



GASTAR EXPLORATION USA, INC.

Location: Marshall County, WV
 Field: Marshall
 Facility: Armstrong

Slot: Slot #7
 Well: Armstrong 7H
 Wellbore: Armstrong 7H (PWB)



51-01618

Location Information

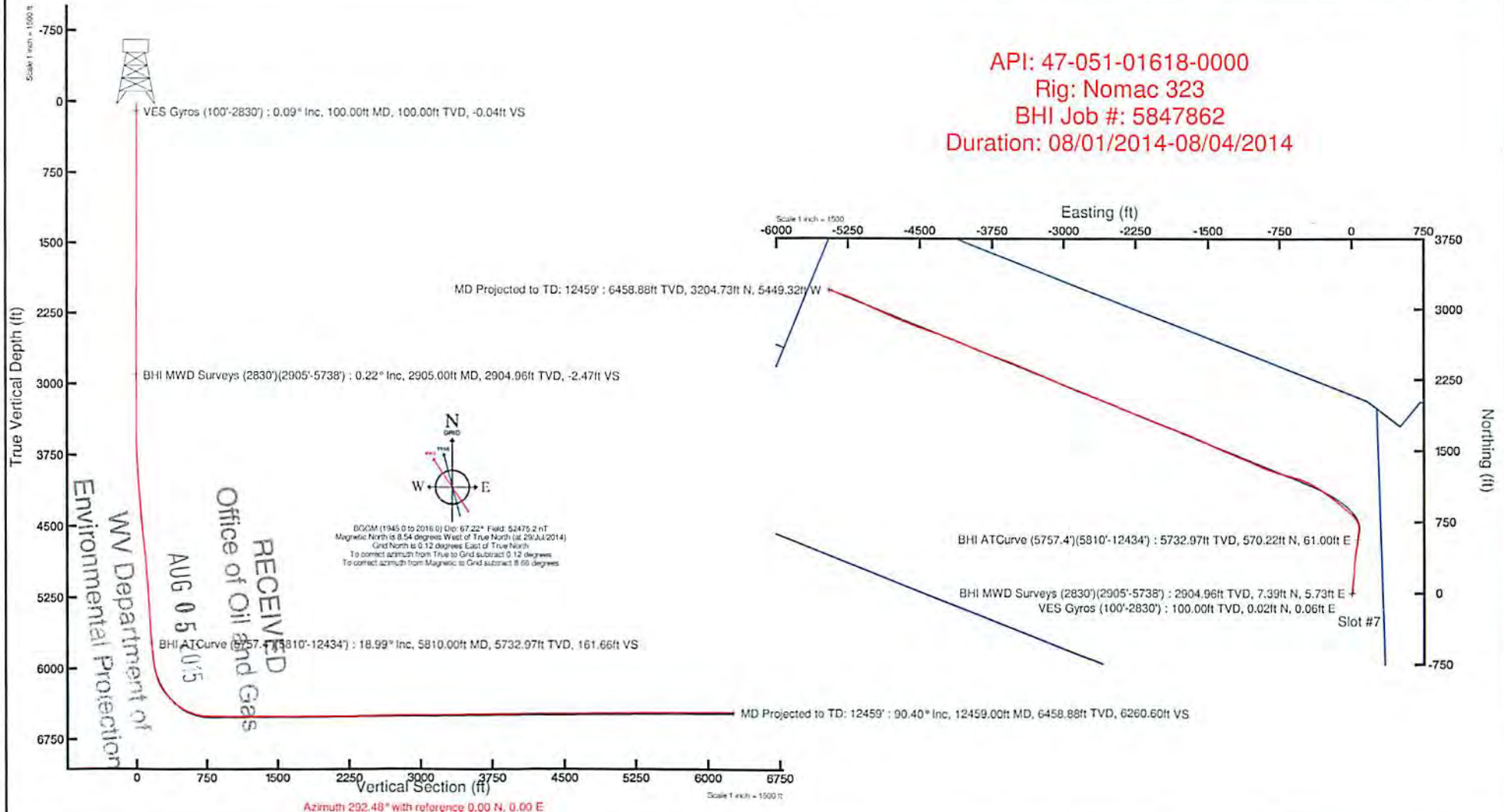
Facility Name		Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
Armstrong		1694263.000	14437151.000	39°45'13.773"N	80°48'30.287"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #7	49.02	36.01	1694299.000	14437200.000	39°45'14.257"N	80°48'29.824"W
Nomac 323 (RT) to Mud line (At Slot: Slot #7)					29.4ft	
Mean Sea Level to Mud line (At Slot: Slot #7)					-1278ft	
Nomac 323 (RT) to Mean Sea Level					1307.4ft	

