



Well: Fitzgerald 10 HM (slot I)
 Site: Fitzgerald
 Project: Marshall County, West Virginia NAD83 UTM 17N
 Design: rev8
 Rig: Nabors X08

ANNOTATIONS SURVEYS ORIGINAL HOLE

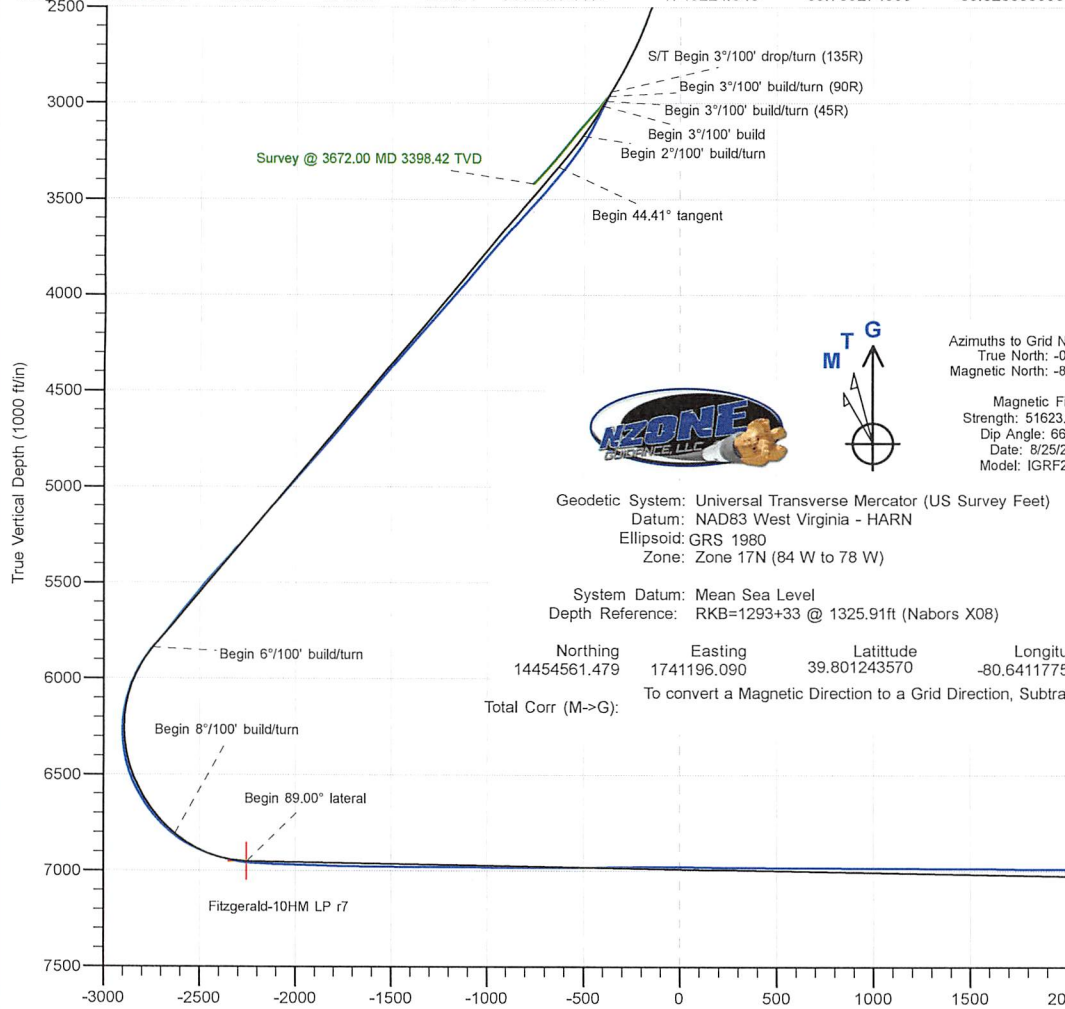
MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Annotation
193.00	0.17	305.480	193.00	0.17	-0.23	-0.28	MWD surveys
3693.00	47.11	348.860	3419.42	859.49	-185.82	-756.42	Survey @ 3672.00 MD 3398.42 TVD

ANNOTATIONS SURVEYS SIDETRACK 01

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Annotation
3031.00	35.82	349.390	2941.50	415.26	-79.39	-358.41	Tie into original hole @ 3031 MD
16954.00	89.01	149.880	7036.09	-4299.01	4004.26	5874.98	Survey @ 16954.00 MD 7036.09 TVD
17010.00	89.01	149.880	7037.06	-4347.44	4032.36	5929.60	Survey Proj. to 17010.00 MD 7037.06 TVD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Fitzgerald-10HM LP r7	6950.00	2931.21	-152.01	14457492.680	1741044.081	39.809295000	-80.641677000
Fitzgerald-10HM BHL r7	7096.00	-4342.08	4028.77	14450219.410	1745224.848	39.789274000	-80.626898000



Azimuths to Grid North
 True North: -0.23°
 Magnetic North: -8.94°

Magnetic Field
 Strength: 51623.2nT
 Dip Angle: 66.42°
 Date: 8/25/2022
 Model: IGRF2020

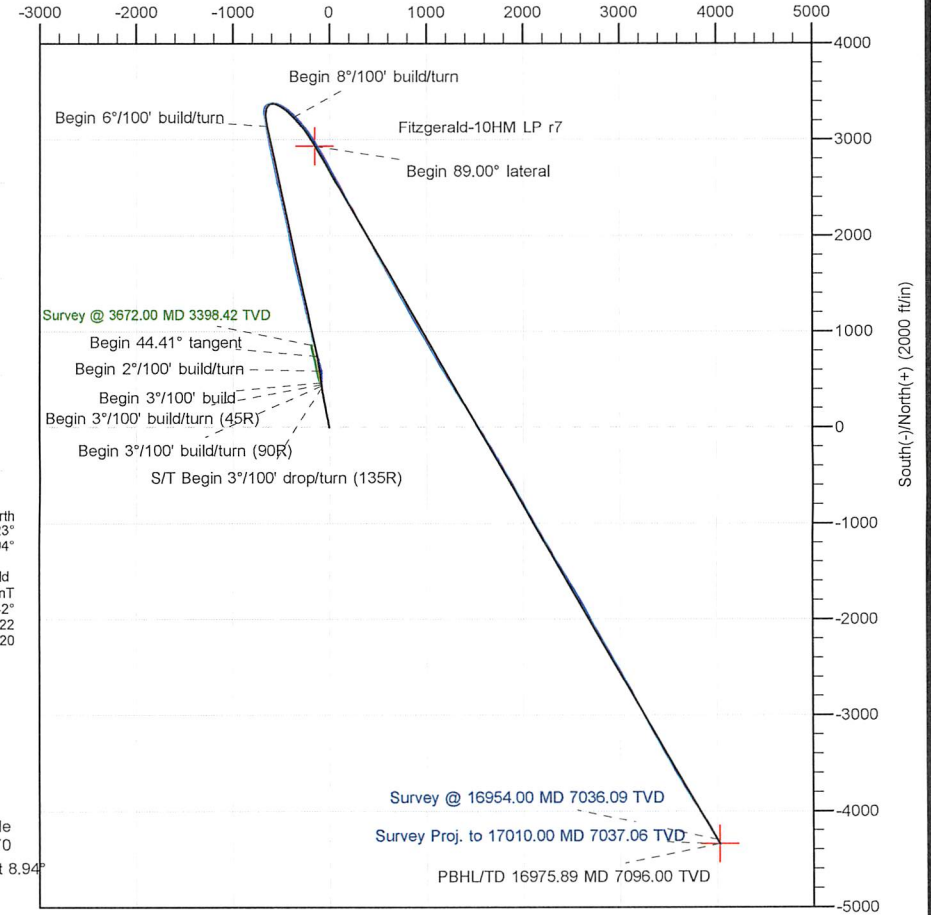
Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level
 Depth Reference: RKB=1293+33 @ 1325.91ft (Nabors X08)

Northing: 14454561.479
 Easting: 1741196.090
 Latitude: 39.801243570
 Longitude: -80.641177570
 Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.94°

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	3031.00	35.82	349.390	2941.50	415.26	-79.39	0.00	0.00	-358.41	S/T Begin 3°/100' drop/turn (135R)
2	3061.00	35.19	350.494	2965.93	432.41	-82.43	3.00	135.00	-373.05	Begin 3°/100' build/turn (90R)
3	3091.00	35.20	352.056	2990.44	449.50	-85.05	3.00	90.00	-387.36	Begin 3°/100' build/turn (45R)
4	3121.00	35.84	353.143	3014.86	466.79	-87.30	3.00	45.00	-401.56	Begin 3°/100' build
5	3321.00	41.84	353.143	3170.57	591.26	-102.26	3.00	0.00	-502.99	Begin 2°/100' build/turn
6	3544.50	44.41	347.785	3333.74	741.77	-127.72	2.00	-56.97	-630.64	Begin 44.41° tangent
7	7052.31	44.41	347.785	5839.75	3140.73	-647.06	0.00	0.00	-2742.45	Begin 6°/100' build/turn
8	8174.80	50.00	136.013	6808.36	3235.45	-373.03	8.00	156.21	-2625.50	Begin 8°/100' build/turn
9	8585.38	89.00	150.109	6950.00	2931.22	-151.98	10.00	21.76	-2252.13	Begin 89.00° lateral
10	16975.89	89.00	150.109	7096.00	-4342.08	4028.77	0.00	0.00	5923.22	PBHL/TD



Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Feb2822

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

Site	Fitzgerald				
Site Position:		Northing:	14,454,567.732 usft	Latitude:	39.801261840
From:	Lat/Long	Easting:	1,741,096.260 usft	Longitude:	-80.641532920
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.23 °

Well	Fitzgerald 10 HM (slot I)					
Well Position	+N/-S	0.00 ft	Northing:	14,454,561.479 usft	Latitude:	39.801243570
	+E/-W	0.00 ft	Easting:	1,741,196.091 usft	Longitude:	-80.641177570
Position Uncertainty	0.00 ft		Wellhead Elevation:	ft	Ground Level:	1,292.91 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	8/24/2022	-8.71	66.42	51,623.50951193

Design	Surveys Original Hole				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	137.140	

Survey Program	Date	8/25/2022			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
193.00	1,174.00	MWD surf (Original Hole)	MWD	MWD - Standard	
1,223.00	2,960.00	MWD int (Original Hole)	MWD	MWD - Standard	
3,031.00	3,693.00	MWD (Original Hole)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.000	0.00	0.00	0.00	14,454,561.479	1,741,196.091	39.801243570	-80.641177570	
193.00	0.17	305.480	193.00	0.17	-0.23	14,454,561.646	1,741,195.857	39.801244029	-80.641178397	
MWD surveys										
223.00	0.20	320.490	223.00	0.23	-0.30	14,454,561.712	1,741,195.788	39.801244211	-80.641178644	
252.00	0.44	330.480	252.00	0.37	-0.39	14,454,561.848	1,741,195.701	39.801244586	-80.641178952	
282.00	0.24	284.030	282.00	0.48	-0.51	14,454,561.963	1,741,195.583	39.801244904	-80.641179370	
312.00	0.09	264.830	312.00	0.50	-0.59	14,454,561.976	1,741,195.499	39.801244941	-80.641179670	
341.00	0.10	355.210	341.00	0.52	-0.62	14,454,561.999	1,741,195.474	39.801245005	-80.641179758	
385.00	0.09	336.140	385.00	0.59	-0.63	14,454,562.069	1,741,195.457	39.801245197	-80.641179818	

