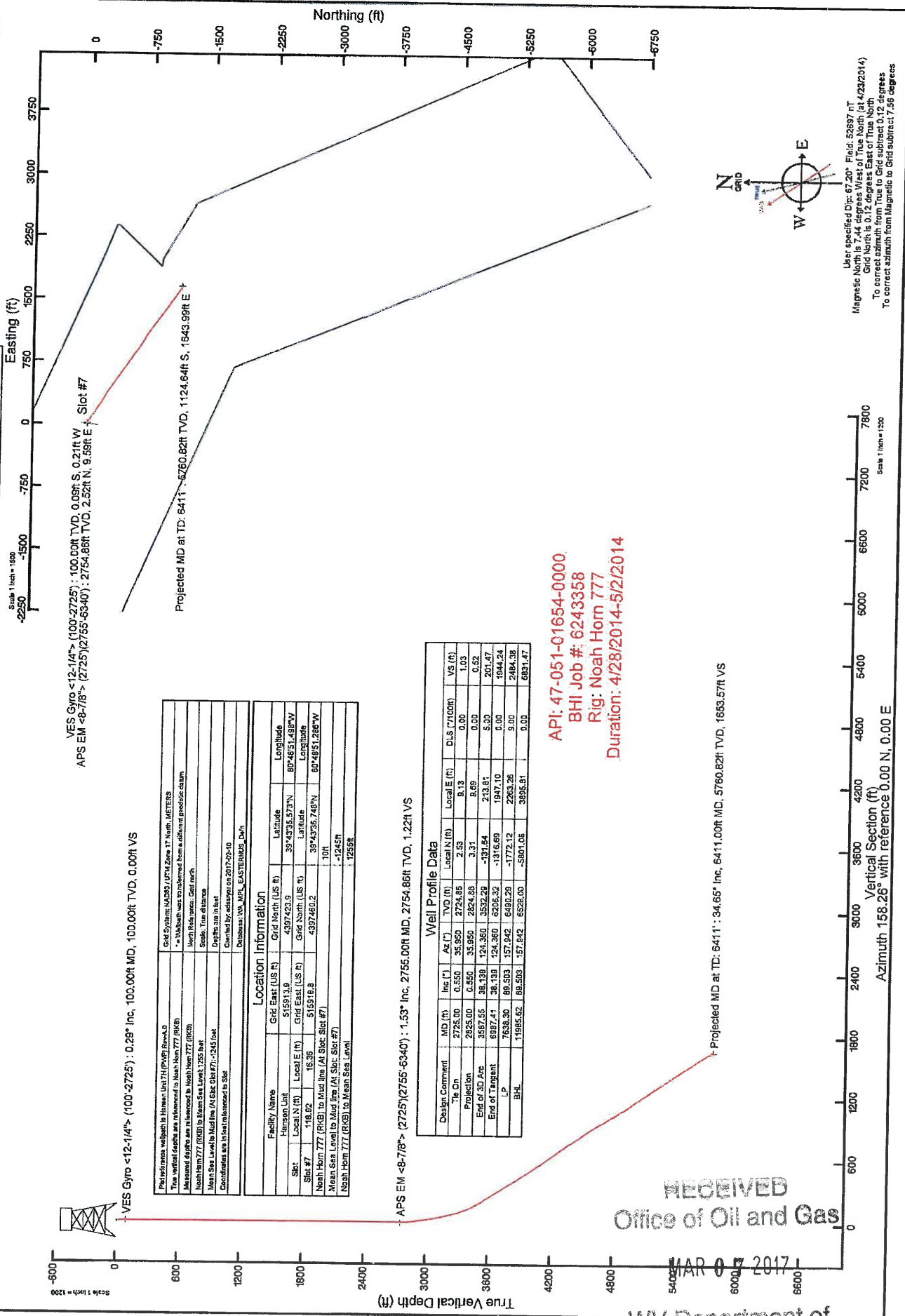




GASTAR EXPLORATION USA, INC.

