



# Actual Wellpath Report

Greer 1N-05U ST01 AWP Proj: 18765'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	TUG HILL OPERATING	Slot	Slot #01
Area	Marshall County, WV	Well	Greer 1N-05U ST01
Field	Marshall	Wellbore	Greer 1N-05U ST01 AWP
Facility	Greer Unit N pad	Sidetrack from	Greer 1N-05U AWP Proj: 11640' at 10150.00 MD

## REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Delaset
Scale	0.999602	Report Generated	14/Sep/2017 at 14:03
Convergence at slot	0.10° East	Database/Source file	WA_MPL_EasternUS_Defn/Greer_1N-05U_ST01_AWP_Proj_18765_.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.04	-0.01	1686428.83	14438325.04	39°45'25.534"N	80°50'10.606"W
Facility Reference Pt			1686428.83	14438325.00	39°45'25.534"N	80°50'10.606"W
Field Reference Pt			1920470.12	14528304.49	40°00'00.000"N	80°00'00.000"W

## WELLPATH DATUM

Calculation method	Minimum curvature	Nabors B28 (RKB) to Facility Vertical Datum	26.00ft
Horizontal Reference Pt	Slot	Nabors B28 (RKB) to Mean Sea Level	1280.00ft
Vertical Reference Pt	Nabors B28 (RKB)	Nabors B28 (RKB) to Mud Line at Slot (Slot #01)	26.00ft
MD Reference Pt	Nabors B28 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	328.79°

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## REFERENCE WELLPATH IDENTIFICATION

Operator	TUG HILL OPERATING	Slot	Slot #01
Area	Marshall County, WV	Well	Greer 1N-05U ST01
Field	Marshall	Wellbore	Greer 1N-05U ST01 AWP
Facility	Greer Unit N pad	Sidetrack from	Greer 1N-05U AWP Proj: 11640' at 10150.00 MD

## WELLPATH DATA (198 stations) † = interpolated/extrapolated station

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
0.00†	0.000	224.810	0.00	0.00	0.00	0.00	1686428.82	14438325.04	39°45'25.534"N	80°50'10.606"W	0.00	0.000	0.00	0.00	0.00	
26.00	0.000	224.810	26.00	0.00	0.00	0.00	1686428.82	14438325.04	39°45'25.534"N	80°50'10.606"W	0.00	0.000	0.00	0.00	0.00	
104.00	0.330	224.810	104.00	-0.05	-0.16	-0.16	1686428.67	14438324.88	39°45'25.532"N	80°50'10.608"W	0.22	224.810	0.42	0.42	-173.32	Gyro Surveys <12-1/4"> (100'-10150')
204.00	0.410	229.160	204.00	-0.18	-0.60	-0.63	1686428.19	14438324.44	39°45'25.528"N	80°50'10.614"W	0.87	226.598	0.08	0.08	4.35	
304.00	0.510	234.980	303.99	-0.27	-1.09	-1.27	1686427.56	14438323.95	39°45'25.523"N	80°50'10.622"W	1.67	229.374	0.11	0.10	5.82	
404.00	0.450	223.320	403.99	-0.41	-1.63	-1.90	1686426.92	14438323.41	39°45'25.518"N	80°50'10.630"W	2.50	229.421	0.11	-0.06	-11.66	
504.00	0.410	189.760	503.99	-0.78	-2.27	-2.23	1686426.59	14438322.77	39°45'25.512"N	80°50'10.635"W	3.18	224.550	0.25	-0.04	-33.56	
604.00	0.400	189.780	603.99	-1.32	-2.96	-2.35	1686426.47	14438322.08	39°45'25.505"N	80°50'10.636"W	3.78	218.430	0.01	-0.01	0.02	
704.00	0.470	188.030	703.98	-1.90	-3.71	-2.47	1686426.36	14438321.33	39°45'25.497"N	80°50'10.638"W	4.46	213.606	0.07	0.07	-1.75	