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Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Feb2822

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
429.00	0.30	300.160	429.00	0.68	-0.75	14,454,562.159	1,741,195.343	39.801245444	-80.641180221
473.00	0.13	255.730	473.00	0.73	-0.90	14,454,562.204	1,741,195.195	39.801245571	-80.641180747
517.00	0.20	288.700	517.00	0.74	-1.02	14,454,562.217	1,741,195.074	39.801245606	-80.641181179
561.00	0.31	351.610	561.00	0.88	-1.11	14,454,562.359	1,741,194.984	39.801245998	-80.641181497
605.00	0.38	323.610	605.00	1.11	-1.21	14,454,562.594	1,741,194.880	39.801246645	-80.641181864
649.00	0.20	297.650	649.00	1.27	-1.37	14,454,562.747	1,741,194.725	39.801247067	-80.641182412
693.00	0.20	304.100	693.00	1.35	-1.50	14,454,562.826	1,741,194.594	39.801247285	-80.641182880
738.00	0.15	44.130	738.00	1.43	-1.52	14,454,562.912	1,741,194.570	39.801247522	-80.641182964
782.00	0.17	293.180	782.00	1.50	-1.54	14,454,562.979	1,741,194.550	39.801247706	-80.641183034
826.00	0.24	343.250	826.00	1.61	-1.63	14,454,563.093	1,741,194.463	39.801248020	-80.641183340
870.00	0.15	349.140	869.99	1.76	-1.66	14,454,563.238	1,741,194.426	39.801248418	-80.641183472
914.00	0.14	268.900	913.99	1.81	-1.73	14,454,563.294	1,741,194.361	39.801248571	-80.641183701
959.00	0.15	85.360	958.99	1.82	-1.73	14,454,563.297	1,741,194.365	39.801248581	-80.641183687
1,003.00	0.11	51.850	1,002.99	1.85	-1.63	14,454,563.328	1,741,194.456	39.801248665	-80.641183364
1,047.00	0.12	134.140	1,046.99	1.84	-1.57	14,454,563.322	1,741,194.522	39.801248648	-80.641183128
1,091.00	0.14	85.560	1,090.99	1.81	-1.48	14,454,563.294	1,741,194.609	39.801248570	-80.641182720
1,136.00	0.17	333.580	1,135.99	1.88	-1.46	14,454,563.358	1,741,194.634	39.801248746	-80.641182730
1,174.00	0.20	270.770	1,173.99	1.93	-1.55	14,454,563.410	1,741,194.542	39.801248888	-80.641183055
1,223.00	0.35	165.790	1,222.99	1.79	-1.60	14,454,563.266	1,741,194.494	39.801248493	-80.641183230
1,267.00	0.31	232.760	1,266.99	1.58	-1.66	14,454,563.063	1,741,194.432	39.801247938	-80.641183453
1,311.00	0.31	285.050	1,310.99	1.54	-1.87	14,454,563.022	1,741,194.222	39.801247827	-80.641184200
1,355.00	0.22	247.790	1,354.99	1.54	-2.06	14,454,563.021	1,741,194.029	39.801247827	-80.641184888
1,399.00	0.35	270.900	1,398.99	1.51	-2.27	14,454,562.991	1,741,193.816	39.801247747	-80.641185645
1,444.00	0.35	303.690	1,443.99	1.59	-2.53	14,454,563.070	1,741,193.564	39.801247965	-80.641186541
1,488.00	0.70	312.120	1,487.99	1.85	-2.84	14,454,563.325	1,741,193.253	39.801248668	-80.641187645
1,532.00	0.66	326.630	1,531.99	2.24	-3.18	14,454,563.717	1,741,192.915	39.801249748	-80.641188846
1,576.00	0.48	316.170	1,575.98	2.58	-3.44	14,454,564.061	1,741,192.648	39.801250698	-80.641189791
1,620.00	0.70	319.510	1,619.98	2.92	-3.75	14,454,564.398	1,741,192.345	39.801251628	-80.641190862
1,664.00	0.79	358.440	1,663.98	3.43	-3.93	14,454,564.906	1,741,192.163	39.801253024	-80.641191506
1,709.00	1.01	2.130	1,708.97	4.13	-3.92	14,454,565.613	1,741,192.169	39.801254964	-80.641191473
1,753.00	1.76	0.020	1,752.96	5.20	-3.91	14,454,566.676	1,741,192.184	39.801257883	-80.641191406
1,797.00	2.77	356.510	1,796.92	6.93	-3.97	14,454,568.413	1,741,192.119	39.801262654	-80.641191611
1,841.00	4.09	350.710	1,840.84	9.54	-4.29	14,454,571.023	1,741,191.801	39.801269825	-80.641192706
1,886.00	5.32	350.010	1,885.69	13.18	-4.91	14,454,574.661	1,741,191.180	39.801279824	-80.641194865
1,930.00	6.86	349.210	1,929.44	17.77	-5.76	14,454,579.251	1,741,190.334	39.801292439	-80.641197811
1,974.00	8.48	348.340	1,973.05	23.53	-6.90	14,454,585.010	1,741,189.187	39.801308267	-80.641201815
2,018.00	9.62	349.300	2,016.50	30.32	-8.24	14,454,591.800	1,741,187.848	39.801326929	-80.641206483
2,062.00	10.63	348.950	2,059.81	37.92	-9.70	14,454,599.396	1,741,186.388	39.801347805	-80.641211575
2,106.00	11.51	348.780	2,102.99	46.21	-11.33	14,454,607.685	1,741,184.756	39.801370587	-80.641217267
2,151.00	12.92	349.040	2,146.97	55.55	-13.17	14,454,617.029	1,741,182.926	39.801396266	-80.641223650
2,195.00	14.68	349.040	2,189.70	65.85	-15.16	14,454,627.332	1,741,180.930	39.801424584	-80.641230607
2,239.00	16.00	349.130	2,232.13	77.28	-17.36	14,454,638.761	1,741,178.727	39.801455995	-80.641238290
2,283.00	17.27	349.210	2,274.29	89.65	-19.73	14,454,651.133	1,741,176.360	39.801489997	-80.641246538
2,327.00	18.85	349.570	2,316.12	103.06	-22.24	14,454,664.540	1,741,173.851	39.801526843	-80.641255282
2,371.00	20.04	349.740	2,357.61	117.47	-24.87	14,454,678.949	1,741,171.221	39.801566444	-80.641264440
2,415.00	21.09	349.830	2,398.81	132.68	-27.61	14,454,694.160	1,741,168.480	39.801608246	-80.641273980
2,460.00	21.71	349.130	2,440.70	148.82	-30.61	14,454,710.303	1,741,165.481	39.801652611	-80.641284428
2,504.00	22.15	348.160	2,481.52	164.93	-33.85	14,454,726.413	1,741,162.245	39.801696889	-80.641295722
2,548.00	22.76	348.690	2,522.18	181.40	-37.22	14,454,742.878	1,741,158.873	39.801742141	-80.641307490
2,592.00	23.91	349.390	2,562.59	198.51	-40.53	14,454,759.988	1,741,155.562	39.801789168	-80.641319034
2,636.00	25.36	350.090	2,602.58	216.56	-43.79	14,454,778.035	1,741,152.299	39.801838765	-80.641330397
2,680.00	26.89	350.530	2,642.08	235.65	-47.05	14,454,797.133	1,741,149.040	39.801891248	-80.641341728
2,724.00	28.17	350.010	2,681.10	255.70	-50.49	14,454,817.177	1,741,145.601	39.801946331	-80.641353686
2,769.00	29.27	349.210	2,720.56	276.97	-54.39	14,454,838.445	1,741,141.699	39.802004781	-80.641367276

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Feb2822

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,813.00	30.01	349.040	2,758.81	298.34	-58.50	14,454,859.814	1,741,137.593	39.802063511	-80.641381590
2,857.00	31.46	349.210	2,796.62	320.42	-62.74	14,454,881.897	1,741,133.351	39.802124201	-80.641396377
2,902.00	32.70	350.010	2,834.75	343.93	-67.05	14,454,905.404	1,741,129.044	39.802188805	-80.641411377
2,946.00	33.71	350.710	2,871.57	367.68	-71.08	14,454,929.159	1,741,125.011	39.802254087	-80.641425398
2,960.00	33.79	350.620	2,883.21	375.36	-72.34	14,454,936.834	1,741,123.749	39.802275179	-80.641429780
3,031.00	35.82	349.390	2,941.50	415.26	-79.39	14,454,976.739	1,741,116.705	39.802384844	-80.641454291
3,075.00	38.85	345.960	2,976.49	441.31	-85.11	14,455,002.791	1,741,110.985	39.802456452	-80.641474287
3,119.00	41.62	344.030	3,010.08	468.76	-92.48	14,455,030.234	1,741,103.615	39.802531896	-80.641500136
3,163.00	44.38	342.010	3,042.25	497.45	-101.25	14,455,058.924	1,741,094.840	39.802610782	-80.641530969
3,207.00	44.30	342.270	3,073.72	526.72	-110.68	14,455,088.194	1,741,085.409	39.802691268	-80.641564132
3,251.00	44.38	344.910	3,105.20	556.21	-119.37	14,455,117.688	1,741,076.723	39.802772362	-80.641594637
3,296.00	44.34	346.400	3,137.37	586.69	-127.16	14,455,148.168	1,741,068.928	39.802856152	-80.641621956
3,340.00	43.77	349.390	3,168.99	616.60	-133.58	14,455,178.075	1,741,062.510	39.802938355	-80.641644382
3,384.00	43.95	351.240	3,200.72	646.65	-138.71	14,455,208.125	1,741,057.382	39.803020936	-80.641662211
3,428.00	43.73	350.710	3,232.46	676.75	-143.49	14,455,238.224	1,741,052.602	39.803103648	-80.641678803
3,473.00	43.37	347.460	3,265.08	707.18	-149.36	14,455,268.660	1,741,046.735	39.803187295	-80.641699256
3,517.00	43.33	345.350	3,297.07	736.54	-156.45	14,455,298.014	1,741,039.637	39.803267987	-80.641724112
3,561.00	44.74	344.290	3,328.71	766.05	-164.47	14,455,327.529	1,741,031.625	39.803349129	-80.641752217
3,605.00	46.63	346.400	3,359.44	796.51	-172.42	14,455,357.984	1,741,023.670	39.803432855	-80.641780106
3,649.00	47.20	348.340	3,389.50	827.86	-179.44	14,455,389.339	1,741,016.647	39.803519040	-80.641804665
3,693.00	47.11	348.860	3,419.42	859.49	-185.82	14,455,420.963	1,741,010.271	39.803605957	-80.641826919
Survey @ 3672.00 MD 3398.42 TVD									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
193.00	193.00	0.17	-0.23	MWD surveys
3,693.00	3,419.42	859.49	-185.82	Survey @ 3672.00 MD 3398.42 TVD

Checked By: _____ Approved By: _____ Date: _____

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Sidetrack 01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Sidetrack 01	Database:	DB_Feb2822

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

Site	Fitzgerald				
Site Position:		Northing:	14,454,567.732 usft	Latitude:	39.801261840
From:	Lat/Long	Easting:	1,741,096.260 usft	Longitude:	-80.641532920
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "		

