



Actual Wellpath Report

Knob Creek S-9HM AWB Proj: 17452'
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WV Department of Environmental Protection

REFERENCE WELLPATH IDENTIFICATION

Operator	EQT (TUG HILL OPERATING, LLC)	Well	Knob Creek S-9HM
Field	Marshall	API	47-051-02285-0000
Facility	Knob Creek	Wellbore	Knob Creek S-9HM AWB
Slot	Slot 09		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Scurdan
Scale	0.999608	Report Generated	10/30/2023 at 11:04:58 AM
Convergence at slot	0.19° East	Database	WA_MPL_EASTERNUS_Defn

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	56.28	44.92	1723188.43	14443168.53	39°46'12.4901"N	80°42'19.5334"W
Facility Reference Pt			1723143.53	14443112.27	39°46'11.9353"N	80°42'20.1110"W
Field Reference Pt			1920470.12	14528304.49	40°00'0.0000"N	80°00'0.0000"W

WELLPATH DATUM

Calculation method	Minimum curvature	Patterson 294 (RKB) to Facility Vertical Datum	765.00ft
Horizontal Reference Pt	Slot	Patterson 294 (RKB) to Mean Sea Level	765.00ft
Vertical Reference Pt	Patterson 294 (RKB)	Patterson 294 (RKB) to Ground Level at Slot (Slot 09)	28.00ft
MD Reference Pt	Patterson 294 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	144.76°



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WELLPATH DATA (259 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]
0.00†	0.000	57.520	0.00	0.00	0.00	0.00	1723188.43	14443168.53	39°46'12.4901"N	80°42'19.5334"W	0.00	0.000	0.00	0.00	0.00
28.00	0.000	57.520	28.00	0.00	0.00	0.00	1723188.43	14443168.53	39°46'12.4901"N	80°42'19.5334"W	0.00	0.000	0.00	0.00	0.00
173.00	0.300	57.520	173.00	0.02	0.20	0.32	1723188.75	14443168.73	39°46'12.4921"N	80°42'19.5292"W	0.38	57.520	0.21	0.21	0.00
203.00	0.150	93.210	203.00	0.05	0.24	0.43	1723188.86	14443168.77	39°46'12.4925"N	80°42'19.5279"W	0.49	60.197	0.66	-0.50	118.97
233.00	0.300	107.910	233.00	0.13	0.22	0.54	1723188.97	14443168.75	39°46'12.4922"N	80°42'19.5264"W	0.58	68.050	0.53	0.50	49.00
262.00	0.230	80.130	262.00	0.22	0.20	0.67	1723189.10	14443168.73	39°46'12.4921"N	80°42'19.5248"W	0.70	73.039	0.50	-0.24	-95.79
322.00	0.200	160.040	322.00	0.37	0.13	0.82	1723189.25	14443168.66	39°46'12.4913"N	80°42'19.5228"W	0.83	81.280	0.46	-0.05	133.18
353.00	0.170	195.290	353.00	0.45	0.03	0.83	1723189.26	14443168.56	39°46'12.4903"N	80°42'19.5227"W	0.83	87.854	0.37	-0.10	113.71
385.00	0.170	198.820	385.00	0.51	-0.06	0.80	1723189.23	14443168.47	39°46'12.4894"N	80°42'19.5231"W	0.80	94.251	0.03	0.00	11.03
417.00	0.070	211.380	417.00	0.55	-0.12	0.78	1723189.21	14443168.41	39°46'12.4888"N	80°42'19.5234"W	0.79	98.873	0.32	-0.31	39.25
447.00	0.060	231.460	447.00	0.56	-0.15	0.75	1723189.18	14443168.38	39°46'12.4886"N	80°42'19.5237"W	0.77	100.997	0.08	-0.03	66.93
479.00	0.030	6.870	479.00	0.55	-0.15	0.74	1723189.17	14443168.38	39°46'12.4886"N	80°42'19.5239"W	0.76	101.329	0.26	-0.09	423.16
512.00	0.130	231.480	512.00	0.55	-0.16	0.71	1723189.14	14443168.37	39°46'12.4884"N	80°42'19.5242"W	0.73	102.893	0.46	0.30	-410.27
542.00	0.190	320.220	542.00	0.50	-0.15	0.66	1723189.09	14443168.38	39°46'12.4886"N	80°42'19.5250"W	0.67	102.590	0.76	0.20	295.80
573.00	0.150	359.770	573.00	0.41	-0.07	0.62	1723189.05	14443168.46	39°46'12.4894"N	80°42'19.5254"W	0.63	96.087	0.39	-0.13	127.58
605.00	0.270	353.240	605.00	0.31	0.05	0.61	1723189.04	14443168.58	39°46'12.4905"N	80°42'19.5255"W	0.62	85.313	0.38	0.38	-20.41
637.00	0.050	5.820	637.00	0.24	0.14	0.61	1723189.04	14443168.67	39°46'12.4914"N	80°42'19.5256"W	0.62	77.082	0.69	-0.69	39.31
668.00	0.210	46.130	668.00	0.22	0.19	0.65	1723189.08	14443168.72	39°46'12.4919"N	80°42'19.5250"W	0.68	73.520	0.56	0.52	130.03
699.00	0.400	11.680	699.00	0.14	0.34	0.71	1723189.14	14443168.87	39°46'12.4934"N	80°42'19.5242"W	0.79	64.642	0.83	0.61	-111.13
731.00	0.230	348.020	731.00	0.00	0.51	0.72	1723189.15	14443169.04	39°46'12.4951"N	80°42'19.5241"W	0.88	54.750	0.66	-0.53	-73.94
763.00	0.320	17.190	763.00	-0.11	0.66	0.73	1723189.16	14443169.19	39°46'12.4965"N	80°42'19.5239"W	0.99	48.138	0.51	0.28	91.16
794.00	0.200	330.220	794.00	-0.22	0.79	0.73	1723189.16	14443169.32	39°46'12.4978"N	80°42'19.5239"W	1.08	42.941	0.76	-0.39	-151.52
826.00	0.440	348.430	826.00	-0.39	0.96	0.68	1723189.11	14443169.49	39°46'12.4995"N	80°42'19.5246"W	1.17	35.431	0.81	0.75	56.91
857.00	0.350	0.040	856.99	-0.57	1.17	0.66	1723189.09	14443169.70	39°46'12.5016"N	80°42'19.5249"W	1.34	29.350	0.39	-0.29	37.45
889.00	0.410	316.210	888.99	-0.77	1.35	0.58	1723189.01	14443169.88	39°46'12.5034"N	80°42'19.5259"W	1.47	23.187	0.90	0.19	-136.97
920.00	0.350	317.880	919.99	-0.97	1.50	0.44	1723188.87	14443170.03	39°46'12.5048"N	80°42'19.5277"W	1.56	16.264	0.20	-0.19	5.39
952.00	0.400	316.920	951.99	-1.18	1.65	0.30	1723188.73	14443170.18	39°46'12.5064"N	80°42'19.5295"W	1.68	10.131	0.16	0.16	-3.00
984.00	0.380	329.150	983.99	-1.40	1.82	0.16	1723188.59	14443170.35	39°46'12.5081"N	80°42'19.5312"W	1.83	5.152	0.27	-0.06	38.22
1016.00	0.320	305.010	1015.99	-1.59	1.97	0.04	1723188.47	14443170.50	39°46'12.5095"N	80°42'19.5328"W	1.97	1.075	0.49	-0.19	-75.44
1048.00	0.250	307.930	1047.99	-1.74	2.06	-0.09	1723188.34	14443170.59	39°46'12.5104"N	80°42'19.5344"W	2.06	357.463	0.22	-0.22	9.13



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Slot	Slot 09		

WELLPATH DATA (259 stations)