804.00	0.580	206.420	803.98	-2.49	-4.57	-2.75	1686426.08	14438320.47	39°45'25.489"N	80°50'10.641"W	5.34	211.024	0.20	0.11	18.39	
904.00	0.890	224.860	903.97	-2.94	-5.58	-3.52	1686425.30	14438319.47	39°45'25.479"N	80°50'10.651"W	6.60	212.285	0.39	0.31	18.44	
1004.00	0.710	258.950	1003.96	-2.92	-6.25	-4.68	1686424.15	14438318.80	39°45'25.472"N	80°50'10.666"W	7.80	216.840	0.50	-0.18	34.09	
1104.00	1.900	338.610	1103.94	-1.07	-4.82	-5.89	1686422.94	14438320.22	39°45'25.486"N	80°50'10.682"W	7.61	230.710	1.91	1.19	79.66	
1204.00	3.880	338.710	1203.81	3.90	-0.12	-7.73	1686421.10	14438324.92	39°45'25.533"N	80°50'10.705"W	7.73	269.079	1.98	1.98	0.10	
1304.00	4.310	337.170	1303.55	10.95	6.49	-10.41	1686418.42	14438331.53	39°45'25.598"N	80°50'10.739"W	12.27	301.944	0.44	0.43	-1.54	
1404.00	3.150	335.940	1403.34	17.39	12.46	-12.99	1686415.84	14438337.50	39°45'25.657"N	80°50'10.772"W	18.00	313.816	1.16	-1.16	-1.23	
1504.00	2.900	323.220	1503.20	22.63	17.00	-15.62	1686413.21	14438342.03	39°45'25.702"N	80°50'10.806"W	23.09	317.412	0.71	-0.25	-12.72	
1604.00	2.730	324.160	1603.08	27.53	20.96	-18.53	1686410.30	14438345.99	39°45'25.741"N	80°50'10.843"W	27.98	318.510	0.18	-0.17	0.94	
1704.00	2.540	299.580	1702.98	31.83	23.98	-21.86	1686406.98	14438349.01	39°45'25.771"N	80°50'10.885"W	32.45	317.654	1.14	-0.19	-24.58	
1804.00	2.540	290.870	1802.88	35.52	25.86	-25.85	1686402.98	14438350.89	39°45'25.790"N	80°50'10.936"W	36.57	315.012	0.39	0.00	-8.71	
1904.00	1.120	294.400	1902.82	38.07	27.06	-28.81	1686400.02	14438352.09	39°45'25.802"N	80°50'10.974"W	39.53	313.199	1.42	-1.42	3.53	
2004.00	0.510	29.170	2002.82	39.10	27.85	-29.49	1686399.35	14438352.88	39°45'25.810"N	80°50'10.983"W	40.56	313.364	1.27	-0.61	94.77	
2104.00	0.940	56.840	2102.81	39.35	28.69	-28.58	1686400.25	14438353.71	39°45'25.818"N	80°50'10.971"W	40.50	315.103	0.54	0.43	27.67	
2204.00	1.760	68.100	2202.78	39.12	29.71	-26.47	1686402.36	14438354.74	39°45'25.828"N	80°50'10.944"W	39.79	318.297	0.86	0.82	11.26	
2304.00	2.030	73.150	2302.73	38.44	30.79	-23.35	1686405.48	14438355.82	39°45'25.839"N	80°50'10.904"W	38.65	322.826	0.32	0.27	5.05	
2404.00	1.260	79.460	2402.68	37.61	31.51	-20.58	1686408.26	14438356.54	39°45'25.846"N	80°50'10.869"W	37.63	326.855	0.79	-0.77	6.31	
2504.00	0.950	75.420	2502.67	36.98	31.92	-18.69	1686410.14	14438356.95	39°45'25.850"N	80°50'10.845"W	36.99	329.646	0.32	-0.31	-4.04	
2604.00	0.850	71.900	2602.65	36.58	32.36	-17.18	1686411.65	14438357.38	39°45'25.854"N	80°50'10.825"W	36.64	332.027	0.11	-0.10	-3.52	
2704.00	0.540	67.280	2702.65	36.34	32.77	-16.04	1686412.79	14438357.80	39°45'25.858"N	80°50'10.811"W	36.49	333.912	0.31	-0.31	-4.62	
2804.00	0.350	91.540	2802.64	36.11	32.94	-15.30	1686413.53	14438357.97	39°45'25.860"N	80°50'10.801"W	36.33	335.081	0.26	-0.19	24.26	

