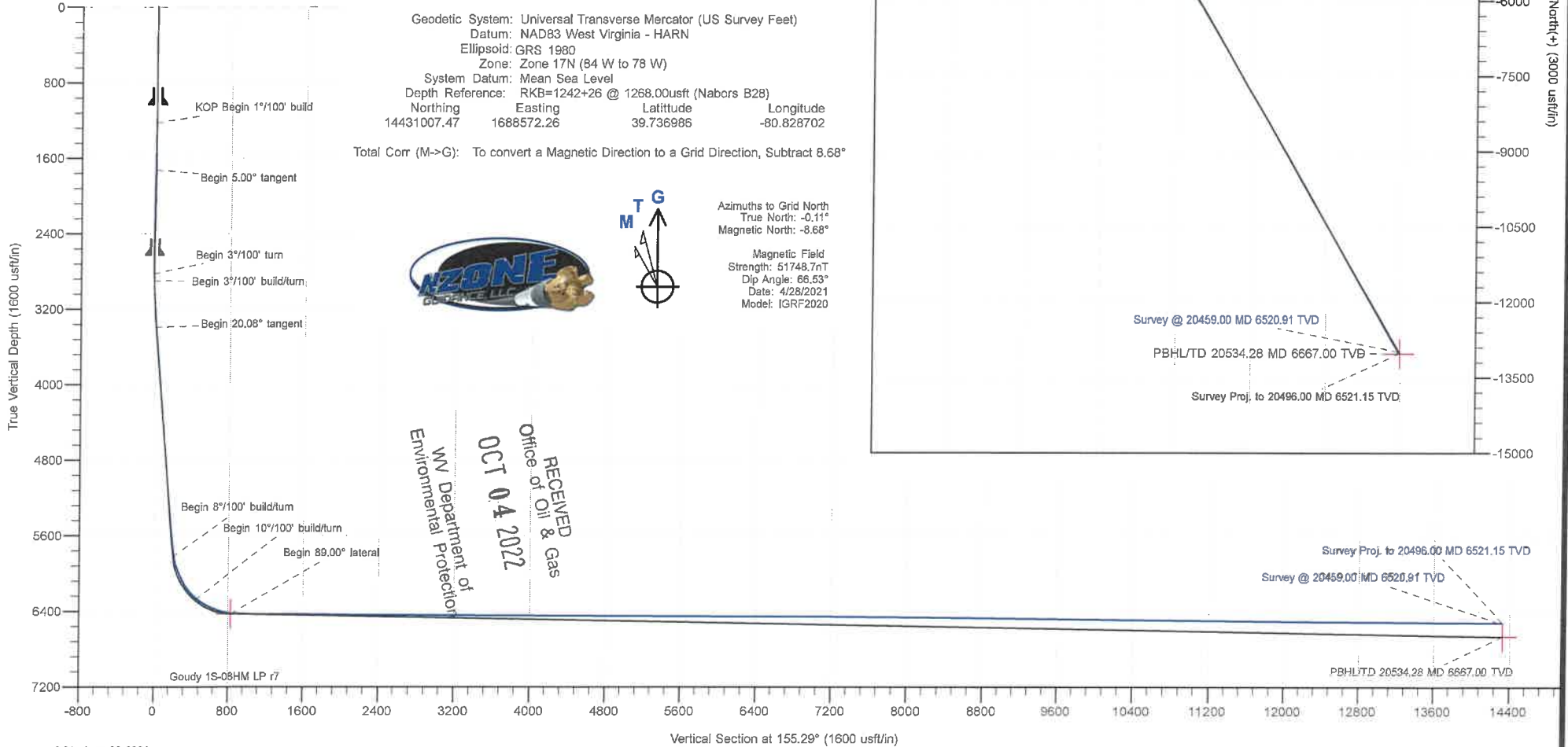
Well: Goudy 1S-08HM (I)  
 Site: Goudy  
 Project: Marshall County, West Virginia.  
 Design: rev7

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1227.00	0.00	0.00	1227.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 1°/100' build
3	1727.00	5.00	255.00	1726.37	-5.64	-21.06	1.00	255.00	-3.68	Begin 5.00° tangent
4	2831.84	5.00	255.00	2827.00	-30.57	-114.07	0.00	0.00	-19.92	Begin 3°/100' build/turn
5	2904.92	5.00	229.64	2899.81	-33.45	-119.58	3.00	-102.63	-19.60	Begin 3°/100' build/turn
6	3407.84	20.08	232.36	3389.32	-100.76	-205.14	3.00	3.59	5.78	Begin 20.08° tangent
7	5999.44	20.08	232.36	5823.38	-644.14	-909.73	0.00	0.00	204.84	Begin 8°/100' build/turn
8	6554.16	50.00	167.33	6285.51	-923.71	-940.07	8.00	-83.18	446.13	Begin 10°/100' build/turn
9	6974.92	89.00	149.98	6431.00	-1279.19	-792.80	10.00	-26.42	830.63	Begin 89.00° lateral
10	20534.28	89.00	149.98	6667.00-13017.51	5990.44	0.00	0.00	0.0014329.72		PBHL/TD 20534.28 MD 6667.00 TVD

ANNOTATIONS SURVEYS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Annotation
198.00	0.31	78.66	198.00	0.11	0.53	0.12	MWD surveys
20459.00	89.62	150.01	6520.91-12984.27	5963.60	14288.31		Survey @ 20459.00 MD 6520.91 TVD
20496.00	89.62	150.01	6521.15-13016.32	5982.09	14325.15		Survey Proj. to 20496.00 MD 6521.15 TVD



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=1242+26 @ 1268,00usft (Nabors B28)  
 Northing Easting Latitude Longitude  
 14431007.47 1688572.26 39.736986 -80.828702

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.68°



Azimuths to Grid North  
 True North: -0.11°  
 Magnetic North: -8.68°

Magnetic Field  
 Strength: 51748.7nT  
 Dip Angle: 66.53°  
 Date: 4/28/2021  
 Model: IGRF2020



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<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Goudy 1S-08HM (I)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Site:</b>	Goudy	<b>MD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

<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>	Goudy				
<b>Site Position:</b>	<b>Northing:</b>	14,430,942.40 usft	<b>Latitude:</b>	39.736807	
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,688,559.77 usft	<b>Longitude:</b>	-80.828748
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "		

<b>Well</b>	Goudy 1S-08HM (I)					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	14,431,007.47 usft	<b>Latitude:</b>	39.736986
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,688,572.25 usft	<b>Longitude:</b>	-80.828703
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	1,242.00 usft
<b>Grid Convergence:</b>	0.11 °					

<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>
	IGRF2020	4/28/2021	-8.57	66.53	51,748.70962494

<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	155.29	

<b>Survey Program</b>	Date 6/29/2021			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
198.00	984.00	MWD surf (Original Hole)	MWD	MWD - Standard
1,035.00	2,648.00	MWD int (Original Hole)	MWD	MWD - Standard
2,758.00	20,459.00	MWD (Original Hole)	MWD	MWD - Standard
20,496.00	20,496.00	Projection (Original Hole)	MWD	MWD - Standard

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<b>Survey</b>										
<b>Measured 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>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
198.00	0.31	78.68	198.00	0.11	0.53	0.12	0.16	0.16	0.00	
<b>MWD surveys</b>										
239.00	0.22	95.56	239.00	0.12	0.71	0.19	0.29	-0.22	41.17	
270.00	0.31	127.02	270.00	0.06	0.84	0.29	0.54	0.29	101.48	
300.00	0.40	130.89	300.00	-0.05	0.98	0.46	0.31	0.30	12.90	
330.00	0.35	132.47	330.00	-0.18	1.13	0.64	0.17	-0.17	5.27	

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<b>Site:</b>	Goudy	<b>MD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