Location: Marshall County, WV
 Field: Marshall
 Facility: Hansen Unit

Slot: Slot #7
 Well: Hansen Unit 7H
 Wellbore: Hansen Unit 7H PWB



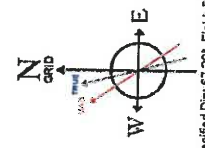
VES Gyro <12-1/4"> (100-2725') : 0.29° Inc, 100.00ft MD, 100.00ft TVD, 0.00ft VS
 AFS EM <8-7/8"> (2725)(2755-6340) : 1.53° Inc, 2755.00ft MD, 2754.86ft TVD, 1.22ft VS
 Projected MD at TD: 6411' : 5760.82ft TVD, 1124.64ft S, 1843.99ft E

Location Information			
Facility Name	Grid East (US F)	Grid North (US F)	Latitude
Hansen Unit	515313.9	4397425.9	39°43'35.57"N
Slot	Grid East (US F)	Grid North (US F)	Longitude
Slot #7	515318.9	4397460.2	80°48'51.48"W
North Horn 777 (RKB) to Mud line (AI Slot Slot #7)			101
Mean Sea Level to Mud line (AI Slot Slot #7)			-1245ft
North Horn 777 (RKB) to Mean Sea Level			1258ft

Well Profile Data					
Design Comment	MD (ft)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)
The On	2725.00	0.550	35.950	2724.85	8.13
Projection	2925.00	0.950	35.950	2824.85	3.31
End of 3D Arc	3567.55	38.139	124.360	3532.29	-131.64
End of Tangent	6367.41	38.139	124.360	6205.92	-1316.69
LP	7538.30	88.503	157.842	6480.29	-1772.12
BH	11995.62	88.503	157.842	6528.00	-3801.06
					3955.51
					6831.47

API: 47-051-01654-0000
 BHI Job #: 6243358
 Rig: Noah Horn 777
 Duration: 4/28/2014-5/2/2014

Projected MD at TD: 6411' : 34.65° Inc, 6411.00ft MD, 5760.82ft TVD, 1653.57ft VS
 Vertical Section (ft)
 Azimuth 158.26° with reference 0.00 N, 0.00 E



User specified Dip: 67.20° Field: 52897 nT
 Magnetic North is 7.44 degrees West of True North (at 4/23/2014)
 True North is 0.12 degrees East of Grid North
 To correct azimuth from Magnetic to Grid subtract 7.56 degrees

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WV Department of Environmental Protection
 05/26/2017

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #1
GASTAR EXPLORATION INC.	Well	Hansen 7H
Area Marshall County, WV	Wellbore	Hansen 7H (AWB)
Field Marshall	Wellpath	Hansen 7H (AWP) Proj: 6,411'
Facility Hansen Unit	Sidetrack	(none)