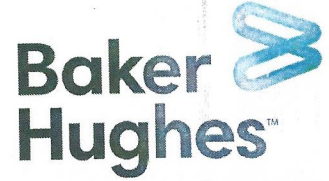
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
1080.00	0.400	320.160	1079.99	-1.91	2.19	-0.22	1723188.21	14443170.72	39°46'12.5117"N	80°42'19.5361"W	2.20	354.317	0.51	0.47	38.22
1111.00	0.340	319.490	1110.99	-2.11	2.34	-0.35	1723188.08	14443170.87	39°46'12.5132"N	80°42'19.5377"W	2.37	351.576	0.19	-0.19	-2.16
1143.00	0.320	305.830	1142.99	-2.29	2.47	-0.48	1723187.95	14443171.00	39°46'12.5145"N	80°42'19.5394"W	2.51	348.967	0.25	-0.06	-42.69
1175.00	0.260	334.760	1174.99	-2.45	2.59	-0.58	1723187.85	14443171.11	39°46'12.5156"N	80°42'19.5407"W	2.65	347.261	0.49	-0.19	90.41
1206.00	0.170	323.060	1205.99	-2.56	2.69	-0.64	1723187.79	14443171.21	39°46'12.5166"N	80°42'19.5415"W	2.76	346.554	0.32	-0.29	-37.74
1238.00	0.160	293.690	1237.99	-2.65	2.74	-0.71	1723187.72	14443171.27	39°46'12.5172"N	80°42'19.5424"W	2.83	345.451	0.26	-0.03	-91.78
1268.00	0.210	304.360	1267.99	-2.74	2.79	-0.80	1723187.63	14443171.32	39°46'12.5177"N	80°42'19.5434"W	2.90	344.087	0.20	0.17	35.57
1300.00	0.220	329.220	1299.99	-2.85	2.88	-0.88	1723187.56	14443171.40	39°46'12.5185"N	80°42'19.5444"W	3.01	343.072	0.29	0.03	77.69
1332.00	0.190	354.230	1331.99	-2.96	2.98	-0.91	1723187.52	14443171.51	39°46'12.5195"N	80°42'19.5449"W	3.12	342.990	0.29	-0.09	78.16
1363.00	0.150	327.170	1362.99	-3.05	3.07	-0.94	1723187.49	14443171.60	39°46'12.5204"N	80°42'19.5453"W	3.21	342.972	0.29	-0.13	-87.29
1395.00	0.180	12.150	1394.99	-3.12	3.15	-0.95	1723187.48	14443171.68	39°46'12.5212"N	80°42'19.5454"W	3.29	343.200	0.40	0.09	140.56
1427.00	0.190	5.320	1426.99	-3.20	3.25	-0.94	1723187.49	14443171.78	39°46'12.5222"N	80°42'19.5452"W	3.38	343.950	0.08	0.03	-21.34
1458.00	0.480	2.980	1457.99	-3.34	3.43	-0.92	1723187.51	14443171.96	39°46'12.5240"N	80°42'19.5450"W	3.56	344.934	0.94	0.94	-7.55
1490.00	0.410	14.950	1489.99	-3.52	3.68	-0.89	1723187.54	14443172.21	39°46'12.5264"N	80°42'19.5446"W	3.78	346.430	0.36	-0.22	37.41
1522.00	0.570	4.660	1521.98	-3.71	3.95	-0.85	1723187.59	14443172.48	39°46'12.5291"N	80°42'19.5440"W	4.04	347.913	0.57	0.50	-32.16
1554.00	0.810	339.950	1553.98	-4.05	4.32	-0.91	1723187.52	14443172.85	39°46'12.5328"N	80°42'19.5448"W	4.41	348.102	1.18	0.75	-77.22
1586.00	1.220	346.770	1585.98	-4.59	4.86	-1.07	1723187.36	14443173.39	39°46'12.5381"N	80°42'19.5468"W	4.98	347.641	1.33	1.28	21.31
1617.00	1.880	345.730	1616.97	-5.37	5.68	-1.27	1723187.16	14443174.20	39°46'12.5462"N	80°42'19.5493"W	5.82	347.425	2.13	2.13	-3.35
1649.00	2.590	345.150	1648.94	-6.53	6.88	-1.58	1723186.85	14443175.41	39°46'12.5581"N	80°42'19.5533"W	7.06	347.066	2.22	2.22	-1.81
1681.00	3.500	348.390	1680.90	-8.11	8.54	-1.96	1723186.47	14443177.07	39°46'12.5745"N	80°42'19.5581"W	8.76	347.056	2.89	2.84	10.12
1712.00	4.280	349.160	1711.82	-10.03	10.60	-2.37	1723186.06	14443179.13	39°46'12.5949"N	80°42'19.5633"W	10.86	347.396	2.52	2.52	2.48
1744.00	4.920	348.410	1743.72	-12.37	13.12	-2.87	1723185.56	14443181.64	39°46'12.6198"N	80°42'19.5696"W	13.43	347.656	2.01	2.00	-2.34
1775.00	5.220	350.340	1774.60	-14.86	15.81	-3.37	1723185.06	14443184.34	39°46'12.6464"N	80°42'19.5759"W	16.17	347.952	1.11	0.97	6.23
1807.00	5.380	353.040	1806.46	-17.50	18.74	-3.80	1723184.63	14443187.26	39°46'12.6753"N	80°42'19.5812"W	19.12	348.533	0.93	0.50	8.44
1839.00	5.150	357.270	1838.33	-20.03	21.66	-4.05	1723184.38	14443190.18	39°46'12.7043"N	80°42'19.5843"W	22.04	349.407	1.41	-0.72	13.22
1870.00	5.070	358.810	1869.20	-22.34	24.42	-4.15	1723184.29	14443192.94	39°46'12.7315"N	80°42'19.5854"W	24.77	350.365	0.51	-0.26	4.97
1902.00	5.110	0.430	1901.08	-24.67	27.26	-4.16	1723184.27	14443195.78	39°46'12.7596"N	80°42'19.5855"W	27.57	351.314	0.47	0.12	5.06
1934.00	5.190	1.370	1932.95	-26.99	30.13	-4.12	1723184.31	14443198.65	39°46'12.7880"N	80°42'19.5848"W	30.41	352.215	0.36	0.25	2.94
1965.00	5.330	1.480	1963.82	-29.27	32.97	-4.05	1723184.38	14443201.49	39°46'12.8160"N	80°42'19.5838"W	33.22	353.000	0.45	0.45	0.35
1997.00	5.400	2.130	1995.68	-31.65	35.96	-3.95	1723184.48	14443204.48	39°46'12.8456"N	80°42'19.5825"W	36.18	353.725	0.29	0.22	2.03



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2029.00	5.480	1.280	2027.53	-34.08	38.99	-3.86	1723184.57	14443207.51	39°46'12.8755"N	80°42'19.5812"W	39.19	354.341	0.35	0.25	-2.66
2060.00	4.920	358.800	2058.41	-36.37	41.80	-3.86	1723184.57	14443210.32	39°46'12.9033"N	80°42'19.5810"W	41.98	354.726	1.95	-1.81	-8.00
2091.00	4.210	356.610	2089.31	-38.44	44.27	-3.95	1723184.48	14443212.78	39°46'12.9277"N	80°42'19.5821"W	44.44	354.896	2.36	-2.29	-7.06
2122.00	3.890	354.730	2120.23	-40.31	46.45	-4.12	1723184.31	14443214.96	39°46'12.9493"N	80°42'19.5841"W	46.63	354.934	1.12	-1.03	-6.06
2153.00	3.670	352.580	2151.16	-42.10	48.48	-4.34	1723184.09	14443216.99	39°46'12.9693"N	80°42'19.5869"W	48.68	354.882	0.84	-0.71	-6.94
2185.00	3.590	352.150	2183.10	-43.90	50.49	-4.61	1723183.82	14443219.00	39°46'12.9892"N	80°42'19.5903"W	50.70	354.781	0.26	-0.25	-1.34
2216.00	3.560	349.790	2214.04	-45.63	52.40	-4.91	1723183.52	14443220.91	39°46'13.0081"N	80°42'19.5941"W	52.63	354.642	0.48	-0.10	-7.61
2248.00	3.680	350.240	2245.97	-47.46	54.39	-5.26	1723183.17	14443222.90	39°46'13.0277"N	80°42'19.5985"W	54.64	354.471	0.39	0.37	1.41
2280.00	3.820	352.350	2277.91	-49.33	56.46	-5.58	1723182.85	14443224.96	39°46'13.0482"N	80°42'19.6025"W	56.73	354.354	0.61	0.44	6.59
2343.00	3.910	352.220	2340.76	-53.10	60.67	-6.15	1723182.28	14443229.17	39°46'13.0898"N	80°42'19.6096"W	60.98	354.210	0.14	0.14	-0.21
2374.00	3.920	354.470	2371.69	-54.96	62.77	-6.40	1723182.04	14443231.27	39°46'13.1106"N	80°42'19.6126"W	63.09	354.181	0.50	0.03	7.26
2406.00	3.930	354.720	2403.62	-56.86	64.95	-6.60	1723181.83	14443233.45	39°46'13.1321"N	80°42'19.6152"W	65.28	354.195	0.06	0.03	0.78
2438.00	4.110	355.560	2435.54	-58.79	67.18	-6.79	1723181.64	14443235.69	39°46'13.1542"N	80°42'19.6175"W	67.53	354.227	0.59	0.56	2.62
2470.00	5.010	2.030	2467.44	-60.89	69.72	-6.83	1723181.60	14443238.23	39°46'13.1793"N	80°42'19.6179"W	70.06	354.404	3.24	2.81	20.22
2501.00	5.200	4.870	2498.31	-63.04	72.48	-6.66	1723181.77	14443240.98	39°46'13.2065"N	80°42'19.6157"W	72.78	354.746	1.02	0.61	9.16
2533.00	5.220	3.360	2530.18	-65.29	75.37	-6.46	1723181.98	14443243.87	39°46'13.2352"N	80°42'19.6129"W	75.65	355.104	0.43	0.06	-4.72
2565.00	4.970	358.920	2562.05	-67.57	78.21	-6.40	1723182.04	14443246.71	39°46'13.2632"N	80°42'19.6120"W	78.47	355.324	1.46	-0.78	-13.87
2597.00	4.730	357.960	2593.94	-69.82	80.92	-6.47	1723181.96	14443249.42	39°46'13.2899"N	80°42'19.6128"W	81.18	355.429	0.79	-0.75	-3.00
2629.00	5.100	358.460	2625.82	-72.11	83.66	-6.56	1723181.88	14443252.15	39°46'13.3170"N	80°42'19.6138"W	83.91	355.520	1.16	1.16	1.56
2660.00	5.810	2.250	2656.68	-74.50	86.60	-6.53	1723181.90	14443255.10	39°46'13.3461"N	80°42'19.6133"W	86.85	355.688	2.57	2.29	12.23
2692.00	5.690	2.960	2688.52	-77.03	89.81	-6.38	1723182.05	14443258.30	39°46'13.3778"N	80°42'19.6113"W	90.03	355.933	0.44	-0.37	2.22
2724.00	5.480	2.610	2720.37	-79.49	92.92	-6.23	1723182.20	14443261.41	39°46'13.4085"N	80°42'19.6093"W	93.12	356.162	0.66	-0.66	-1.09
2756.00	5.340	2.880	2752.23	-81.86	95.93	-6.09	1723182.34	14443264.42	39°46'13.4383"N	80°42'19.6073"W	96.12	356.368	0.44	-0.44	0.84
2787.00	5.190	2.840	2783.10	-84.10	98.77	-5.95	1723182.49	14443267.26	39°46'13.4664"N	80°42'19.6054"W	98.95	356.554	0.48	-0.48	-0.13
2818.00	5.100	1.140	2813.97	-86.31	101.55	-5.85	1723182.58	14443270.04	39°46'13.4938"N	80°42'19.6040"W	101.72	356.703	0.57	-0.29	-5.48
2848.00	5.090	0.010	2843.85	-88.47	104.21	-5.82	1723182.61	14443272.70	39°46'13.5201"N	80°42'19.6035"W	104.38	356.802	0.34	-0.03	-3.77
2880.00	4.770	2.140	2875.73	-90.69	106.96	-5.77	1723182.66	14443275.45	39°46'13.5473"N	80°42'19.6028"W	107.12	356.910	1.15	-1.00	6.66
2912.00	4.630	1.410	2907.63	-92.78	109.58	-5.69	1723182.74	14443278.07	39°46'13.5732"N	80°42'19.6016"W	109.73	357.027	0.48	-0.44	-2.28
2942.00	4.880	359.540	2937.52	-94.80	112.07	-5.67	1723182.76	14443280.55	39°46'13.5978"N	80°42'19.6013"W	112.21	357.102	0.98	0.83	-6.23
2974.00	5.550	0.290	2969.39	-97.18	114.98	-5.68	1723182.76	14443283.46	39°46'13.6265"N	80°42'19.6012"W	115.12	357.174	2.10	2.09	2.34