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)
360.00	0.26	93.36	360.00	-0.25	1.26	0.76	0.74	-0.30	-130.37
390.00	0.26	133.26	390.00	-0.30	1.38	0.85	0.59	0.00	133.00
421.00	0.31	113.05	421.00	-0.38	1.51	0.98	0.36	0.16	-65.19
468.00	0.40	135.11	467.99	-0.55	1.74	1.23	0.34	0.19	46.94
511.00	0.48	130.98	510.99	-0.77	1.99	1.53	0.20	0.19	-9.60
542.00	0.26	123.51	541.99	-0.90	2.14	1.71	0.73	-0.71	-24.10
572.00	0.26	110.15	571.99	-0.96	2.26	1.82	0.20	0.00	-44.53
602.00	0.22	135.55	601.99	-1.02	2.37	1.92	0.38	-0.13	84.67
632.00	0.35	150.23	631.99	-1.14	2.45	2.06	0.49	0.43	48.93
662.00	0.26	171.06	661.99	-1.29	2.51	2.22	0.47	-0.30	69.43
693.00	0.35	157.43	692.99	-1.45	2.56	2.38	0.37	0.29	-43.97
723.00	0.31	179.41	722.99	-1.61	2.59	2.55	0.44	-0.13	73.27
754.00	0.40	186.79	753.99	-1.80	2.58	2.72	0.33	0.29	23.81
784.00	0.26	187.58	783.99	-1.98	2.56	2.86	0.47	-0.47	2.63
815.00	0.31	196.55	814.99	-2.13	2.53	2.99	0.22	0.16	28.94
847.00	0.22	192.50	846.99	-2.27	2.49	3.10	0.29	-0.28	-12.66
879.00	0.35	209.73	878.99	-2.41	2.43	3.21	0.48	0.41	53.84
910.00	0.22	192.41	909.99	-2.55	2.37	3.31	0.50	-0.42	-55.87
942.00	0.26	192.06	941.99	-2.68	2.34	3.42	0.13	0.13	-1.09
984.00	0.26	229.24	983.99	-2.84	2.25	3.52	0.39	0.00	88.52
1,035.00	0.53	298.59	1,034.99	-2.80	1.95	3.36	0.98	0.53	135.98
1,073.00	0.79	307.81	1,072.98	-2.56	1.59	2.99	0.74	0.68	24.26
1,105.00	1.01	311.33	1,104.98	-2.24	1.20	2.53	0.71	0.69	11.00
1,136.00	1.36	306.76	1,135.97	-1.84	0.70	1.96	1.17	1.13	-14.74
1,168.00	1.49	301.66	1,167.96	-1.39	0.05	1.28	0.57	0.41	-15.94
1,199.00	1.76	296.65	1,198.95	-0.97	-0.72	0.57	0.98	0.72	6.16
1,231.00	1.99	293.22	1,230.93	-0.53	-1.67	-0.22	0.80	0.72	-10.72
1,262.00	2.15	282.06	1,261.91	-0.19	-2.74	-0.97	1.40	1.09	36.00
1,294.00	2.50	279.07	1,293.89	0.04	-4.01	-1.72	1.16	1.09	-9.34
1,325.00	2.72	278.45	1,324.86	0.26	-5.41	-2.50	0.72	0.00	2.00
1,357.00	2.72	272.48	1,356.82	0.40	-6.92	-3.26	0.88	0.00	-18.66
1,388.00	2.24	262.99	1,387.79	0.36	-8.25	-3.78	2.03	-1.55	-30.61
1,420.00	2.07	249.28	1,419.77	0.08	-9.41	-4.01	1.69	-0.53	-42.84
1,451.00	2.15	251.48	1,450.75	-0.30	-10.49	-4.11	0.37	0.26	7.10
1,498.00	2.42	252.88	1,497.71	-0.88	-12.27	-4.34	0.59	0.57	2.98
1,546.00	2.59	259.30	1,545.66	-1.37	-14.31	-4.73	0.68	0.35	13.38
1,593.00	2.86	263.61	1,592.61	-1.70	-16.52	-5.36	0.72	0.57	9.17
1,687.00	3.65	264.48	1,686.46	-2.25	-21.83	-7.08	0.84	0.84	0.93
1,735.00	4.26	263.61	1,734.34	-2.60	-25.12	-8.14	1.28	1.27	-1.81
1,782.00	4.92	265.28	1,781.19	-2.96	-28.86	-9.38	1.43	1.40	3.55
1,829.00	5.23	264.31	1,828.01	-3.34	-33.00	-10.77	0.68	0.66	-2.06
1,876.00	5.36	264.40	1,874.81	-3.76	-37.32	-12.18	0.28	0.28	0.19
1,922.00	5.80	258.95	1,920.59	-4.42	-41.74	-13.44	1.50	0.96	-11.85
2,017.00	6.77	250.69	2,015.02	-7.19	-51.73	-15.10	1.39	1.02	-8.69

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<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

## Survey

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)
2,064.00	7.21	246.82	2,061.67	-9.27	-57.06	-15.44	1.37	0.94	-8.23
2,111.00	6.90	246.91	2,108.31	-11.53	-62.37	-15.59	0.66	-0.66	0.19
2,158.00	6.42	247.79	2,155.00	-13.63	-67.40	-15.79	1.04	-1.02	1.87
2,206.00	6.68	250.77	2,202.68	-15.57	-72.52	-16.17	0.89	0.54	6.21
2,300.00	5.67	246.82	2,296.14	-19.20	-81.95	-16.82	1.17	-1.07	-4.20
2,347.00	4.70	247.17	2,342.95	-20.86	-85.86	-16.94	2.06	-2.06	0.74
2,395.00	4.26	253.15	2,390.80	-22.14	-89.38	-17.25	1.34	-0.92	12.46
2,442.00	4.66	257.72	2,437.66	-23.05	-92.91	-17.90	1.14	0.85	9.72
2,490.00	4.97	259.74	2,485.49	-23.83	-96.86	-18.84	0.74	0.65	4.21
2,537.00	5.32	260.97	2,532.30	-24.54	-101.02	-19.94	0.78	0.74	2.62
2,584.00	5.27	258.51	2,579.10	-25.31	-105.29	-21.02	0.49	-0.11	-5.23
2,648.00	5.23	249.19	2,642.83	-26.93	-110.89	-21.89	1.33	-0.06	-14.56
2,758.00	5.41	239.70	2,752.36	-31.33	-120.06	-21.73	0.82	0.16	-8.63
2,815.00	4.92	236.89	2,809.13	-34.02	-124.43	-21.11	0.97	-0.86	-4.93
2,852.00	4.66	235.66	2,846.00	-35.74	-127.00	-20.62	0.76	-0.70	-3.32
2,947.00	6.77	232.40	2,940.52	-41.33	-134.62	-18.73	2.25	2.22	-3.43
3,041.00	10.33	233.72	3,033.46	-49.70	-145.81	-15.80	3.79	3.79	1.40
3,137.00	12.30	228.63	3,127.59	-61.55	-160.42	-11.14	2.30	2.05	-5.30
3,231.00	14.90	229.42	3,218.95	-76.03	-177.12	-4.97	2.77	2.77	0.84
3,326.00	16.96	230.12	3,310.30	-92.87	-197.03	2.00	2.18	2.17	0.74
3,420.00	18.81	230.47	3,399.75	-111.30	-219.24	9.46	1.97	1.97	0.37
3,514.00	18.72	234.07	3,488.76	-129.80	-243.14	16.28	1.24	-0.10	3.83
3,609.00	19.03	231.26	3,578.65	-148.44	-267.57	23.00	1.01	0.33	-2.96
3,703.00	19.16	229.94	3,667.48	-167.96	-291.33	30.80	0.48	0.14	-1.40
3,797.00	20.30	232.14	3,755.96	-187.89	-316.01	38.59	1.45	1.21	2.34
3,891.00	19.20	229.50	3,844.43	-207.94	-340.64	46.51	1.51	-1.17	-2.81
3,984.00	20.17	234.07	3,932.00	-227.28	-365.25	53.79	1.96	1.96	4.91
4,079.00	21.23	232.05	4,020.87	-247.47	-392.08	60.91	1.35	1.35	-2.13
4,173.00	20.57	234.51	4,108.68	-267.53	-418.94	67.90	1.17	-0.70	2.62
4,272.00	20.13	235.30	4,201.50	-287.32	-447.11	74.11	0.52	-0.44	0.80
4,366.00	19.86	233.63	4,289.84	-306.00	-473.27	80.14	0.67	0.67	1.78
4,461.00	20.83	230.21	4,378.91	-326.38	-499.24	87.80	1.61	1.61	-3.60
4,554.00	19.51	230.47	4,466.21	-346.85	-523.92	96.07	1.42	-1.42	0.28
4,648.00	19.51	233.81	4,554.81	-366.10	-548.70	103.21	1.19	0.00	3.55
4,743.00	20.65	230.12	4,644.04	-386.21	-574.36	110.75	1.79	1.20	-3.88
4,837.00	20.92	232.05	4,731.92	-407.16	-600.31	118.93	0.78	0.29	2.05
4,932.00	19.91	232.76	4,820.96	-427.38	-626.57	126.33	1.09	-1.06	0.75
5,026.00	19.69	232.84	4,909.40	-446.63	-651.93	133.21	0.24	-0.23	0.09
5,121.00	19.95	233.28	4,998.77	-465.99	-677.67	140.04	0.32	0.27	0.46
5,216.00	21.23	231.88	5,087.70	-486.30	-704.20	147.40	1.44	1.35	-1.47
5,311.00	20.65	234.51	5,176.43	-506.64	-731.37	154.52	1.16	-0.61	2.77
5,405.00	20.13	230.30	5,264.54	-526.60	-757.31	161.81	1.66	-0.55	-4.48
5,500.00	19.16	230.30	5,354.01	-547.00	-781.88	170.07	1.02	-1.02	0.00

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<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