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Operator	Area	Field	Facility
TUG HILL OPERATING	Marshall County, WV	Marshall	Greer Unit N pad
		Wellbore	Sidetrack from
		Well	Greer 1N-05U ST01 AWP
			Greer 1N-05U ST01 AWP
			Greer 1N-05U AWP Proj: 11640' at 10150.00 MD

**WELLPATH DATA (198 stations)**

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect North (ft)	East (ft)	Grid East (ft)	Grid North (ft)	Latitude (ft)	Longitude (ft)	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
2904.00	0.170	147.910	2902.64	35.79	32.81	1686413.91	14438357.84	39°45'25.859"N	80°50'10.796"W	36.04	335.545	0.29	-0.18	56.37	
3004.00	0.120	129.170	3002.64	35.55	32.62	1686414.07	14438357.64	39°45'25.857"N	80°50'10.794"W	35.80	335.651	0.07	-0.05	-18.74	
3104.00	0.190	353.230	3102.64	35.60	32.72	1686414.13	14438357.74	39°45'25.858"N	80°50'10.793"W	35.87	335.806	0.29	0.07	-135.94	
3204.00	0.240	32.450	3202.64	35.84	33.06	1686414.22	14438358.08	39°45'25.861"N	80°50'10.792"W	36.14	336.162	0.15	0.05	39.22	
3304.00	0.340	74.810	3302.64	35.85	33.31	1686414.21	14438358.34	39°45'25.863"N	80°50'10.787"W	36.22	336.902	0.23	0.10	42.36	
3404.00	1.630	242.710	3402.63	35.87	32.74	1686413.65	14438357.76	39°45'25.858"N	80°50'10.800"W	36.09	335.116	1.96	1.29	167.90	
3504.00	1.980	252.270	3502.58	36.37	31.56	1686410.74	14438356.59	39°45'25.846"N	80°50'10.837"W	36.38	330.172	0.46	0.35	9.56	
3604.00	1.820	266.100	3602.52	37.50	30.93	1686407.51	14438355.95	39°45'25.840"N	80°50'10.878"W	37.56	325.412	0.48	-0.16	13.83	
3704.00	1.470	276.400	3702.48	39.01	30.96	1686404.65	14438355.99	39°45'25.840"N	80°50'10.915"W	39.29	322.006	0.46	-0.35	10.30	
3804.00	1.000	281.350	3802.46	40.38	31.28	1686402.52	14438356.30	39°45'25.844"N	80°50'10.942"W	40.87	319.924	0.48	-0.47	4.95	
3904.00	0.680	279.910	3902.45	41.36	31.55	1686401.08	14438356.58	39°45'25.846"N	80°50'10.961"W	42.02	318.661	0.32	-0.32	-1.44	
4004.00	0.630	264.770	4002.44	42.00	31.60	1686399.95	14438356.63	39°45'25.847"N	80°50'10.975"W	42.81	317.570	0.18	-0.05	-15.14	
4104.00	0.630	255.520	4102.44	42.39	31.41	1686398.87	14438356.44	39°45'25.845"N	80°50'10.989"W	43.41	316.351	0.10	0.00	-9.25	
4204.00	0.580	227.030	4202.43	42.45	30.93	1686397.97	14438355.96	39°45'25.840"N	80°50'11.001"W	43.70	315.058	0.30	-0.05	-28.49	
4304.00	0.530	232.000	4302.43	42.29	30.30	1686397.23	14438355.33	39°45'25.834"N	80°50'11.010"W	43.78	313.795	0.07	-0.05	4.97	
4404.00	0.580	205.140	4402.42	41.96	29.56	1686396.65	14438354.59	39°45'25.827"N	80°50'11.017"W	43.70	312.566	0.26	0.05	-26.86	
4504.00	1.470	186.430	4502.40	40.66	27.83	1686396.30	14438352.85	39°45'25.810"N	80°50'11.022"W	42.82	310.533	0.94	0.89	-18.71	
4604.00	1.910	185.810	4602.36	38.31	24.89	1686395.98	14438349.92	39°45'25.781"N	80°50'11.026"W	41.22	307.151	0.44	0.44	-0.62	
4704.00	2.110	190.910	4702.30	35.62	21.43	1686395.47	14438346.46	39°45'25.746"N	80°50'11.033"W	39.66	302.704	0.27	0.20	5.10	
4804.00	1.070	216.740	4802.26	33.90	18.87	1686394.56	14438343.90	39°45'25.721"N	80°50'11.044"W	39.13	298.834	1.24	-1.04	25.83	
4904.00	1.160	148.050	4902.25	32.54	17.26	1686394.54	14438342.30	39°45'25.705"N	80°50'11.045"W	38.40	296.717	1.26	0.09	-68.69	
5004.00	1.260	113.990	5002.22	30.62	15.96	1686396.08	14438340.99	39°45'25.692"N	80°50'11.025"W	36.44	295.971	0.72	0.10	-34.06	
5104.00	1.190	93.500	5102.20	29.13	15.45	1686398.12	14438340.48	39°45'25.687"N	80°50'10.999"W	34.39	296.696	0.44	-0.07	-20.49	
5204.00	0.370	295.470	5202.20	28.81	15.52	1686398.86	14438340.56	39°45'25.688"N	80°50'10.989"W	33.76	297.379	1.54	-0.82	-158.03	
5304.00	1.730	283.320	5302.18	30.14	16.01	1686397.10	14438341.04	39°45'25.693"N	80°50'11.012"W	35.54	296.770	1.37	1.36	-12.15	
5404.00	2.090	291.620	5402.12	32.65	17.03	1686393.94	14438342.06	39°45'25.703"N	80°50'11.052"W	38.83	296.011	0.45	0.36	8.30	
5504.00	1.970	291.970	5502.06	35.48	18.34	1686390.65	14438343.38	39°45'25.716"N	80°50'11.095"W	42.37	295.658	0.12	-0.12	0.35	
5604.00	0.900	176.230	5602.04	36.16	18.20	1686389.11	14438343.24	39°45'25.715"N	80°50'11.114"W	43.70	294.616	2.50	-1.07	-115.74	
5704.00	2.390	159.820	5702.00	33.41	15.46	1686389.88	14438340.50	39°45'25.688"N	80°50'11.104"W	41.92	291.648	1.55	1.49	-16.41	
5804.00	4.090	162.450	5801.83	27.90	10.11	1686391.67	14438335.14	39°45'25.635"N	80°50'11.082"W	38.51	285.211	1.71	1.70	2.63	