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Slot	Slot 09		

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3006.00	5.660	2.380	3001.24	-99.69	118.10	-5.60	1723182.83	14443286.58	39°46'13.6574"N	80°42'19.6001"W	118.23	357.284	0.72	0.34	6.53
3038.00	5.430	1.580	3033.09	-102.15	121.19	-5.49	1723182.94	14443289.67	39°46'13.6879"N	80°42'19.5986"W	121.32	357.404	0.76	-0.72	-2.50
3069.00	5.270	359.140	3063.95	-104.50	124.08	-5.48	1723182.96	14443292.56	39°46'13.7165"N	80°42'19.5983"W	124.20	357.473	0.90	-0.52	-7.87
3101.00	5.040	0.050	3095.82	-106.86	126.96	-5.50	1723182.94	14443295.44	39°46'13.7449"N	80°42'19.5984"W	127.08	357.521	0.76	-0.72	2.84
3133.00	5.020	359.930	3127.70	-109.15	129.76	-5.50	1723182.93	14443298.24	39°46'13.7726"N	80°42'19.5983"W	129.88	357.574	0.07	-0.06	-0.37
3164.00	4.890	357.390	3158.58	-111.38	132.44	-5.56	1723182.87	14443300.92	39°46'13.7991"N	80°42'19.5990"W	132.55	357.596	0.82	-0.42	-8.19
3196.00	5.350	355.410	3190.46	-113.81	135.29	-5.74	1723182.69	14443303.76	39°46'13.8272"N	80°42'19.6012"W	135.41	357.570	1.54	1.44	-6.19
3227.00	6.690	354.800	3221.28	-116.61	138.53	-6.02	1723182.41	14443307.00	39°46'13.8593"N	80°42'19.6046"W	138.66	357.512	4.33	4.32	-1.97
3259.00	8.020	354.400	3253.02	-120.17	142.60	-6.41	1723182.03	14443311.08	39°46'13.8996"N	80°42'19.6094"W	142.75	357.428	4.16	4.16	-1.25
3290.00	9.080	354.220	3283.68	-124.18	147.19	-6.86	1723181.57	14443315.66	39°46'13.9449"N	80°42'19.6151"W	147.35	357.330	3.42	3.42	-0.58
3322.00	9.620	353.370	3315.25	-128.72	152.36	-7.43	1723181.01	14443320.83	39°46'13.9960"N	80°42'19.6221"W	152.54	357.209	1.74	1.69	-2.66
3355.00	9.980	351.810	3347.77	-133.69	157.93	-8.15	1723180.28	14443326.40	39°46'14.0511"N	80°42'19.6311"W	158.14	357.045	1.36	1.09	-4.73
3387.00	10.470	350.900	3379.26	-138.77	163.54	-9.01	1723179.43	14443332.01	39°46'14.1066"N	80°42'19.6418"W	163.79	356.847	1.61	1.53	-2.84
3417.00	11.170	352.250	3408.73	-143.80	169.11	-9.83	1723178.60	14443337.58	39°46'14.1617"N	80°42'19.6521"W	169.40	356.673	2.48	2.33	4.50
3449.00	12.210	352.740	3440.06	-149.53	175.54	-10.68	1723177.76	14443344.00	39°46'14.2252"N	80°42'19.6627"W	175.87	356.520	3.26	3.25	1.53
3481.00	12.940	353.850	3471.29	-155.65	182.46	-11.49	1723176.95	14443350.92	39°46'14.2936"N	80°42'19.6728"W	182.82	356.397	2.40	2.28	3.47
3513.00	13.800	354.700	3502.43	-162.09	189.82	-12.22	1723176.21	14443358.28	39°46'14.3664"N	80°42'19.6819"W	190.22	356.315	2.76	2.69	2.66
3544.00	14.650	355.500	3532.48	-168.66	197.41	-12.87	1723175.56	14443365.87	39°46'14.4415"N	80°42'19.6899"W	197.83	356.269	2.81	2.74	2.58
3576.00	15.680	355.890	3563.36	-175.84	205.76	-13.50	1723174.93	14443374.21	39°46'14.5240"N	80°42'19.6976"W	206.20	356.246	3.23	3.22	1.22
3607.00	16.390	354.290	3593.16	-183.24	214.29	-14.24	1723174.20	14443382.74	39°46'14.6083"N	80°42'19.7066"W	214.76	356.199	2.70	2.29	-5.16
3639.00	17.500	355.520	3623.77	-191.30	223.58	-15.06	1723173.37	14443392.02	39°46'14.7001"N	80°42'19.7168"W	224.09	356.146	3.64	3.47	3.84
3656.00	17.470	356.390	3639.98	-195.67	228.68	-15.42	1723173.01	14443397.12	39°46'14.7505"N	80°42'19.7212"W	229.20	356.142	1.55	-0.18	5.12
3695.00	16.850	356.090	3677.24	-205.48	240.16	-16.18	1723172.26	14443408.59	39°46'14.8640"N	80°42'19.7304"W	240.70	356.147	1.61	-1.59	-0.77
3790.00	18.040	3.970	3767.89	-228.64	268.57	-16.10	1723172.34	14443437.00	39°46'15.1448"N	80°42'19.7282"W	269.06	356.570	2.78	1.25	8.29
3885.00	20.960	4.660	3857.43	-253.08	300.19	-13.70	1723174.74	14443468.60	39°46'15.4572"N	80°42'19.6961"W	300.50	357.388	3.08	3.07	0.73
3980.00	21.640	2.990	3945.94	-279.88	334.62	-11.40	1723177.03	14443503.02	39°46'15.7974"N	80°42'19.6653"W	334.81	358.048	0.96	0.72	-1.76
4075.00	24.720	4.190	4033.26	-308.99	371.93	-9.04	1723179.40	14443540.32	39°46'16.1660"N	80°42'19.6334"W	372.04	358.608	3.28	3.24	1.26
4170.00	27.510	358.910	4118.56	-342.50	413.69	-8.00	1723180.43	14443582.06	39°46'16.5787"N	80°42'19.6184"W	413.77	358.892	3.82	2.94	-5.56
4265.00	29.770	356.940	4201.94	-380.62	459.19	-9.68	1723178.75	14443627.54	39°46'17.0284"N	80°42'19.6380"W	459.29	358.792	2.58	2.38	-2.07
4360.00	32.520	352.840	4283.25	-423.13	508.09	-14.12	1723174.31	14443676.42	39°46'17.5118"N	80°42'19.6928"W	508.29	358.408	3.65	2.89	-4.32