Plot reference wellpath is Armstrong 7H (PWP) Rev-B.0	
True vertical depths are referenced to Nomac 323 (RT)	Grid System: NAD83 / UTM Zone 17 North, US feet
Measured depths are referenced to Nomac 323 (RT)	North Reference: Grid north
Nomac 323 (RT) to Mean Sea Level: 1307.4 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot #7): -1278 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: kroschr on 07/Aug/2014

Well Data

Slot	Well	Wellbore	Wellpath
Slot #7	Armstrong 7H	Armstrong 7H (AWB)	Armstrong 7H (AWP) Proj:12459'
Slot #7	Armstrong 7H	Armstrong 7H (PWB)	Armstrong 7H (PWP) Rev-B.0

API: 47-051-01618-0000
 Rig: Nomac 323
 BHI Job #: 5847862
 Duration: 08/01/2014-08/04/2014



Azimuth 292.48° with reference 0.00 N, 0.00 E

51.01618

REFERENCE WELLPATH IDENTIFICATION			
Operator	GASTAR EXPLORATION INC.	Slot	Slot #7
Area	Marshall County, WV	Well	Armstrong 7H
Field	Marshall	Wellbore	Armstrong 7H (AWB)
Facility	Armstrong	Wellpath	Armstrong 7H (AWP) Proj: 12,459'
		Sidetrack	(none)

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]
0.00	0.00	71.76	0.00	0.00	0.00	0.00	516423.4	4400467.2	39°45'14.257"N	80°48'29.824"W	0.00	0.00	0.00
29.40	0.00	71.76	29.40	0.00	0.00	0.00	516423.4	4400467.2	39°45'14.257"N	80°48'29.824"W	0.00	0.00	0.00
119.40	0.12	71.76	119.40	-0.07	0.03	0.09	516423.4	4400467.4	39°45'14.257"N	80°48'29.823"W	0.09	71.76	0.13
219.40	0.27	338.06	219.40	0.01	0.28	0.10	516423.4	4400467.4	39°45'14.260"N	80°48'29.823"W	0.30	19.77	0.30
319.40	0.27	345.35	319.40	0.32	0.73	-0.05	516423.4	4400467.6	39°45'14.264"N	80°48'29.825"W	0.73	356.33	0.03
419.40	0.32	358.69	419.40	0.58	1.23	-0.11	516423.3	4400467.7	39°45'14.269"N	80°48'29.826"W	1.24	354.79	0.08
519.40	0.39	21.27	519.40	0.70	1.83	0.00	516423.4	4400467.9	39°45'14.275"N	80°48'29.824"W	1.83	0.14	0.16
619.40	0.35	25.30	619.39	0.69	2.42	0.26	516423.4	4400468.1	39°45'14.281"N	80°48'29.821"W	2.44	6.09	0.05