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# Actual Wellpath Report

Greer 1N-05U ST01 AWP Proj: 18765

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## REFERENCE WELLPATH IDENTIFICATION

Operator	TUG HILL OPERATING
Area	Marshall County, WV
Field	Marshall
Facility	Greer Unit N pad
Slot	Slot #01
Well	Greer 1N-05U ST01
Wellbore	Greer 1N-05U ST01 AWP
Sidetrack from	Greer 1N-05U AWP Proj: 11640' at 10150.00 MD

## WELLPATH DATA (198 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	[US ft]	[US ft]		(ft)	(°)	[°/100ft]	[°/100ft]	[°/100ft]	
5904.00	5.490	180.720	5901.49	20.37	1.92	-36.15	1686392.69	14438326.96	39°45'25.554"N	80°50'11.069"W	36.20	273.042	2.05	1.40	18.27
6004.00	5.080	188.120	6001.06	12.89	-7.25	-36.84	1686392.00	14438317.80	39°45'25.463"N	80°50'11.078"W	37.54	258.872	0.79	-0.41	7.40
6104.00	5.580	238.890	6100.68	9.47	-14.14	-41.63	1686387.22	14438310.90	39°45'25.395"N	80°50'11.139"W	43.96	251.233	4.59	0.50	50.77
6204.00	7.500	247.290	6200.03	10.45	-19.18	-51.81	1686377.04	14438305.87	39°45'25.345"N	80°50'11.270"W	55.24	249.689	2.14	1.92	8.40
6304.00	5.970	219.750	6299.36	9.71	-25.70	-61.16	1686367.69	14438299.35	39°45'25.281"N	80°50'11.390"W	66.34	247.210	3.53	-1.53	-27.54
6404.00	4.050	217.500	6398.97	6.73	-32.50	-66.63	1686362.22	14438292.56	39°45'25.214"N	80°50'11.460"W	74.14	244.002	1.93	-1.92	-2.25
6504.00	3.780	296.270	6498.80	8.23	-33.84	-71.74	1686357.11	14438291.21	39°45'25.201"N	80°50'11.525"W	79.32	244.747	4.97	-0.27	78.77
6604.00	6.630	302.280	6598.38	16.18	-29.30	-79.58	1686349.28	14438295.75	39°45'25.246"N	80°50'11.626"W	84.80	249.789	2.90	2.85	6.01
6704.00	7.810	281.090	6697.60	25.92	-24.91	-91.13	1686337.73	14438300.14	39°45'25.290"N	80°50'11.773"W	94.47	254.714	2.89	1.18	-21.19
6804.00	11.060	247.070	6796.31	31.88	-27.34	-106.65	1686322.22	14438297.71	39°45'25.266"N	80°50'11.972"W	110.10	256.622	6.32	3.25	-34.02
6904.00	6.720	262.310	6895.10	35.60	-31.86	-121.29	1686307.58	14438293.19	39°45'25.221"N	80°50'12.160"W	125.40	255.282	4.90	-4.34	15.24
7004.00	9.770	254.940	6994.06	40.30	-34.85	-135.29	1686293.59	14438290.20	39°45'25.192"N	80°50'12.339"W	139.70	255.554	3.22	3.05	-7.37
7104.00	12.290	245.780	7092.21	43.95	-41.42	-153.19	1686275.70	14438283.63	39°45'25.127"N	80°50'12.568"W	158.69	254.869	3.06	2.52	-9.16
7204.00	15.930	241.380	7189.18	45.87	-52.37	-174.95	1686253.95	14438272.70	39°45'25.020"N	80°50'12.847"W	182.62	253.337	3.79	3.64	-4.40
7304.00	19.530	235.060	7284.42	45.40	-68.52	-200.71	1686228.20	14438256.55	39°45'24.860"W	80°50'13.178"W	212.08	251.151	4.08	3.60	-6.32
7404.00	24.250	236.240	7377.19	43.40	-89.52	-231.50	1686197.42	14438235.56	39°45'24.654"N	80°50'13.572"W	248.21	248.860	4.74	4.72	1.18
7504.00	28.270	235.280	7466.85	41.03	-114.43	-268.05	1686160.88	14438210.66	39°45'24.408"N	80°50'14.041"W	291.46	246.883	4.04	4.02	-0.96
7604.00	31.660	230.870	7553.48	35.97	-144.49	-307.89	1686121.05	14438180.61	39°45'24.112"N	80°50'14.552"W	340.11	244.860	4.04	3.39	-4.41
7704.00	31.580	227.490	7638.64	27.22	-178.75	-347.56	1686081.41	14438146.36	39°45'23.774"N	80°50'15.060"W	390.83	242.783	1.77	-0.08	-3.38
7804.00	33.110	224.040	7723.13	15.13	-216.08	-385.85	1686043.13	14438109.05	39°45'23.405"N	80°50'15.652"W	442.23	240.751	2.40	1.53	-3.45
7904.00	33.640	224.030	7806.64	1.12	-255.63	-424.09	1686004.91	14438069.51	39°45'23.015"N	80°50'16.042"W	495.17	238.920	0.53	0.53	-0.01
8004.00	33.680	225.030	7889.87	-12.53	-295.14	-462.96	1685966.05	14438030.02	39°45'22.626"N	80°50'16.541"W	549.03	237.482	0.56	0.04	1.00
8104.00	32.930	226.470	7973.45	-24.93	-333.46	-502.28	1685926.74	14437991.72	39°45'22.248"N	80°50'17.045"W	602.89	236.420	1.09	-0.75	1.44
8204.00	31.830	228.170	8057.90	-35.59	-369.77	-541.64	1685887.40	14437955.42	39°45'21.889"N	80°50'17.550"W	655.82	235.679	1.43	-1.10	1.70
8304.00	31.160	226.270	8143.17	-46.06	-405.24	-579.98	1685849.07	14437919.96	39°45'21.540"N	80°50'18.042"W	707.53	235.058	1.20	-0.67	-1.90
8404.00	31.270	223.770	8228.70	-58.39	-441.87	-616.63	1685812.44	14437883.35	39°45'21.178"N	80°50'18.512"W	758.61	234.376	1.30	0.11	-2.50
8504.00	31.920	222.210	8313.88	-72.66	-480.19	-652.35	1685776.73	14437845.04	39°45'20.800"N	80°50'18.970"W	810.03	233.644	1.04	0.65	-1.56
8604.00	31.510	224.120	8398.95	-86.82	-518.53	-688.31	1685740.79	14437806.72	39°45'20.422"N	80°50'19.431"W	861.77	233.008	1.08	-0.41	1.91
8704.00	32.760	229.630	8483.64	-97.75	-554.83	-727.12	1685701.99	14437770.44	39°45'20.064"N	80°50'19.929"W	914.62	232.655	3.19	1.25	5.51
8804.00	32.250	233.370	8567.99	-104.58	-588.27	-769.15	1685659.98	14437737.00	39°45'19.734"N	80°50'20.468"W	968.33	232.590	2.07	-0.51	3.74