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4455.00	34.800	353.780	4362.31	-469.37	560.38	-20.24	1723168.20	14443728.69	39°46'18.0288"N	80°42'19.7690"W	560.75	357.931	2.46	2.40	0.99
4550.00	35.600	353.890	4439.94	-517.23	614.83	-26.12	1723162.32	14443783.12	39°46'18.5670"N	80°42'19.8420"W	615.38	357.567	0.84	0.84	0.12
4645.00	34.540	353.270	4517.69	-565.05	669.07	-32.22	1723156.22	14443837.34	39°46'19.1033"N	80°42'19.9179"W	669.85	357.243	1.18	-1.12	-0.65
4740.00	35.400	354.380	4595.54	-612.64	723.20	-38.07	1723150.37	14443891.45	39°46'19.6384"N	80°42'19.9905"W	724.20	356.986	1.13	0.91	1.17
4836.00	37.760	356.130	4672.63	-661.91	780.21	-42.78	1723145.67	14443948.43	39°46'20.2020"N	80°42'20.0484"W	781.38	356.861	2.69	2.46	1.82
4930.00	39.330	354.680	4746.15	-712.31	838.59	-47.49	1723140.96	14444006.79	39°46'20.7791"N	80°42'20.1062"W	839.93	356.759	1.93	1.67	-1.54
5025.00	38.380	350.190	4820.14	-765.05	897.64	-55.30	1723133.15	14444065.81	39°46'21.3629"N	80°42'20.2038"W	899.34	356.474	3.13	-1.00	-4.73
5121.00	37.230	349.610	4895.99	-818.32	955.57	-65.62	1723122.84	14444123.72	39°46'21.9358"N	80°42'20.3335"W	957.82	356.072	1.25	-1.20	-0.60
5216.00	36.710	354.820	4971.91	-868.98	1012.13	-73.37	1723115.09	14444180.26	39°46'22.4950"N	80°42'20.4304"W	1014.78	355.854	3.34	-0.55	5.48
5311.00	36.070	355.940	5048.38	-917.48	1068.30	-77.91	1723110.55	14444236.41	39°46'23.0503"N	80°42'20.4862"W	1071.14	355.829	0.97	-0.67	1.18
5406.00	35.750	357.130	5125.33	-964.85	1123.92	-81.28	1723107.18	14444292.01	39°46'23.6000"N	80°42'20.5270"W	1126.85	355.864	0.81	-0.34	1.25
5501.00	36.950	359.970	5201.85	-1011.63	1180.20	-82.69	1723105.78	14444348.26	39°46'24.1562"N	80°42'20.5426"W	1183.09	355.992	2.18	1.26	2.99
5538.00	36.470	359.910	5231.51	-1029.70	1202.31	-82.71	1723105.75	14444370.37	39°46'24.3748"N	80°42'20.5420"W	1205.15	356.065	1.30	-1.30	-0.16
5640.00	30.780	1.190	5316.41	-1075.53	1258.77	-82.21	1723106.25	14444426.80	39°46'24.9327"N	80°42'20.5333"W	1261.45	356.263	5.62	-5.58	1.25
5734.00	28.730	16.070	5398.12	-1109.05	1304.59	-75.45	1723113.01	14444472.61	39°46'25.3853"N	80°42'20.4447"W	1306.77	356.690	8.13	-2.18	15.83
5829.00	23.950	17.820	5483.24	-1134.93	1344.91	-63.22	1723125.23	14444512.91	39°46'25.7834"N	80°42'20.2864"W	1346.40	357.309	5.10	-5.03	1.84
5924.00	19.670	41.410	5571.58	-1150.24	1375.33	-46.71	1723141.74	14444543.32	39°46'26.0835"N	80°42'20.0736"W	1376.13	358.055	10.18	-4.51	24.83
6019.00	19.160	69.370	5661.38	-1150.00	1392.86	-21.49	1723166.95	14444560.84	39°46'26.2559"N	80°42'19.7499"W	1393.02	359.116	9.71	-0.54	29.43
6114.00	22.460	94.110	5750.34	-1134.53	1397.06	11.28	1723199.70	14444565.04	39°46'26.2963"N	80°42'19.3301"W	1397.10	0.462	9.80	3.47	26.04
6208.00	26.580	108.970	5835.92	-1106.05	1388.92	49.13	1723237.54	14444556.90	39°46'26.2147"N	80°42'18.8457"W	1389.79	2.026	7.86	4.38	15.81
6302.00	33.990	119.630	5917.10	-1065.11	1369.05	91.94	1723280.34	14444537.04	39°46'26.0170"N	80°42'18.2981"W	1372.14	3.842	9.71	7.88	11.34
6398.00	41.680	127.430	5992.90	-1010.23	1336.32	140.72	1723329.09	14444504.32	39°46'25.6919"N	80°42'17.6748"W	1343.71	6.011	9.42	8.01	8.12
6492.00	48.880	133.850	6059.04	-945.51	1292.71	191.16	1723379.52	14444460.73	39°46'25.2593"N	80°42'17.0306"W	1306.77	8.412	9.06	7.66	6.83
6588.00	57.160	139.080	6116.76	-869.71	1237.07	243.77	1723432.10	14444405.11	39°46'24.7076"N	80°42'16.3592"W	1260.86	11.148	9.66	8.62	5.45
6683.00	64.220	144.140	6163.26	-787.08	1172.13	295.06	1723483.37	14444340.20	39°46'24.0642"N	80°42'15.7051"W	1208.70	14.129	8.76	7.43	5.33
6777.00	71.730	146.150	6198.49	-700.01	1100.66	344.78	1723533.08	14444268.75	39°46'23.3563"N	80°42'15.0712"W	1153.40	17.393	8.23	7.99	2.14
6872.00	79.200	149.000	6222.32	-608.24	1023.08	394.02	1723582.29	14444191.21	39°46'22.5880"N	80°42'14.4440"W	1096.33	21.063	8.38	7.86	3.00
6967.00	85.880	150.160	6234.65	-514.43	941.89	441.68	1723629.94	14444110.05	39°46'21.7841"N	80°42'13.8370"W	1040.31	25.123	7.13	7.03	1.22
7062.00	86.370	149.970	6241.07	-420.06	859.76	488.98	1723677.22	14444027.95	39°46'20.9708"N	80°42'13.2347"W	989.08	29.629	0.55	0.52	-0.20
7157.00	89.550	149.090	6244.45	-325.46	777.94	537.12	1723725.33	14443946.16	39°46'20.1607"N	80°42'12.6217"W	945.35	34.622	3.47	3.35	-0.93