Well	Fitzgerald 10 HM (slot I)					
Well Position	+N/-S	0.00 ft	Northing:	14,454,561.479 usft	Latitude:	39.801243570
	+E/-W	0.00 ft	Easting:	1,741,196.091 usft	Longitude:	-80.641177570
Position Uncertainty	0.00 ft		Wellhead Elevation:	ft	Ground Level:	1,292.91 ft
Grid Convergence:	0.23 °					

Wellbore	Sidetrack 01				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	8/25/2022	-8.71	66.42	51,623.22523987

Design	Surveys Sidetrack 01				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	3,031.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	137.144	

Survey Program	Date	9/25/2022			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
193.00	1,174.00	MWD surf (Original Hole)	MWD	MWD - Standard	
1,223.00	2,960.00	MWD int (Original Hole)	MWD	MWD - Standard	
3,031.00	3,031.00	MWD (Original Hole)	MWD	MWD - Standard	
3,055.00	16,954.00	MWD ST1 (Sidetrack 01)	MWD	MWD - Standard	
17,010.00	17,010.00	Projection (Sidetrack 01)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
193.00	0.17	305.480	193.00	0.17	-0.23	-0.28	0.09	0.09	0.00	
223.00	0.20	320.490	223.00	0.23	-0.30	-0.38	0.19	0.10	50.03	
252.00	0.44	330.480	252.00	0.37	-0.39	-0.54	0.85	0.83	34.45	
282.00	0.24	284.030	282.00	0.48	-0.51	-0.70	1.08	-0.67	-154.83	
312.00	0.09	264.830	312.00	0.50	-0.59	-0.77	0.53	-0.50	-64.00	

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Sidetrack 01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Sidetrack 01	Database:	DB_Feb2822

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
341.00	0.10	355.210	341.00	0.52	-0.62	-0.80	0.47	0.03	311.66	
385.00	0.09	336.140	385.00	0.59	-0.63	-0.86	0.07	-0.02	-43.34	
429.00	0.30	300.160	429.00	0.68	-0.75	-1.01	0.53	0.48	-81.77	
473.00	0.13	255.730	473.00	0.73	-0.90	-1.14	0.51	-0.39	-100.98	
517.00	0.20	288.700	517.00	0.74	-1.02	-1.23	0.26	0.16	74.93	
561.00	0.31	351.610	561.00	0.88	-1.11	-1.40	0.64	0.25	142.98	
605.00	0.38	323.610	605.00	1.11	-1.21	-1.64	0.41	0.16	-63.64	
649.00	0.20	297.650	649.00	1.27	-1.37	-1.86	0.50	-0.41	-59.00	
693.00	0.20	304.100	693.00	1.35	-1.50	-2.01	0.05	0.00	14.66	
738.00	0.15	44.130	738.00	1.43	-1.52	-2.08	0.60	-0.11	222.29	
782.00	0.17	293.180	782.00	1.50	-1.54	-2.15	0.60	0.05	-252.16	
826.00	0.24	343.250	826.00	1.61	-1.63	-2.29	0.42	0.16	113.80	
870.00	0.15	349.140	869.99	1.76	-1.66	-2.42	0.21	-0.20	13.39	
914.00	0.14	268.900	913.99	1.81	-1.73	-2.51	0.43	-0.02	-182.36	
959.00	0.15	85.360	958.99	1.82	-1.73	-2.51	0.64	0.02	392.13	
1,003.00	0.11	51.850	1,002.99	1.85	-1.63	-2.47	0.19	-0.09	-76.16	
1,047.00	0.12	134.140	1,046.99	1.84	-1.57	-2.42	0.34	0.02	187.02	
1,091.00	0.14	85.560	1,090.99	1.81	-1.48	-2.34	0.25	0.05	-110.41	
1,136.00	0.17	333.580	1,135.99	1.88	-1.46	-2.37	0.57	0.07	-248.84	
1,174.00	0.20	270.770	1,173.99	1.93	-1.55	-2.47	0.51	0.08	-165.29	
1,223.00	0.35	165.790	1,222.99	1.79	-1.60	-2.40	0.91	0.31	-214.24	
1,267.00	0.31	232.760	1,266.99	1.58	-1.66	-2.29	0.83	-0.09	152.20	
1,311.00	0.31	285.050	1,310.99	1.54	-1.87	-2.40	0.62	0.00	118.84	
1,355.00	0.22	247.790	1,354.99	1.54	-2.06	-2.53	0.43	-0.20	-84.68	
1,399.00	0.35	270.900	1,398.99	1.51	-2.27	-2.66	0.39	0.30	52.52	
1,444.00	0.35	303.690	1,443.99	1.59	-2.53	-2.88	0.44	0.00	72.87	
1,488.00	0.70	312.120	1,487.99	1.85	-2.84	-3.28	0.81	0.80	19.16	
1,532.00	0.66	326.630	1,531.99	2.24	-3.18	-3.80	0.40	-0.09	32.98	
1,576.00	0.48	316.170	1,575.98	2.58	-3.44	-4.23	0.47	-0.41	-23.77	
1,620.00	0.70	319.510	1,619.98	2.92	-3.75	-4.69	0.51	0.50	7.59	
1,664.00	0.79	358.440	1,663.98	3.43	-3.93	-5.18	1.14	0.20	88.48	
1,709.00	1.01	2.130	1,708.97	4.13	-3.92	-5.70	0.51	0.49	8.20	
1,753.00	1.76	0.020	1,752.96	5.20	-3.91	-6.47	1.71	1.70	-4.80	
1,797.00	2.77	356.510	1,796.92	6.93	-3.97	-7.78	2.32	2.30	-7.98	
1,841.00	4.09	350.710	1,840.84	9.54	-4.29	-9.91	3.10	3.00	-13.18	
1,886.00	5.32	350.010	1,885.69	13.18	-4.91	-13.00	2.74	2.73	-1.56	
1,930.00	6.86	349.210	1,929.44	17.77	-5.76	-16.94	3.51	3.50	-1.82	
1,974.00	8.48	348.340	1,973.05	23.53	-6.90	-21.95	3.69	3.68	-1.98	
2,018.00	9.62	349.300	2,016.50	30.32	-8.24	-27.83	2.61	2.59	2.18	
2,062.00	10.63	348.950	2,059.81	37.92	-9.70	-34.39	2.30	2.30	-0.80	
2,106.00	11.51	348.780	2,102.99	46.21	-11.33	-41.58	2.00	2.00	-0.39	
2,151.00	12.92	349.040	2,146.97	55.55	-13.17	-49.68	3.14	3.13	0.58	
2,195.00	14.68	349.040	2,189.70	65.85	-15.16	-58.59	4.00	4.00	0.00	
2,239.00	16.00	349.130	2,232.13	77.28	-17.36	-68.46	3.00	3.00	0.20	

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Sidetrack 01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Sidetrack 01	Database:	DB_Feb2822

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
2,283.00	17.27	349.210	2,274.29	89.65	-19.73	-79.14	2.89	2.89	0.18
2,327.00	18.85	349.570	2,316.12	103.06	-22.24	-90.68	3.60	3.59	0.82
2,371.00	20.04	349.740	2,357.61	117.47	-24.87	-103.03	2.71	2.70	0.39
2,415.00	21.09	349.830	2,398.81	132.68	-27.61	-116.04	2.39	2.39	0.20
2,460.00	21.71	349.130	2,440.70	148.82	-30.61	-129.92	1.49	1.38	-1.56
2,504.00	22.15	348.160	2,481.52	164.93	-33.85	-143.93	1.30	1.00	-2.20
2,548.00	22.76	348.690	2,522.18	181.40	-37.22	-158.29	1.46	1.39	1.20
2,592.00	23.91	349.390	2,562.59	198.51	-40.53	-173.09	2.69	2.61	1.59
2,636.00	25.36	350.090	2,602.58	216.56	-43.79	-188.53	3.36	3.30	1.59
2,680.00	26.89	350.530	2,642.08	235.65	-47.05	-204.75	3.51	3.48	1.00
2,724.00	28.17	350.010	2,681.10	255.70	-50.49	-221.78	2.96	2.91	-1.18
2,769.00	29.27	349.210	2,720.56	276.97	-54.39	-240.03	2.59	2.44	-1.78
2,813.00	30.01	349.040	2,758.81	298.34	-58.50	-258.49	1.69	1.68	-0.39
2,857.00	31.46	349.210	2,796.62	320.42	-62.74	-277.56	3.30	3.30	0.39
2,902.00	32.70	350.010	2,834.75	343.93	-67.05	-297.72	2.91	2.76	1.78
2,946.00	33.71	350.710	2,871.57	367.68	-71.08	-317.88	2.46	2.30	1.59
2,960.00	33.79	350.620	2,883.21	375.36	-72.34	-324.36	0.67	0.57	-0.64
3,031.00	35.82	349.390	2,941.50	415.26	-79.39	-358.41	3.03	2.86	-1.73
Tie into original hole @ 3031 MD									
3,055.00	32.53	356.510	2,961.37	428.61	-81.07	-369.34	21.56	-13.71	29.67
3,086.00	33.67	1.870	2,987.34	445.53	-81.30	-381.89	10.13	3.68	17.29
3,117.00	35.82	3.190	3,012.81	463.17	-80.51	-394.30	7.35	6.94	4.26
3,148.00	35.91	2.930	3,037.93	481.31	-79.54	-406.93	0.57	0.29	-0.84
3,179.00	35.43	1.690	3,063.12	499.37	-78.81	-419.68	2.80	-1.55	-4.00
3,210.00	34.81	0.550	3,088.48	517.20	-78.47	-432.51	2.91	-2.00	-3.68
3,242.00	34.24	0.020	3,114.84	535.34	-78.37	-445.74	2.01	-1.78	-1.66
3,273.00	34.64	358.350	3,140.41	552.87	-78.62	-458.76	3.31	1.29	-5.39
3,336.00	36.92	349.830	3,191.54	589.42	-82.48	-488.18	8.69	3.62	-13.52
3,430.00	38.81	343.940	3,265.78	645.54	-95.62	-538.26	4.34	2.01	-6.27
3,525.00	40.48	343.240	3,338.92	703.68	-112.75	-592.53	1.82	1.76	-0.74
3,619.00	43.56	343.500	3,408.75	763.96	-130.75	-648.96	3.28	3.28	0.28
3,713.00	45.32	347.630	3,475.88	827.68	-147.12	-706.80	3.60	1.87	4.39
3,838.00	45.98	347.630	3,563.25	914.99	-166.27	-783.83	0.53	0.53	0.00
3,933.00	46.37	346.930	3,629.04	981.84	-181.36	-843.10	0.67	0.41	-0.74
4,027.00	45.19	346.050	3,694.60	1,047.34	-197.09	-901.82	1.42	-1.26	-0.94
4,122.00	45.85	347.810	3,761.16	1,113.36	-212.41	-960.64	1.49	0.69	1.85
4,215.00	44.57	347.190	3,826.68	1,177.80	-226.69	-1,017.59	1.46	-1.38	-0.67
4,310.00	43.69	346.050	3,894.87	1,242.15	-241.99	-1,075.17	1.25	-0.93	-1.20
4,405.00	45.85	346.580	3,962.31	1,307.15	-257.82	-1,133.58	2.31	2.27	0.56
4,500.00	45.76	346.750	4,028.53	1,373.43	-273.53	-1,192.85	0.16	-0.09	0.18
4,594.00	44.84	346.050	4,094.65	1,438.37	-289.23	-1,251.14	1.11	-0.98	-0.74
4,688.00	45.23	346.670	4,161.08	1,503.00	-304.92	-1,309.18	0.62	0.41	0.66
4,783.00	44.18	347.540	4,228.60	1,568.14	-319.83	-1,367.08	1.28	-1.11	0.92