WELLPATH DATA f = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [M]	Grid North [M]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
0	0	248.04	0	0	0	0	515918.8	4397460.2	39°43'36.748"N	80°48'51.286"W	0	0	0
10	0	248.04	10	0	0	0	515918.8	4397460.2	39°43'36.748"N	80°48'51.286"W	0	0	0
100	0.29	248.04	100	0	-0.09	-0.21	515918.8	4397460.1	39°43'36.747"N	80°48'51.288"W	0.23	248.04	0.32
200	0.3	240.3	200	0.04	-0.31	-0.67	515918.7	4397460.1	39°43'36.745"N	80°48'51.294"W	0.74	245.313	0.04
300	0.9	232.03	299.99	0.29	-0.92	-1.52	515918.4	4397459.9	39°43'36.739"N	80°48'51.305"W	1.78	238.746	0.6
400	0.92	228.98	399.98	0.78	-1.93	-2.74	515918.1	4397459.6	39°43'36.729"N	80°48'51.321"W	3.36	234.851	0.05
500	0.64	233.71	499.97	1.18	-2.79	-3.8	515917.7	4397459.3	39°43'36.720"N	80°48'51.334"W	4.71	233.718	0.29
600	0.44	235.95	599.97	1.41	-3.34	-4.57	515917.5	4397459.1	39°43'36.715"N	80°48'51.344"W	5.66	233.869	0.2
700	0.23	219.64	699.96	1.58	-3.71	-5.02	515917.4	4397459.0	39°43'36.711"N	80°48'51.350"W	6.24	233.543	0.23
800	0.19	191.33	799.96	1.82	-4.02	-5.18	515917.3	4397458.9	39°43'36.708"N	80°48'51.352"W	6.55	232.148	0.11
900	0.12	169.38	899.96	2.06	-4.29	-5.19	515917.3	4397458.9	39°43'36.706"N	80°48'51.352"W	6.73	230.433	0.09
1000	0.09	106.58	999.96	2.21	-4.41	-5.09	515917.4	4397458.8	39°43'36.704"N	80°48'51.351"W	6.74	229.099	0.11
1100	0.1	107	1099.96	2.32	-4.46	-4.94	515917.4	4397458.8	39°43'36.704"N	80°48'51.349"W	6.65	227.892	0.01
1200	0.02	98.29	1199.96	2.38	-4.49	-4.83	515917.4	4397458.8	39°43'36.704"N	80°48'51.348"W	6.6	227.125	0.08
1300	0.71	71.42	1299.96	2.42	-4.29	-4.23	515917.6	4397458.9	39°43'36.706"N	80°48'51.340"W	6.03	224.572	0.69
1400	0.87	78.44	1399.95	2.59	-3.94	-2.9	515918.0	4397459.0	39°43'36.709"N	80°48'51.323"W	4.9	216.317	0.19
1500	0.5	74.12	1499.94	2.77	-3.67	-1.74	515918.4	4397459.0	39°43'36.712"N	80°48'51.308"W	4.06	205.295	0.37
1600	0.51	73.17	1599.94	2.85	-3.42	-0.89	515918.6	4397459.1	39°43'36.714"N	80°48'51.297"W	3.54	194.57	0.01
1700	0.66	84.06	1699.93	3.05	-3.24	0.11	515918.9	4397459.2	39°43'36.716"N	80°48'51.284"W	3.24	178.077	0.19
1800	0.9	88.3	1799.92	3.47	-3.15	1.47	515919.4	4397459.2	39°43'36.717"N	80°48'51.267"W	3.48	155.059	0.25
1900	0.71	83.98	1899.92	3.91	-3.07	2.87	515919.8	4397459.2	39°43'36.718"N	80°48'51.249"W	4.2	136.906	0.2
2000	0.46	80.38	1999.91	4.16	-2.93	3.88	515920.1	4397459.3	39°43'36.719"N	80°48'51.227"W	4.86	127.09	0.25
2100	0.35	76.76	2099.91	4.29	-2.8	4.57	515920.3	4397459.3	39°43'36.720"N	80°48'51.218"W	5.36	121.444	0.11
2200	0.56	65.87	2199.9	4.32	-2.53	5.32	515920.5	4397459.4	39°43'36.723"N	80°48'51.205"W	5.89	115.419	0.23
2300	0.79	49.59	2299.9	4.07	-1.88	6.29	515920.8	4397459.6	39°43'36.729"N	80°48'51.193"W	6.56	106.646	0.3
2400	0.76	37.58	2399.89	3.52	-0.91	7.22	515921.1	4397459.9	39°43'36.739"N	80°48'51.184"W	7.27	97.165	0.16
2500	0.74	26.98	2499.88	2.75	0.19	7.91	515921.3	4397460.2	39°43'36.750"N	80°48'51.178"W	7.92	88.597	0.14
2600	0.7	21.08	2599.87	1.88	1.34	8.43	515921.5	4397460.6	39°43'36.761"N	80°48'51.178"W	8.53	80.969	0.08