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7252.00	89.390	149.160	6245.33	-230.74	696.41	585.86	1723774.06	14443864.66	39°46'19.3533"N	80°42'12.0008"W	910.07	40.073	0.18	-0.17	0.07
7347.00	89.420	149.230	6246.31	-136.03	614.81	634.51	1723822.69	14443783.10	39°46'18.5453"N	80°42'11.3812"W	883.52	45.903	0.08	0.03	0.07
7442.00	89.020	149.010	6247.61	-41.31	533.29	683.27	1723871.43	14443701.61	39°46'17.7381"N	80°42'10.7603"W	866.75	52.028	0.48	-0.42	-0.23
7536.00	89.180	147.620	6249.08	52.49	453.31	732.63	1723920.77	14443621.66	39°46'16.9461"N	80°42'10.1315"W	861.53	58.253	1.49	0.17	-1.48
7631.00	90.350	149.930	6249.47	147.25	372.08	781.88	1723970.00	14443540.46	39°46'16.1417"N	80°42'9.5043"W	865.89	64.551	2.73	1.23	2.43
7726.00	88.500	149.750	6250.42	241.87	289.95	829.60	1724017.70	14443458.36	39°46'15.3284"N	80°42'8.8966"W	878.81	70.735	1.96	-1.95	-0.19
7821.00	88.530	149.890	6252.89	336.47	207.85	877.34	1724065.43	14443376.30	39°46'14.5155"N	80°42'8.2886"W	901.63	76.672	0.15	0.03	0.15
7916.00	88.690	148.580	6255.19	431.15	126.25	925.92	1724113.99	14443294.73	39°46'13.7075"N	80°42'7.6700"W	934.49	82.236	1.39	0.17	-1.38
8011.00	89.640	149.430	6256.58	525.87	44.82	974.84	1724162.88	14443213.34	39°46'12.9012"N	80°42'7.0470"W	975.87	87.367	1.34	1.00	0.89
8106.00	89.860	149.500	6256.99	620.55	-37.00	1023.10	1724211.13	14443131.54	39°46'12.0909"N	80°42'6.4323"W	1023.77	92.071	0.24	0.23	0.07
8201.00	89.180	148.950	6257.79	715.26	-118.62	1071.71	1724259.72	14443049.96	39°46'11.2827"N	80°42'5.8133"W	1078.25	96.316	0.92	-0.72	-0.58
8295.00	88.870	148.520	6259.39	809.02	-198.96	1120.49	1724308.48	14442969.65	39°46'10.4872"N	80°42'5.1921"W	1138.01	100.069	0.56	-0.33	-0.46
8390.00	89.950	148.770	6260.36	903.80	-280.08	1169.92	1724357.88	14442888.56	39°46'9.6839"N	80°42'4.5625"W	1202.97	103.463	1.17	1.14	0.26
8485.00	89.640	149.570	6260.70	998.51	-361.65	1218.60	1724406.55	14442807.02	39°46'8.8761"N	80°42'3.9425"W	1271.13	106.530	0.90	-0.33	0.84
8580.00	89.550	150.290	6261.38	1093.12	-443.86	1266.20	1724454.13	14442724.84	39°46'8.0620"N	80°42'3.3365"W	1341.74	109.318	0.76	-0.09	0.76
8675.00	90.010	150.630	6261.74	1187.65	-526.51	1313.04	1724500.95	14442642.22	39°46'7.2437"N	80°42'2.7402"W	1414.67	111.850	0.60	0.48	0.36
8770.00	88.780	145.170	6262.74	1282.47	-606.95	1363.50	1724551.39	14442561.82	39°46'6.4471"N	80°42'2.0974"W	1492.49	113.996	5.89	-1.29	-5.75
8865.00	88.900	145.560	6264.67	1377.44	-685.10	1417.48	1724605.35	14442483.70	39°46'5.6730"N	80°42'1.4094"W	1574.36	115.796	0.43	0.13	0.41
8960.00	89.240	147.740	6266.21	1472.37	-764.44	1469.70	1724657.55	14442404.39	39°46'4.8871"N	80°42'0.7441"W	1656.62	117.481	2.32	0.36	2.29
9054.00	88.750	149.750	6267.86	1566.12	-844.78	1518.46	1724706.29	14442324.08	39°46'4.0915"N	80°42'0.1231"W	1737.63	119.089	2.20	-0.52	2.14
9149.00	88.720	144.300	6269.96	1660.99	-924.43	1570.13	1724757.94	14442244.46	39°46'3.3027"N	80°41'59.4648"W	1822.05	120.488	5.74	-0.03	-5.74
9244.00	88.810	150.640	6272.01	1755.81	-1004.47	1621.18	1724808.97	14442164.46	39°46'2.5100"N	80°41'58.8145"W	1907.14	121.782	6.67	0.09	6.67
9339.00	88.900	151.080	6273.90	1850.26	-1087.43	1667.43	1724855.20	14442081.53	39°46'1.6887"N	80°41'58.2258"W	1990.68	123.111	0.47	0.09	0.46
9434.00	89.060	150.970	6275.60	1944.68	-1170.52	1713.44	1724901.20	14441998.47	39°46'0.8659"N	80°41'57.6401"W	2075.09	124.339	0.20	0.17	-0.12
9530.00	88.870	150.890	6277.33	2040.10	-1254.41	1760.08	1724947.82	14441914.61	39°46'0.0353"N	80°41'57.0465"W	2161.35	125.478	0.21	-0.20	-0.08
9625.00	88.660	151.190	6279.38	2134.51	-1337.52	1806.07	1724993.79	14441831.54	39°45'59.2125"N	80°41'56.4611"W	2247.40	126.522	0.39	-0.22	0.32
9719.00	88.230	150.190	6281.93	2227.97	-1419.45	1852.07	1725039.77	14441749.64	39°45'58.4012"N	80°41'55.8756"W	2333.45	127.467	1.16	-0.46	-1.06
9814.00	88.470	150.300	6284.66	2322.50	-1501.89	1899.19	1725086.88	14441667.23	39°45'57.5849"N	80°41'55.2756"W	2421.28	128.337	0.28	0.25	0.12
9909.00	88.720	149.130	6286.99	2417.11	-1583.90	1947.09	1725134.75	14441585.25	39°45'56.7729"N	80°41'54.6658"W	2509.96	129.127	1.26	0.26	-1.23
10004.00	89.670	150.470	6288.33	2511.73	-1666.00	1994.87	1725182.51	14441503.19	39°45'55.9600"N	80°41'54.0575"W	2599.05	129.867	1.73	1.00	1.41



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REFERENCE WELLPATH IDENTIFICATION

Operator	EQT (TUG HILL OPERATING, LLC)	Well	Knob Creek S-9HM
Field	Marshall	API	47-051-02285-0000
Facility	Knob Creek	Wellbore	Knob Creek S-9HM AWB
Slot	Slot 09		

WELLPATH DATA (259 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]
10099.00	89.490	151.010	6289.02	2606.21	-1748.87	2041.30	1725228.93	14441420.35	39°45'55.1394"N	80°41'53.4665"W	2688.02	130.588	0.60	-0.19	0.57
10194.00	89.060	150.350	6290.23	2700.70	-1831.70	2087.82	1725275.42	14441337.56	39°45'54.3193"N	80°41'52.8744"W	2777.42	131.261	0.83	-0.45	-0.69
10289.00	88.810	150.590	6291.99	2795.21	-1914.34	2134.63	1725322.22	14441254.94	39°45'53.5010"N	80°41'52.2784"W	2867.29	131.886	0.36	-0.26	0.25
10384.00	88.750	150.560	6294.01	2889.70	-1997.07	2181.29	1725368.86	14441172.25	39°45'52.6819"N	80°41'51.6845"W	2957.42	132.475	0.07	-0.06	-0.03
10480.00	88.560	149.120	6296.27	2985.29	-2080.05	2229.51	1725417.06	14441089.30	39°45'51.8602"N	80°41'51.0706"W	3049.15	133.014	1.51	-0.20	-1.50
10575.00	89.360	150.180	6297.99	3079.93	-2162.01	2277.50	1725465.03	14441007.37	39°45'51.0486"N	80°41'50.4596"W	3140.27	133.510	1.40	0.84	1.12
10670.00	89.090	150.650	6299.28	3174.46	-2244.62	2324.40	1725511.91	14440924.80	39°45'50.2307"N	80°41'49.8626"W	3231.28	134.000	0.57	-0.28	0.49
10765.00	89.090	150.280	6300.79	3268.98	-2327.26	2371.23	1725558.72	14440842.19	39°45'49.4123"N	80°41'49.2665"W	3322.48	134.464	0.39	0.00	-0.39
10860.00	88.720	150.460	6302.60	3363.50	-2409.82	2418.18	1725605.66	14440759.66	39°45'48.5948"N	80°41'48.6688"W	3413.92	134.901	0.43	-0.39	0.19
10955.00	88.900	150.080	6304.57	3458.04	-2492.30	2465.29	1725652.74	14440677.21	39°45'47.7782"N	80°41'48.0692"W	3505.60	135.312	0.44	0.19	-0.40
11049.00	88.960	150.720	6306.33	3551.57	-2574.02	2511.71	1725699.15	14440595.53	39°45'46.9690"N	80°41'47.4783"W	3596.42	135.702	0.68	0.06	0.68
11144.00	88.560	149.650	6308.39	3646.12	-2656.42	2558.93	1725746.35	14440513.15	39°45'46.1531"N	80°41'46.8772"W	3688.46	136.071	1.20	-0.42	-1.13
11239.00	89.090	150.960	6310.33	3740.66	-2738.93	2605.98	1725793.38	14440430.68	39°45'45.3361"N	80°41'46.2783"W	3780.59	136.425	1.49	0.56	1.38
11334.00	89.430	151.230	6311.56	3835.07	-2822.09	2651.90	1725839.28	14440347.56	39°45'44.5128"N	80°41'45.6939"W	3872.56	136.781	0.46	0.36	0.28
11429.00	89.180	150.900	6312.71	3929.49	-2905.22	2697.86	1725885.22	14440264.45	39°45'43.6896"N	80°41'45.1090"W	3964.69	137.120	0.44	-0.26	-0.35
11524.00	89.060	150.600	6314.17	4023.96	-2988.10	2744.27	1725931.62	14440181.61	39°45'42.8690"N	80°41'44.5183"W	4057.06	137.436	0.34	-0.13	-0.32
11619.00	88.690	150.040	6316.04	4118.49	-3070.62	2791.30	1725978.63	14440099.12	39°45'42.0519"N	80°41'43.9196"W	4149.70	137.728	0.71	-0.39	-0.59
11714.00	89.030	150.320	6317.93	4213.05	-3153.02	2838.53	1726025.84	14440016.75	39°45'41.2360"N	80°41'43.3184"W	4242.50	138.005	0.46	0.36	0.29
11809.00	89.150	150.610	6319.44	4307.57	-3235.67	2885.36	1726072.65	14439934.14	39°45'40.4176"N	80°41'42.7224"W	4335.30	138.276	0.33	0.13	0.31
11904.00	89.030	150.410	6320.95	4402.08	-3318.35	2932.12	1726119.39	14439851.49	39°45'39.5989"N	80°41'42.1273"W	4428.18	138.536	0.25	-0.13	-0.21
11999.00	88.600	151.810	6322.91	4496.47	-3401.51	2978.00	1726165.26	14439768.36	39°45'38.7756"N	80°41'41.5433"W	4520.92	138.798	1.54	-0.45	1.47
12094.00	88.100	148.700	6325.65	4590.98	-3483.95	3025.11	1726212.35	14439685.96	39°45'37.9593"N	80°41'40.9437"W	4614.02	139.032	3.31	-0.53	-3.27
12189.00	89.580	150.890	6327.57	4685.59	-3566.02	3072.89	1726260.11	14439603.91	39°45'37.1465"N	80°41'40.3355"W	4707.35	139.248	2.78	1.56	2.31
12284.00	88.290	150.880	6329.34	4780.03	-3649.00	3119.10	1726306.30	14439520.96	39°45'36.3249"N	80°41'39.7473"W	4800.42	139.477	1.36	-1.36	-0.01
12378.00	88.380	150.050	6332.07	4873.52	-3730.75	3165.42	1726352.60	14439439.25	39°45'35.5154"N	80°41'39.1578"W	4892.69	139.686	0.89	0.10	-0.88
12474.00	88.500	149.830	6334.68	4969.09	-3813.81	3213.49	1726400.65	14439356.22	39°45'34.6930"N	80°41'38.5459"W	4987.15	139.883	0.26	0.13	-0.23
12569.00	88.690	150.320	6337.01	5063.66	-3896.12	3260.87	1726448.01	14439273.95	39°45'33.8779"N	80°41'37.9429"W	5080.65	140.072	0.55	0.20	0.52
12664.00	88.660	151.040	6339.21	5158.12	-3978.93	3307.38	1726494.50	14439191.17	39°45'33.0580"N	80°41'37.3510"W	5174.03	140.266	0.76	-0.03	0.76
12759.00	88.320	151.000	6341.71	5252.52	-4062.00	3353.39	1726540.50	14439108.13	39°45'32.2354"N	80°41'36.7654"W	5267.36	140.459	0.36	-0.36	-0.04
12855.00	88.900	149.140	6344.04	5348.08	-4145.17	3401.27	1726588.36	14439024.99	39°45'31.4119"N	80°41'36.1560"W	5362.00	140.630	2.03	0.60	-1.94