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# Actual Wellpath Report

Greer 1N-05U ST01 AWP Proj: 18765'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	TUG HILL OPERATING	Slot	Slot #01
Area	Marshall County, WV	Well	Greer 1N-05U ST01
Field	Marshall	Wellbore	Greer 1N-05U ST01 AWP
Facility	Greer Unit N pad	Sidetrack from	Greer 1N-05U AWP Proj: 11640' at 10150.00 MD

## WELLPATH DATA (198 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
8904.00	33.340	233.490	8652.05	-109.64	-620.54	-812.65	1685616.50	14437704.75	39°45'19.416"N	80°50'21.026"W	1022.49	232.635	1.09	1.09	0.12	
9004.00	32.370	232.110	8736.05	-115.29	-653.33	-855.87	1685573.30	14437671.97	39°45'19.093"N	80°50'21.580"W	1076.73	232.643	1.23	-0.97	-1.38	
9104.00	32.100	231.820	8820.64	-121.63	-686.20	-897.88	1685531.30	14437639.12	39°45'18.769"N	80°50'22.119"W	1130.07	232.611	0.31	-0.27	-0.29	
9204.00	31.680	230.690	8905.54	-128.55	-719.26	-939.08	1685490.12	14437606.07	39°45'18.443"N	80°50'22.647"W	1182.88	232.551	0.73	-0.42	-1.13	
9304.00	32.690	229.190	8990.18	-136.76	-753.54	-979.84	1685449.38	14437571.80	39°45'18.104"N	80°50'23.169"W	1236.09	232.438	1.29	1.01	-1.50	
9404.00	32.400	227.960	9074.48	-146.29	-789.13	-1020.18	1685409.05	14437536.22	39°45'17.753"N	80°50'23.687"W	1289.77	232.277	0.72	-0.29	-1.23	
9504.00	31.500	228.440	9159.33	-156.02	-824.41	-1059.62	1685369.62	14437500.96	39°45'17.406"N	80°50'24.193"W	1342.55	232.116	0.94	-0.90	0.48	
9604.00	32.120	228.910	9244.31	-165.28	-859.21	-1099.21	1685330.05	14437466.17	39°45'17.062"N	80°50'24.700"W	1395.17	231.987	0.67	0.62	0.47	
9704.00	31.470	228.100	9329.30	-174.68	-894.12	-1138.67	1685290.61	14437431.28	39°45'16.718"N	80°50'25.206"W	1447.77	231.860	0.78	-0.65	-0.81	
9804.00	31.200	229.360	9414.71	-183.77	-928.42	-1177.76	1685251.54	14437396.99	39°45'16.380"N	80°50'25.708"W	1499.69	231.752	0.71	-0.27	1.26	
9904.00	32.770	230.300	9499.53	-192.01	-962.58	-1218.24	1685211.07	14437362.85	39°45'16.043"N	80°50'26.227"W	1552.63	231.686	1.65	1.57	0.94	
10004.00	32.640	230.010	9583.68	-200.12	-997.20	-1259.72	1685169.61	14437328.24	39°45'15.701"N	80°50'26.759"W	1606.64	231.635	0.20	-0.13	-0.29	
10025.00†	32.450	230.286	9601.38	-201.82	-1004.44	-1268.39	1685160.94	14437321.01	39°45'15.630"N	80°50'26.870"W	1617.94	231.624	1.15	-0.91	1.31	Top of Cement
10104.00	31.740	231.350	9668.31	-207.64	-1030.96	-1300.93	1685128.42	14437294.50	39°45'15.369"N	80°50'27.287"W	1659.90	231.604	1.15	-0.90	1.35	
10150.00	31.417	232.775	9707.50	-210.46	-1045.77	-1319.92	1685109.43	14437279.69	39°45'15.222"N	80°50'27.531"W	1683.99	231.610	1.77	-0.70	3.10	
10154.00†	31.406	232.764	9710.91	-210.68	-1047.03	-1321.58	1685107.77	14437278.43	39°45'15.210"N	80°50'27.552"W	1686.08	231.612	0.31	-0.27	-0.28	BHI AT Curve <8-1/2"> (10154')(10299'-18740')
10299.00	31.010	232.350	9834.93	-218.84	-1092.70	-1381.24	1685048.14	14437232.77	39°45'14.760"N	80°50'28.317"W	1761.20	231.652	0.31	-0.27	-0.29	
10364.00	29.090	245.500	9891.25	-218.87	-1109.50	-1408.90	1685020.48	14437215.98	39°45'14.594"N	80°50'28.671"W	1793.32	231.780	10.53	-2.95	20.23	
10457.00	27.440	243.700	9973.16	-214.39	-1128.38	-1448.69	1684980.72	14437197.12	39°45'14.408"N	80°50'29.181"W	1836.28	232.085	2.00	-1.77	-1.94	
10552.00	23.930	233.630	10058.80	-214.25	-1149.52	-1483.85	1684945.56	14437175.98	39°45'14.200"N	80°50'29.632"W	1877.02	232.236	5.88	-3.69	-10.60	
10647.00	23.980	237.100	10145.62	-216.56	-1171.43	-1515.58	1684913.85	14437154.08	39°45'13.984"N	80°50'30.039"W	1915.52	232.299	1.48	0.05	3.65	
10742.00	24.470	236.160	10232.26	-218.03	-1192.87	-1548.13	1684881.31	14437132.65	39°45'13.773"N	80°50'30.456"W	1954.39	232.385	0.66	0.52	-0.99	
10837.00	31.880	233.800	10315.94	-221.12	-1218.68	-1584.77	1684844.69	14437106.85	39°45'13.518"N	80°50'30.925"W	1999.17	232.440	7.89	7.80	-2.48	
10931.00	36.340	238.800	10393.77	-223.27	-1247.79	-1628.65	1684800.82	14437077.75	39°45'13.231"N	80°50'31.488"W	2051.70	232.543	5.60	4.74	5.32	
11026.00	37.850	251.870	10469.66	-216.66	-1271.48	-1680.51	1684748.98	14437054.07	39°45'12.998"N	80°50'32.153"W	2107.31	232.889	8.44	1.59	13.76	
11120.00	38.750	268.130	10543.62	-195.67	-1281.44	-1737.47	1684692.05	14437044.11	39°45'12.901"N	80°50'32.882"W	2158.91	233.590	10.74	0.96	17.30	
11215.00	40.620	278.940	10616.81	-161.11	-1277.60	-1797.81	1684631.73	14437047.95	39°45'12.940"N	80°50'33.655"W	2205.53	234.601	7.52	1.97	11.38	
11310.00	44.300	287.820	10686.95	-116.07	-1262.62	-1860.02	1684569.55	14437062.92	39°45'13.089"N	80°50'34.451"W	2248.09	235.831	7.40	3.87	9.35	
11405.00	50.750	295.750	10751.12	-60.08	-1236.44	-1924.86	1684504.73	14437089.10	39°45'13.349"N	80°50'35.280"W	2287.76	237.285	9.16	6.79	8.35	
11500.00	57.120	298.540	10807.03	5.29	-1201.36	-1993.11	1684436.51	14437124.16	39°45'13.697"N	80°50'36.153"W	2327.18	238.920	7.11	6.71	2.94	

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**REFERENCE WELLPATH IDENTIFICATION**

Operator	TUG HILL OPERATING	Area	Marshall County, WV	Field	Marshall	Facility	Greer Unit N pad
Slot	Slot #01	Well	Greer 1N-05U ST01	Wellbore	Greer 1N-05U ST01 AWP	Sidetrack from	Greer 1N-05U AWP Proj: 11640' at 10150.00 MD

