



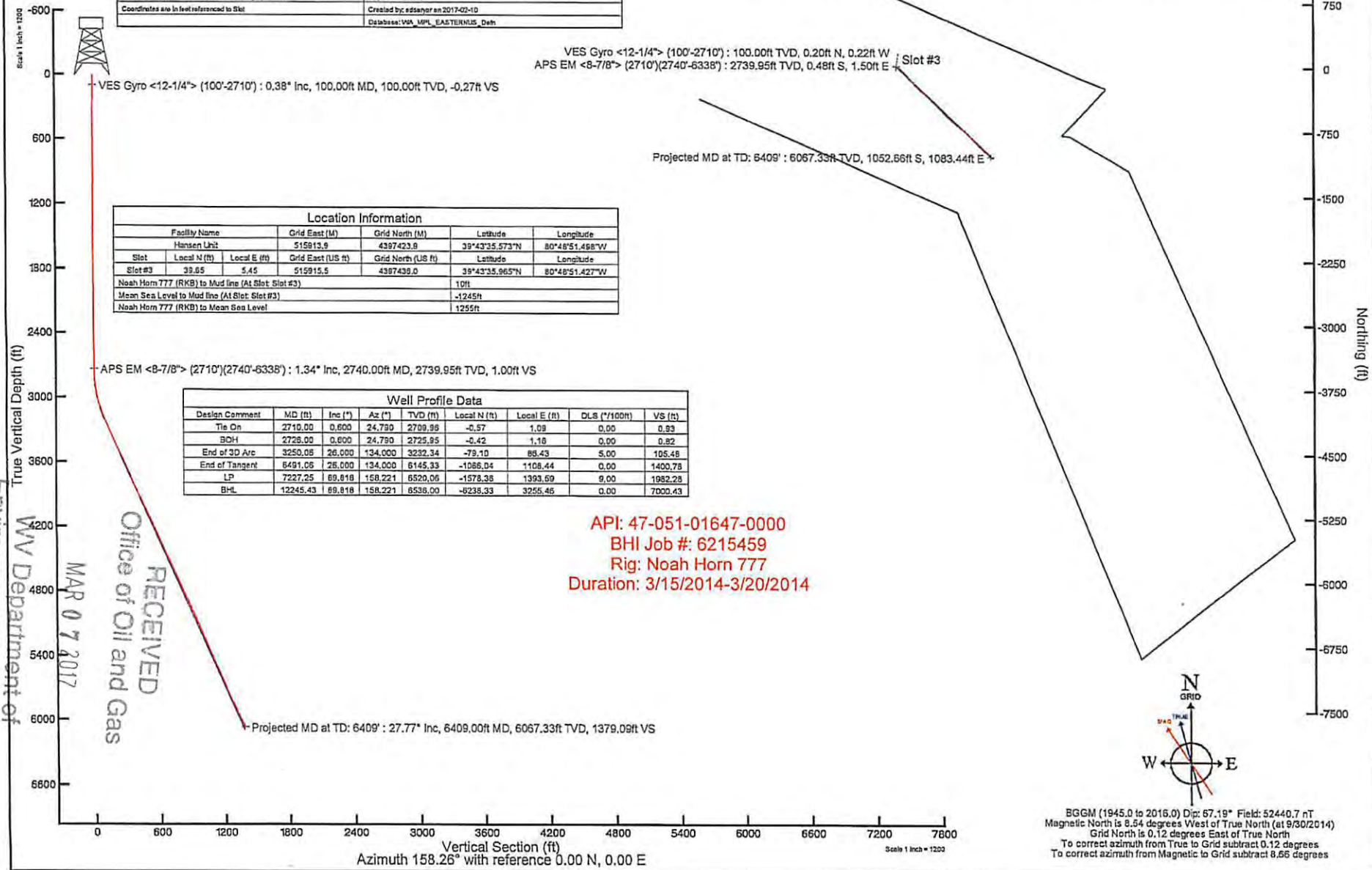
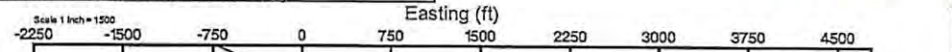
GASTAR EXPLORATION USA, INC.