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Actual Wellpath Report

Knob Creek S-9HM AWB Proj: 17452'

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REFERENCE WELLPATH IDENTIFICATION

Operator	EQT (TUG HILL OPERATING, LLC)	Well	Knob Creek S-9HM
Field	Marshall	API	47-051-02285-0000
Facility	Knob Creek	Wellbore	Knob Creek S-9HM AWB
Slot	Slot 09		

WELLPATH DATA (259 stations)

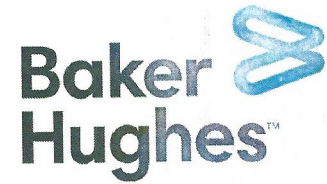
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
12950.00	88.810	149.960	6345.94	5442.73	-4227.05	3449.40	1726636.48	14438943.14	39°45'30.6011"N	80°41'35.5432"W	5455.86	140.784	0.87	-0.09	0.86
13045.00	88.690	149.650	6348.01	5537.34	-4309.14	3497.17	1726684.22	14438861.09	39°45'29.7882"N	80°41'34.9352"W	5549.68	140.938	0.35	-0.13	-0.33
13140.00	87.890	148.600	6350.84	5632.02	-4390.64	3545.90	1726732.93	14438779.62	39°45'28.9811"N	80°41'34.3148"W	5643.68	141.076	1.39	-0.84	-1.11
13235.00	88.100	149.850	6354.17	5726.67	-4472.21	3594.48	1726781.49	14438698.08	39°45'28.1733"N	80°41'33.6964"W	5737.68	141.210	1.33	0.22	1.32
13329.00	88.870	148.710	6356.65	5820.34	-4552.99	3642.48	1726829.47	14438617.33	39°45'27.3734"N	80°41'33.0853"W	5830.73	141.340	1.46	0.82	-1.21
13424.00	89.180	150.940	6358.27	5914.95	-4635.10	3690.22	1726877.20	14438535.26	39°45'26.5603"N	80°41'32.4776"W	5924.69	141.475	2.37	0.33	2.35
13519.00	88.260	148.930	6360.39	6009.53	-4717.29	3737.80	1726924.76	14438453.09	39°45'25.7464"N	80°41'31.8720"W	6018.64	141.608	2.33	-0.97	-2.12
13614.00	88.260	149.440	6363.28	6104.21	-4798.85	3786.44	1726973.38	14438371.58	39°45'24.9388"N	80°41'31.2528"W	6112.78	141.725	0.54	0.00	0.54
13710.00	88.620	149.330	6365.89	6199.86	-4881.43	3835.31	1727022.23	14438289.02	39°45'24.1210"N	80°41'30.6306"W	6207.90	141.843	0.39	0.37	-0.11
13805.00	88.260	149.670	6368.48	6294.50	-4963.26	3883.51	1727070.41	14438207.23	39°45'23.3107"N	80°41'30.0171"W	6302.03	141.959	0.52	-0.38	0.36
13900.00	90.500	149.520	6369.50	6389.15	-5045.18	3931.59	1727118.47	14438125.34	39°45'22.4994"N	80°41'29.4052"W	6396.19	142.072	2.36	2.36	-0.16
13994.00	87.890	147.140	6370.83	6482.94	-5125.16	3980.93	1727167.79	14438045.39	39°45'21.7073"N	80°41'28.7769"W	6489.61	142.162	3.76	-2.78	-2.53
14089.00	88.780	150.800	6373.59	6577.63	-5206.52	4029.87	1727216.71	14437964.06	39°45'20.9016"N	80°41'28.1539"W	6583.90	142.260	3.96	0.94	3.85
14184.00	88.440	149.870	6375.89	6672.15	-5289.04	4076.87	1727263.69	14437881.57	39°45'20.0845"N	80°41'27.5557"W	6677.94	142.374	1.04	-0.36	-0.98
14280.00	88.720	149.360	6378.27	6767.78	-5371.83	4125.41	1727312.22	14437798.82	39°45'19.2646"N	80°41'26.9378"W	6773.15	142.477	0.61	0.29	-0.53
14375.00	87.820	150.430	6381.14	6862.35	-5453.98	4173.04	1727359.83	14437716.70	39°45'18.4512"N	80°41'26.3316"W	6867.32	142.579	1.47	-0.95	1.13
14469.00	88.500	149.690	6384.16	6955.90	-5535.39	4219.93	1727406.70	14437635.32	39°45'17.6450"N	80°41'25.7348"W	6960.49	142.680	1.07	0.72	-0.79
14564.00	88.720	148.290	6386.46	7050.61	-5616.79	4268.86	1727455.61	14437553.96	39°45'16.8389"N	80°41'25.1120"W	7054.89	142.765	1.49	0.23	-1.47
14659.00	89.760	150.630	6387.72	7145.27	-5698.59	4317.12	1727503.85	14437472.18	39°45'16.0288"N	80°41'24.4976"W	7149.23	142.853	2.70	1.09	2.46
14755.00	89.360	150.720	6388.46	7240.76	-5782.29	4364.14	1727550.85	14437388.52	39°45'15.2001"N	80°41'23.8994"W	7244.35	142.957	0.43	-0.42	0.09
14849.00	88.930	150.080	6389.86	7334.29	-5864.01	4410.56	1727597.25	14437306.83	39°45'14.3908"N	80°41'23.3086"W	7337.55	143.052	0.82	-0.46	-0.68
14944.00	88.780	150.480	6391.76	7428.83	-5946.50	4457.65	1727644.32	14437224.38	39°45'13.5740"N	80°41'22.7093"W	7431.79	143.144	0.45	-0.16	0.42
15039.00	88.350	149.410	6394.14	7523.41	-6028.70	4505.21	1727691.87	14437142.21	39°45'12.7601"N	80°41'22.1040"W	7526.10	143.229	1.21	-0.45	-1.13
15134.00	88.500	149.020	6396.75	7618.09	-6110.28	4553.82	1727740.45	14437060.66	39°45'11.9521"N	80°41'21.4853"W	7620.55	143.304	0.44	0.16	-0.41
15229.00	88.630	150.240	6399.13	7712.72	-6192.22	4601.83	1727788.45	14436978.75	39°45'11.1407"N	80°41'20.8742"W	7714.95	143.382	1.29	0.14	1.28
15324.00	88.660	150.520	6401.38	7807.23	-6274.78	4648.77	1727835.37	14436896.22	39°45'10.3232"N	80°41'20.2769"W	7809.22	143.467	0.30	0.03	0.29
15420.00	88.690	149.910	6403.60	7902.77	-6358.08	4696.45	1727883.03	14436812.96	39°45'9.4984"N	80°41'19.6702"W	7904.54	143.548	0.64	0.03	-0.64
15515.00	89.120	150.950	6405.41	7997.29	-6440.69	4743.32	1727929.88	14436730.38	39°45'8.6803"N	80°41'19.0737"W	7998.84	143.630	1.18	0.45	1.09
15610.00	88.780	150.560	6407.15	8091.75	-6523.56	4789.72	1727976.27	14436647.54	39°45'7.8597"N	80°41'18.4833"W	8093.10	143.713	0.54	-0.36	-0.41
15705.00	88.220	148.280	6409.64	8186.40	-6605.32	4838.03	1728024.56	14436565.82	39°45'7.0501"N	80°41'17.8684"W	8187.60	143.779	2.47	-0.59	-2.40