WELLPATH DATA (198 stations)												
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]	[ft]	[ft]	[ft]	[ft]
11594.00	63.760	306.290	10853.43	78.50	-1157.45	-2061.92	1684367.72	14437168.05	39°45'14.132"N	80°50'37.033"W	2364.58	240.693
11688.00	69.400	312.080	10890.80	159.71	-1102.93	-2128.66	1684301.02	14437222.55	39°45'14.672"N	80°50'37.887"W	2397.42	242.610
11783.00	78.130	320.720	10917.38	248.65	-1036.91	-2191.32	1684238.38	14437288.55	39°45'15.325"N	80°50'38.688"W	2424.26	244.677
11878.00	84.080	322.670	10932.07	341.74	-963.28	-2249.46	1684180.27	14437362.14	39°45'16.054"N	80°50'39.430"W	2447.03	246.818
11973.00	89.750	327.160	10937.18	436.33	-885.70	-2303.94	1684125.81	14437439.69	39°45'16.821"N	80°50'40.126"W	2468.32	248.972
12036.00	88.620	326.850	10938.08	499.29	-832.87	-2338.24	1684091.52	14437492.50	39°45'17.344"N	80°50'40.564"W	2482.15	250.394
12130.00	89.110	330.690	10939.94	593.25	-752.52	-2386.96	1684042.82	14437572.82	39°45'18.139"N	80°50'41.186"W	2502.77	252.502
12224.00	89.350	327.770	10941.20	687.23	-671.77	-2435.04	1683994.76	14437653.54	39°45'18.938"N	80°50'41.800"W	2526.01	254.577
12317.00	89.690	327.390	10941.98	780.21	-593.27	-2484.90	1683944.92	14437732.01	39°45'19.715"N	80°50'42.437"W	2554.74	256.572
12412.00	89.690	327.820	10942.50	875.18	-513.06	-2535.79	1683894.04	14437812.19	39°45'20.508"N	80°50'43.087"W	2587.18	258.562
12507.00	89.750	328.270	10942.96	970.17	-432.45	-2586.07	1683843.79	14437892.76	39°45'21.306"N	80°50'43.729"W	2621.98	260.507
12601.00	89.820	329.350	10943.31	1064.17	-352.04	-2634.75	1683795.13	14437973.14	39°45'22.101"N	80°50'44.350"W	2658.17	262.389
12695.00	90.370	327.110	10943.16	1158.16	-272.13	-2684.24	1683745.66	14438053.02	39°45'22.892"N	80°50'44.982"W	2698.00	264.211
12790.00	90.830	325.310	10942.16	1253.06	-193.19	-2737.07	1683692.85	14438131.93	39°45'23.673"N	80°50'45.657"W	2743.88	265.963
12883.00	90.710	327.350	10940.91	1345.96	-115.80	-2788.62	1683641.32	14438209.29	39°45'24.438"N	80°50'46.315"W	2791.02	267.622
12978.00	90.860	327.430	10939.61	1440.92	-35.78	-2839.81	1683590.15	14438289.91	39°45'25.230"N	80°50'46.969"W	2840.04	269.278
13073.00	90.920	328.850	10938.13	1535.90	44.89	-2889.95	1683540.03	14438369.97	39°45'26.028"N	80°50'47.609"W	2890.30	270.890
13167.00	90.830	330.310	10936.70	1629.88	125.94	-2937.54	1683492.46	14438450.93	39°45'26.830"N	80°50'48.217"W	2940.24	272.455
13262.00	90.770	329.930	10935.37	1724.84	208.30	-2984.86	1683445.15	14438533.26	39°45'27.645"N	80°50'48.821"W	2992.12	273.992
13357.00	90.860	328.700	10934.02	1819.83	289.99	-3033.34	1683396.70	14438614.92	39°45'28.453"N	80°50'49.440"W	3047.17	275.461
13451.00	90.890	327.910	10932.59	1913.81	369.96	-3082.72	1683347.34	14438694.86	39°45'29.244"N	80°50'50.070"W	3104.84	276.843
13546.00	90.920	328.430	10931.09	2008.79	450.67	-3132.82	1683297.26	14438775.53	39°45'30.042"N	80°50'50.710"W	3165.06	278.186
13641.00	90.860	329.470	10929.61	2103.78	532.04	-3181.81	1683248.29	14438856.87	39°45'30.848"N	80°50'51.335"W	3225.98	279.493
13736.00	90.950	331.960	10928.11	2198.71	614.89	-3228.27	1683201.85	14438939.68	39°45'31.667"N	80°50'51.929"W	3286.31	280.784
13831.00	90.920	333.550	10926.56	2293.46	699.33	-3271.75	1683158.38	14439024.09	39°45'32.502"N	80°50'52.484"W	3345.66	282.065
13926.00	90.860	333.970	10925.08	2388.10	784.53	-3313.75	1683116.40	14439109.26	39°45'33.345"N	80°50'53.019"W	3405.35	283.320
14021.00	90.890	332.200	10923.63	2482.81	869.23	-3356.75	1683073.42	14439193.92	39°45'34.183"N	80°50'53.568"W	3467.46	284.518
14116.00	90.800	329.410	10922.23	2577.74	952.14	-3403.08	1683027.11	14439276.80	39°45'35.003"N	80°50'54.160"W	3533.77	285.631
14210.00	90.890	329.370	10920.84	2671.72	1033.04	-3450.94	1682979.27	14439357.66	39°45'35.803"N	80°50'54.771"W	3602.24	286.665
14305.00	90.920	329.830	10919.34	2766.70	1114.96	-3499.00	1682931.22	14439439.56	39°45'36.614"N	80°50'55.384"W	3672.35	287.675

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# Actual Wellpath Report

Greer 1N-05U ST01 AWP Proj: 18765'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	TUG HILL OPERATING	Slot	Slot #01
Area	Marshall County, WV	Well	Greer 1N-05U ST01
Field	Marshall	Wellbore	Greer 1N-05U ST01 AWP
Facility	Greer Unit N pad	Sidetrack from	Greer 1N-05U AWP Proj: 11640' at 10150.00 MD