719.40	0.26	19.43	719.39	0.69	2.91	0.46	516423.5	4400468.2	39°45'14.286"N	80°48'29.818"W	2.95	9.05	0.10
819.40	0.34	38.10	819.39	0.62	3.36	0.72	516423.6	4400468.4	39°45'14.290"N	80°48'29.815"W	3.44	12.14	0.13
919.40	0.41	31.52	919.39	0.48	3.90	1.09	516423.7	4400468.6	39°45'14.295"N	80°48'29.810"W	4.05	15.66	0.08
1019.40	0.42	50.33	1019.39	0.25	4.44	1.56	516423.8	4400468.7	39°45'14.301"N	80°48'29.804"W	4.71	19.39	0.14
1119.40	0.36	34.59	1119.38	0.02	4.93	2.02	516424.0	4400468.9	39°45'14.305"N	80°48'29.798"W	5.33	22.30	0.12
1219.40	0.27	7.17	1219.38	0.01	5.42	2.23	516424.0	4400469.0	39°45'14.310"N	80°48'29.795"W	5.86	22.35	0.17
1319.40	0.28	346.33	1319.38	0.22	5.90	2.20	516424.0	4400469.2	39°45'14.315"N	80°48'29.796"W	6.29	20.48	0.10
1419.40	0.30	336.57	1419.38	0.55	6.37	2.04	516424.0	4400469.3	39°45'14.320"N	80°48'29.798"W	6.69	17.75	0.05
1519.40	0.24	324.56	1519.38	0.92	6.78	1.81	516423.9	4400469.4	39°45'14.324"N	80°48'29.801"W	7.02	14.98	0.08
1619.40	0.02	221.29	1619.38	1.10	6.94	1.68	516423.9	4400469.5	39°45'14.325"N	80°48'29.802"W	7.14	13.62	0.25
1719.40	0.29	140.25	1719.38	0.88	6.73	1.83	516423.9	4400469.4	39°45'14.323"N	80°48'29.800"W	6.98	15.22	0.29
1819.40	0.46	141.95	1819.38	0.31	6.22	2.24	516424.1	4400469.3	39°45'14.318"N	80°48'29.795"W	6.61	19.81	0.17
1919.40	0.32	122.37	1919.37	-0.32	5.76	2.72	516424.2	4400469.1	39°45'14.314"N	80°48'29.789"W	6.37	25.33	0.19
2019.40	0.43	119.06	2019.37	-0.94	5.60	3.34	516424.4	4400469.1	39°45'14.312"N	80°48'29.781"W	6.52	30.78	0.23
2119.40	0.13	76.87	2119.37	-1.38	5.62	3.82	516424.5	4400469.1	39°45'14.312"N	80°48'29.775"W	6.80	34.22	0.31
2219.40	0.35	59.19	2219.37	-1.66	5.80	4.19	516424.6	4400469.1	39°45'14.314"N	80°48'29.770"W	7.16	35.86	0.23
2319.40	0.23	50.43	2319.37	-1.93	6.09	4.61	516424.8	4400469.2	39°45'14.317"N	80°48'29.765"W	7.64	37.15	0.13