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

Slot: Slot #3
 Well: Hansen Unit 3H
 Wellbore: Hansen Unit 3H (PWB)



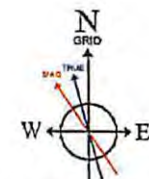
Plot reference wellpath is Hansen Unit 3H(PWB) Rev A.0	Grid System: NAD83 / UTM Zone 17 North, METERS
True vertical depths are referenced to Noah Horn 777 (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to Noah Horn 777 (RKB)	North Reference: Grid north
Noah Horn 777 (RKB) to Mean Sea Level: 1255 feet	Scale: True distance
Mean Sea Level to Mud Line (At Slot Slot #3): -1245 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: s2senyer on 2017-02-10
	Databases: VM, MPL, EASTERNUS, Dat



Location Information				
Facility Name	Grid East (M)	Grid North (M)	Latitude	Longitude
Hansen Unit	515813.9	4397423.8	39°43'35.573"N	80°48'51.468"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot #3	39.65	5.45	515915.5	4397439.0
			39°43'35.965"N	80°48'51.427"W
Noah Horn 777 (RKB) to Mud line (At Slot Slot #3)	10ft			
Mean Sea Level to Mud line (At Slot Slot #3)	-1245ft			
Noah Horn 777 (RKB) to Mean Sea Level	1255ft			

Well Profile Data						
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)
Tie On	2710.00	0.600	24.790	2709.98	-0.57	1.09
BCH	2728.00	0.600	24.790	2729.95	-0.42	1.18
End of 3D Arc	3250.05	26.000	134.000	3232.34	-79.10	88.43
End of Tangent	6491.05	26.000	134.000	6145.33	-1086.04	1108.44
LP	7227.25	69.818	158.221	6520.06	-1578.38	1393.59
BHL	12245.43	69.818	158.221	6538.00	-8238.33	3255.46

API: 47-051-01647-0000
 BHI Job #: 6215459
 Rig: Noah Horn 777
 Duration: 3/15/2014-3/20/2014



BGGM (1945.0 to 2016.0) Dip: 67.19° Field: 52440.7 nT
 Magnetic North is 8.54 degrees West of True North (at 9/30/2014)
 Grid North is 0.12 degrees East of True North
 To correct azimuth from True to Grid subtract 0.12 degrees
 To correct azimuth from Magnetic to Grid subtract 8.66 degrees

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 Office of Oil and Gas
 WV Department of
 Environmental Protection
 MAR 07 2017

REFERENCE WELLPATH IDENTIFICATION

Operator	GASTAR EXPLORATION INC.	Slot	Slot #1
Area	Marshall County, WV	Well	Hansen 3H
Field	Marshall	Wellbore	Hansen 3H (AWB)
Facility	Hansen Unit	Wellpath	Hansen 3H (AWP) Proj: 6.338'
		Sidetrack	(none)