Survey

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)
5,594.00	19.16	232.32	5,442.81	-566.28	-805.96	177.52	0.71	0.00	2.15
5,688.00	20.43	233.20	5,531.25	-585.54	-831.31	184.42	1.39	1.35	0.94
5,740.00	20.08	229.15	5,580.04	-596.82	-845.33	188.80	2.78	-0.67	-7.79
5,846.00	20.95	227.48	5,679.32	-621.53	-873.06	199.65	0.99	0.82	-1.58
5,893.00	19.97	227.57	5,723.35	-632.62	-885.18	204.67	2.09	-2.09	0.19
5,940.00	19.89	226.95	5,767.54	-643.49	-896.94	209.63	0.48	-0.17	-1.32
5,987.00	20.28	225.14	5,811.68	-654.70	-908.56	214.95	1.56	0.83	-3.85
6,035.00	21.39	211.75	5,856.56	-668.02	-919.07	222.65	10.17	2.31	-27.90
6,082.00	23.51	199.89	5,900.02	-684.13	-926.77	234.07	10.62	4.51	-25.23
6,129.00	25.81	194.12	5,942.74	-702.87	-932.46	248.72	7.08	4.89	-12.28
6,176.00	27.35	191.91	5,984.77	-723.36	-937.19	265.36	3.89	3.28	-4.70
6,224.00	29.21	189.23	6,027.04	-745.71	-941.34	283.93	4.69	3.88	-5.58
6,271.00	30.98	186.32	6,067.71	-769.06	-944.51	303.81	4.88	3.77	-6.19
6,318.00	33.05	183.63	6,107.56	-793.88	-946.66	325.46	5.35	4.40	-5.72
6,365.00	36.85	181.21	6,146.08	-820.77	-947.76	349.42	8.60	8.09	-5.15
6,412.00	40.61	178.34	6,182.74	-850.16	-947.62	376.19	8.86	8.00	-6.11
6,459.00	44.72	172.44	6,217.31	-881.87	-945.00	406.09	12.19	8.74	-12.55
6,507.00	48.43	169.00	6,250.30	-916.25	-939.35	439.69	9.32	7.73	-7.17
6,554.00	53.12	167.41	6,280.01	-951.88	-931.89	475.17	10.32	9.98	-3.38
6,601.00	57.40	165.52	6,306.79	-989.41	-922.84	513.05	9.69	9.11	-4.02
6,648.00	61.33	162.18	6,330.74	-1,028.23	-911.57	553.02	10.36	8.36	-7.11
6,695.00	64.60	159.70	6,352.11	-1,067.79	-897.89	594.68	8.40	6.96	-5.28
6,742.00	67.57	156.18	6,371.16	-1,107.59	-881.75	637.58	9.32	6.32	-7.49
6,790.00	71.01	152.51	6,388.14	-1,148.04	-862.30	682.46	10.12	7.17	-7.65
6,837.00	74.19	152.61	6,402.19	-1,187.84	-841.64	727.25	6.77	6.77	0.21
6,883.00	77.69	152.12	6,413.37	-1,227.36	-820.94	771.81	7.68	7.61	-1.07
6,930.00	82.37	150.93	6,421.50	-1,268.04	-798.87	817.98	10.26	9.96	-2.53
6,977.00	85.42	150.42	6,426.50	-1,308.78	-775.99	864.56	6.58	6.49	-1.09
7,024.00	87.53	150.23	6,429.39	-1,349.54	-752.76	911.29	4.51	2.89	-0.40
7,072.00	88.64	151.06	6,430.99	-1,391.35	-729.25	959.11	2.89	1.98	1.73
7,165.00	89.84	150.67	6,432.23	-1,472.57	-683.97	1,051.82	1.98	1.39	-0.42
7,260.00	89.84	150.71	6,432.49	-1,555.41	-637.47	1,146.51	0.04	0.00	0.04
7,354.00	89.66	150.49	6,432.90	-1,637.30	-591.32	1,240.20	0.30	0.05	-0.23
7,448.00	89.66	150.54	6,433.46	-1,719.13	-545.06	1,333.87	0.05	0.00	0.05
7,543.00	89.66	148.60	6,434.02	-1,801.04	-496.94	1,428.39	2.04	0.00	-2.04
7,638.00	89.44	148.64	6,434.77	-1,882.14	-447.48	1,522.74	0.24	-0.23	0.04
7,732.00	89.75	149.13	6,435.43	-1,962.61	-398.90	1,616.15	0.62	0.33	0.52
7,827.00	89.53	148.55	6,436.03	-2,043.90	-349.75	1,710.55	0.65	-0.23	-0.61
7,921.00	89.66	148.99	6,436.69	-2,124.28	-301.01	1,803.94	0.49	0.14	0.47
8,015.00	89.44	148.60	6,437.43	-2,204.68	-252.31	1,897.33	0.48	-0.23	-0.41
8,109.00	89.48	150.36	6,438.32	-2,285.65	-204.58	1,990.84	1.87	0.04	1.87
8,202.00	89.66	150.32	6,439.02	-2,366.46	-158.56	2,083.49	0.20	0.19	-0.04
8,296.00	89.57	149.87	6,439.65	-2,447.94	-111.70	2,177.10	0.49	-0.10	-0.48

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<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Goudy 1S-08HM (I)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Site:</b>	Goudy	<b>MD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

Survey

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)
8,390.00	89.84	150.27	6,440.13	-2,529.41	-64.80	2,270.71	0.51	0.29	0.43
8,484.00	89.84	149.92	6,440.39	-2,610.89	-17.93	2,364.33	0.37	0.00	-0.37
8,579.00	89.84	150.49	6,440.66	-2,693.33	29.27	2,458.95	0.60	0.00	0.60
8,671.00	89.84	150.09	6,440.92	-2,773.24	74.87	2,550.60	0.43	0.00	-0.43
8,766.00	89.84	150.32	6,441.18	-2,855.68	122.07	2,645.23	0.24	0.00	0.24
8,860.00	89.70	149.96	6,441.56	-2,937.20	168.87	2,738.85	0.41	-0.15	-0.38
8,954.00	89.93	150.01	6,441.86	-3,018.59	215.89	2,832.44	0.25	0.24	0.05
9,048.00	89.79	150.14	6,442.09	-3,100.06	262.79	2,926.05	0.20	-0.15	0.14
9,143.00	89.88	150.05	6,442.37	-3,182.41	310.15	3,020.66	0.13	0.09	-0.09
9,237.00	89.79	150.09	6,442.64	-3,263.87	357.05	3,114.27	0.10	-0.10	0.04
9,332.00	89.79	149.65	6,442.99	-3,346.04	404.74	3,208.85	0.46	0.00	-0.46
9,424.00	89.79	150.40	6,443.32	-3,425.73	450.70	3,300.46	0.82	0.00	0.82
9,517.00	89.88	149.83	6,443.59	-3,506.36	497.04	3,393.08	0.62	0.10	-0.61
9,612.00	89.84	149.92	6,443.82	-3,588.53	544.72	3,487.65	0.10	-0.04	0.09
9,706.00	89.88	150.09	6,444.05	-3,669.94	591.71	3,581.25	0.19	0.04	0.18
9,801.00	89.88	150.18	6,444.25	-3,752.33	639.02	3,675.87	0.09	0.00	0.09
9,896.00	89.70	149.79	6,444.60	-3,834.58	686.54	3,770.46	0.45	-0.19	-0.41
9,990.00	89.66	150.54	6,445.12	-3,916.12	733.30	3,864.08	0.80	-0.04	0.80
10,085.00	89.62	150.27	6,445.72	-3,998.73	780.22	3,958.74	0.29	-0.04	-0.28
10,179.00	89.70	150.76	6,446.28	-4,080.55	826.48	4,052.41	0.53	0.09	0.52
10,274.00	89.57	149.74	6,446.88	-4,163.03	873.62	4,147.04	1.08	-0.14	-1.07
10,368.00	89.62	150.05	6,447.55	-4,244.35	920.77	4,240.62	0.33	0.05	0.33
10,452.00	89.53	149.57	6,448.17	-4,316.95	963.01	4,324.23	0.58	-0.11	-0.57
10,557.00	89.66	149.79	6,448.91	-4,407.59	1,016.02	4,428.73	0.24	0.12	0.21
10,651.00	89.75	149.96	6,449.40	-4,488.89	1,063.19	4,522.31	0.20	0.10	0.18
10,745.00	89.70	150.18	6,449.85	-4,570.35	1,110.09	4,615.92	0.24	-0.05	0.23
10,839.00	89.79	150.49	6,450.27	-4,652.03	1,156.62	4,709.56	0.34	0.10	0.33
10,932.00	89.66	150.36	6,450.71	-4,732.91	1,202.52	4,802.23	0.20	-0.14	-0.14
11,027.00	89.62	150.36	6,451.31	-4,815.48	1,249.50	4,896.87	0.04	-0.04	0.00
11,121.00	89.22	150.01	6,452.26	-4,897.03	1,296.23	4,990.50	0.57	-0.43	-0.37
11,216.00	89.22	150.23	6,453.56	-4,979.40	1,343.56	5,085.10	0.23	0.00	0.23
11,310.00	89.26	150.27	6,454.80	-5,061.00	1,390.20	5,178.73	0.06	0.04	0.04
11,405.00	89.75	150.93	6,455.62	-5,143.76	1,436.83	5,273.41	0.85	0.19	0.69
11,500.00	89.93	150.14	6,455.89	-5,226.47	1,483.56	5,368.08	0.19	-0.83	-0.83
11,594.00	89.97	150.23	6,455.97	-5,308.03	1,530.30	5,461.71	0.10	0.04	0.10
11,688.00	89.93	149.96	6,456.05	-5,389.52	1,577.16	5,555.32	0.29	0.04	-0.29
11,788.00	89.88	149.79	6,456.22	-5,476.01	1,627.35	5,654.87	0.14	0.04	-0.17
11,877.00	89.97	149.70	6,456.33	-5,552.89	1,672.19	5,743.46	0.14	0.10	-0.10
11,972.00	89.97	149.96	6,456.38	-5,635.02	1,719.94	5,838.03	0.27	0.00	0.27
12,067.00	90.01	149.92	6,456.40	-5,717.24	1,767.52	5,932.61	0.06	0.04	-0.04
12,161.00	89.97	149.87	6,456.42	-5,798.56	1,814.67	6,026.19	0.07	-0.04	-0.05
12,256.00	89.93	149.96	6,456.50	-5,880.76	1,862.29	6,120.78	0.10	-0.04	0.09
12,351.00	90.01	149.57	6,456.55	-5,962.84	1,910.13	6,215.34	0.42	0.08	-0.41
12,445.00	89.97	150.32	6,456.57	-6,044.20	1,957.21	6,308.93	0.80	-0.04	0.80

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<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Goudy 1S-08HM (I)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Site:</b>	Goudy	<b>MD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