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Actual Wellpath Report

Knob Creek S-9HM AWB Proj: 17452'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	EQT (TUG HILL OPERATING, LLC)	Well	Knob Creek S-9HM
Field	Marshall	API	47-051-02285-0000
Facility	Knob Creek	Wellbore	Knob Creek S-9HM AWB
Slot	Slot 09		

WELLPATH DATA (259 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]
15800.00	89.120	151.500	6411.84	8280.98	-6687.46	4885.67	1728072.18	14436483.70	39°45'6.2366"N	80°41'17.2621"W	8282.03	143.849	3.52	0.95	3.39
15895.00	88.190	149.170	6414.07	8375.50	-6769.98	4932.67	1728119.16	14436401.21	39°45'5.4195"N	80°41'16.6640"W	8376.39	143.923	2.64	-0.98	-2.45
15989.00	88.720	149.350	6416.61	8469.17	-6850.75	4980.70	1728167.17	14436320.48	39°45'4.6197"N	80°41'16.0527"W	8469.95	143.982	0.60	0.56	0.19
16084.00	88.380	149.520	6419.01	8563.83	-6932.52	5029.00	1728215.44	14436238.74	39°45'3.8099"N	80°41'15.4380"W	8564.50	144.042	0.40	-0.36	0.18
16179.00	89.120	150.500	6421.09	8658.40	-7014.78	5076.47	1728262.90	14436156.52	39°45'2.9953"N	80°41'14.8339"W	8658.97	144.107	1.29	0.78	1.03
16274.00	89.180	150.090	6422.49	8752.95	-7097.29	5123.54	1728309.95	14436074.04	39°45'2.1783"N	80°41'14.2349"W	8753.41	144.174	0.44	0.06	-0.43
16368.00	88.960	149.420	6424.02	8846.58	-7178.48	5170.88	1728357.27	14435992.88	39°45'1.3742"N	80°41'13.6325"W	8846.95	144.234	0.75	-0.23	-0.71
16463.00	88.470	150.440	6426.15	8941.17	-7260.67	5218.47	1728404.84	14435910.72	39°45'0.5603"N	80°41'13.0269"W	8941.46	144.294	1.19	-0.52	1.07
16558.00	88.410	149.990	6428.74	9035.70	-7343.09	5265.64	1728452.00	14435828.33	39°44'59.7442"N	80°41'12.4266"W	9035.93	144.356	0.48	-0.06	-0.47
16653.00	88.590	150.300	6431.22	9130.25	-7425.46	5312.92	1728499.25	14435746.00	39°44'58.9286"N	80°41'11.8250"W	9130.42	144.416	0.38	0.19	0.33
16747.00	88.720	149.320	6433.43	9223.86	-7506.68	5360.17	1728546.49	14435664.81	39°44'58.1242"N	80°41'11.2236"W	9223.98	144.471	1.05	0.14	-1.04
16842.00	88.560	150.040	6435.69	9318.48	-7588.66	5408.12	1728594.42	14435582.86	39°44'57.3123"N	80°41'10.6135"W	9318.56	144.524	0.78	-0.17	0.76
16937.00	88.620	149.240	6438.02	9413.11	-7670.61	5456.12	1728642.40	14435500.94	39°44'56.5008"N	80°41'10.0026"W	9413.16	144.576	0.84	0.06	-0.84
17031.00	88.620	149.300	6440.29	9506.79	-7751.39	5504.14	1728690.40	14435420.20	39°44'55.7009"N	80°41'9.3914"W	9506.82	144.622	0.06	0.00	0.06
17127.00	88.810	149.850	6442.44	9602.43	-7834.15	5552.74	1728738.98	14435337.47	39°44'54.8813"N	80°41'8.7729"W	9602.44	144.671	0.61	0.20	0.57
17221.00	88.990	149.170	6444.24	9696.09	-7915.13	5600.43	1728786.65	14435256.52	39°44'54.0793"N	80°41'8.1660"W	9696.09	144.718	0.75	0.19	-0.72
17317.00	88.590	148.650	6446.27	9791.81	-7997.33	5649.99	1728836.19	14435174.36	39°44'53.2653"N	80°41'7.5352"W	9791.81	144.759	0.68	-0.42	-0.54
17411.00	88.350	148.500	6448.78	9885.57	-8077.51	5698.98	1728885.16	14435094.20	39°44'52.4712"N	80°41'6.9116"W	9885.57	144.796	0.30	-0.26	-0.16
17452.00‡	88.350	148.500	6449.96	9926.47	-8112.45	5720.39	1728906.57	14435059.27	39°44'52.1251"N	80°41'6.6390"W	9926.47	144.811	0.00	0.00	0.00

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Field	Marshall	API	47-051-02285-0000
Facility	Knob Creek	Wellbore	Knob Creek S-9HM AWB
Slot	Slot 09		

HOLE & CASING SECTIONS - Ref Wellbore: Knob Creek S-9HM AWB Ref Wellpath: Knob Creek S-9HM AWB Proj: 17452'									
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]
30in Conductor	28.00	148.00	120.00	28.00	148.00	0.00	0.00	0.14	0.22
17.5in Open Hole	148.00	517.00	369.00	148.00	517.00	0.14	0.22	-0.17	0.71
13.375in Casing Surface	28.00	517.00	489.00	28.00	517.00	0.00	0.00	-0.17	0.71
12.25in Open Hole	517.00	2324.00	1807.00	517.00	2321.81	-0.17	0.71	59.39	-5.98
9.625in Casing Intermediate	28.00	2324.00	2296.00	28.00	2321.81	0.00	0.00	59.39	-5.98
8.75in Open Hole	2324.00	5612.00	3288.00	2321.81	5292.55	59.39	-5.98	1244.11	-82.47
8.5in Open Hole	5612.00	17452.00	11840.00	5292.55	6449.96	1244.11	-82.47	-8112.45	5720.39
5.5in Casing Production	28.00	17452.00	17424.00	28.00	6449.96	0.00	0.00	-8112.45	5720.39

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Haggard S-9HM LP Rev-1	6228.00	938.62	444.30	1723632.55	14444106.78	39°46'21.7516"N	80°42'13.8036"W	point
Knob Creek S-9HM BHL Rev-1	6410.80	-8107.85	5727.38	1728913.55	14435063.88	39°44'52.1704"N	80°41'6.5494"W	point

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Field	Marshall	API	47-051-02285-0000
Facility	Knob Creek	Wellbore	Knob Creek S-9HM AWB
Slot	Slot 09		

WELLPATH COMPOSITION - Ref Wellbore: Knob Creek S-9HM AWB Ref Wellpath: Knob Creek S-9HM AWB Proj: 17452'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
28.00	512.00	OWSG MWD rev2 - Standard	01_MWD<17-1/2">(173'-512')	Knob Creek S-9HM AWB	10/3/2023
512.00	2280.00	OWSG MWD rev2 - Standard	02_MWD<12-1/4">(262')(322'-2280')	Knob Creek S-9HM AWB	10/3/2023
2280.00	3656.00	OWSG MWD rev2 - Standard	03_MWD<8-3/4">(2280')(2343'-3656')	Knob Creek S-9HM AWB	10/3/2023
3656.00	5538.00	OWSG MWD rev2 + HRGM	04_SDI MWD<8-3/4">(3656')(3695'-5538')	Knob Creek S-9HM AWB	10/23/2023
5538.00	17452.00	OWSG MWD rev2 + IFR1 + Sag + Multi-Station Correction	05_BH ATCurve+SQC IFR1+SAG+FDIR <8-1/2">(5538')(5640'-17411')	Knob Creek S-9HM AWB	10/23/2023

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Field	Marshall	API	47-051-02285-0000
Facility	Knob Creek	Wellbore	Knob Creek S-9HM AWB
Slot	Slot 09		