WELL PATH 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]
0	0	311.78	0	0	0	0	515915.5	4397436.0	39°43'35.965"N	80°48'51.427"W	0	0	0
10	0	311.78	10	0	0	0	515915.5	4397436.0	39°43'35.965"N	80°48'51.427"W	0	0	0
100	0.38	311.78	100	-0.27	0.2	-0.22	515915.5	4397436.1	39°43'35.967"N	80°48'51.430"W	0.3	311.78	0.42
200	0.43	294.98	200	-0.84	0.58	-0.81	515915.3	4397436.2	39°43'35.971"N	80°48'51.438"W	1	305.524	0.13
300	0.16	256.32	300	-1.13	0.7	-1.29	515915.2	4397436.2	39°43'35.972"N	80°48'51.444"W	1.47	298.692	0.32
400	0.12	249.01	400	-1.15	0.63	-1.52	515915.1	4397436.2	39°43'35.971"N	80°48'51.447"W	1.65	292.625	0.04
500	0.24	233.23	499.99	-1.1	0.47	-1.78	515915.0	4397436.2	39°43'35.969"N	80°48'51.450"W	1.85	284.762	0.13
600	0.05	218.35	599.99	-1.02	0.31	-1.98	515915.0	4397436.1	39°43'35.968"N	80°48'51.452"W	2	278.92	0.19
700	0.04	219.76	699.99	-0.98	0.25	-2.03	515915.0	4397436.1	39°43'35.967"N	80°48'51.453"W	2.04	277.014	0.01
800	0.18	220.22	799.99	-0.89	0.1	-2.15	515914.9	4397436.0	39°43'35.966"N	80°48'51.455"W	2.16	272.736	0.14
900	0.07	106.29	899.99	-0.78	-0.03	-2.2	515914.9	4397436.0	39°43'35.964"N	80°48'51.455"W	2.2	269.107	0.22
1000	0.25	357.82	999.99	-0.95	0.17	-2.15	515914.9	4397436.1	39°43'35.966"N	80°48'51.455"W	2.15	274.443	0.28
1100	0.13	353.31	1099.99	-1.26	0.5	-2.17	515914.9	4397436.2	39°43'35.970"N	80°48'51.455"W	2.22	282.928	0.12
1200	0.34	351.08	1199.99	-1.66	0.9	-2.23	515914.9	4397436.3	39°43'35.974"N	80°48'51.456"W	2.4	292.084	0.21
1300	0.23	309.34	1299.99	-2.13	1.32	-2.43	515914.8	4397436.4	39°43'35.978"N	80°48'51.458"W	2.76	298.603	0.23
1400	0.3	272.72	1399.99	-2.41	1.46	-2.84	515914.7	4397436.5	39°43'35.979"N	80°48'51.464"W	3.2	297.225	0.18
1500	0.32	264.23	1499.99	-2.6	1.45	-3.38	515914.6	4397436.5	39°43'35.979"N	80°48'51.470"W	3.68	293.163	0.05
1600	0.45	250.91	1599.99	-2.69	1.29	-4.03	515914.4	4397436.4	39°43'35.978"N	80°48'51.479"W	4.23	287.754	0.16
1700	0.37	193.49	1699.98	-2.45	0.85	-4.48	515914.2	4397436.3	39°43'35.973"N	80°48'51.484"W	4.56	280.729	0.4
1800	0.19	173.03	1799.98	-2.02	0.37	-4.53	515914.2	4397436.1	39°43'35.969"N	80°48'51.485"W	4.55	274.666	0.2
1900	0.47	133.64	1899.98	-1.53	-0.05	-4.25	515914.3	4397436.0	39°43'35.964"N	80°48'51.482"W	4.25	269.359	0.3
2000	0.57	139.76	1999.98	-0.72	-0.68	-3.66	515914.5	4397435.8	39°43'35.958"N	80°48'51.474"W	3.72	259.478	0.16
2100	0.51	125.48	2099.97	0.12	-1.32	-2.98	515914.7	4397435.6	39°43'35.952"N	80°48'51.465"W	3.26	246.126	0.15
2200	0.3	102.2	2199.97	0.64	-1.63	-2.36	515914.9	4397435.5	39°43'35.949"N	80°48'51.457"W	2.87	235.337	0.26
2300	0.43	99.47	2299.97	0.98	-1.75	-1.73	515915.1	4397435.5	39°43'35.948"N	80°48'51.449"W	2.46	224.753	0.13
2400	0.55	81.75	2399.97	1.29	-1.74	-0.89	515915.3	4397435.5	39°43'35.948"N	80°48'51.439"W	1.96	207.033	0.19
2500	0.35	72.44	2499.96	1.42	-1.58	-0.12	515915.5	4397435.5	39°43'35.949"N	80°48'51.429"W	1.59	184.433	0.21