WELLPATH DATA † = interpolated/extrapolated station													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [M]	Grid North [M]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
2700	0.61	38.29	2699.87	1.16	2.33	8.98	515921.6	4397460.9	39°43'36.771"N	80°48'51.171"W	9.27	75.465	0.22
2725	0.55	35.95	2724.86	1.03	2.53	9.13	515921.7	4397460.9	39°43'36.773"N	80°48'51.169"W	9.47	74.517	0.26
2755	1.53	108.81	2754.86	1.22	2.52	9.59	515921.8	4397460.9	39°43'36.773"N	80°48'51.163"W	9.92	75.302	4.88
2786	2.98	115.22	2785.83	2.07	2.04	10.71	515922.2	4397460.8	39°43'36.768"N	80°48'51.148"W	10.91	79.223	4.74
2817	4.41	120.06	2816.77	3.6	1.1	12.47	515922.7	4397460.5	39°43'36.758"N	80°48'51.126"W	12.52	84.965	4.72
2849	6.59	120.36	2848.62	6.02	-0.45	15.12	515923.5	4397460.0	39°43'36.743"N	80°48'51.092"W	15.13	91.688	6.81
2881	8.43	120.9	2880.34	9.33	-2.58	18.72	515924.6	4397459.4	39°43'36.722"N	80°48'51.046"W	18.9	97.842	5.75
2912	10.03	120.81	2910.94	13.28	-5.13	22.99	515925.9	4397458.6	39°43'36.697"N	80°48'50.991"W	23.55	102.575	5.16
2944	11.18	120.42	2942.39	17.94	-8.13	28.06	515927.5	4397457.7	39°43'36.667"N	80°48'50.927"W	29.21	106.152	3.6
2975	11.36	121.14	2972.8	22.75	-11.23	33.26	515929.0	4397456.7	39°43'36.636"N	80°48'50.860"W	35.11	108.651	0.74
3007	11.37	121.05	3004.17	27.77	-14.48	38.66	515930.7	4397455.7	39°43'36.604"N	80°48'50.791"W	41.29	110.537	0.06
3038	11.69	121.04	3034.54	32.71	-17.68	43.97	515932.3	4397454.8	39°43'36.572"N	80°48'50.723"W	47.39	111.903	1.03
3070	12.39	121.81	3065.84	38.05	-21.16	49.67	515934.0	4397453.7	39°43'36.538"N	80°48'50.650"W	53.99	113.076	2.24
3102	13.02	123.35	3097.06	43.77	-24.95	55.6	515935.8	4397452.6	39°43'36.500"N	80°48'50.575"W	60.94	114.171	2.24
3134	14.21	121.9	3128.16	49.89	-29.01	61.94	515937.8	4397451.3	39°43'36.460"N	80°48'50.494"W	68.4	115.095	3.87
3166	15.09	122.22	3159.12	56.42	-33.31	68.8	515939.9	4397450.0	39°43'36.417"N	80°48'50.406"W	76.44	115.831	2.76
3197	16.12	122.33	3188.97	63.17	-37.76	75.85	515942.0	4397448.7	39°43'36.373"N	80°48'50.316"W	84.73	116.464	3.32
3229	16.95	122.99	3219.65	70.57	-42.67	83.52	515944.4	4397447.2	39°43'36.324"N	80°48'50.218"W	93.79	117.066	2.66
3259	17.69	122.96	3248.29	77.86	-47.54	91.01	515946.6	4397445.7	39°43'36.276"N	80°48'50.122"W	102.68	117.579	2.47
3290	19.13	123.38	3277.7	85.87	-52.89	99.2	515949.1	4397444.0	39°43'36.223"N	80°48'50.017"W	112.42	118.066	4.66
3321	20.82	124.26	3306.84	94.61	-58.79	108	515951.8	4397442.2	39°43'36.165"N	80°48'49.905"W	122.96	118.562	5.54
3353	22.87	124.93	3336.54	104.52	-65.55	117.8	515954.8	4397440.2	39°43'36.098"N	80°48'49.780"W	134.81	119.095	6.45
3385	24.86	124.93	3365.8	115.34	-72.96	128.41	515958.0	4397437.9	39°43'36.024"N	80°48'49.644"W	147.69	119.606	6.22
3417	26.7	124.87	3394.61	126.96	-80.93	139.83	515961.5	4397435.5	39°43'35.945"N	80°48'49.498"W	161.56	120.061	5.75
3449	28.98	124.38	3422.91	139.4	-89.42	152.12	515965.3	4397432.9	39°43'35.861"N	80°48'49.341"W	176.46	120.446	7.16
3480	30.96	124.11	3449.76	152.24	-98.13	164.92	515969.2	4397430.3	39°43'35.775"N	80°48'49.177"W	191.91	120.752	6.4
3512	32.96	124.11	3476.91	166.25	-107.63	178.95	515973.4	4397427.4	39°43'35.681"N	80°48'48.998"W	208.82	121.024	6.25
3544	34.97	124.16	3503.45	181.05	-117.66	193.75	515977.9	4397424.3	39°43'35.581"N	80°48'48.809"W	226.67	121.27	6.28
3575	37.28	124.96	3528.49	196.26	-128.03	208.79	515982.5	4397421.2	39°43'35.478"N	80°48'48.617"W	244.92	121.516	7.61
3606	38.5	125.39	3552.95	212.21	-139	224.35	515987.3	4397417.8	39°43'35.370"N	80°48'48.418"W	263.92	121.78	4.03
3669	37.49	124.16	3602.6	244.56	-161.12	256.21	515997.0	4397411.1	39°43'35.150"N	80°48'48.011"W	302.66	122.164	2
3732	37.49	122.82	3652.59	276.05	-182.27	288.18	516006.7	4397404.6	39°43'34.941"N	80°48'47.602"W	340.99	122.313	1.29
3795	38.43	121.74	3702.26	307.41	-202.97	320.94	516016.7	4397398.3	39°43'34.735"N	80°48'47.183"W	379.74	122.309	1.83
3858	37.78	120.99	3751.83	338.5	-223.2	354.14	516026.8	4397392.2	39°43'34.535"N	80°48'46.759"W	418.61	122.222	1.27