## Survey

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)
12,539.00	89.93	149.87	6,456.65	-6,125.68	2,004.07	6,402.54	0.48	-0.04	-0.48
12,634.00	89.97	149.87	6,456.73	-6,207.85	2,051.76	6,497.11	0.04	0.04	0.00
12,728.00	89.93	149.87	6,456.81	-6,289.15	2,098.94	6,590.69	0.04	-0.04	0.00
12,823.00	89.93	149.74	6,456.93	-6,371.26	2,146.72	6,685.26	0.14	0.00	-0.14
12,916.00	89.88	149.96	6,457.08	-6,451.68	2,193.43	6,777.84	0.24	-0.05	0.24
13,011.00	89.70	150.18	6,457.43	-6,534.00	2,240.83	6,872.45	0.30	-0.19	0.23
13,105.00	89.75	150.62	6,457.88	-6,615.74	2,287.26	6,966.10	0.47	0.05	0.47
13,199.00	89.62	150.49	6,458.40	-6,697.59	2,333.47	7,059.78	0.20	-0.14	-0.14
13,294.00	89.70	150.14	6,458.96	-6,780.12	2,380.52	7,154.42	0.38	0.08	-0.37
13,389.00	89.75	149.65	6,459.42	-6,862.31	2,428.17	7,249.00	0.52	0.05	-0.52
13,483.00	89.79	150.40	6,459.80	-6,943.73	2,475.13	7,342.60	0.80	0.04	0.80
13,577.00	89.70	150.18	6,460.22	-7,025.38	2,521.72	7,436.24	0.25	-0.10	-0.23
13,672.00	89.84	150.23	6,460.60	-7,107.82	2,568.92	7,530.87	0.16	0.15	0.05
13,766.00	89.70	149.26	6,460.97	-7,189.01	2,616.28	7,624.42	1.04	-0.15	-1.03
13,861.00	89.57	149.43	6,461.58	-7,270.73	2,664.72	7,718.91	0.23	-0.14	0.18
13,956.00	89.48	149.17	6,462.37	-7,352.42	2,713.22	7,813.39	0.29	-0.09	-0.27
14,050.00	89.57	150.09	6,463.15	-7,433.51	2,760.74	7,906.93	0.98	0.10	0.98
14,144.00	89.48	151.11	6,463.93	-7,515.40	2,806.89	8,000.61	1.09	-0.10	1.09
14,238.00	89.57	150.09	6,464.70	-7,597.29	2,853.03	8,094.29	1.09	0.10	-1.09
14,333.00	89.62	149.52	6,465.38	-7,679.40	2,900.81	8,188.85	0.60	0.05	-0.60
14,427.00	89.66	149.74	6,465.97	-7,760.50	2,948.33	8,282.39	0.24	0.04	0.23
14,522.00	89.66	149.21	6,466.53	-7,842.33	2,996.58	8,376.90	0.56	0.00	-0.56
14,616.00	89.62	149.35	6,467.12	-7,923.14	3,044.60	8,470.38	0.15	-0.04	0.15
14,710.00	89.13	149.48	6,468.15	-8,004.06	3,092.42	8,563.88	0.54	-0.52	0.14
14,805.00	89.13	149.13	6,469.59	-8,085.74	3,140.91	8,658.35	0.37	0.00	-0.37
14,900.00	89.22	149.35	6,470.96	-8,167.37	3,189.50	8,752.81	0.25	0.09	0.23
14,995.00	89.31	150.45	6,472.18	-8,249.55	3,237.13	8,847.39	1.16	0.09	1.16
15,090.00	89.35	149.52	6,473.29	-8,331.80	3,284.65	8,941.97	0.98	0.04	-0.98
15,181.00	89.17	149.61	6,474.46	-8,410.26	3,330.75	9,032.51	0.22	-0.20	0.10
15,279.00	89.22	149.39	6,475.84	-8,494.69	3,380.48	9,130.00	0.23	0.05	-0.22
15,373.00	89.13	149.48	6,477.19	-8,575.62	3,428.27	9,223.50	0.14	-0.10	0.10
15,468.00	89.40	150.23	6,478.41	-8,657.76	3,475.98	9,318.06	0.84	0.28	0.79
15,563.00	89.35	150.05	6,479.45	-8,740.14	3,523.27	9,412.67	0.20	-0.05	-0.19
15,658.00	89.31	150.40	6,480.56	-8,822.60	3,570.45	9,507.30	0.37	0.10	0.37
15,752.00	89.40	150.09	6,481.62	-8,904.20	3,617.10	9,600.93	0.31	-0.10	-0.33
15,847.00	89.35	149.35	6,482.65	-8,986.23	3,664.99	9,695.47	0.71	-0.05	-0.78
15,942.00	89.26	150.05	6,483.80	-9,068.25	3,712.92	9,790.01	0.74	-0.09	0.74
16,036.00	89.31	149.43	6,484.98	-9,149.43	3,760.29	9,883.56	0.66	0.05	-0.66
16,131.00	89.26	149.61	6,486.16	-9,231.30	3,808.47	9,978.08	0.21	0.05	0.19
16,226.00	89.22	149.83	6,487.42	-9,313.33	3,856.37	10,072.62	0.24	-0.04	0.23
16,321.00	89.26	149.35	6,488.68	-9,395.25	3,904.45	10,167.14	0.51	0.04	-0.51
16,415.00	89.40	150.05	6,489.78	-9,476.41	3,951.87	10,260.69	0.76	0.15	0.74
16,510.00	89.44	150.18	6,490.74	-9,558.77	3,999.20	10,355.29	0.14	0.04	0.14

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<b>Project:</b>	Marshall County, West Virginia	<b>TVD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Site:</b>	Goudy	<b>MD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

Survey

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)
16,604.00	89.31	149.87	6,491.77	-9,640.19	4,046.17	10,448.89	0.36	-0.14	-0.33
16,699.00	89.26	149.61	6,492.95	-9,722.24	4,094.04	10,543.44	0.28	-0.05	-0.27
16,794.00	89.31	149.70	6,494.14	-9,804.22	4,142.03	10,637.97	0.11	0.05	0.09
16,889.00	89.40	149.61	6,495.21	-9,886.20	4,190.02	10,732.51	0.13	0.09	-0.09
16,983.00	89.35	149.30	6,496.24	-9,967.15	4,237.79	10,826.01	0.33	-0.05	-0.33
17,077.00	89.26	150.09	6,497.38	-10,048.30	4,285.22	10,919.56	0.85	-0.10	0.84
17,172.00	89.35	149.92	6,498.53	-10,130.57	4,332.70	11,014.15	0.20	0.09	-0.18
17,267.00	89.31	152.12	6,499.64	-10,213.66	4,378.73	11,108.87	2.32	-0.04	2.32
17,361.00	89.31	150.54	6,500.77	-10,296.13	4,423.82	11,202.64	1.68	0.00	-1.68
17,455.00	89.48	150.36	6,501.76	-10,377.90	4,470.18	11,296.30	0.26	0.18	-0.19
17,549.00	89.57	150.32	6,502.54	-10,459.58	4,516.69	11,389.94	0.10	0.10	-0.04
17,643.00	89.62	150.18	6,503.21	-10,541.19	4,563.33	11,483.58	0.16	0.05	-0.15
17,736.00	89.53	150.71	6,503.90	-10,622.09	4,609.21	11,576.24	0.58	-0.10	0.57
17,830.00	89.57	150.23	6,504.64	-10,703.87	4,655.53	11,669.91	0.51	0.04	-0.51
17,924.00	89.57	150.45	6,505.34	-10,785.55	4,702.05	11,763.55	0.23	0.00	0.23
18,019.00	89.66	150.40	6,505.98	-10,868.17	4,748.94	11,858.21	0.11	0.09	-0.05
18,113.00	89.62	150.45	6,506.57	-10,949.93	4,795.33	11,951.87	0.07	-0.04	0.05
18,208.00	89.57	150.40	6,507.24	-11,032.55	4,842.22	12,046.52	0.07	-0.05	-0.05
18,302.00	89.62	150.09	6,507.91	-11,114.15	4,888.87	12,140.16	0.33	0.05	-0.33
18,397.00	89.57	149.96	6,508.58	-11,196.44	4,936.33	12,234.75	0.15	-0.05	-0.14
18,492.00	89.62	150.67	6,509.25	-11,278.97	4,983.38	12,329.39	0.75	0.05	0.75
18,587.00	89.62	150.05	6,509.88	-11,361.54	5,030.36	12,424.04	0.65	0.00	-0.65
18,681.00	89.70	150.45	6,510.44	-11,443.15	5,077.00	12,517.67	0.43	0.09	0.43
18,775.00	89.62	150.58	6,510.99	-11,524.97	5,123.27	12,611.35	0.16	-0.09	0.14
18,870.00	89.62	149.96	6,511.62	-11,607.46	5,170.38	12,705.98	0.65	0.00	-0.65
18,964.00	89.66	150.18	6,512.21	-11,688.93	5,217.28	12,799.59	0.24	0.04	0.23
19,059.00	89.66	150.40	6,512.78	-11,771.44	5,264.36	12,894.22	0.23	0.04	0.23
19,153.00	89.66	150.23	6,513.34	-11,853.10	5,310.91	12,987.87	0.18	0.00	-0.18
19,247.00	89.75	150.05	6,513.82	-11,934.62	5,357.71	13,081.49	0.21	0.00	-0.19
19,342.00	89.62	149.61	6,514.34	-12,016.75	5,405.45	13,176.06	0.48	-0.14	-0.46
19,436.00	89.57	149.96	6,515.01	-12,097.98	5,452.76	13,269.62	0.38	0.00	0.37
19,531.00	89.70	149.57	6,515.61	-12,180.05	5,500.59	13,364.18	0.43	0.00	0.41
19,625.00	89.62	150.09	6,516.17	-12,261.32	5,547.83	13,457.75	0.56	-0.09	0.55
19,720.00	89.66	149.92	6,516.77	-12,343.59	5,595.33	13,552.34	0.18	0.04	-0.18
19,815.00	89.79	150.23	6,517.22	-12,425.92	5,642.72	13,646.95	0.35	0.14	0.33
19,908.00	89.70	149.61	6,517.64	-12,506.40	5,689.33	13,739.54	0.67	-0.10	-0.67
20,003.00	89.66	150.14	6,518.17	-12,588.57	5,737.01	13,834.11	0.56	-0.04	0.56
20,098.00	89.62	150.27	6,518.76	-12,671.01	5,784.21	13,928.74	0.14	-0.04	0.14
20,193.00	89.66	150.27	6,519.36	-12,753.50	5,831.32	14,023.37	0.04	0.04	0.00
20,288.00	89.66	150.32	6,519.92	-12,836.01	5,878.40	14,118.01	0.05	0.00	0.05
20,382.00	89.70	150.05	6,520.45	-12,917.57	5,925.13	14,211.63	0.29	0.04	-0.29
20,459.00	89.62	150.01	6,520.91	-12,984.27	5,963.60	14,288.31	0.12	-0.10	-0.05

Survey @ 20459.00 MD 6520.91 TVD

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<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Goudy 1S-08HM (I)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Site:</b>	Goudy	<b>MD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

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)
20,496.00	89.62	150.01	6,521.15	-13,016.32	5,982.09	14,325.15	0.00	0.00	0.00
Survey Proj. to 20496.00 MD 6521.15 TVD									

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
198.00	198.00	0.11	0.53	MWD surveys
20,459.00	6,520.91	-12,984.27	5,963.60	Survey @ 20459.00 MD 6520.91 TVD

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<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Goudy 1S-08HM (I)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Site:</b>	Goudy	<b>MD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