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]
2419.40	0.36	47.49	2419.37	-2.16	6.43	5.00	516424.9	4400469.3	39°45'14.320"N	80°48'29.760"W	8.14	37.87	0.13
2519.40	0.19	50.34	2519.37	-2.37	6.74	5.36	516425.0	4400469.4	39°45'14.323"N	80°48'29.755"W	8.61	38.46	0.17
2619.40	0.04	48.22	2619.36	-2.46	6.87	5.51	516425.0	4400469.5	39°45'14.325"N	80°48'29.753"W	8.81	38.72	0.15
2719.40	0.14	41.70	2719.36	-2.52	6.99	5.62	516425.1	4400469.5	39°45'14.326"N	80°48'29.752"W	8.97	38.80	0.10
2819.40	0.07	14.52	2819.36	-2.55	7.14	5.71	516425.1	4400469.5	39°45'14.327"N	80°48'29.751"W	9.14	38.68	0.08
2849.40	0.17	6.24	2849.36	-2.54	7.20	5.72	516425.1	4400469.6	39°45'14.328"N	80°48'29.751"W	9.20	38.48	0.34
2924.40	0.24	359.35	2924.36	-2.44	7.47	5.73	516425.1	4400469.6	39°45'14.330"N	80°48'29.750"W	9.42	37.52	0.10
3018.40	0.27	48.29	3018.36	-2.46	7.81	5.90	516425.2	4400469.7	39°45'14.334"N	80°48'29.748"W	9.79	37.05	0.23
3113.40	0.27	33.30	3113.36	-2.60	8.15	6.19	516425.3	4400469.8	39°45'14.337"N	80°48'29.745"W	10.23	37.21	0.07
3207.40	0.21	21.54	3207.36	-2.64	8.49	6.37	516425.3	4400469.9	39°45'14.341"N	80°48'29.742"W	10.62	36.88	0.08
3301.40	0.38	33.29	3301.36	-2.70	8.91	6.61	516425.4	4400470.1	39°45'14.345"N	80°48'29.739"W	11.10	36.54	0.19
3396.40	0.08	298.81	3396.36	-2.69	9.21	6.72	516425.4	4400470.2	39°45'14.348"N	80°48'29.738"W	11.40	36.12	0.42
3428.40	0.36	43.07	3428.36	-2.70	9.29	6.77	516425.4	4400470.2	39°45'14.348"N	80°48'29.737"W	11.50	36.07	1.21
3460.40	0.29	48.37	3460.36	-2.77	9.42	6.90	516425.5	4400470.2	39°45'14.350"N	80°48'29.736"W	11.68	36.22	0.24
3490.40	0.40	34.47	3490.36	-2.83	9.56	7.02	516425.5	4400470.3	39°45'14.351"N	80°48'29.734"W	11.86	36.28	0.46
3522.40	0.86	14.12	3522.36	-2.82	9.88	7.14	516425.5	4400470.4	39°45'14.354"N	80°48'29.732"W	12.19	35.84	1.58
3553.40	1.75	1.34	3553.35	-2.61	10.58	7.20	516425.6	4400470.6	39°45'14.361"N	80°48'29.732"W	12.80	34.25	3.00
3585.40	2.73	357.43	3585.32	-2.11	11.83	7.18	516425.6	4400471.0	39°45'14.374"N	80°48'29.732"W	13.84	31.26	3.10
3615.40	3.86	358.03	3615.27	-1.39	13.55	7.12	516425.5	4400471.5	39°45'14.391"N	80°48'29.733"W	15.31	27.70	3.77
3646.40	4.75	357.04	3646.19	-0.41	15.88	7.01	516425.5	4400472.2	39°45'14.414"N	80°48'29.734"W	17.36	23.83	2.88
3676.40	5.58	358.64	3676.06	0.71	18.58	6.91	516425.5	4400473.0	39°45'14.440"N	80°48'29.735"W	19.82	20.42	2.81
3708.40	5.92	359.46	3707.90	1.99	21.78	6.86	516425.5	4400474.0	39°45'14.472"N	80°48'29.736"W	22.84	17.49	1.09
3740.40	6.49	0.56	3739.71	3.31	25.24	6.86	516425.5	4400475.1	39°45'14.506"N	80°48'29.736"W	26.16	15.21	1.82
3772.40	7.23	2.15	3771.49	4.68	29.06	6.96	516425.5	4400476.2	39°45'14.544"N	80°48'29.734"W	29.88	13.46	2.39
3803.40	7.97	0.69	3802.21	6.16	33.16	7.06	516425.5	4400477.5	39°45'14.584"N	80°48'29.733"W	33.90	12.01	2.47
3834.40	8.51	0.17	3832.89	7.83	37.60	7.09	516425.5	4400478.8	39°45'14.628"N	80°48'29.732"W	38.27	10.68	1.76
3866.40	9.57	1.35	3864.49	9.69	42.63	7.16	516425.6	4400480.3	39°45'14.678"N	80°48'29.731"W	43.23	9.53	3.36
3897.40	10.17	1.29	3895.04	11.60	47.94	7.28	516425.6	4400482.0	39°45'14.730"N	80°48'29.730"W	48.49	8.64	1.94
3929.40	10.88	4.12	3926.50	13.58	53.78	7.56	516425.7	4400483.7	39°45'14.788"N	80°48'29.726"W	54.31	8.00	2.74
3960.40	11.64	5.66	3956.90	15.40	59.81	8.08	516425.8	4400485.6	39°45'14.848"N	80°48'29.719"W	60.35	7.69	2.64
3992.40	12.27	5.73	3988.21	17.32	66.41	8.74	516426.0	4400487.6	39°45'14.913"N	80°48'29.710"W	66.98	7.50	1.97