WELLPATH DATA † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [M]	Grid North [M]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
3921	37.67	121.71	3801.66	369.32	-243.26	387.06	516036.8	4397386.0	39°43'34.336"N	80°48'46.338"W	457.15	122.148	0.72
3984	37.75	122.8	3851.5	400.49	-263.82	419.65	516046.8	4397379.8	39°43'34.132"N	80°48'45.922"W	495.69	122.157	1.07
4047	38.63	124.21	3901.02	432.5	-285.33	452.12	516056.7	4397373.2	39°43'33.919"N	80°48'45.507"W	534.63	122.255	1.97
4110	38.11	123.73	3950.41	464.81	-307.18	484.55	516066.5	4397366.6	39°43'33.702"N	80°48'45.092"W	573.71	122.372	0.95
4173	37.95	125.55	4000.04	497.12	-329.24	516.48	516076.3	4397359.8	39°43'33.483"N	80°48'44.684"W	612.5	122.516	1.8
4235	38.17	127.1	4048.86	529.56	-351.88	547.27	516085.6	4397352.9	39°43'33.259"N	80°48'44.291"W	650.64	122.74	1.58
4298	38.68	126.2	4098.21	562.9	-375.25	578.69	516095.2	4397345.8	39°43'33.027"N	80°48'43.889"W	689.7	122.961	1.2
4362	39.34	125.91	4147.94	596.99	-398.96	611.26	516105.1	4397338.6	39°43'32.792"N	80°48'43.473"W	729.93	123.132	1.07
4425	39.81	125.49	4196.5	630.81	-422.38	643.85	516115.1	4397331.5	39°43'32.560"N	80°48'43.056"W	770.03	123.266	0.86
4488	40.41	125.5	4244.69	664.95	-445.94	676.9	516125.1	4397324.3	39°43'32.327"N	80°48'42.634"W	810.59	123.377	0.95
4551	40.12	126.66	4292.76	699.41	-469.92	709.8	516135.2	4397317.0	39°43'32.089"N	80°48'42.214"W	851.26	123.506	1.28
4614	38.77	125.66	4341.41	733.31	-493.54	742.11	516145.0	4397309.8	39°43'31.855"N	80°48'41.801"W	891.25	123.626	2.37
4677	37.55	123.98	4390.95	765.8	-515.77	774.06	516154.7	4397303.0	39°43'31.635"N	80°48'41.392"W	930.16	123.676	2.54
4740	39.16	125.19	4440.35	798.33	-537.97	806.24	516164.6	4397296.3	39°43'31.415"N	80°48'40.981"W	969.24	123.713	2.82
4801	39.14	126.6	4487.65	830.86	-560.55	837.44	516174.1	4397289.4	39°43'31.191"N	80°48'40.582"W	1007.73	123.797	1.46
4862	38.42	126.85	4535.21	863.42	-583.39	868.06	516183.4	4397282.4	39°43'30.964"N	80°48'40.191"W	1045.89	123.904	1.21
4925	37.33	125.16	4584.94	896.13	-606.13	899.34	516192.9	4397275.5	39°43'30.739"N	80°48'39.791"W	1084.53	123.979	2.39
4987	37.99	122.75	4634.02	927.42	-627.28	930.76	516202.5	4397269.0	39°43'30.529"N	80°48'39.390"W	1122.41	123.978	2.6
5050	38.86	120.74	4683.38	958.88	-647.87	964.06	516212.6	4397262.8	39°43'30.325"N	80°48'38.964"W	1161.53	123.902	2.42
5114	38.04	120.46	4733.5	990.38	-668.13	998.31	516223.1	4397256.6	39°43'30.124"N	80°48'38.526"W	1201.26	123.793	1.31
5176	34.99	122.79	4783.33	1019.96	-687.45	1029.73	516232.6	4397250.7	39°43'29.933"N	80°48'38.125"W	1238.12	123.727	5.4
5239	35.18	122.86	4834.88	1049.47	-707.08	1060.16	516241.9	4397244.7	39°43'29.738"N	80°48'37.736"W	1274.32	123.701	0.31
5302	36.62	121.28	4885.91	1079.27	-726.68	1091.47	516251.5	4397238.8	39°43'29.544"N	80°48'37.336"W	1311.25	123.655	2.72
5365	39.22	125.2	4935.61	1110.99	-747.93	1123.81	516261.3	4397232.3	39°43'29.333"N	80°48'36.922"W	1349.94	123.645	5.62
5428	39.16	126.52	4984.44	1144.6	-771.25	1156.07	516271.1	4397225.2	39°43'29.102"N	80°48'36.510"W	1389.72	123.708	1.33
5490	38.85	128.67	5032.62	1178.16	-795.05	1186.99	516280.6	4397217.9	39°43'28.866"N	80°48'36.115"W	1428.65	123.814	2.24
5553	38.31	127.82	5081.87	1212.17	-819.37	1217.84	516290.0	4397210.5	39°43'28.625"N	80°48'35.721"W	1467.82	123.933	1.2
5616	38.19	127.02	5131.35	1245.66	-843.07	1248.82	516299.4	4397203.3	39°43'28.390"N	80°48'35.325"W	1506.76	124.023	0.81
5679	38.74	127.27	5180.68	1279.21	-866.73	1280.06	516308.9	4397196.1	39°43'28.156"N	80°48'34.926"W	1545.89	124.102	0.91
5741	38.57	127.05	5229.09	1312.37	-890.13	1310.92	516318.3	4397189.0	39°43'27.924"N	80°48'34.532"W	1584.56	124.177	0.35
5804	38.76	126.74	5278.29	1345.98	-913.76	1342.4	516327.9	4397181.8	39°43'27.690"N	80°48'34.129"W	1623.88	124.243	0.43
5868	37.24	125.3	5328.72	1379.31	-936.93	1374.26	516337.6	4397174.7	39°43'27.460"N	80°48'33.722"W	1663.26	124.285	2.75
5931	38.68	124.66	5378.39	1411.7	-959.14	1406.01	516347.3	4397167.9	39°43'27.240"N	80°48'33.316"W	1702.01	124.301	2.37
5993	37.59	123.72	5427.15	1443.42	-980.66	1437.68	516356.9	4397161.4	39°43'27.026"N	80°48'32.912"W	1740.29	124.298	1.99