<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>	Goudy			
<b>Site Position:</b>	<b>Northing:</b>	14,430,942.40 usft	<b>Latitude:</b>	39.736807
<b>From:</b> Lat/Long	<b>Easting:</b>	1,688,559.77 usft	<b>Longitude:</b>	-80.828748
<b>Position Uncertainty:</b> 0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.11 °

<b>Well</b>	Goudy 1S-08HM (I)			
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	14,431,007.47 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,688,572.25 usft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	usft
			<b>Latitude:</b>	39.736986
			<b>Longitude:</b>	-80.828703
			<b>Ground Level:</b>	1,242.00 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>
	IGRF2020	4/28/2021	-8.57	66.53	51,748.70962494

<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	155.29	

<b>Survey Program</b>	<b>Date</b>	6/29/2021			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
198.00	984.00	MWD surf (Original Hole)	MWD	MWD - Standard	
1,035.00	2,648.00	MWD int (Original Hole)	MWD	MWD - Standard	
2,758.00	20,459.00	MWD (Original Hole)	MWD	MWD - Standard	
20,496.00	20,496.00	Projection (Original Hole)	MWD	MWD - Standard	

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<b>Survey</b>										
<b>Measured 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	14,431,007.47	1,688,572.25	39.736986	-80.828703	
198.00	0.31	78.68	198.00	0.11	0.53	14,431,007.58	1,688,572.78	39.736986	-80.828701	
<b>MWD surveys</b>										
239.00	0.22	95.56	239.00	0.12	0.71	14,431,007.59	1,688,572.97	39.736986	-80.828700	
270.00	0.31	127.02	270.00	0.06	0.84	14,431,007.54	1,688,573.09	39.736986	-80.828700	
300.00	0.40	130.89	300.00	-0.05	0.98	14,431,007.42	1,688,573.24	39.736985	-80.828699	
330.00	0.35	132.47	330.00	-0.18	1.13	14,431,007.29	1,688,573.38	39.736985	-80.828699	
360.00	0.26	93.36	360.00	-0.25	1.26	14,431,007.22	1,688,573.52	39.736985	-80.828698	
390.00	0.26	133.26	390.00	-0.30	1.38	14,431,007.17	1,688,573.64	39.736985	-80.828698	

<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Goudy 1S-08HM (I)
<b>Project:</b>	Marshall County, West Virginia	<b>TVD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Site:</b>	Goudy	<b>MD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
421.00	0.31	113.05	421.00	-0.38	1.51	14,431,007.09	1,688,573.76	39.736985	-80.828697
468.00	0.40	135.11	467.99	-0.55	1.74	14,431,006.93	1,688,574.00	39.736984	-80.828696
511.00	0.48	130.98	510.99	-0.77	1.99	14,431,006.70	1,688,574.24	39.736983	-80.828696
542.00	0.26	123.51	541.99	-0.90	2.14	14,431,006.58	1,688,574.39	39.736983	-80.828695
572.00	0.26	110.15	571.99	-0.96	2.26	14,431,006.52	1,688,574.52	39.736983	-80.828695
602.00	0.22	135.55	601.99	-1.02	2.37	14,431,006.45	1,688,574.62	39.736983	-80.828694
632.00	0.35	150.23	631.99	-1.14	2.45	14,431,006.33	1,688,574.71	39.736982	-80.828694
662.00	0.26	171.06	661.99	-1.29	2.51	14,431,006.18	1,688,574.76	39.736982	-80.828694
693.00	0.35	157.43	692.99	-1.45	2.56	14,431,006.03	1,688,574.81	39.736982	-80.828694
723.00	0.31	179.41	722.99	-1.61	2.59	14,431,005.86	1,688,574.85	39.736981	-80.828693
754.00	0.40	186.79	753.99	-1.80	2.58	14,431,005.67	1,688,574.83	39.736981	-80.828693
784.00	0.26	187.58	783.99	-1.98	2.56	14,431,005.50	1,688,574.81	39.736980	-80.828694
815.00	0.31	196.55	814.99	-2.13	2.53	14,431,005.35	1,688,574.78	39.736980	-80.828694
847.00	0.22	192.50	846.99	-2.27	2.49	14,431,005.21	1,688,574.74	39.736979	-80.828694
879.00	0.35	209.73	878.99	-2.41	2.43	14,431,005.06	1,688,574.68	39.736979	-80.828694
910.00	0.22	192.41	909.99	-2.55	2.37	14,431,004.92	1,688,574.62	39.736979	-80.828694
942.00	0.26	192.06	941.99	-2.68	2.34	14,431,004.79	1,688,574.59	39.736978	-80.828694
984.00	0.26	229.24	983.99	-2.84	2.25	14,431,004.63	1,688,574.50	39.736978	-80.828695
1,035.00	0.53	298.59	1,034.99	-2.80	1.95	14,431,004.67	1,688,574.20	39.736978	-80.828696
1,073.00	0.79	307.81	1,072.98	-2.56	1.59	14,431,004.92	1,688,573.84	39.736979	-80.828697
1,105.00	1.01	311.33	1,104.98	-2.24	1.20	14,431,005.24	1,688,573.46	39.736979	-80.828698
1,136.00	1.36	306.76	1,135.97	-1.84	0.70	14,431,005.64	1,688,572.96	39.736981	-80.828698
1,168.00	1.49	301.66	1,167.96	-1.39	0.05	14,431,006.08	1,688,572.30	39.736982	-80.828700
1,199.00	1.76	296.65	1,198.95	-0.97	-0.72	14,431,006.51	1,688,571.53	39.736983	-80.828705
1,231.00	1.99	293.22	1,230.93	-0.53	-1.67	14,431,006.95	1,688,570.58	39.736984	-80.828709
1,262.00	2.15	282.06	1,261.91	-0.19	-2.74	14,431,007.28	1,688,569.52	39.736985	-80.828712
1,294.00	2.50	279.07	1,293.89	0.04	-4.01	14,431,007.52	1,688,568.24	39.736986	-80.828717
1,325.00	2.72	278.45	1,324.86	0.26	-5.41	14,431,007.73	1,688,566.85	39.736986	-80.828722
1,357.00	2.72	272.48	1,356.82	0.40	-6.92	14,431,007.88	1,688,565.34	39.736987	-80.828727
1,388.00	2.24	262.99	1,387.79	0.36	-8.25	14,431,007.83	1,688,564.00	39.736987	-80.828732
1,420.00	2.07	249.28	1,419.77	0.08	-9.41	14,431,007.55	1,688,562.84	39.736986	-80.828736
1,451.00	2.15	251.48	1,450.75	-0.30	-10.49	14,431,007.17	1,688,561.76	39.736985	-80.828740
1,498.00	2.42	252.88	1,497.71	-0.88	-12.27	14,431,006.60	1,688,559.98	39.736983	-80.828746
1,546.00	2.59	259.30	1,545.66	-1.37	-14.31	14,431,006.10	1,688,557.94	39.736982	-80.828754
1,593.00	2.86	263.61	1,592.61	-1.70	-16.52	14,431,005.77	1,688,555.74	39.736981	-80.828761
1,687.00	3.65	264.48	1,686.46	-2.25	-21.83	14,431,005.22	1,688,550.43	39.736980	-80.828780
1,735.00	4.26	263.61	1,734.34	-2.60	-25.12	14,431,004.88	1,688,547.13	39.736979	-80.828792
1,782.00	4.92	265.28	1,781.19	-2.96	-28.86	14,431,004.52	1,688,543.39	39.736978	-80.828805
1,829.00	5.23	264.31	1,828.01	-3.34	-33.00	14,431,004.14	1,688,539.25	39.736977	-80.828820
1,876.00	5.36	264.40	1,874.81	-3.76	-37.32	14,431,003.71	1,688,534.93	39.736975	-80.828835
1,922.00	5.80	258.95	1,920.59	-4.42	-41.74	14,431,003.06	1,688,530.52	39.736974	-80.828851
2,017.00	6.77	250.69	2,015.02	-7.19	-51.73	14,431,000.28	1,688,520.52	39.736966	-80.828887
2,064.00	7.21	246.82	2,061.67	-9.27	-57.06	14,430,998.21	1,688,515.19	39.736961	-80.828906
2,111.00	6.90	246.91	2,108.31	-11.53	-62.37	14,430,995.94	1,688,509.88	39.736954	-80.828925
2,158.00	6.42	247.79	2,155.00	-13.63	-67.40	14,430,993.84	1,688,504.86	39.736949	-80.828943
2,206.00	6.68	250.77	2,202.68	-15.57	-72.52	14,430,991.91	1,688,499.73	39.736949	-80.828961
2,300.00	5.67	246.82	2,296.14	-19.20	-81.95	14,430,988.28	1,688,490.30	39.736933	-80.828994
2,347.00	4.70	247.17	2,342.95	-20.86	-85.86	14,430,986.62	1,688,486.39	39.736929	-80.829008
2,395.00	4.26	253.15	2,390.80	-22.14	-89.38	14,430,985.34	1,688,482.88	39.736925	-80.829021
2,442.00	4.66	257.72	2,437.66	-23.05	-92.91	14,430,984.42	1,688,479.34	39.736923	-80.829033
2,490.00	4.97	259.74	2,485.49	-23.83	-96.86	14,430,983.64	1,688,475.39	39.736921	-80.829047
2,537.00	5.32	260.97	2,532.30	-24.54	-101.02	14,430,982.93	1,688,471.23	39.736919	-80.829062
2,584.00	5.27	258.51	2,579.10	-25.31	-105.29	14,430,982.16	1,688,466.97	39.736917	-80.829077
2,648.00	5.23	249.19	2,642.83	-26.93	-110.89	14,430,980.54	1,688,461.36	39.736912	-80.829097
2,758.00	5.41	239.70	2,752.36	-31.33	-120.06	14,430,976.14	1,688,452.20	39.736900	-80.829130