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Sidetrack 01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Sidetrack 01	Database:	DB_Feb2822

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
4,877.00	44.92	349.480	4,295.59	1,632.76	-332.96	-1,423.38	1.65	0.79	2.06	
4,971.00	44.40	346.750	4,362.46	1,697.40	-346.56	-1,480.02	2.11	-0.55	-2.90	
5,065.00	44.70	347.540	4,429.44	1,761.70	-361.23	-1,537.12	0.67	0.32	0.84	
5,159.00	44.92	347.810	4,496.13	1,826.42	-375.37	-1,594.18	0.31	0.23	0.29	
5,254.00	46.07	349.390	4,562.73	1,892.83	-388.75	-1,651.97	1.69	1.21	1.66	
5,348.00	44.48	348.070	4,628.87	1,958.32	-401.79	-1,708.85	1.96	-1.69	-1.40	
5,443.00	44.48	349.040	4,696.66	2,023.56	-415.00	-1,765.66	0.72	0.00	1.02	
5,537.00	45.85	347.370	4,762.93	2,088.80	-428.64	-1,822.76	1.93	1.46	-1.78	
5,632.00	46.24	347.980	4,828.87	2,155.62	-443.23	-1,881.67	0.62	0.41	0.64	
5,726.00	45.93	348.250	4,894.07	2,221.88	-457.18	-1,939.73	0.39	-0.33	0.29	
5,821.00	44.75	347.630	4,960.84	2,287.96	-471.29	-1,997.77	1.33	-1.24	-0.65	
5,914.00	44.66	346.400	5,026.94	2,351.71	-485.99	-2,054.50	0.94	-0.10	-1.32	
6,008.00	46.64	349.650	5,092.66	2,417.45	-499.90	-2,112.15	3.25	2.11	3.46	
6,102.00	43.91	345.520	5,158.82	2,482.65	-514.20	-2,169.67	4.26	-2.90	-4.39	
6,197.00	43.87	346.490	5,227.28	2,546.55	-530.13	-2,227.35	0.71	-0.04	1.02	
6,291.00	44.92	348.160	5,294.45	2,610.71	-544.55	-2,284.19	1.67	1.12	1.78	
6,386.00	46.07	348.770	5,361.04	2,677.09	-558.09	-2,342.06	1.29	1.21	0.64	
6,480.00	45.98	347.100	5,426.31	2,743.24	-572.23	-2,400.17	1.28	-0.10	-1.78	
6,574.00	45.45	348.340	5,491.95	2,808.99	-586.54	-2,458.10	1.10	-0.56	1.32	
6,668.00	43.47	350.010	5,559.04	2,873.65	-598.92	-2,513.92	2.45	-2.11	1.78	
6,763.00	43.87	350.180	5,627.75	2,938.27	-610.21	-2,568.97	0.44	0.42	0.18	
6,858.00	42.68	348.340	5,696.92	3,002.24	-622.33	-2,624.11	1.83	-1.25	-1.94	
6,952.00	44.66	348.420	5,764.91	3,065.82	-635.40	-2,679.61	2.11	2.11	0.09	
6,999.00	44.70	347.370	5,798.33	3,098.13	-642.33	-2,708.01	1.57	0.09	-2.23	
7,046.00	44.40	347.720	5,831.82	3,130.33	-649.44	-2,736.44	0.82	-0.64	0.74	
7,093.00	41.36	349.210	5,866.26	3,161.65	-655.85	-2,763.77	6.82	-6.47	3.17	
7,140.00	38.24	350.090	5,902.37	3,191.24	-661.26	-2,789.14	6.75	-6.64	1.87	
7,187.00	34.59	351.850	5,940.18	3,218.79	-665.66	-2,812.32	8.08	-7.77	3.74	
7,235.00	30.59	354.050	5,980.62	3,244.44	-668.86	-2,833.30	8.69	-8.33	4.58	
7,282.00	27.30	357.040	6,021.74	3,267.10	-670.65	-2,851.13	7.65	-7.00	6.36	
7,329.00	24.57	0.110	6,064.01	3,287.64	-671.19	-2,866.56	6.47	-5.81	6.53	
7,376.00	21.98	8.290	6,107.19	3,306.12	-669.90	-2,879.23	8.80	-5.51	17.40	
7,424.00	19.78	15.760	6,152.04	3,322.83	-666.40	-2,889.10	7.19	-4.58	15.56	
7,471.00	17.23	26.660	6,196.62	3,336.72	-661.11	-2,895.68	9.12	-5.43	23.19	
7,519.00	17.98	39.580	6,242.39	3,348.78	-653.20	-2,899.14	8.27	1.56	26.92	
7,566.00	18.33	51.000	6,287.07	3,359.03	-642.83	-2,899.60	7.60	0.74	24.30	
7,612.00	19.91	58.300	6,330.54	3,367.70	-630.54	-2,897.60	6.22	3.43	15.87	
7,659.00	21.67	70.070	6,374.49	3,374.87	-615.57	-2,892.67	9.63	3.74	25.04	
7,707.00	22.68	80.880	6,418.96	3,379.36	-598.09	-2,884.07	8.74	2.10	22.52	
7,754.00	23.21	92.570	6,462.26	3,380.38	-579.89	-2,872.44	9.75	1.13	24.87	
7,801.00	24.88	102.940	6,505.20	3,377.75	-560.99	-2,857.65	9.65	3.55	22.06	
7,848.00	27.34	109.800	6,547.41	3,371.87	-541.19	-2,839.88	8.28	5.23	14.60	
7,895.00	29.80	115.070	6,588.69	3,363.27	-520.45	-2,819.47	7.49	5.23	11.21	

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Sidetrack 01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Sidetrack 01	Database:	DB_Feb2822

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
7,942.00	33.27	118.410	6,628.75	3,352.18	-498.52	-2,796.43	8.26	7.38	7.11	
7,989.00	36.84	121.230	6,667.22	3,338.74	-475.13	-2,770.66	8.34	7.60	6.00	
8,036.00	39.69	125.090	6,704.13	3,322.80	-450.79	-2,742.42	7.91	6.06	8.21	
8,082.00	42.90	128.960	6,738.69	3,304.50	-426.59	-2,712.55	8.91	6.98	8.41	
8,129.00	47.03	130.450	6,771.94	3,283.28	-401.05	-2,679.62	9.07	8.79	3.17	
8,177.00	50.68	133.350	6,803.52	3,259.13	-374.17	-2,643.63	8.86	7.60	6.04	
8,224.00	55.12	136.260	6,831.86	3,232.70	-347.61	-2,606.19	10.66	9.45	6.19	
8,272.00	59.69	138.360	6,857.72	3,202.98	-320.21	-2,565.77	10.21	9.52	4.38	
8,319.00	63.25	141.350	6,880.16	3,171.41	-293.61	-2,524.54	9.41	7.57	6.36	
8,366.00	66.90	142.230	6,899.97	3,137.92	-267.26	-2,482.06	7.95	7.77	1.87	
8,413.00	71.65	143.200	6,916.60	3,102.95	-240.64	-2,438.32	10.29	10.11	2.06	
8,460.00	75.60	144.250	6,929.85	3,066.61	-213.97	-2,393.54	8.67	8.40	2.23	
8,507.00	76.70	144.780	6,941.10	3,029.45	-187.48	-2,348.28	2.58	2.34	1.13	
8,555.00	79.60	146.270	6,950.95	2,990.72	-160.89	-2,301.81	6.76	6.04	3.10	
8,602.00	82.81	149.880	6,958.14	2,951.31	-136.35	-2,256.23	10.21	6.83	7.68	
8,649.00	87.21	151.720	6,962.23	2,910.45	-113.51	-2,210.74	10.14	9.36	3.91	
8,744.00	88.40	151.110	6,965.87	2,827.09	-68.09	-2,118.74	1.41	1.25	-0.64	
8,838.00	88.40	151.990	6,968.49	2,744.48	-23.33	-2,027.73	0.94	0.00	0.94	
8,931.00	88.09	152.080	6,971.34	2,662.38	20.26	-1,937.90	0.35	-0.33	0.10	
9,027.00	88.18	151.810	6,974.46	2,577.70	65.39	-1,845.14	0.30	0.09	-0.28	
9,121.00	88.57	151.720	6,977.13	2,494.92	109.84	-1,754.22	0.43	0.41	-0.10	
9,214.00	89.98	151.460	6,978.31	2,413.13	154.08	-1,664.17	1.54	1.52	-0.28	
9,309.00	89.67	150.850	6,978.60	2,329.92	199.91	-1,571.99	0.72	-0.33	-0.64	
9,403.00	89.32	150.050	6,979.42	2,248.15	246.27	-1,480.52	0.93	-0.37	-0.85	
9,498.00	90.07	151.200	6,979.93	2,165.36	292.87	-1,388.14	1.45	0.79	1.21	
9,592.00	89.58	149.700	6,980.22	2,083.59	339.23	-1,296.67	1.68	-0.52	-1.60	
9,687.00	90.24	151.640	6,980.37	2,000.78	385.76	-1,204.31	2.16	0.69	2.04	
9,781.00	89.85	151.720	6,980.29	1,918.03	430.35	-1,113.32	0.42	-0.41	0.09	
9,875.00	89.32	152.780	6,980.97	1,834.84	474.12	-1,022.57	1.26	-0.56	1.13	
9,969.00	89.76	150.670	6,981.73	1,752.07	518.64	-931.61	2.29	0.47	-2.24	
10,063.00	89.49	150.580	6,982.34	1,670.15	564.75	-840.20	0.30	-0.29	-0.10	
10,158.00	89.63	149.610	6,983.07	1,587.81	612.11	-747.62	1.03	0.15	-1.02	
10,252.00	90.29	150.410	6,983.14	1,506.39	659.10	-655.98	1.10	0.70	0.85	
10,346.00	90.64	150.760	6,982.38	1,424.51	705.26	-564.56	0.53	0.37	0.37	
10,440.00	90.33	151.110	6,981.58	1,342.35	750.92	-473.27	0.50	-0.33	0.37	
10,534.00	89.80	150.490	6,981.47	1,260.30	796.78	-381.93	0.87	-0.56	-0.66	
10,628.00	91.12	150.580	6,980.72	1,178.46	843.02	-290.49	1.41	1.40	0.10	
10,723.00	90.73	150.670	6,979.19	1,095.69	889.61	-198.12	0.42	-0.41	0.09	
10,816.00	90.15	150.320	6,978.47	1,014.75	935.41	-107.64	0.73	-0.62	-0.38	
10,910.00	89.58	149.880	6,978.69	933.26	982.27	-16.03	0.77	-0.61	-0.47	
11,005.00	89.19	149.180	6,979.71	851.39	1,030.44	76.75	0.84	-0.41	-0.74	
11,100.00	89.71	149.440	6,980.62	769.70	1,078.92	169.61	0.61	0.55	0.27	
11,195.00	89.85	149.610	6,980.99	687.82	1,127.10	262.40	0.23	0.15	0.18	
11,289.00	89.54	149.790	6,981.49	606.67	1,174.53	354.15	0.38	-0.33	0.19	

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Sidetrack 01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Sidetrack 01	Database:	DB_Feb2822