05/26/2017

WELL PATH 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]
2600	0.43	61.59	2599.96	1.4	-1.31	0.5	515915.7	4397435.6	39°43'35.952"N	80°48'51.421"W	1.4	159.158	0.11
2700	0.59	24.65	2699.96	1	-0.66	1.04	515915.9	4397435.8	39°43'35.958"N	80°48'51.414"W	1.24	122.451	0.36
2710	0.6	24.79	2709.96	0.93	-0.57	1.09	515915.9	4397435.8	39°43'35.959"N	80°48'51.413"W	1.23	117.64	0.1
2740	1.34	99.13	2739.95	1	-0.48	1.5	515916.0	4397435.9	39°43'35.960"N	80°48'51.408"W	1.57	107.833	4.37
2771	2.58	113.46	2770.93	1.68	-0.82	2.5	515916.3	4397435.8	39°43'35.957"N	80°48'51.395"W	2.63	108.129	4.27
2803	4.03	121.07	2802.88	3.09	-1.68	4.12	515916.8	4397435.5	39°43'35.948"N	80°48'51.374"W	4.45	112.234	4.72
2835	5.57	116.91	2834.77	5.15	-2.97	6.47	515917.6	4397435.1	39°43'35.935"N	80°48'51.344"W	7.12	114.645	4.93
2866	7.42	117.11	2865.57	7.79	-4.56	9.59	515918.5	4397434.6	39°43'35.920"N	80°48'51.305"W	10.62	115.43	5.97
2898	9.34	117.98	2897.22	11.33	-6.72	13.73	515919.8	4397434.0	39°43'35.898"N	80°48'51.252"W	15.28	116.09	6.01
2929	11.59	118.22	2927.71	15.63	-9.37	18.69	515921.3	4397433.2	39°43'35.872"N	80°48'51.188"W	20.91	116.635	7.26
2960	13.58	120	2957.96	20.87	-12.67	24.59	515923.1	4397432.2	39°43'35.839"N	80°48'51.113"W	27.66	117.256	6.54
2991	15.05	123.37	2988	27.03	-16.7	31.1	515925.1	4397430.9	39°43'35.799"N	80°48'51.030"W	35.3	118.235	5.45
3023	16.57	127.29	3018.79	34.35	-21.75	38.2	515927.2	4397429.4	39°43'35.749"N	80°48'50.939"W	43.96	119.656	5.8
3054	17.37	132.39	3048.44	42.31	-27.55	45.14	515929.3	4397427.6	39°43'35.692"N	80°48'50.850"W	52.88	121.397	5.45
3086	18.41	133.48	3078.89	51.19	-34.25	52.33	515931.5	4397425.6	39°43'35.625"N	80°48'50.758"W	62.54	123.201	3.41
3117	19.5	133.67	3108.21	60.34	-41.19	59.63	515933.7	4397423.5	39°43'35.557"N	80°48'50.665"W	72.47	124.635	3.52
3149	20.49	133.32	3138.28	70.28	-48.72	67.56	515936.2	4397421.2	39°43'35.482"N	80°48'50.564"W	83.3	125.794	3.12
3180	21.59	133.63	3167.21	80.38	-56.38	75.64	515938.6	4397418.8	39°43'35.406"N	80°48'50.461"W	94.34	126.698	3.57
3212	22.76	133.73	3196.84	91.37	-64.72	84.37	515941.3	4397416.3	39°43'35.323"N	80°48'50.349"W	106.34	127.489	3.66
3244	23.62	135.48	3226.26	102.91	-73.57	93.34	515944.0	4397413.6	39°43'35.236"N	80°48'50.234"W	118.85	128.243	3.44
3276	24.77	136.93	3255.45	115.06	-83.04	102.42	515946.8	4397410.7	39°43'35.142"N	80°48'50.119"W	131.85	129.034	4.04
3338	25.8	138.16	3311.51	139.83	-102.58	120.29	515952.2	4397404.8	39°43'34.949"N	80°48'49.890"W	158.08	130.457	1.86
3405	26.7	138.28	3368.08	165.87	-123.25	138.75	515957.9	4397398.5	39°43'34.744"N	80°48'49.655"W	185.58	131.613	0.96
3464	27.8	137.22	3424.77	191.62	-143.6	157.23	515963.5	4397392.3	39°43'34.542"N	80°48'49.419"W	212.93	132.405	1.84
3522	28.8	138.52	3481.71	216.88	-163.58	175.31	515969.0	4397386.2	39°43'34.345"N	80°48'49.188"W	239.78	133.018	0.88
3598	29.8	139.77	3538.48	242.71	-184.26	193.18	515974.4	4397379.9	39°43'34.140"N	80°48'48.960"W	266.97	133.645	1.51
3654	30.8	138.75	3595.98	269.27	-205.54	211.52	515980.0	4397373.4	39°43'33.929"N	80°48'48.726"W	294.93	134.179	0.73
3716	31.8	136.38	3651.97	294.18	-225.2	229.48	515985.5	4397367.4	39°43'33.734"N	80°48'48.496"W	321.52	134.461	2.36
3780	32.8	134.81	3710.02	319.04	-244.45	248.32	515991.2	4397361.5	39°43'33.544"N	80°48'48.255"W	348.45	134.549	1.04
3842	25.22	133.75	3766.2	343.01	-262.76	267.11	515997.0	4397356.0	39°43'33.362"N	80°48'48.015"W	374.69	134.53	0.93
3906	26.06	132.62	3823.9	368.09	-281.71	287.31	516003.1	4397350.2	39°43'33.175"N	80°48'47.758"W	402.38	134.437	1.52
3969	26.88	132.15	3880.29	393.36	-300.64	308.05	516009.4	4397344.4	39°43'32.987"N	80°48'47.493"W	430.44	134.303	1.34
4032	27.07	132.13	3936.44	419.02	-319.81	329.24	516015.9	4397338.6	39°43'32.797"N	80°48'47.222"W	459	134.168	0.3