## WELLPATH DATA (198 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS ["/100ft]	Build Rate ["/100ft]	Turn Rate ["/100ft]	Comments
14400.00	90.890	332.620	10917.84	2861.59	1198.21	-3544.72	1682885.52	14439522.78	39°45'37.437"N	80°50'55.968"W	3741.76	288.677	2.94	-0.03	2.94	
14495.00	90.950	329.150	10916.32	2956.50	1281.19	-3590.93	1682839.33	14439605.72	39°45'38.258"N	80°50'56.558"W	3812.64	289.636	3.65	0.06	-3.65	
14589.00	90.860	328.730	10914.83	3050.49	1361.70	-3639.42	1682790.85	14439686.20	39°45'39.054"N	80°50'57.177"W	3885.83	290.513	0.46	-0.10	-0.45	
14684.00	90.920	328.560	10913.36	3145.48	1442.82	-3688.85	1682741.45	14439767.28	39°45'39.857"N	80°50'57.808"W	3960.98	291.362	0.19	0.06	-0.18	
14778.00	90.920	328.800	10911.85	3239.47	1523.11	-3737.71	1682692.61	14439847.54	39°45'40.651"N	80°50'58.432"W	4036.13	292.171	0.26	0.00	0.26	
14873.00	90.920	326.720	10910.32	3334.43	1603.45	-3788.38	1682641.96	14439927.85	39°45'41.446"N	80°50'59.079"W	4113.74	292.941	2.19	0.00	-2.19	
14966.00	90.800	328.750	10908.93	3427.40	1682.07	-3838.02	1682592.34	14440006.44	39°45'42.224"N	80°50'59.713"W	4190.43	293.666	2.19	-0.13	2.18	
15060.00	90.860	327.380	10907.56	3521.38	1761.84	-3887.73	1682542.65	14440086.17	39°45'43.013"N	80°51'00.348"W	4268.32	294.379	1.46	0.06	-1.46	
15155.00	90.830	325.620	10906.16	3616.29	1841.04	-3940.16	1682490.24	14440165.35	39°45'43.797"N	80°51'01.018"W	4349.06	295.044	1.85	-0.03	-1.85	
15248.00	90.860	324.860	10904.79	3709.10	1917.44	-3993.17	1682437.25	14440241.71	39°45'44.552"N	80°51'01.695"W	4429.67	295.649	0.82	0.03	-0.82	
15343.00	90.800	325.430	10903.42	3803.90	1995.39	-4047.46	1682382.98	14440319.63	39°45'45.324"N	80°51'02.389"W	4512.59	296.243	0.60	-0.06	0.60	
15438.00	90.830	325.140	10902.06	3898.71	2073.47	-4101.56	1682328.91	14440397.68	39°45'46.096"N	80°51'03.080"W	4595.87	296.818	0.31	0.03	-0.31	
15532.00	90.800	325.860	10900.73	3992.55	2150.93	-4154.79	1682275.69	14440475.11	39°45'46.863"N	80°51'03.760"W	4678.55	297.370	0.77	-0.03	0.77	
15626.00	90.860	324.830	10899.37	4086.37	2228.24	-4208.24	1682222.27	14440552.39	39°45'47.628"N	80°51'04.442"W	4761.76	297.901	1.10	0.06	-1.10	
15721.00	90.830	328.410	10897.96	4181.27	2307.55	-4260.49	1682170.03	14440631.67	39°45'48.412"N	80°51'05.110"W	4845.26	298.441	3.77	-0.03	3.77	
15816.00	90.920	331.430	10896.51	4276.23	2389.74	-4308.10	1682122.45	14440713.82	39°45'49.225"N	80°51'05.718"W	4926.51	299.017	3.18	0.09	3.18	
15910.00	90.830	331.150	10895.08	4370.13	2472.17	-4353.25	1682077.32	14440796.22	39°45'50.041"N	80°51'06.294"W	5006.23	299.592	0.31	-0.10	-0.30	
16004.00	90.860	329.450	10893.69	4464.09	2553.81	-4399.81	1682030.77	14440877.83	39°45'50.848"N	80°51'06.889"W	5087.27	300.132	1.81	0.03	-1.81	
16099.00	90.830	328.830	10892.29	4559.07	2635.35	-4448.54	1681982.06	14440959.34	39°45'51.655"N	80°51'07.511"W	5170.55	300.643	0.65	-0.03	-0.65	
16194.00	90.860	330.550	10890.89	4654.05	2717.35	-4496.47	1681934.15	14441041.31	39°45'52.466"N	80°51'08.123"W	5253.79	301.146	1.81	0.03	1.81	
16287.00	90.830	331.960	10889.52	4746.95	2798.88	-4541.19	1681889.45	14441122.80	39°45'53.273"N	80°51'08.694"W	5334.43	301.647	1.52	-0.03	1.52	
16381.00	90.860	330.700	10888.13	4840.84	2881.35	-4586.29	1681844.37	14441205.23	39°45'54.088"N	80°51'09.270"W	5416.29	302.139	1.34	0.03	-1.34	
16476.00	90.460	325.540	10887.04	4935.80	2961.98	-4636.44	1681794.24	14441285.84	39°45'54.886"N	80°51'09.910"W	5501.81	302.572	5.45	-0.42	-5.43	
16570.00	90.430	325.400	10886.31	5029.64	3039.42	-4689.72	1681740.98	14441363.25	39°45'55.652"N	80°51'10.591"W	5588.52	302.947	0.15	-0.03	-0.15	
16665.00	90.490	326.650	10885.54	5124.52	3118.20	-4742.81	1681687.91	14441441.99	39°45'56.432"N	80°51'11.269"W	5676.03	303.323	1.32	0.06	1.32	
16760.00	90.520	327.110	10884.71	5219.47	3197.76	-4794.71	1681636.03	14441521.52	39°45'57.219"N	80°51'11.932"W	5763.24	303.701	0.49	0.03	0.48	
16854.00	90.490	327.440	10883.88	5313.43	3276.84	-4845.53	1681585.23	14441600.57	39°45'58.001"N	80°51'12.581"W	5849.51	304.069	0.35	-0.03	0.35	
16949.00	90.490	328.960	10883.06	5408.42	3357.57	-4895.58	1681535.20	14441681.27	39°45'58.800"N	80°51'13.221"W	5936.33	304.444	1.60	0.00	1.60	
17043.00	90.490	328.840	10882.26	5502.41	3438.06	-4944.14	1681486.66	14441761.72	39°45'59.596"N	80°51'13.841"W	6022.02	304.814	0.13	0.00	-0.13	
17138.00	90.460	328.930	10881.47	5597.41	3519.39	-4993.23	1681437.59	14441843.02	39°46'00.400"N	80°51'14.468"W	6108.88	305.177	0.10	-0.03	0.09	

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# Actual Wellpath Report

Greer 1N-05U ST01 AWP Proj: 18765'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	TUG HILL OPERATING	Slot	Slot #01
Area	Marshall County, WV	Well	Greer 1N-05U ST01
Field	Marshall	Wellbore	Greer 1N-05U ST01 AWP
Facility	Greer Unit N pad	Sidetrack from	Greer 1N-05U AWP Proj: 11640' at 10150.00 MD