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<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Site:</b>	Goudy	<b>MD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,815.00	4.92	236.89	2,809.13	-34.02	-124.43	14,430,973.45	1,688,447.83	39.736893	-80.829146
2,852.00	4.66	235.66	2,846.00	-35.74	-127.00	14,430,971.74	1,688,445.26	39.736888	-80.829155
2,947.00	6.77	232.40	2,940.52	-41.33	-134.62	14,430,966.14	1,688,437.63	39.736873	-80.829182
3,041.00	10.33	233.72	3,033.46	-49.70	-145.81	14,430,957.77	1,688,426.45	39.736850	-80.829222
3,137.00	12.30	228.63	3,127.59	-61.55	-160.42	14,430,945.92	1,688,411.83	39.736817	-80.829274
3,231.00	14.90	229.42	3,218.95	-76.03	-177.12	14,430,931.44	1,688,395.14	39.736778	-80.829333
3,326.00	16.96	230.12	3,310.30	-92.87	-197.03	14,430,914.61	1,688,375.23	39.736732	-80.829404
3,420.00	18.81	230.47	3,399.75	-111.30	-219.24	14,430,896.17	1,688,353.01	39.736681	-80.829483
3,514.00	18.72	234.07	3,488.76	-129.80	-243.14	14,430,877.67	1,688,329.11	39.736630	-80.829568
3,609.00	19.03	231.26	3,578.65	-148.44	-267.57	14,430,859.03	1,688,304.69	39.736579	-80.829655
3,703.00	19.16	229.94	3,667.48	-167.96	-291.33	14,430,839.52	1,688,280.93	39.736526	-80.829740
3,797.00	20.30	232.14	3,755.96	-187.89	-316.01	14,430,819.58	1,688,256.24	39.736471	-80.829828
3,891.00	19.20	229.50	3,844.43	-207.94	-340.64	14,430,799.53	1,688,231.62	39.736416	-80.829916
3,984.00	20.17	234.07	3,932.00	-227.28	-365.25	14,430,780.19	1,688,207.00	39.736363	-80.830003
4,079.00	21.23	232.05	4,020.87	-247.47	-392.08	14,430,760.00	1,688,180.18	39.736308	-80.830099
4,173.00	20.57	234.51	4,108.68	-267.53	-418.94	14,430,739.95	1,688,153.31	39.736253	-80.830195
4,272.00	20.13	235.30	4,201.50	-287.32	-447.11	14,430,720.15	1,688,125.14	39.736199	-80.830295
4,366.00	19.86	233.63	4,289.84	-306.00	-473.27	14,430,701.48	1,688,098.99	39.736148	-80.830388
4,461.00	20.83	230.21	4,378.91	-326.38	-499.24	14,430,681.10	1,688,073.01	39.736092	-80.830481
4,554.00	19.51	230.47	4,466.21	-346.85	-523.92	14,430,660.63	1,688,048.33	39.736036	-80.830569
4,648.00	19.51	233.81	4,554.81	-366.10	-548.70	14,430,641.37	1,688,023.55	39.735983	-80.830657
4,743.00	20.65	230.12	4,644.04	-386.21	-574.36	14,430,621.26	1,687,997.89	39.735928	-80.830748
4,837.00	20.92	232.05	4,731.92	-407.16	-600.31	14,430,600.31	1,687,971.94	39.735871	-80.830841
4,932.00	19.91	232.76	4,820.96	-427.38	-626.57	14,430,580.09	1,687,945.69	39.735815	-80.830934
5,026.00	19.69	232.84	4,909.40	-446.63	-651.93	14,430,560.84	1,687,920.32	39.735762	-80.831025
5,121.00	19.95	233.28	4,998.77	-465.99	-677.67	14,430,541.48	1,687,894.58	39.735709	-80.831116
5,216.00	21.23	231.88	5,087.70	-486.30	-704.20	14,430,521.17	1,687,868.06	39.735654	-80.831211
5,311.00	20.65	234.51	5,176.43	-506.64	-731.37	14,430,500.83	1,687,840.88	39.735598	-80.831308
5,405.00	20.13	230.30	5,264.54	-526.60	-757.31	14,430,480.87	1,687,814.94	39.735543	-80.831400
5,500.00	19.16	230.30	5,354.01	-547.00	-781.88	14,430,460.47	1,687,790.37	39.735487	-80.831488
5,594.00	19.16	232.32	5,442.81	-566.28	-805.96	14,430,441.19	1,687,766.29	39.735435	-80.831573
5,688.00	20.43	233.20	5,531.25	-585.54	-831.31	14,430,421.93	1,687,740.94	39.735382	-80.831664
5,740.00	20.08	229.15	5,580.04	-596.82	-845.33	14,430,410.66	1,687,726.92	39.735351	-80.831714
5,846.00	20.95	227.48	5,679.32	-621.53	-873.06	14,430,385.95	1,687,699.19	39.735283	-80.831812
5,893.00	19.97	227.57	5,723.35	-632.62	-885.18	14,430,374.85	1,687,687.07	39.735253	-80.831856
5,940.00	19.89	226.95	5,767.54	-643.49	-896.94	14,430,363.98	1,687,675.31	39.735223	-80.831898
5,987.00	20.28	225.14	5,811.68	-654.70	-908.56	14,430,352.78	1,687,663.69	39.735192	-80.831939
6,035.00	21.39	211.75	5,856.56	-668.02	-919.07	14,430,339.46	1,687,653.18	39.735156	-80.831976
6,082.00	23.51	199.89	5,900.02	-684.13	-926.77	14,430,323.34	1,687,645.48	39.735112	-80.832004
6,129.00	25.81	194.12	5,942.74	-702.87	-932.46	14,430,304.60	1,687,639.79	39.735060	-80.832024
6,176.00	27.35	191.91	5,984.77	-723.36	-937.19	14,430,284.11	1,687,635.07	39.735004	-80.832041
6,224.00	29.21	189.23	6,027.04	-745.71	-941.34	14,430,261.76	1,687,630.91	39.734943	-80.832056
6,271.00	30.98	186.32	6,067.71	-769.06	-944.51	14,430,238.41	1,687,627.74	39.734878	-80.832068
6,318.00	33.05	183.63	6,107.56	-793.88	-946.66	14,430,213.60	1,687,625.60	39.734810	-80.832075
6,365.00	36.85	181.21	6,146.08	-820.77	-947.76	14,430,186.71	1,687,624.49	39.734738	-80.832080
6,412.00	40.61	178.34	6,182.74	-850.16	-947.62	14,430,157.31	1,687,624.63	39.734656	-80.832079
6,459.00	44.72	172.44	6,217.31	-881.87	-945.00	14,430,125.60	1,687,627.25	39.734569	-80.832070
6,507.00	48.43	169.00	6,250.30	-916.25	-939.35	14,430,091.22	1,687,632.91	39.734474	-80.832050
6,554.00	53.12	167.41	6,280.01	-951.88	-931.89	14,430,055.60	1,687,640.36	39.734376	-80.832024
6,601.00	57.40	165.52	6,306.79	-989.41	-922.84	14,430,018.06	1,687,649.41	39.734273	-80.831992
6,648.00	61.33	162.18	6,330.74	-1,028.23	-911.57	14,429,979.24	1,687,660.68	39.734167	-80.831952
6,695.00	64.60	159.70	6,352.11	-1,067.79	-897.89	14,429,939.68	1,687,674.36	39.734058	-80.831904
6,742.00	67.57	156.18	6,371.16	-1,107.59	-881.75	14,429,899.88	1,687,690.51	39.733948	-80.831847
6,790.00	71.01	152.51	6,388.14	-1,148.04	-862.30	14,429,859.43	1,687,709.95	39.733837	-80.831778
6,837.00	74.19	152.61	6,402.19	-1,187.84	-841.64	14,429,819.63	1,687,730.62	39.733728	-80.831704