COMMENTS

Wellpath general comments

API: 47-051-02285-0000

BH Job #: 111995194

Rig: Patterson 294

Duration: 10/24/2023-10/26/2023

01_MWD<17-1/2">(173'-512')

02_MWD<12-1/4">(262')(322'-2280')

03_MWD<8-3/4">(2280')(2343'-3656')

04_SDI MWD<8-3/4">(3656')(3695'-5538')

05_BH ATCurve+SQC IFR1+SAG+FDIR <8-1/2">(5538')(5640'-17411')

Landing Pt. @ 6967' MD

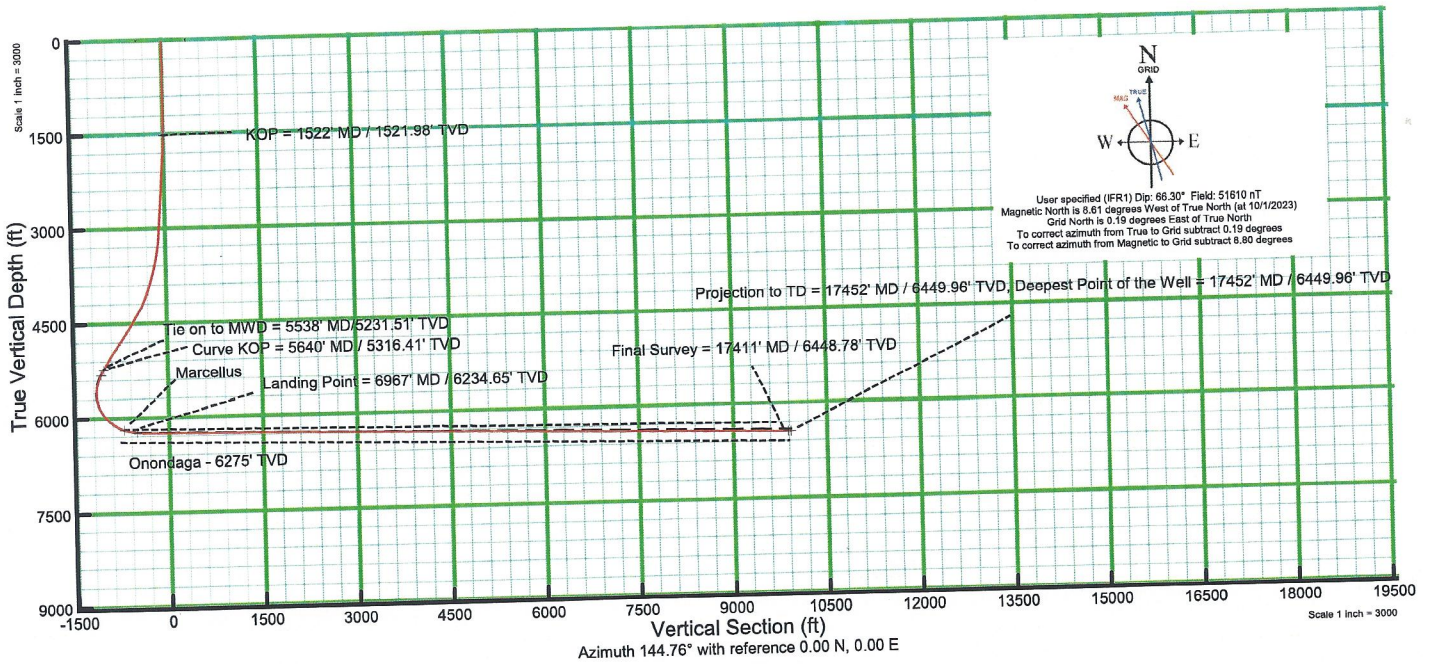
Final Survey @ 17411' MD

Projected MD at TD: 17452'

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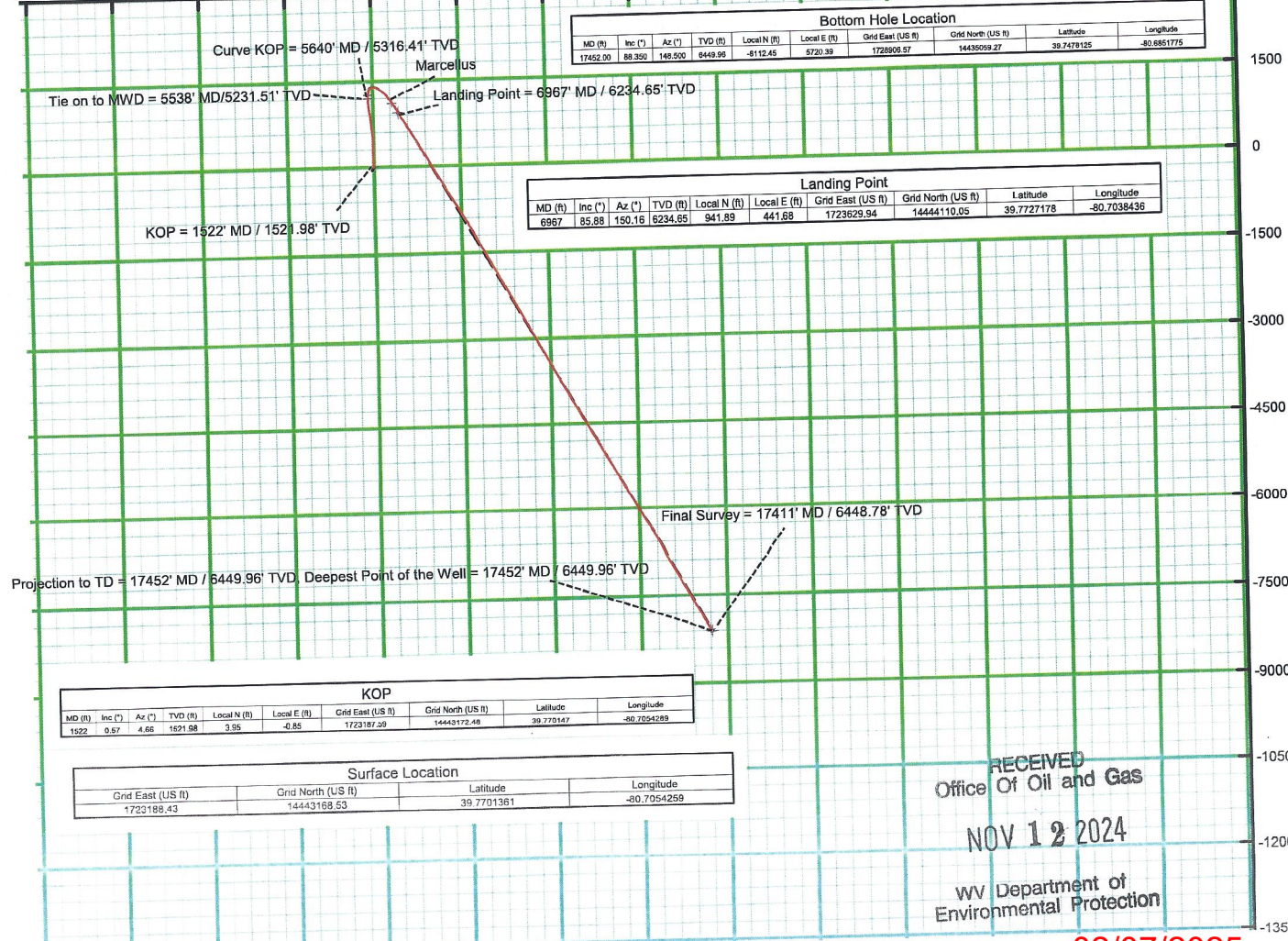


KB Elevation=765 FT
 Ground Elevation=737 FT
 All Survey Measurements were taken from KB Elevation



User specified (IFR1) Dip: 86.30° Field: 51810 nT
 Magnetic North is 8.61 degrees West of True North (at 10/1/2023)
 Grid North is 0.19 degrees East of True North
 To correct azimuth from True to Grid subtract 0.19 degrees
 To correct azimuth from Magnetic to Grid subtract 8.80 degrees

Scale 1 inch = 3000
 Easting (ft) Azimuth 144.76° with reference 0.00 N, 0.00 E



Bottom Hole Location							
MD (ft)	Inc. (°)	Az. (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
17452.00	88.350	148.500	6449.96	-8112.45	5720.39	1728509.57	14435059.27
							Latitude 39.7478125 Longitude -80.8861775

Landing Point							
MD (ft)	Inc. (°)	Az. (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
6967	85.88	150.16	6234.65	941.89	441.68	1723529.94	14444110.05
							Latitude 39.7727178 Longitude -80.7038436

KOP							
MD (ft)	Inc. (°)	Az. (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
1522	0.67	4.65	1521.98	3.35	-0.85	1723187.59	14443172.48
							Latitude 39.770147 Longitude -80.704289

Surface Location			
Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
1723188.43	14443168.53	39.7701361	-80.7054259

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