WELLPATH DATA † = interpolated/extrapolated station													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [M]	Grid North [M]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
6057	37.92	124.8	5477.76	1475.91	-1002.72	1470.06	516366.8	4397154.7	39°43'26.808"N	80°48'32.498"W	1779.47	124.298	1.15
6119	38.26	125.18	5526.55	1507.88	-1024.65	1501.4	516376.4	4397148.0	39°43'26.590"N	80°48'32.097"W	1817.72	124.312	0.67
6182	38.01	124.95	5576.11	1540.44	-1047	1533.24	516386.1	4397141.2	39°43'26.369"N	80°48'31.691"W	1856.62	124.328	0.46
6245	37.85	125.27	5625.8	1572.86	-1069.28	1564.92	516395.7	4397134.4	39°43'26.148"N	80°48'31.286"W	1895.34	124.344	0.4
6308	35.71	124.97	5676.25	1604.45	-1090.98	1595.77	516405.1	4397127.8	39°43'25.933"N	80°48'30.891"W	1933.06	124.359	3.41
6340	34.65	124.91	5702.41	1619.85	-1101.54	1610.88	516409.7	4397124.5	39°43'25.828"N	80°48'30.698"W	1951.49	124.365	3.31
6411	34.65	124.91	5760.82	1653.57	-1124.64	1643.99	516419.8	4397117.5	39°43'25.599"N	80°48'30.275"W	1991.86	124.376	0