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,383.00	89.10	149.790	6,982.60	525.44	1,221.82	445.86	0.47	-0.47	0.00
11,477.00	89.93	149.350	6,983.40	444.39	1,269.43	537.66	1.00	0.88	-0.47
11,572.00	89.49	147.590	6,983.88	363.42	1,319.11	630.80	1.91	-0.46	-1.85
11,666.00	90.07	149.090	6,984.24	283.41	1,368.45	723.01	1.71	0.62	1.60
11,760.00	89.76	148.650	6,984.38	202.95	1,417.04	815.05	0.57	-0.33	-0.47
11,855.00	89.71	149.700	6,984.82	121.37	1,465.72	907.96	1.11	-0.05	1.11
11,949.00	89.27	149.000	6,985.66	40.51	1,513.64	999.83	0.88	-0.47	-0.74
12,043.00	89.76	149.880	6,986.45	-40.43	1,561.43	1,091.67	1.07	0.52	0.94
12,136.00	89.45	149.530	6,987.09	-120.73	1,608.34	1,182.44	0.50	-0.33	-0.38
12,230.00	90.15	149.880	6,987.42	-201.89	1,655.76	1,274.19	0.83	0.74	0.37
12,324.00	89.76	149.260	6,987.50	-282.94	1,703.37	1,365.98	0.78	-0.41	-0.66
12,419.00	90.33	151.200	6,987.42	-365.40	1,750.54	1,458.51	2.13	0.60	2.04
12,513.00	89.89	150.670	6,987.24	-447.56	1,796.20	1,549.80	0.73	-0.47	-0.56
12,606.00	89.05	149.440	6,988.10	-528.14	1,842.62	1,640.44	1.60	-0.90	-1.32
12,700.00	89.58	150.320	6,989.23	-609.44	1,889.79	1,732.12	1.09	0.56	0.94
12,794.00	88.97	149.180	6,990.42	-690.63	1,937.14	1,823.85	1.38	-0.65	-1.21
12,888.00	90.86	151.200	6,990.55	-772.19	1,983.86	1,915.41	2.94	2.01	2.15
12,982.00	90.73	151.110	6,989.25	-854.52	2,029.21	2,006.61	0.17	-0.14	-0.10
13,075.00	90.24	150.050	6,988.46	-935.52	2,074.89	2,097.06	1.26	-0.53	-1.14
13,170.00	89.41	149.880	6,988.75	-1,017.76	2,122.44	2,189.69	0.89	-0.87	-0.18
13,265.00	90.15	149.880	6,989.12	-1,099.93	2,170.11	2,282.35	0.78	0.78	0.00
13,360.00	89.54	149.440	6,989.38	-1,181.92	2,218.09	2,375.09	0.79	-0.64	-0.46
13,454.00	89.23	148.910	6,990.38	-1,262.64	2,266.26	2,467.02	0.65	-0.33	-0.56
13,549.00	89.89	149.700	6,991.11	-1,344.32	2,314.75	2,559.88	1.08	0.69	0.83
13,644.00	89.36	148.470	6,991.74	-1,425.82	2,363.56	2,652.82	1.41	-0.56	-1.29
13,737.00	90.37	148.740	6,991.95	-1,505.21	2,412.00	2,743.97	1.12	1.09	0.29
13,832.00	89.85	147.860	6,991.77	-1,586.03	2,461.92	2,837.17	1.08	-0.55	-0.93
13,925.00	90.29	149.440	6,991.66	-1,665.45	2,510.30	2,928.30	1.76	0.47	1.70
14,020.00	90.02	148.380	6,991.40	-1,746.81	2,559.36	3,021.30	1.15	-0.28	-1.12
14,114.00	89.80	149.970	6,991.55	-1,827.52	2,607.53	3,113.23	1.71	-0.23	1.69
14,209.00	90.20	151.720	6,991.55	-1,910.48	2,653.81	3,205.52	1.89	0.42	1.84
14,303.00	90.37	153.570	6,991.08	-1,993.97	2,697.00	3,296.10	1.98	0.18	1.97
14,398.00	89.23	151.640	6,991.41	-2,078.31	2,740.71	3,387.65	2.36	-1.20	-2.03
14,492.00	90.15	150.580	6,991.92	-2,160.61	2,786.12	3,478.87	1.49	0.98	-1.13
14,586.00	90.07	150.490	6,991.74	-2,242.45	2,832.36	3,570.32	0.13	-0.09	-0.10
14,679.00	89.71	149.790	6,991.92	-2,323.10	2,878.66	3,660.93	0.85	-0.39	-0.75
14,773.00	89.93	150.760	6,992.22	-2,404.73	2,925.27	3,752.47	1.06	0.23	1.03
14,868.00	89.58	150.580	6,992.62	-2,487.55	2,971.80	3,844.84	0.41	-0.37	-0.19
14,962.00	88.92	149.350	6,993.85	-2,568.92	3,018.84	3,936.48	1.48	-0.70	-1.31
15,057.00	89.89	152.160	6,994.84	-2,651.80	3,065.25	4,028.80	3.13	1.02	2.96
15,151.00	90.46	151.990	6,994.55	-2,734.85	3,109.27	4,119.62	0.63	0.61	-0.18
15,245.00	89.19	151.200	6,994.84	-2,817.53	3,153.98	4,210.65	1.59	-1.35	-0.84
15,340.00	89.45	151.280	6,995.97	-2,900.81	3,199.69	4,302.78	0.29	0.27	0.08

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Sidetrack 01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Sidetrack 01	Database:	DB_Feb2822

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
15,434.00	88.53	150.850	6,997.62	-2,983.06	3,245.16	4,394.00	1.08	-0.98	-0.46	
15,527.00	88.26	150.230	7,000.23	-3,064.00	3,290.88	4,484.44	0.73	-0.29	-0.67	
15,621.00	88.75	149.970	7,002.68	-3,145.46	3,337.72	4,576.01	0.59	0.52	-0.28	
15,716.00	90.20	151.110	7,003.55	-3,228.17	3,384.44	4,668.42	1.94	1.53	1.20	
15,811.00	89.49	151.200	7,003.81	-3,311.39	3,430.27	4,760.59	0.75	-0.75	0.09	
15,905.00	88.70	150.140	7,005.29	-3,393.32	3,476.31	4,851.97	1.41	-0.84	-1.13	
15,999.00	89.54	150.140	7,006.74	-3,474.83	3,523.11	4,943.55	0.89	0.89	0.00	
16,094.00	88.44	150.670	7,008.41	-3,557.43	3,570.01	5,036.00	1.29	-1.16	0.56	
16,188.00	86.95	151.110	7,012.19	-3,639.48	3,615.71	5,127.23	1.65	-1.59	0.47	
16,283.00	87.12	150.050	7,017.11	-3,722.12	3,662.31	5,219.51	1.13	0.18	-1.12	
16,376.00	86.73	149.440	7,022.09	-3,802.34	3,709.10	5,310.14	0.78	-0.42	-0.66	
16,471.00	87.91	148.300	7,026.54	-3,883.56	3,758.16	5,403.05	1.73	1.24	-1.20	
16,566.00	89.05	148.210	7,029.06	-3,964.32	3,808.12	5,496.23	1.20	1.20	-0.09	
16,661.00	88.79	149.610	7,030.85	-4,045.66	3,857.17	5,589.22	1.50	-0.27	1.47	
16,755.00	89.01	150.050	7,032.65	-4,126.91	3,904.40	5,680.91	0.52	0.23	0.47	
16,850.00	89.01	149.790	7,034.29	-4,209.11	3,952.01	5,773.54	0.27	0.00	-0.27	
16,954.00	89.01	149.880	7,036.09	-4,299.01	4,004.26	5,874.98	0.09	0.00	0.09	
Survey @ 16954.00 MD 7036.09 TVD										
17,010.00	89.01	149.880	7,037.06	-4,347.44	4,032.36	5,929.60	0.00	0.00	0.00	
Survey Proj. to 17010.00 MD 7037.06 TVD										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
3,031.00	2,941.50	415.26	-79.39	Tie into original hole @ 3031 MD	
16,954.00	7,036.09	-4,299.01	4,004.26	Survey @ 16954.00 MD 7036.09 TVD	

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Sidetrack 01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Sidetrack 01	Database:	DB_Feb2822

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

Site	Fitzgerald				
Site Position:		Northing:	14,454,567.732 usft	Latitude:	39.801261840
From:	Lat/Long	Easting:	1,741,096.260 usft	Longitude:	-80.641532920
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.23 °

Well	Fitzgerald 10 HM (slot I)					
Well Position	+N/-S	0.00 ft	Northing:	14,454,561.479 usft	Latitude:	39.801243570
	+E/-W	0.00 ft	Easting:	1,741,196.091 usft	Longitude:	-80.641177570
Position Uncertainty	0.00 ft		Wellhead Elevation:	ft	Ground Level:	1,292.91 ft

Wellbore	Sidetrack 01				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	8/25/2022	-8.71	66.42	51,623.22523987

Design	Surveys Sidetrack 01				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	3,031.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	137.144	

Survey Program	Date	9/25/2022			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
193.00	1,174.00	MWD surf (Original Hole)	MWD	MWD - Standard	
1,223.00	2,960.00	MWD int (Original Hole)	MWD	MWD - Standard	
3,031.00	3,031.00	MWD (Original Hole)	MWD	MWD - Standard	
3,055.00	16,954.00	MWD ST1 (Sidetrack 01)	MWD	MWD - Standard	
17,010.00	17,010.00	Projection (Sidetrack 01)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.000	0.00	0.00	0.00	14,454,561.479	1,741,196.091	39.801243570	-80.641177570	
193.00	0.17	305.480	193.00	0.17	-0.23	14,454,561.646	1,741,195.857	39.801244029	-80.641178397	
223.00	0.20	320.490	223.00	0.23	-0.30	14,454,561.712	1,741,195.788	39.801244211	-80.641178644	
252.00	0.44	330.480	252.00	0.37	-0.39	14,454,561.848	1,741,195.701	39.801244586	-80.641178952	
282.00	0.24	284.030	282.00	0.48	-0.51	14,454,561.963	1,741,195.583	39.801244904	-80.641179370	
312.00	0.09	264.830	312.00	0.50	-0.59	14,454,561.976	1,741,195.499	39.801244941	-80.641179670	
341.00	0.10	355.210	341.00	0.52	-0.62	14,454,561.999	1,741,195.474	39.801245005	-80.641179758	

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Sidetrack 01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Sidetrack 01	Database:	DB_Feb2822