05/26/2017

WELL PATH 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]
4095	27.23	133.46	3992.49	444.97	-339.34	350.33	516022.3	4397332.6	39°43'32.604"N	80°48'46.952"W	487.74	134.087	1
4159	27.05	134.32	4049.45	471.56	-359.58	371.37	516028.7	4397326.5	39°43'32.403"N	80°48'46.684"W	516.93	134.076	0.67
4221	28.01	135.57	4104.43	497.88	-379.83	391.65	516034.9	4397320.3	39°43'32.203"N	80°48'46.425"W	545.58	134.122	1.81
4284	27.35	135.07	4160.22	524.83	-400.64	412.23	516041.2	4397313.9	39°43'31.997"N	80°48'46.162"W	574.84	134.183	1.11
4347	26.63	135.52	4216.36	551.16	-420.96	432.34	516047.3	4397307.8	39°43'31.796"N	80°48'45.905"W	603.43	134.236	1.19
4411	26.08	134.3	4273.7	577.24	-441.02	452.46	516053.4	4397301.6	39°43'31.597"N	80°48'45.648"W	631.84	134.266	1.21
4473	25.67	133.65	4329.49	601.9	-459.81	471.93	516059.4	4397295.9	39°43'31.411"N	80°48'45.399"W	658.89	134.255	0.8
4537	26.22	136.96	4387.04	627.68	-479.71	491.61	516065.4	4397289.9	39°43'31.214"N	80°48'45.148"W	686.88	134.298	2.42
4600	26.05	137.78	4443.6	653.61	-500.13	510.41	516071.1	4397283.6	39°43'31.012"N	80°48'44.908"W	714.59	134.417	0.63
4663	25.75	137.48	4500.27	679.36	-520.46	528.95	516076.7	4397277.4	39°43'30.810"N	80°48'44.671"W	742.07	134.536	0.52
4726	25.31	136.87	4557.12	704.69	-540.37	547.41	516082.4	4397271.4	39°43'30.613"N	80°48'44.436"W	769.19	134.63	0.81
4789	25.05	136.49	4614.13	729.62	-559.87	565.79	516088.0	4397265.4	39°43'30.420"N	80°48'44.201"W	795.98	134.699	0.49
4852	26.17	135.1	4670.94	754.78	-579.39	584.78	516093.8	4397259.5	39°43'30.227"N	80°48'43.958"W	823.2	134.734	2.02
4916	26.3	131.52	4728.36	780.42	-598.78	605.36	516100.0	4397253.6	39°43'30.035"N	80°48'43.695"W	851.47	134.687	2.48
4979	27.12	132.12	4784.63	805.77	-617.67	626.46	516106.5	4397247.8	39°43'29.848"N	80°48'43.426"W	879.76	134.595	1.37
5042	27.74	132.52	4840.55	831.87	-637.21	647.92	516113.0	4397241.9	39°43'29.654"N	80°48'43.152"W	908.76	134.522	1.03
5106	27.59	131.98	4897.23	858.58	-657.19	669.92	516119.7	4397235.8	39°43'29.456"N	80°48'42.871"W	938.45	134.45	0.46
5169	27.3	131.92	4953.14	884.61	-676.6	691.51	516126.3	4397229.9	39°43'29.264"N	80°48'42.595"W	967.46	134.375	0.46
5232	26.9	131.27	5009.23	910.25	-695.65	712.97	516132.8	4397224.1	39°43'29.075"N	80°48'42.321"W	996.12	134.295	0.79