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<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Goudy 1S-08HM (I)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Site:</b>	Goudy	<b>MD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,883.00	77.69	152.12	6,413.37	-1,227.36	-820.94	14,429,780.11	1,687,751.31	39.733619	-80.831631
6,930.00	82.37	150.93	6,421.50	-1,268.04	-798.87	14,429,739.43	1,687,773.38	39.733507	-80.831553
6,977.00	85.42	150.42	6,426.50	-1,308.78	-775.99	14,429,698.69	1,687,796.27	39.733395	-80.831472
7,024.00	87.53	150.23	6,429.39	-1,349.54	-752.76	14,429,657.94	1,687,819.49	39.733283	-80.831389
7,072.00	88.64	151.06	6,430.99	-1,391.35	-729.25	14,429,616.13	1,687,843.01	39.733168	-80.831306
7,165.00	89.84	150.67	6,432.23	-1,472.57	-683.97	14,429,534.90	1,687,888.28	39.732945	-80.831146
7,260.00	89.84	150.71	6,432.49	-1,555.41	-637.47	14,429,452.06	1,687,934.79	39.732717	-80.830981
7,354.00	89.66	150.49	6,432.90	-1,637.30	-591.32	14,429,370.17	1,687,980.93	39.732492	-80.830817
7,448.00	89.66	150.54	6,433.46	-1,719.13	-545.06	14,429,288.35	1,688,027.20	39.732267	-80.830653
7,543.00	89.66	148.60	6,434.02	-1,801.04	-496.94	14,429,206.44	1,688,075.31	39.732042	-80.830483
7,638.00	89.44	148.64	6,434.77	-1,882.14	-447.48	14,429,125.33	1,688,124.77	39.731819	-80.830307
7,732.00	89.75	149.13	6,435.43	-1,962.61	-398.90	14,429,044.86	1,688,173.35	39.731598	-80.830135
7,827.00	89.53	148.55	6,436.03	-2,043.90	-349.75	14,428,963.57	1,688,222.50	39.731374	-80.829961
7,921.00	89.66	148.99	6,436.69	-2,124.28	-301.01	14,428,883.19	1,688,271.24	39.731153	-80.829788
8,015.00	89.44	148.60	6,437.43	-2,204.68	-252.31	14,428,802.80	1,688,319.94	39.730932	-80.829615
8,109.00	89.48	150.36	6,438.32	-2,285.65	-204.58	14,428,721.83	1,688,367.67	39.730710	-80.829446
8,202.00	89.66	150.32	6,439.02	-2,366.46	-158.56	14,428,641.01	1,688,413.69	39.730487	-80.829283
8,296.00	89.57	149.87	6,439.65	-2,447.94	-111.70	14,428,559.53	1,688,460.55	39.730263	-80.829117
8,390.00	89.84	150.27	6,440.13	-2,529.41	-64.80	14,428,478.07	1,688,507.45	39.730039	-80.828950
8,484.00	89.84	149.92	6,440.39	-2,610.89	-17.93	14,428,396.58	1,688,554.32	39.729815	-80.828784
8,579.00	89.84	150.49	6,440.66	-2,693.33	29.27	14,428,314.14	1,688,601.52	39.729589	-80.828617
8,671.00	89.84	150.09	6,440.92	-2,773.24	74.87	14,428,234.24	1,688,647.12	39.729369	-80.828455
8,766.00	89.84	150.32	6,441.18	-2,855.68	122.07	14,428,151.80	1,688,694.33	39.729142	-80.828288
8,860.00	89.70	149.96	6,441.56	-2,937.20	168.87	14,428,070.28	1,688,741.13	39.728918	-80.828122
8,954.00	89.93	150.01	6,441.86	-3,018.59	215.89	14,427,988.88	1,688,788.15	39.728695	-80.827955
9,048.00	89.79	150.14	6,442.09	-3,100.06	262.79	14,427,907.41	1,688,835.04	39.728471	-80.827789
9,143.00	89.88	150.05	6,442.37	-3,182.41	310.15	14,427,825.06	1,688,882.40	39.728244	-80.827621
9,237.00	89.79	150.09	6,442.64	-3,263.87	357.05	14,427,743.60	1,688,929.30	39.728020	-80.827455
9,332.00	89.79	149.65	6,442.99	-3,346.04	404.74	14,427,661.44	1,688,976.99	39.727794	-80.827286
9,424.00	89.79	150.40	6,443.32	-3,425.73	450.70	14,427,581.74	1,689,022.95	39.727575	-80.827123
9,517.00	89.88	149.83	6,443.59	-3,506.36	497.04	14,427,501.11	1,689,069.29	39.727353	-80.826959
9,612.00	89.84	149.92	6,443.82	-3,588.53	544.72	14,427,418.94	1,689,116.97	39.727128	-80.826790
9,706.00	89.88	150.09	6,444.05	-3,669.94	591.71	14,427,337.53	1,689,163.96	39.726904	-80.826623
9,801.00	89.88	150.18	6,444.25	-3,752.33	639.02	14,427,255.15	1,689,211.27	39.726677	-80.826455
9,896.00	89.70	149.79	6,444.60	-3,834.58	686.54	14,427,172.89	1,689,258.79	39.726451	-80.826287
9,990.00	89.66	150.54	6,445.12	-3,916.12	733.30	14,427,091.35	1,689,305.56	39.726227	-80.826121
10,085.00	89.62	150.27	6,445.72	-3,998.73	780.22	14,427,008.75	1,689,352.47	39.726000	-80.825955
10,179.00	89.70	150.76	6,446.28	-4,080.55	826.48	14,426,926.92	1,689,398.74	39.725775	-80.825791
10,274.00	89.57	149.74	6,446.88	-4,163.03	873.62	14,426,844.45	1,689,445.88	39.725548	-80.825624
10,368.00	89.62	150.05	6,447.55	-4,244.35	920.77	14,426,763.13	1,689,493.02	39.725324	-80.825457
10,452.00	89.53	149.57	6,448.17	-4,316.95	963.01	14,426,680.52	1,689,535.26	39.725125	-80.825307
10,557.00	89.66	149.79	6,448.91	-4,407.59	1,016.02	14,426,599.89	1,689,588.27	39.724876	-80.825119
10,651.00	89.75	149.96	6,449.40	-4,488.89	1,063.19	14,426,518.58	1,689,635.45	39.724628	-80.824952
10,745.00	89.70	150.18	6,449.85	-4,570.35	1,110.09	14,426,437.12	1,689,682.35	39.724428	-80.824786
10,839.00	89.79	150.49	6,450.27	-4,652.03	1,156.62	14,426,355.44	1,689,728.87	39.724204	-80.824621
10,932.00	89.66	150.36	6,450.71	-4,732.91	1,202.52	14,426,274.56	1,689,774.77	39.723981	-80.824458
11,027.00	89.62	150.36	6,451.31	-4,815.48	1,249.50	14,426,191.99	1,689,821.75	39.723754	-80.824292
11,121.00	89.22	150.01	6,452.26	-4,897.03	1,296.23	14,426,110.44	1,689,868.80	39.723527	-80.824126
11,216.00	89.22	150.23	6,453.56	-4,979.40	1,343.56	14,426,028.08	1,689,915.81	39.723304	-80.823958
11,310.00	89.26	150.27	6,454.80	-5,061.00	1,390.20	14,425,946.47	1,689,962.45	39.723079	-80.823793
11,405.00	89.75	150.93	6,455.62	-5,143.76	1,436.83	14,425,863.71	1,690,009.08	39.722852	-80.823628
11,500.00	89.93	150.14	6,455.89	-5,226.47	1,483.56	14,425,781.00	1,690,055.81	39.722624	-80.823462
11,594.00	89.97	150.23	6,455.97	-5,308.03	1,530.30	14,425,699.44	1,690,102.55	39.722400	-80.823296
11,688.00	89.93	149.96	6,456.05	-5,389.52	1,577.16	14,425,617.96	1,690,149.41	39.722176	-80.823130
11,788.00	89.88	149.79	6,456.22	-5,476.01	1,627.35	14,425,531.46	1,690,199.60	39.721938	-80.822952

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<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Goudy 1S-08HM (I)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Site:</b>	Goudy	<b>MD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,877.00	89.97	149.70	6,456.33	-5,552.89	1,672.19	14,425,454.59	1,690,244.44	39.721727	-80.822794
11,972.00	89.97	149.96	6,456.38	-5,635.02	1,719.94	14,425,372.46	1,690,292.19	39.721501	-80.822624
12,067.00	90.01	149.92	6,456.40	-5,717.24	1,767.52	14,425,290.23	1,690,339.77	39.721275	-80.822456
12,161.00	89.97	149.87	6,456.42	-5,798.56	1,814.67	14,425,208.91	1,690,386.92	39.721051	-80.822289
12,256.00	89.93	149.96	6,456.50	-5,880.76	1,862.29	14,425,126.71	1,690,434.55	39.720825	-80.822120
12,351.00	90.01	149.57	6,456.55	-5,962.84	1,910.13	14,425,044.64	1,690,482.38	39.720600	-80.821950
12,445.00	89.97	150.32	6,456.57	-6,044.20	1,957.21	14,424,963.27	1,690,529.46	39.720376	-80.821783
12,539.00	89.93	149.87	6,456.65	-6,125.68	2,004.07	14,424,881.79	1,690,576.33	39.720152	-80.821617
12,634.00	89.97	149.87	6,456.73	-6,207.85	2,051.76	14,424,799.63	1,690,624.01	39.719926	-80.821448
12,728.00	89.93	149.87	6,456.81	-6,289.15	2,098.94	14,424,718.33	1,690,671.20	39.719702	-80.821281
12,823.00	89.93	149.74	6,456.93	-6,371.26	2,146.72	14,424,636.22	1,690,718.98	39.719477	-80.821112
12,916.00	89.88	149.96	6,457.08	-6,451.68	2,193.43	14,424,555.80	1,690,765.69	39.719256	-80.820946
13,011.00	89.70	150.18	6,457.43	-6,534.00	2,240.83	14,424,473.47	1,690,813.09	39.719029	-80.820778
13,105.00	89.75	150.62	6,457.88	-6,615.74	2,287.26	14,424,391.74	1,690,859.52	39.718804	-80.820614
13,199.00	89.62	150.49	6,458.40	-6,697.59	2,333.47	14,424,309.88	1,690,905.72	39.718579	-80.820450
13,294.00	89.70	150.14	6,458.96	-6,780.12	2,380.52	14,424,227.35	1,690,952.77	39.718353	-80.820283
13,389.00	89.75	149.65	6,459.42	-6,862.31	2,428.17	14,424,145.17	1,691,000.42	39.718127	-80.820114
13,483.00	89.79	150.40	6,459.80	-6,943.73	2,475.13	14,424,063.74	1,691,047.38	39.717903	-80.819948
13,577.00	89.70	150.18	6,460.22	-7,025.38	2,521.72	14,423,982.10	1,691,093.97	39.717678	-80.819783
13,672.00	89.84	150.23	6,460.60	-7,107.82	2,568.92	14,423,899.66	1,691,141.18	39.717452	-80.819616
13,766.00	89.70	149.26	6,460.97	-7,189.01	2,616.28	14,423,818.46	1,691,188.54	39.717228	-80.819448
13,861.00	89.57	149.43	6,461.58	-7,270.73	2,664.72	14,423,736.74	1,691,236.97	39.717004	-80.819276
13,956.00	89.48	149.17	6,462.37	-7,352.42	2,713.22	14,423,655.06	1,691,285.47	39.716779	-80.819104
14,050.00	89.57	150.09	6,463.15	-7,433.51	2,760.74	14,423,573.96	1,691,333.00	39.716556	-80.818936
14,144.00	89.48	151.11	6,463.93	-7,515.40	2,806.89	14,423,492.07	1,691,379.14	39.716331	-80.818772
14,238.00	89.57	150.09	6,464.70	-7,597.29	2,853.03	14,423,410.18	1,691,425.28	39.716106	-80.818609
14,333.00	89.62	149.52	6,465.38	-7,679.40	2,900.81	14,423,328.07	1,691,473.06	39.715880	-80.818439
14,427.00	89.66	149.74	6,465.97	-7,760.50	2,948.33	14,423,246.97	1,691,520.58	39.715657	-80.818271
14,522.00	89.66	149.21	6,466.53	-7,842.33	2,996.58	14,423,165.14	1,691,568.83	39.715432	-80.818100
14,616.00	89.62	149.35	6,467.12	-7,923.14	3,044.60	14,423,084.33	1,691,616.85	39.715210	-80.817930
14,710.00	89.13	149.48	6,468.15	-8,004.06	3,092.42	14,423,003.41	1,691,664.68	39.714987	-80.817760
14,805.00	89.13	149.13	6,469.59	-8,085.74	3,140.91	14,422,921.73	1,691,713.17	39.714763	-80.817589
14,900.00	89.22	149.35	6,470.96	-8,167.37	3,189.50	14,422,840.11	1,691,761.75	39.714538	-80.817416
14,995.00	89.31	150.45	6,472.18	-8,249.55	3,237.13	14,422,757.93	1,691,809.39	39.714312	-80.817248
15,090.00	89.35	149.52	6,473.29	-8,331.80	3,284.65	14,422,675.67	1,691,856.91	39.714086	-80.817079
15,181.00	89.17	149.61	6,474.46	-8,410.26	3,330.75	14,422,592.21	1,691,903.00	39.713870	-80.816916
15,279.00	89.22	149.39	6,475.84	-8,494.69	3,380.48	14,422,512.79	1,691,952.73	39.713638	-80.816740
15,373.00	89.13	149.48	6,477.19	-8,575.62	3,428.27	14,422,431.86	1,692,000.53	39.713416	-80.816570
15,468.00	89.40	150.23	6,478.41	-8,657.76	3,475.98	14,422,349.71	1,692,048.23	39.713190	-80.816401
15,563.00	89.35	150.05	6,479.45	-8,740.14	3,523.27	14,422,267.33	1,692,095.53	39.712963	-80.816234
15,658.00	89.31	150.40	6,480.56	-8,822.60	3,570.45	14,422,184.88	1,692,142.70	39.712737	-80.816066
15,752.00	89.40	150.09	6,481.62	-8,904.20	3,617.10	14,422,103.27	1,692,189.35	39.712512	-80.815901
15,847.00	89.35	149.35	6,482.65	-8,986.23	3,664.99	14,422,021.24	1,692,237.25	39.712287	-80.815731
15,942.00	89.26	150.05	6,483.80	-9,068.25	3,712.92	14,421,939.22	1,692,285.17	39.712062	-80.815562
16,036.00	89.31	149.43	6,484.98	-9,149.43	3,760.29	14,421,858.04	1,692,332.54	39.711838	-80.815394
16,131.00	89.26	149.61	6,486.16	-9,231.30	3,808.47	14,421,776.17	1,692,380.72	39.711613	-80.815223
16,226.00	89.22	149.83	6,487.42	-9,313.33	3,856.37	14,421,694.14	1,692,428.62	39.711387	-80.815053
16,321.00	89.26	149.35	6,488.68	-9,395.25	3,904.45	14,421,612.22	1,692,476.70	39.711162	-80.814883
16,415.00	89.40	150.05	6,489.78	-9,476.41	3,951.87	14,421,531.07	1,692,524.12	39.710937	-80.814715
16,510.00	89.44	150.18	6,490.74	-9,558.77	3,999.20	14,421,448.70	1,692,571.46	39.710712	-80.814547
16,604.00	89.31	149.87	6,491.77	-9,640.19	4,046.17	14,421,367.28	1,692,618.42	39.710489	-80.814381
16,699.00	89.26	149.61	6,492.95	-9,722.24	4,094.04	14,421,285.23	1,692,666.29	39.710263	-80.814211
16,794.00	89.31	149.70	6,494.14	-9,804.22	4,142.03	14,421,203.25	1,692,714.28	39.710038	-80.814041
16,889.00	89.40	149.61	6,495.21	-9,886.20	4,190.02	14,421,121.27	1,692,762.27	39.709812	-80.813871
16,983.00	89.35	149.30	6,496.24	-9,967.15	4,237.79	14,421,040.32	1,692,810.04	39.709590	-80.813702