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
385.00	0.09	336.140	385.00	0.59	-0.63	14,454,562.069	1,741,195.457	39.801245197	-80.641179818
429.00	0.30	300.160	429.00	0.68	-0.75	14,454,562.159	1,741,195.343	39.801245444	-80.641180221
473.00	0.13	255.730	473.00	0.73	-0.90	14,454,562.204	1,741,195.195	39.801245571	-80.641180747
517.00	0.20	288.700	517.00	0.74	-1.02	14,454,562.217	1,741,195.074	39.801245606	-80.641181179
561.00	0.31	351.610	561.00	0.88	-1.11	14,454,562.359	1,741,194.984	39.801245998	-80.641181497
605.00	0.38	323.610	605.00	1.11	-1.21	14,454,562.594	1,741,194.880	39.801246645	-80.641181864
649.00	0.20	297.650	649.00	1.27	-1.37	14,454,562.747	1,741,194.725	39.801247067	-80.641182412
693.00	0.20	304.100	693.00	1.35	-1.50	14,454,562.826	1,741,194.594	39.801247285	-80.641182880
738.00	0.15	44.130	738.00	1.43	-1.52	14,454,562.912	1,741,194.570	39.801247522	-80.641182964
782.00	0.17	293.180	782.00	1.50	-1.54	14,454,562.979	1,741,194.550	39.801247706	-80.641183034
826.00	0.24	343.250	826.00	1.61	-1.63	14,454,563.093	1,741,194.463	39.801248020	-80.641183340
870.00	0.15	349.140	869.99	1.76	-1.66	14,454,563.238	1,741,194.426	39.801248418	-80.641183472
914.00	0.14	268.900	913.99	1.81	-1.73	14,454,563.294	1,741,194.361	39.801248571	-80.641183701
959.00	0.15	85.360	958.99	1.82	-1.73	14,454,563.297	1,741,194.365	39.801248581	-80.641183687
1,003.00	0.11	51.850	1,002.99	1.85	-1.63	14,454,563.328	1,741,194.456	39.801248665	-80.641183364
1,047.00	0.12	134.140	1,046.99	1.84	-1.57	14,454,563.322	1,741,194.522	39.801248648	-80.641183128
1,091.00	0.14	85.560	1,090.99	1.81	-1.48	14,454,563.294	1,741,194.609	39.801248570	-80.641182820
1,136.00	0.17	333.580	1,135.99	1.88	-1.46	14,454,563.358	1,741,194.634	39.801248746	-80.641182730
1,174.00	0.20	270.770	1,173.99	1.93	-1.55	14,454,563.410	1,741,194.542	39.801248888	-80.641183055
1,223.00	0.35	165.790	1,222.99	1.79	-1.60	14,454,563.266	1,741,194.494	39.801248493	-80.641183230
1,267.00	0.31	232.760	1,266.99	1.58	-1.66	14,454,563.063	1,741,194.432	39.801247938	-80.641183453
1,311.00	0.31	285.050	1,310.99	1.54	-1.87	14,454,563.022	1,741,194.222	39.801247827	-80.641184200
1,355.00	0.22	247.790	1,354.99	1.54	-2.06	14,454,563.021	1,741,194.029	39.801247827	-80.641184888
1,399.00	0.35	270.900	1,398.99	1.51	-2.27	14,454,562.991	1,741,193.816	39.801247747	-80.641185645
1,444.00	0.35	303.690	1,443.99	1.59	-2.53	14,454,563.070	1,741,193.564	39.801247965	-80.641186541
1,488.00	0.70	312.120	1,487.99	1.85	-2.84	14,454,563.325	1,741,193.253	39.801248668	-80.641187645
1,532.00	0.66	326.630	1,531.99	2.24	-3.18	14,454,563.717	1,741,192.915	39.801249748	-80.641188846
1,576.00	0.48	316.170	1,575.98	2.58	-3.44	14,454,564.061	1,741,192.648	39.801250698	-80.641189791
1,620.00	0.70	319.510	1,619.98	2.92	-3.75	14,454,564.398	1,741,192.345	39.801251628	-80.641190862
1,664.00	0.79	358.440	1,663.98	3.43	-3.93	14,454,564.906	1,741,192.163	39.801253024	-80.641191506
1,709.00	1.01	2.130	1,708.97	4.13	-3.92	14,454,565.613	1,741,192.169	39.801254964	-80.641191473
1,753.00	1.76	0.020	1,752.96	5.20	-3.91	14,454,566.676	1,741,192.184	39.801257883	-80.641191406
1,797.00	2.77	356.510	1,796.92	6.93	-3.97	14,454,568.413	1,741,192.119	39.801262654	-80.641191611
1,841.00	4.09	350.710	1,840.84	9.54	-4.29	14,454,571.023	1,741,191.801	39.801269825	-80.641192706
1,886.00	5.32	350.010	1,885.69	13.18	-4.91	14,454,574.661	1,741,191.180	39.801279824	-80.641194865
1,930.00	6.86	349.210	1,929.44	17.77	-5.76	14,454,579.251	1,741,190.334	39.801292439	-80.641197811
1,974.00	8.48	348.340	1,973.05	23.53	-6.90	14,454,585.010	1,741,189.187	39.801308267	-80.641201815
2,018.00	9.62	349.300	2,016.50	30.32	-8.24	14,454,591.800	1,741,187.848	39.801326929	-80.641206483
2,062.00	10.63	348.950	2,059.81	37.92	-9.70	14,454,599.396	1,741,186.388	39.801347805	-80.641211575
2,106.00	11.51	348.780	2,102.99	46.21	-11.33	14,454,607.685	1,741,184.756	39.801370587	-80.641217267
2,151.00	12.92	349.040	2,146.97	55.55	-13.17	14,454,617.029	1,741,182.926	39.801396266	-80.641223650
2,195.00	14.68	349.040	2,189.70	65.85	-15.16	14,454,627.332	1,741,180.930	39.801424584	-80.641230607
2,239.00	16.00	349.130	2,232.13	77.28	-17.36	14,454,638.761	1,741,178.727	39.801455995	-80.641238290
2,283.00	17.27	349.210	2,274.29	89.65	-19.73	14,454,651.133	1,741,176.360	39.801489997	-80.641246538
2,327.00	18.85	349.570	2,316.12	103.06	-22.24	14,454,664.540	1,741,173.851	39.801526843	-80.641255282
2,371.00	20.04	349.740	2,357.61	117.47	-24.87	14,454,678.949	1,741,171.221	39.801566444	-80.641264440
2,415.00	21.09	349.830	2,398.81	132.68	-27.61	14,454,694.160	1,741,168.480	39.801608246	-80.641273980
2,460.00	21.71	349.130	2,440.70	148.82	-30.61	14,454,710.303	1,741,165.481	39.801652611	-80.641284428
2,504.00	22.15	348.160	2,481.52	164.93	-33.85	14,454,726.413	1,741,162.245	39.801696889	-80.641295722
2,548.00	22.76	348.690	2,522.18	181.40	-37.22	14,454,742.878	1,741,158.873	39.801742141	-80.641307490
2,592.00	23.91	349.390	2,562.59	198.51	-40.53	14,454,759.988	1,741,155.562	39.801789168	-80.641319034
2,636.00	25.36	350.090	2,602.58	216.56	-43.79	14,454,778.035	1,741,152.299	39.801838765	-80.641330397
2,680.00	26.89	350.530	2,642.08	235.65	-47.05	14,454,797.133	1,741,149.040	39.801891248	-80.641341728
2,724.00	28.17	350.010	2,681.10	255.70	-50.49	14,454,817.177	1,741,145.601	39.801946331	-80.641353686

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Sidetrack 01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Sidetrack 01	Database:	DB_Feb2822

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
2,769.00	29.27	349.210	2,720.56	276.97	-54.39	14,454,838.445	1,741,141.699	39.802004781	-80.641367276	
2,813.00	30.01	349.040	2,758.81	298.34	-58.50	14,454,859.814	1,741,137.593	39.802063511	-80.641381590	
2,857.00	31.46	349.210	2,796.62	320.42	-62.74	14,454,881.897	1,741,133.351	39.802124201	-80.641396377	
2,902.00	32.70	350.010	2,834.75	343.93	-67.05	14,454,905.404	1,741,129.044	39.802188805	-80.641411377	
2,946.00	33.71	350.710	2,871.57	367.68	-71.08	14,454,929.159	1,741,125.011	39.802254087	-80.641425398	
2,960.00	33.79	350.620	2,883.21	375.36	-72.34	14,454,936.834	1,741,123.749	39.802275179	-80.641429780	
3,031.00	35.82	349.390	2,941.50	415.26	-79.39	14,454,976.739	1,741,116.705	39.802384844	-80.641454291	
Tie into original hole @ 3031 MD										
3,055.00	32.53	356.510	2,961.37	428.61	-81.07	14,454,990.092	1,741,115.018	39.802421532	-80.641460107	
3,086.00	33.67	1.870	2,987.34	445.53	-81.30	14,455,007.004	1,741,114.791	39.802467981	-80.641460674	
3,117.00	35.82	3.190	3,012.81	463.17	-80.51	14,455,024.653	1,741,115.577	39.802516438	-80.641457626	
3,148.00	35.91	2.930	3,037.93	481.31	-79.54	14,455,042.789	1,741,116.546	39.802566234	-80.641453916	
3,179.00	35.43	1.690	3,063.12	499.37	-78.81	14,455,060.850	1,741,117.276	39.802615825	-80.641451060	
3,210.00	34.81	0.550	3,088.48	517.20	-78.47	14,455,078.680	1,741,117.626	39.802664786	-80.641449560	
3,242.00	34.24	0.020	3,114.84	535.34	-78.37	14,455,096.816	1,741,117.716	39.802714591	-80.641448978	
3,273.00	34.64	358.350	3,140.41	552.87	-78.62	14,455,114.344	1,741,117.466	39.802762731	-80.641449620	
3,336.00	36.92	349.830	3,191.54	589.42	-82.48	14,455,150.894	1,741,113.606	39.802863149	-80.641462841	
3,430.00	38.81	343.940	3,265.78	645.54	-95.62	14,455,207.014	1,741,100.467	39.803017412	-80.641508824	
3,525.00	40.48	343.240	3,338.92	703.68	-112.75	14,455,265.153	1,741,083.338	39.803177263	-80.641568983	
3,619.00	43.56	343.500	3,408.75	763.96	-130.75	14,455,325.438	1,741,065.336	39.803343017	-80.641632218	
3,713.00	45.32	347.630	3,475.88	827.68	-147.12	14,455,389.154	1,741,048.973	39.803518176	-80.641689569	
3,838.00	45.98	347.630	3,563.25	914.99	-166.27	14,455,476.464	1,741,029.825	39.803758159	-80.641756503	
3,933.00	46.37	346.930	3,629.04	981.84	-181.36	14,455,543.319	1,741,014.733	39.803941925	-80.641809287	
4,027.00	45.19	346.050	3,694.60	1,047.34	-197.09	14,455,608.820	1,740,999.001	39.804121979	-80.641864370	
4,122.00	45.85	347.810	3,761.16	1,113.36	-212.41	14,455,674.842	1,740,983.679	39.804303459	-80.641917981	
4,215.00	44.57	347.190	3,826.68	1,177.80	-226.69	14,455,739.277	1,740,969.398	39.804480571	-80.641967912	
4,310.00	43.69	346.050	3,894.87	1,242.15	-241.99	14,455,803.628	1,740,954.097	39.804657460	-80.642012477	
4,405.00	45.85	346.580	3,962.31	1,307.15	-257.82	14,455,868.630	1,740,938.275	39.804836146	-80.642076886	
4,500.00	45.76	346.750	4,028.53	1,373.43	-273.53	14,455,934.906	1,740,922.565	39.805018327	-80.642131879	
4,594.00	44.84	346.050	4,094.65	1,438.37	-289.23	14,455,999.847	1,740,906.858	39.805196842	-80.642186882	
4,688.00	45.23	346.670	4,161.08	1,503.00	-304.92	14,456,064.479	1,740,891.175	39.805374509	-80.642241803	
4,783.00	44.18	347.540	4,228.60	1,568.14	-319.83	14,456,129.619	1,740,876.257	39.805553562	-80.642293992	
4,877.00	44.92	349.480	4,295.59	1,632.76	-332.96	14,456,194.236	1,740,863.130	39.805731159	-80.642339814	
4,971.00	44.40	346.750	4,362.46	1,697.40	-346.56	14,456,258.881	1,740,849.532	39.805908838	-80.642387311	
5,065.00	44.70	347.540	4,429.44	1,761.70	-361.23	14,456,323.171	1,740,834.862	39.806085555	-80.642438631	
5,159.00	44.92	347.810	4,496.13	1,826.42	-375.37	14,456,387.891	1,740,820.722	39.806263447	-80.642488061	
5,254.00	46.07	349.390	4,562.73	1,892.83	-388.75	14,456,454.304	1,740,807.340	39.806445979	-80.642534764	
5,348.00	44.48	348.070	4,628.87	1,958.32	-401.79	14,456,519.799	1,740,794.299	39.806625987	-80.642580267	
5,443.00	44.48	349.040	4,696.66	2,023.56	-415.00	14,456,585.037	1,740,781.092	39.806805289	-80.642626367	
5,537.00	45.85	347.370	4,762.93	2,088.80	-428.64	14,456,650.280	1,740,767.456	39.806984611	-80.642673993	
5,632.00	46.24	347.980	4,828.87	2,155.62	-443.23	14,456,717.092	1,740,752.859	39.807168253	-80.642725017	
5,726.00	45.93	348.250	4,894.07	2,221.88	-457.18	14,456,783.355	1,740,738.913	39.807350379	-80.642773734	
5,821.00	44.75	347.630	4,960.84	2,287.96	-471.29	14,456,849.435	1,740,724.799	39.807532005	-80.642823052	
5,914.00	44.66	346.400	5,026.94	2,351.71	-485.99	14,456,913.181	1,740,710.100	39.807707227	-80.642874484	
6,008.00	46.64	349.650	5,092.66	2,417.45	-499.90	14,456,978.922	1,740,696.189	39.807887919	-80.642923083	
6,102.00	43.91	345.520	5,158.82	2,482.65	-514.20	14,457,044.124	1,740,681.894	39.808067137	-80.642973059	
6,197.00	43.87	346.490	5,227.28	2,546.55	-530.13	14,457,108.028	1,740,665.966	39.808242808	-80.643028865	
6,291.00	44.92	348.160	5,294.45	2,610.71	-544.55	14,457,172.185	1,740,651.547	39.808419154	-80.643079299	
6,386.00	46.07	348.770	5,361.04	2,677.09	-558.09	14,457,238.568	1,740,638.002	39.808601606	-80.643126585	
6,480.00	45.98	347.100	5,426.31	2,743.24	-572.23	14,457,304.716	1,740,623.864	39.808783418	-80.643175988	
6,574.00	45.45	348.340	5,491.95	2,808.99	-586.54	14,457,370.465	1,740,609.549	39.808964136	-80.643226027	
6,668.00	43.47	350.010	5,559.04	2,873.65	-598.92	14,457,435.121	1,740,597.169	39.809141832	-80.643269193	
6,763.00	43.87	350.180	5,627.75	2,938.27	-610.21	14,457,499.741	1,740,585.886	39.809319417	-80.643308454	
6,858.00	42.68	348.340	5,696.92	3,002.24	-622.33	14,457,563.718	1,740,573.763	39.809495245	-80.643350714	