5295	26.87	130.39	5065.42	935.54	-714.28	734.53	516139.4	4397218.4	39°43'28.891"N	80°48'42.045"W	1024.56	134.199	0.63
5358	26.2	128.21	5121.78	960.16	-732.1	756.3	516146.0	4397213.0	39°43'28.714"N	80°48'41.767"W	1052.6	134.069	1.88
5420	25.55	130.76	5177.57	983.87	-749.3	777.19	516152.4	4397207.7	39°43'28.544"N	80°48'41.500"W	1079.57	133.953	2.08
5484	25.02	132.49	5235.44	1008.3	-767.45	797.62	516158.6	4397202.2	39°43'28.364"N	80°48'41.239"W	1106.88	133.896	1.42
5547	26.17	133.9	5292.49	1032.5	-785.74	817.1	516164.5	4397196.6	39°43'28.183"N	80°48'40.991"W	1133.59	133.879	0.98
5610	25.04	134.24	5349.55	1056.87	-804.32	836.29	516170.4	4397190.9	39°43'27.999"N	80°48'40.745"W	1160.31	133.884	0.34
5673	25.64	137.05	5406.64	1081.45	-823.36	854.9	516176.1	4397185.1	39°43'27.810"N	80°48'40.508"W	1186.92	133.923	1.89
5737	25.64	137.38	5464.64	1106.7	-843.21	873.28	516181.7	4397179.1	39°43'27.613"N	80°48'40.273"W	1213.93	133.997	0.22
5800	24.81	137.02	5521.83	1131.37	-862.61	891.24	516187.1	4397173.2	39°43'27.421"N	80°48'40.044"W	1240.32	134.065	0.68
5863	24.59	136.79	5579.11	1155.79	-881.76	909.16	516192.6	4397167.4	39°43'27.232"N	80°48'39.815"W	1266.52	134.124	0.16
5926	25	136.11	5636.3	1180.32	-900.91	927.36	516198.1	4397161.5	39°43'27.042"N	80°48'39.582"W	1292.92	134.171	0.79
5989	25.18	135.58	5693.36	1205.02	-920.07	945.97	516203.8	4397155.7	39°43'26.852"N	80°48'39.345"W	1319.62	134.205	0.46
6053	25.59	134.26	5751.18	1230.21	-939.44	965.4	516209.7	4397149.8	39°43'26.661"N	80°48'39.097"W	1347.05	134.219	1.09
6117	26.46	132.93	5808.69	1255.72	-958.8	985.74	516215.9	4397143.9	39°43'26.469"N	80°48'38.837"W	1375.13	134.206	1.64

05/26/2017

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]
6179	27.73	132.02	5863.89	1281.14	-977.87	1006.57	516222.3	4397138.1	39°43'26.280"N	80°48'38.571"W	1403.35	134.171	2.15
6243	27.89	132.83	5920.49	1308.02	-998.01	1028.61	516229.0	4397131.9	39°43'26.080"N	80°48'38.289"W	1433.2	134.135	0.64
6306	27.81	135.19	5976.2	1334.85	-1018.45	1049.77	516235.4	4397125.7	39°43'25.878"N	80°48'38.019"W	1462.62	134.132	1.75
6338	27.77	135.5	6004.51	1348.59	-1029.07	1060.26	516238.6	4397122.5	39°43'25.773"N	80°48'37.885"W	1477.54	134.145	0.47