## WELLPATH DATA (198 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
17232.00	90.490	327.840	10880.69	5691.40	3599.43	-5042.50	1681388.34	14441923.03	39°46'01.192"N	80°51'15.097"W	6195.38	305.520	1.16	0.03	-1.16	
17327.00	90.520	329.000	10879.86	5786.40	3680.36	-5092.25	1681338.61	14442003.93	39°46'01.993"N	80°51'15.732"W	6283.00	305.857	1.22	0.03	1.22	
17421.00	90.370	329.510	10879.13	5880.39	3761.15	-5140.30	1681290.58	14442084.68	39°46'02.792"N	80°51'16.346"W	6369.37	306.193	0.57	-0.16	0.54	
17515.00	90.400	330.580	10878.50	5974.36	3842.59	-5187.23	1681243.66	14442166.09	39°46'03.598"N	80°51'16.945"W	6455.45	306.530	1.14	0.03	1.14	
17610.00	90.310	331.370	10877.91	6069.29	3925.65	-5233.33	1681197.59	14442249.12	39°46'04.419"N	80°51'17.534"W	6542.05	306.875	0.84	-0.09	0.83	
17704.00	90.370	329.290	10877.35	6163.25	4007.32	-5279.85	1681151.08	14442330.76	39°46'05.227"N	80°51'18.128"W	6628.38	307.198	2.21	0.06	-2.21	
17798.00	90.180	327.230	10876.90	6257.24	4087.26	-5329.30	1681101.65	14442410.67	39°46'06.018"N	80°51'18.760"W	6716.18	307.486	2.20	-0.20	-2.19	
17893.00	89.940	327.170	10876.80	6352.21	4167.11	-5380.76	1681050.21	14442490.49	39°46'06.808"N	80°51'19.417"W	6805.69	307.756	0.26	-0.25	-0.06	
17988.00	89.880	327.590	10876.95	6447.18	4247.13	-5431.97	1680999.02	14442570.47	39°46'07.599"N	80°51'20.071"W	6895.25	308.021	0.45	-0.06	0.44	
18083.00	89.510	327.230	10877.45	6542.15	4327.17	-5483.14	1680947.87	14442650.48	39°46'08.391"N	80°51'20.725"W	6984.93	308.280	0.54	-0.39	-0.38	
18177.00	89.450	329.960	10878.31	6636.13	4407.39	-5532.12	1680898.92	14442730.66	39°46'09.185"N	80°51'21.351"W	7073.14	308.544	2.90	-0.06	2.90	
18270.00	89.510	330.080	10879.15	6729.11	4487.94	-5578.59	1680852.47	14442811.19	39°46'09.982"N	80°51'21.944"W	7159.76	308.816	0.14	0.06	0.13	
18364.00	89.570	329.600	10879.90	6823.09	4569.21	-5625.81	1680805.26	14442892.43	39°46'10.786"N	80°51'22.547"W	7247.58	309.083	0.51	0.06	-0.51	
18458.00	89.540	328.510	10880.63	6917.08	4649.83	-5674.15	1680756.95	14442973.01	39°46'11.583"N	80°51'23.164"W	7336.00	309.334	1.16	-0.03	-1.16	
18552.00	89.540	331.090	10881.39	7011.06	4731.06	-5721.43	1680709.69	14443054.21	39°46'12.387"N	80°51'23.768"W	7424.13	309.587	2.74	0.00	2.74	
18647.00	89.510	330.080	10882.18	7106.01	4813.81	-5768.08	1680663.05	14443136.93	39°46'13.205"N	80°51'24.364"W	7512.89	309.847	1.06	-0.03	-1.06	
18740.00	89.480	331.100	10883.00	7198.96	4894.82	-5813.75	1680617.40	14443217.90	39°46'14.006"N	80°51'24.947"W	7599.93	310.095	1.10	-0.03	1.10	
18765.00	89.480	331.100	10883.22	7223.94	4916.71	-5825.83	1680605.32	14443239.78	39°46'14.223"N	80°51'25.102"W	7623.27	310.163	0.00	0.00	0.00	Projected MD at TD: 18765'

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# Actual Wellpath Report

Greer 1N-05U ST01 AWP Proj: 18765'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	TUG HILL OPERATING	Slot	Slot #01
Area	Marshall County, WV	Well	Greer 1N-05U ST01
Field	Marshall	Wellbore	Greer 1N-05U ST01 AWP
Facility	Greer Unit N pad	Sidetrack from	Greer 1N-05U AWP Proj: 11640' at 10150.00 MD

## HOLE & CASING SECTIONS - Ref Wellbore: Greer 1N-05U ST01 AWP Ref Wellpath: Greer 1N-05U ST01 AWP Proj: 18765'

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
26in Open Hole	26.00	980.00	954.00	26.00	979.96	0.00	0.00	-6.16	-4.39
20in Conductor	26.00	968.00	942.00	26.00	967.96	0.00	0.00	-6.10	-4.25
17.5in Open Hole	980.00	2890.00	1910.00	979.96	2888.64	-6.16	-4.39	32.84	-14.95
13.375in Casing Surface	26.00	2733.00	2707.00	26.00	2731.64	0.00	0.00	32.86	-15.80
12.25in Open Hole	2890.00	10154.00	7264.00	2888.64	9710.91	32.84	-14.95	-1047.03	-1321.58
9.625in Casing Intermediate	26.00	10154.00	10128.00	26.00	9710.91	0.00	0.00	-1047.03	-1321.58
8.5in Open Hole	10154.00	18765.00	8611.00	9710.91	10883.22	-1047.03	-1321.58	4916.71	-5825.83
5.5in Casing Production	26.00	18765.00	18739.00	26.00	10883.22	0.00	0.00	4916.71	-5825.83

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Greer 1N-05U BHL Rev-3	10916.08	4919.43	-5821.42	1680609.74	14443242.51	39°46'14.250"N	80°51'25.045"W	point
Greer 1N-05U LP Rev-5	10930.98	-921.46	-2282.24	1684147.49	14437403.94	39°45'16.468"N	80°50'39.849"W	point

## WELLPATH COMPOSITION - Ref Wellbore: Greer 1N-05U ST01 AWP Ref Wellpath: Greer 1N-05U ST01 AWP Proj: 18765'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	10150.00	BHI Generic gyro - northseeking (Standard)	01 Gyro <12-1/4"> (100'-10150')	Greer 1N-05U AWP (Pilot)
10150.00	18740.00	BHI AutoTrak Curve (Short)	03 BHI AT Curve <8-1/2">(10154')(10299'-18740')	Greer 1N-05U ST01 AWP
18740.00	18765.00	Blind Drilling (std)	Projection to bit	Greer 1N-05U ST01 AWP

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# Actual Wellpath Report

Greer 1N-05U ST01 AWP Proj: 18765'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	TUG HILL OPERATING	Slot	Slot #01
Area	Marshall County, WV	Well	Greer 1N-05U ST01
Field	Marshall	Wellbore	Greer 1N-05U ST01 AWP
Facility	Greer Unit N pad	Sidetrack from	Greer 1N-05U AWP Proj: 11640' at 10150.00 MD

## COMMENTS

**Wellpath general comments**  
 API: 47051018930000  
 BHI Job #: 8721136  
 Rig: Nabors B28  
 Duration: 08.31.2017 - 09.09.2017  
 Gyro Surveys <12-1/4"> (100'-10150')  
 Benchtree MWD Surveys <8-1/2"> (10150')(10285'-11583')  
 BHI AT Curve <8-1/2"> (10154')(10299'-18740')  
 Projected MD at TD: 18765'  
 API: 47-051-01893-0001  
 BHI Job #: 8721136  
 Rig: Nabors B28  
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