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Sidetrack 01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Sidetrack 01	Database:	DB_Feb2822

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
6,952.00	44.66	348.420	5,764.91	3,065.82	-635.40	14,457,627.291	1,740,560.691	39.809669977	-80.643396360	
6,999.00	44.70	347.370	5,798.33	3,098.13	-642.33	14,457,659.604	1,740,553.760	39.809758789	-80.643420579	
7,046.00	44.40	347.720	5,831.82	3,130.33	-649.44	14,457,691.799	1,740,546.649	39.809847284	-80.643445445	
7,093.00	41.36	349.210	5,866.26	3,161.65	-655.85	14,457,723.127	1,740,540.243	39.809933388	-80.643467810	
7,140.00	38.24	350.090	5,902.37	3,191.24	-661.26	14,457,752.717	1,740,534.832	39.810014707	-80.643486661	
7,187.00	34.59	351.850	5,940.18	3,218.79	-665.66	14,457,780.262	1,740,530.435	39.810090400	-80.643501924	
7,235.00	30.59	354.050	5,980.62	3,244.44	-668.86	14,457,805.908	1,740,527.236	39.810160865	-80.643512952	
7,282.00	27.30	357.040	6,021.74	3,267.10	-670.65	14,457,828.574	1,740,525.440	39.810223130	-80.643519029	
7,329.00	24.57	0.110	6,064.01	3,287.64	-671.19	14,457,849.114	1,740,524.902	39.810279543	-80.643520653	
7,376.00	21.98	8.290	6,107.19	3,306.12	-669.90	14,457,867.597	1,740,526.189	39.810330288	-80.643515806	
7,424.00	19.78	15.760	6,152.04	3,322.83	-666.40	14,457,884.307	1,740,529.691	39.810376141	-80.643503098	
7,471.00	17.23	26.660	6,196.62	3,336.72	-661.11	14,457,898.188	1,740,534.977	39.810414203	-80.643484079	
7,519.00	17.98	39.580	6,242.39	3,348.78	-653.20	14,457,910.256	1,740,542.890	39.810447258	-80.643455730	
7,566.00	18.33	51.000	6,287.07	3,359.03	-642.83	14,457,920.502	1,740,553.259	39.810475280	-80.643418662	
7,612.00	19.91	58.300	6,330.54	3,367.70	-630.54	14,457,929.171	1,740,565.547	39.810498955	-80.643374784	
7,659.00	21.67	70.070	6,374.49	3,374.87	-615.57	14,457,936.338	1,740,580.521	39.810518473	-80.643321359	
7,707.00	22.68	80.880	6,418.96	3,379.36	-598.09	14,457,940.828	1,740,597.998	39.810530611	-80.643259065	
7,754.00	23.21	92.570	6,462.26	3,380.38	-579.89	14,457,941.849	1,740,616.206	39.810533217	-80.643194212	
7,801.00	24.88	102.940	6,505.20	3,377.75	-560.99	14,457,939.219	1,740,635.104	39.810525786	-80.643126957	
7,848.00	27.34	109.800	6,547.41	3,371.87	-541.19	14,457,933.346	1,740,654.902	39.810509442	-80.643056541	
7,895.00	29.80	115.070	6,588.69	3,363.27	-520.45	14,457,924.739	1,740,675.642	39.810485578	-80.642982811	
7,942.00	33.27	118.410	6,628.75	3,352.18	-498.52	14,457,913.653	1,740,697.568	39.810454891	-80.642904892	
7,989.00	36.84	121.230	6,667.22	3,338.74	-475.13	14,457,900.208	1,740,720.965	39.810417714	-80.642821770	
8,036.00	39.69	125.090	6,704.13	3,322.80	-450.79	14,457,884.270	1,740,745.302	39.810373677	-80.642735335	
8,082.00	42.90	128.960	6,738.69	3,304.50	-426.59	14,457,865.974	1,740,769.505	39.810323166	-80.642649410	
8,129.00	47.03	130.450	6,771.94	3,283.28	-401.05	14,457,844.750	1,740,795.041	39.810264599	-80.642558782	
8,177.00	50.68	133.350	6,803.52	3,259.13	-374.17	14,457,820.600	1,740,821.918	39.810197984	-80.642463419	
8,224.00	55.12	136.260	6,831.86	3,232.70	-347.61	14,457,794.175	1,740,848.484	39.810125124	-80.642369199	
8,272.00	59.69	138.360	6,857.72	3,202.98	-320.21	14,457,764.448	1,740,875.880	39.810043186	-80.642272068	
8,319.00	63.25	141.350	6,880.16	3,171.41	-293.61	14,457,732.882	1,740,902.480	39.809956206	-80.642177800	
8,366.00	66.90	142.230	6,899.97	3,137.92	-267.26	14,457,699.395	1,740,928.835	39.809863953	-80.642084430	
8,413.00	71.65	143.200	6,916.60	3,102.95	-240.64	14,457,664.427	1,740,955.451	39.809767631	-80.641990150	
8,460.00	75.60	144.250	6,929.85	3,066.61	-213.97	14,457,628.078	1,740,982.122	39.809667516	-80.641895697	
8,507.00	76.70	144.780	6,941.10	3,029.45	-187.48	14,457,590.921	1,741,008.611	39.809565182	-80.641801904	
8,555.00	79.60	146.270	6,950.95	2,990.72	-160.89	14,457,552.198	1,741,035.196	39.809458548	-80.641707792	
8,602.00	82.81	149.880	6,958.14	2,951.31	-136.35	14,457,512.785	1,741,059.745	39.809350040	-80.641620939	
8,649.00	87.21	151.720	6,962.23	2,910.45	-113.51	14,457,471.924	1,741,082.578	39.809237575	-80.641540216	
8,744.00	88.40	151.110	6,965.87	2,827.09	-68.09	14,457,388.567	1,741,127.998	39.809008158	-80.641379674	
8,838.00	88.40	151.990	6,968.49	2,744.48	-23.33	14,457,305.952	1,741,172.761	39.808780786	-80.641221462	
8,931.00	88.09	152.080	6,971.34	2,662.38	20.26	14,457,223.850	1,741,216.351	39.808554835	-80.641067419	
9,027.00	88.18	151.810	6,974.46	2,577.70	65.39	14,457,139.176	1,741,261.478	39.808321802	-80.640907943	
9,121.00	88.57	151.720	6,977.13	2,494.92	109.84	14,457,056.394	1,741,305.930	39.808093975	-80.640750841	
9,214.00	89.98	151.460	6,978.31	2,413.13	154.08	14,456,974.603	1,741,350.172	39.807868871	-80.640594474	
9,309.00	89.67	150.850	6,978.60	2,329.92	199.91	14,456,891.391	1,741,396.004	39.807639845	-80.640432470	
9,403.00	89.32	150.050	6,979.42	2,248.15	246.27	14,456,809.622	1,741,442.361	39.807414778	-80.640268576	
9,498.00	90.07	151.200	6,979.93	2,165.36	292.87	14,456,726.840	1,741,488.958	39.807186924	-80.640103839	
9,592.00	89.58	149.700	6,980.22	2,083.59	339.23	14,456,645.070	1,741,535.316	39.806961853	-80.639939945	
9,687.00	90.24	151.640	6,980.37	2,000.78	385.76	14,456,562.252	1,741,581.848	39.806733902	-80.639775445	
9,781.00	89.85	151.720	6,980.29	1,918.03	430.35	14,456,479.503	1,741,626.441	39.806506161	-80.639617850	
9,875.00	89.32	152.780	6,980.97	1,834.84	474.12	14,456,396.318	1,741,670.207	39.806277232	-80.639463207	
9,969.00	89.76	150.670	6,981.73	1,752.07	518.64	14,456,313.542	1,741,714.731	39.806049416	-80.639305860	
10,063.00	89.49	150.580	6,982.34	1,670.15	564.75	14,456,231.630	1,741,760.839	39.805823956	-80.639142861	
10,158.00	89.63	149.610	6,983.07	1,587.81	612.11	14,456,149.282	1,741,808.200	39.805597286	-80.638975406	
10,252.00	90.29	150.410	6,983.14	1,506.39	659.10	14,456,067.869	1,741,855.185	39.805373186	-80.638809280	

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Sidetrack 01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Sidetrack 01	Database:	DB_Feb2822