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<b>Company:</b>	Tug Hill Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Goudy 1S-08HM (I)
<b>Project:</b>	Marshall County, West Virginia.	<b>TVD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Site:</b>	Goudy	<b>MD Reference:</b>	RKB=1242+26 @ 1268.00usft (Nabors B28)
<b>Well:</b>	Goudy 1S-08HM (I)	<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_Dec2220_v16

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
17,077.00	89.26	150.09	6,497.38	-10,048.30	4,285.22	14,420,959.17	1,692,857.47	39.709366	-80.813534
17,172.00	89.35	149.92	6,498.53	-10,130.57	4,332.70	14,420,876.90	1,692,904.96	39.709140	-80.813366
17,267.00	89.31	152.12	6,499.64	-10,213.66	4,378.73	14,420,793.81	1,692,950.98	39.708912	-80.813203
17,361.00	89.31	150.54	6,500.77	-10,296.13	4,423.82	14,420,711.34	1,692,996.07	39.708685	-80.813043
17,455.00	89.48	150.36	6,501.76	-10,377.90	4,470.18	14,420,629.57	1,693,042.43	39.708460	-80.812879
17,549.00	89.57	150.32	6,502.54	-10,459.58	4,516.69	14,420,547.89	1,693,088.94	39.708236	-80.812714
17,643.00	89.62	150.18	6,503.21	-10,541.19	4,563.33	14,420,466.28	1,693,135.59	39.708011	-80.812549
17,736.00	89.53	150.71	6,503.90	-10,622.09	4,609.21	14,420,385.39	1,693,181.46	39.707789	-80.812386
17,830.00	89.57	150.23	6,504.64	-10,703.87	4,655.53	14,420,303.60	1,693,227.79	39.707564	-80.812222
17,924.00	89.57	150.45	6,505.34	-10,785.55	4,702.05	14,420,221.92	1,693,274.30	39.707339	-80.812057
18,019.00	89.66	150.40	6,505.98	-10,868.17	4,748.94	14,420,139.30	1,693,321.19	39.707112	-80.811891
18,113.00	89.62	150.45	6,506.57	-10,949.93	4,795.33	14,420,057.55	1,693,367.58	39.706887	-80.811727
18,208.00	89.57	150.40	6,507.24	-11,032.55	4,842.22	14,419,974.93	1,693,414.47	39.706660	-80.811561
18,302.00	89.62	150.09	6,507.91	-11,114.15	4,888.87	14,419,893.32	1,693,461.12	39.706436	-80.811395
18,397.00	89.57	149.96	6,508.58	-11,196.44	4,936.33	14,419,811.03	1,693,508.58	39.706209	-80.811227
18,492.00	89.62	150.67	6,509.25	-11,278.97	4,983.38	14,419,728.50	1,693,555.63	39.705983	-80.811061
18,587.00	89.62	150.05	6,509.88	-11,361.54	5,030.36	14,419,645.94	1,693,602.61	39.705756	-80.810894
18,681.00	89.70	150.45	6,510.44	-11,443.15	5,077.00	14,419,564.33	1,693,649.25	39.705531	-80.810729
18,775.00	89.62	150.58	6,510.99	-11,524.97	5,123.27	14,419,482.50	1,693,695.52	39.705306	-80.810565
18,870.00	89.62	149.96	6,511.62	-11,607.46	5,170.38	14,419,400.01	1,693,742.63	39.705079	-80.810398
18,964.00	89.66	150.18	6,512.21	-11,688.93	5,217.28	14,419,318.55	1,693,789.53	39.704855	-80.810232
19,059.00	89.66	150.40	6,512.78	-11,771.44	5,264.36	14,419,236.04	1,693,836.61	39.704628	-80.810065
19,153.00	89.66	150.23	6,513.34	-11,853.10	5,310.91	14,419,154.37	1,693,883.16	39.704404	-80.809900
19,247.00	89.75	150.05	6,513.82	-11,934.62	5,357.71	14,419,072.85	1,693,929.96	39.704180	-80.809735
19,342.00	89.62	149.61	6,514.34	-12,016.75	5,405.45	14,418,990.73	1,693,977.71	39.703954	-80.809565
19,436.00	89.57	149.96	6,515.01	-12,097.98	5,452.76	14,418,909.50	1,694,025.01	39.703731	-80.809398
19,531.00	89.70	149.57	6,515.61	-12,180.05	5,500.59	14,418,827.42	1,694,072.85	39.703505	-80.809228
19,625.00	89.62	150.09	6,516.17	-12,261.32	5,547.83	14,418,746.16	1,694,120.09	39.703281	-80.809061
19,720.00	89.66	149.92	6,516.77	-12,343.59	5,595.33	14,418,663.88	1,694,167.58	39.703055	-80.808893
19,815.00	89.79	150.23	6,517.22	-12,425.92	5,642.72	14,418,581.55	1,694,214.97	39.702829	-80.808725
19,908.00	89.70	149.61	6,517.64	-12,506.40	5,689.33	14,418,501.08	1,694,261.58	39.702608	-80.808560
20,003.00	89.66	150.14	6,518.17	-12,588.57	5,737.01	14,418,418.91	1,694,309.26	39.702382	-80.808391
20,098.00	89.62	150.27	6,518.76	-12,671.01	5,784.21	14,418,336.47	1,694,356.46	39.702155	-80.808224
20,193.00	89.66	150.27	6,519.36	-12,753.50	5,831.32	14,418,253.97	1,694,403.58	39.701928	-80.808057
20,288.00	89.66	150.32	6,519.92	-12,836.01	5,878.40	14,418,171.46	1,694,450.65	39.701701	-80.807890
20,382.00	89.70	150.05	6,520.45	-12,917.57	5,925.13	14,418,089.90	1,694,497.39	39.701477	-80.807725
20,459.00	89.62	150.01	6,520.91	-12,984.27	5,963.60	14,418,023.20	1,694,535.85	39.701294	-80.807588
Survey @ 20459.00 MD 6520.91 TVD									
20,496.00	89.62	150.01	6,521.15	-13,016.32	5,982.09	14,417,991.16	1,694,554.34	39.701205	-80.807523
Survey Proj. to 20496.00 MD 6521.15 TVD									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
198.00	198.00	0.11	0.53	MWD surveys	RECEIVED Office of Oil & Gas <b>OCT 04 2022</b> WV Department of Environmental Protection
20,459.00	6,520.91	-12,984.27	5,963.60	Survey @ 20459.00 MD 6520.91 TVD	
20,496.00	6,521.15	-13,016.32	5,982.09	Survey Proj. to 20496.00 MD 6521.15 TVD	