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,346.00	90.64	150.760	6,982.38	1,424.51	705.26	14,455,985.990	1,741,901.350	39.805147815	-80.638646082
10,440.00	90.33	151.110	6,981.58	1,342.35	750.92	14,455,903.831	1,741,947.013	39.804921681	-80.638484674
10,534.00	89.80	150.490	6,981.47	1,260.30	796.78	14,455,821.777	1,741,992.872	39.804695833	-80.638322572
10,628.00	91.12	150.580	6,980.72	1,178.46	843.02	14,455,739.940	1,742,039.107	39.804470577	-80.638159126
10,723.00	90.73	150.670	6,979.19	1,095.69	889.61	14,455,657.166	1,742,085.700	39.804242741	-80.637994418
10,816.00	90.15	150.320	6,978.47	1,014.75	935.41	14,455,576.229	1,742,131.501	39.804019963	-80.637832508
10,910.00	89.58	149.880	6,978.69	933.26	982.27	14,455,494.742	1,742,178.359	39.803795659	-80.637666845
11,005.00	89.19	149.180	6,979.71	851.39	1,030.44	14,455,412.868	1,742,226.529	39.803570277	-80.637496514
11,100.00	89.71	149.440	6,980.62	769.70	1,078.92	14,455,331.177	1,742,275.013	39.803345398	-80.637325062
11,195.00	89.85	149.610	6,980.99	687.82	1,127.10	14,455,249.303	1,742,323.193	39.803120014	-80.637154698
11,289.00	89.54	149.790	6,981.49	606.67	1,174.53	14,455,168.145	1,742,370.618	39.802896608	-80.636987014
11,383.00	89.10	149.790	6,982.60	525.44	1,221.82	14,455,086.917	1,742,417.912	39.802673011	-80.636819796
11,477.00	89.93	149.350	6,983.40	444.39	1,269.43	14,455,005.870	1,742,465.520	39.802449906	-80.636651463
11,572.00	89.49	147.590	6,983.88	363.42	1,319.11	14,454,924.900	1,742,515.197	39.802226989	-80.636475760
11,666.00	90.07	149.090	6,984.24	283.41	1,368.45	14,454,844.892	1,742,564.533	39.802006719	-80.636301258
11,760.00	89.76	148.650	6,984.38	202.95	1,417.04	14,454,764.429	1,742,613.129	39.801785207	-80.636129399
11,855.00	89.71	149.700	6,984.82	121.37	1,465.72	14,454,682.851	1,742,661.807	39.801560632	-80.635957265
11,949.00	89.27	149.000	6,985.66	40.51	1,513.64	14,454,601.988	1,742,709.725	39.801338025	-80.635787828
12,043.00	89.76	149.880	6,986.45	-40.43	1,561.43	14,454,521.048	1,742,757.516	39.801115213	-80.635618846
12,136.00	89.45	149.530	6,987.09	-120.73	1,608.34	14,454,440.751	1,742,804.429	39.800894173	-80.635452982
12,230.00	90.15	149.880	6,987.42	-201.89	1,655.76	14,454,359.589	1,742,851.847	39.800670753	-80.635285334
12,324.00	89.76	149.260	6,987.50	-282.94	1,703.37	14,454,278.538	1,742,899.456	39.800447636	-80.635117004
12,419.00	90.33	151.200	6,987.42	-365.40	1,750.54	14,454,196.080	1,742,946.623	39.800220659	-80.634950270
12,513.00	89.89	150.670	6,987.24	-447.56	1,796.20	14,454,113.919	1,742,992.288	39.799994512	-80.634788880
12,606.00	89.05	149.440	6,988.10	-528.14	1,842.62	14,454,033.339	1,743,038.707	39.799772703	-80.634624783
12,700.00	89.58	150.320	6,989.23	-609.44	1,889.79	14,453,952.039	1,743,085.873	39.799548904	-80.634458039
12,794.00	88.97	149.180	6,990.42	-690.63	1,937.14	14,453,870.847	1,743,133.223	39.799325400	-80.634290640
12,888.00	90.86	151.200	6,990.55	-772.19	1,983.86	14,453,789.293	1,743,179.948	39.799100910	-80.634125471
12,982.00	90.73	151.110	6,989.25	-854.52	2,029.21	14,453,706.964	1,743,225.293	39.798874306	-80.633965228
13,075.00	90.24	150.050	6,988.46	-935.52	2,074.89	14,453,625.961	1,743,270.973	39.798651341	-80.633803775
13,170.00	89.41	149.880	6,988.75	-1,017.76	2,122.44	14,453,543.719	1,743,318.522	39.798424951	-80.633635684
13,265.00	90.15	149.880	6,989.12	-1,099.93	2,170.11	14,453,461.548	1,743,366.194	39.798198753	-80.633467159
13,360.00	89.54	149.440	6,989.38	-1,181.92	2,218.09	14,453,379.559	1,743,414.181	39.797973055	-80.633297510
13,454.00	89.23	148.910	6,990.38	-1,262.64	2,266.26	14,453,298.843	1,743,462.345	39.797750848	-80.633127213
13,549.00	89.89	149.700	6,991.11	-1,344.32	2,314.75	14,453,217.156	1,743,510.837	39.797525972	-80.632955762
13,644.00	89.36	148.470	6,991.74	-1,425.82	2,363.56	14,453,135.657	1,743,559.643	39.797301605	-80.632783194
13,737.00	90.37	148.740	6,991.95	-1,505.21	2,412.00	14,453,056.274	1,743,608.089	39.797083055	-80.632611876
13,832.00	89.85	147.860	6,991.77	-1,586.03	2,461.92	14,452,975.448	1,743,658.008	39.796860526	-80.632435337
13,925.00	90.29	149.440	6,991.66	-1,665.45	2,510.30	14,452,896.028	1,743,706.390	39.796641876	-80.632264247
14,020.00	90.02	148.380	6,991.40	-1,746.81	2,559.36	14,452,814.676	1,743,755.446	39.796417910	-80.632090792
14,114.00	89.80	149.970	6,991.55	-1,827.52	2,607.53	14,452,733.958	1,743,803.611	39.796195695	-80.631920497
14,209.00	90.20	151.720	6,991.55	-1,910.48	2,653.81	14,452,650.997	1,743,849.891	39.795967344	-80.631756950
14,303.00	90.37	153.570	6,991.08	-1,993.97	2,697.00	14,452,567.514	1,743,893.082	39.795737590	-80.631604409
14,398.00	89.23	151.640	6,991.41	-2,078.31	2,740.71	14,452,483.174	1,743,936.790	39.795505479	-80.631450038
14,492.00	90.15	150.580	6,991.92	-2,160.61	2,786.12	14,452,400.875	1,743,982.202	39.795278955	-80.631289572
14,586.00	90.07	150.490	6,991.74	-2,242.45	2,832.36	14,452,319.034	1,744,028.440	39.795053676	-80.631126162
14,679.00	89.71	149.790	6,991.92	-2,323.10	2,878.66	14,452,238.381	1,744,074.742	39.794831661	-80.630962505
14,773.00	89.93	150.760	6,992.22	-2,404.73	2,925.27	14,452,156.752	1,744,121.350	39.794606960	-80.630797776
14,868.00	89.58	150.580	6,992.62	-2,487.55	2,971.80	14,452,073.931	1,744,167.884	39.794378986	-80.630633328
14,962.00	88.92	149.350	6,993.85	-2,568.92	3,018.84	14,451,992.562	1,744,214.929	39.794154996	-80.630467044
15,057.00	89.89	152.160	6,994.84	-2,651.80	3,065.25	14,451,909.685	1,744,261.333	39.793926869	-80.630303063
15,151.00	90.46	151.990	6,994.55	-2,734.85	3,109.27	14,451,826.631	1,744,305.354	39.793698285	-80.630147568
15,245.00	89.19	151.200	6,994.84	-2,817.53	3,153.98	14,451,743.951	1,744,350.068	39.793470718	-80.629989601
15,340.00	89.45	151.280	6,995.97	-2,900.81	3,199.69	14,451,660.676	1,744,395.773	39.793241507	-80.629828117

Company:	Tug Hill Operating LLC	Local Co-ordinate Reference:	Well Fitzgerald 10 HM (slot I)
Project:	Marshall County, West Virginia NAD83 UTM 17N	TVD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Site:	Fitzgerald	MD Reference:	RKB=1293+33 @ 1325.91ft (Nabors X08)
Well:	Fitzgerald 10 HM (slot I)	North Reference:	Grid
Wellbore:	Sidetrack 01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Sidetrack 01	Database:	DB_Feb2822

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,434.00	88.53	150.850	6,997.62	-2,983.06	3,245.16	14,451,578.424	1,744,441.244	39.793015107	-80.629667452
15,527.00	88.26	150.230	7,000.23	-3,064.00	3,290.88	14,451,497.481	1,744,486.965	39.792792300	-80.629505880
15,621.00	88.75	149.970	7,002.68	-3,145.46	3,337.72	14,451,416.021	1,744,533.806	39.792568059	-80.629340326
15,716.00	90.20	151.110	7,003.55	-3,228.17	3,384.44	14,451,333.312	1,744,580.525	39.792340389	-80.629175231
15,811.00	89.49	151.200	7,003.81	-3,311.39	3,430.27	14,451,250.100	1,744,626.356	39.792111347	-80.629013301
15,905.00	88.70	150.140	7,005.29	-3,393.32	3,476.31	14,451,168.162	1,744,672.394	39.791885801	-80.628850618
15,999.00	89.54	150.140	7,006.74	-3,474.83	3,523.11	14,451,086.651	1,744,719.189	39.791661422	-80.628685236
16,094.00	88.44	150.670	7,008.41	-3,557.43	3,570.01	14,451,004.060	1,744,766.098	39.791434072	-80.628519464
16,188.00	86.95	151.110	7,012.19	-3,639.48	3,615.71	14,450,922.002	1,744,811.789	39.791208202	-80.628358019
16,283.00	87.12	150.050	7,017.11	-3,722.12	3,662.31	14,450,839.365	1,744,858.391	39.790980730	-80.628193345
16,376.00	86.73	149.440	7,022.09	-3,802.34	3,709.10	14,450,759.149	1,744,905.181	39.790759904	-80.628027965
16,471.00	87.91	148.300	7,026.54	-3,883.56	3,758.16	14,450,677.921	1,744,954.239	39.790536274	-80.627854527
16,566.00	89.05	148.210	7,029.06	-3,964.32	3,808.12	14,450,597.164	1,745,004.204	39.790313923	-80.627677855
16,661.00	88.79	149.610	7,030.85	-4,045.66	3,857.17	14,450,515.826	1,745,053.250	39.790089992	-80.627504462
16,755.00	89.01	150.050	7,032.65	-4,126.91	3,904.40	14,450,434.575	1,745,100.483	39.789866317	-80.627337527
16,850.00	89.01	149.790	7,034.29	-4,209.11	3,952.01	14,450,352.382	1,745,148.090	39.789640050	-80.627169272
16,954.00	89.01	149.880	7,036.09	-4,299.01	4,004.26	14,450,262.479	1,745,200.342	39.789392558	-80.626984601
Survey @ 16954.00 MD 7036.09 TVD									
17,010.00	89.01	149.880	7,037.06	-4,347.44	4,032.36	14,450,214.047	1,745,228.439	39.789259233	-80.626885299
Survey Proj. to 17010.00 MD 7037.06 TVD									

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,031.00	2,941.50	415.26	-79.39	Tie into original hole @ 3031 MD
16,954.00	7,036.09	-4,299.01	4,004.26	Survey @ 16954.00 MD 7036.09 TVD
17,010.00	7,037.06	-4,347.44	4,032.36	Survey Proj. to 17010.00 MD 7037.06 TVD

Checked By: _____ Approved By: _____ Date: _____