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AUG 05 2013

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]
4055.40	13.89	4.62	4049.57	21.57	80.61	10.02	516426.4	4400491.9	39°45'15.053"N	80°48'29.694"W	81.23	7.08	2.60
4118.40	15.73	4.21	4110.47	26.56	96.66	11.25	516426.8	4400496.8	39°45'15.212"N	80°48'29.677"W	97.31	6.64	2.93
4182.40	15.84	3.53	4172.06	32.12	114.03	12.43	516427.2	4400502.1	39°45'15.383"N	80°48'29.662"W	114.71	6.22	0.34
4245.40	15.14	3.16	4232.77	37.63	130.83	13.41	516427.5	4400507.2	39°45'15.549"N	80°48'29.649"W	131.51	5.85	1.12
4309.40	15.56	5.55	4294.49	42.90	147.72	14.70	516427.8	4400512.4	39°45'15.716"N	80°48'29.632"W	148.45	5.68	1.19
4373.40	15.72	8.40	4356.12	47.51	164.84	16.80	516428.5	4400517.6	39°45'15.885"N	80°48'29.605"W	165.69	5.82	1.23
4436.40	15.78	6.49	4416.76	51.94	181.79	19.01	516429.2	4400522.7	39°45'16.053"N	80°48'29.576"W	182.78	5.97	0.83
4499.40	15.17	3.73	4477.47	56.95	198.53	20.52	516429.6	4400527.8	39°45'16.218"N	80°48'29.556"W	199.59	5.90	1.52
4561.40	16.77	3.72	4537.08	62.44	215.55	21.62	516430.0	4400533.0	39°45'16.387"N	80°48'29.541"W	216.63	5.73	2.58
4624.40	19.20	3.35	4596.99	68.76	234.96	22.82	516430.3	4400538.9	39°45'16.578"N	80°48'29.525"W	236.07	5.55	3.86
4687.40	19.16	1.67	4656.50	75.82	255.64	23.73	516430.6	4400545.3	39°45'16.783"N	80°48'29.513"W	256.74	5.30	0.88
4750.40	18.66	2.15	4716.10	83.00	276.05	24.41	516430.8	4400551.5	39°45'16.984"N	80°48'29.504"W	277.12	5.05	0.83
4812.40	18.45	6.33	4774.88	89.17	295.71	25.86	516431.2	4400557.5	39°45'17.179"N	80°48'29.485"W	296.84	5.00	2.17
4876.40	18.32	7.26	4835.61	94.63	315.75	28.25	516432.0	4400563.6	39°45'17.377"N	80°48'29.454"W	317.01	5.11	0.50
4939.40	16.47	6.16	4895.73	99.74	334.46	30.46	516432.6	4400569.3	39°45'17.561"N	80°48'29.425"W	335.84	5.20	2.98
5002.40	15.39	4.44	4956.31	104.84	351.67	32.06	516433.1	4400574.5	39°45'17.732"N	80°48'29.404"W	353.13	5.21	1.87
5065.40	15.69	3.72	5017.00	110.17	368.50	33.26	516433.5	4400579.6	39°45'17.898"N	80°48'29.388"W	370.00	5.16	0.57
5128.40	16.83	8.09	5077.49	115.17	386.04	35.10	516434.1	4400585.0	39°45'18.071"N	80°48'29.364"W	387.63	5.20	2.65
5191.40	17.43	7.04	5137.69	119.95	404.43	37.54	516434.8	4400590.6	39°45'18.253"N	80°48'29.332"W	406.17	5.30	1.07
5255.40	16.33	7.41	5198.93	124.84	422.87	39.87	516435.5	4400596.2	39°45'18.435"N	80°48'29.302"W	424.74	5.39	1.73
5317.40	15.47	8.38	5258.56	129.12	439.69	42.20	516436.2	4400601.3	39°45'18.601"N	80°48'29.272"W	441.71	5.48	1.45
5380.40	15.46	11.15	5319.28	132.82	456.24	45.05	516437.1	4400606.4	39°45'18.765"N	80°48'29.235"W	458.46	5.64	1.17
5442.40	14.70	10.99	5379.14	136.01	472.07	48.15	516438.0	4400611.2	39°45'18.921"N	80°48'29.195"W	474.52	5.82	1.23
5506.40	13.65	9.09	5441.20	139.38	487.50	50.89	516438.9	4400615.9	39°45'19.074"N	80°48'29.159"W	490.15	5.96	1.79
5568.40	13.67	7.56	5501.44	142.96	501.99	53.01	516439.5	4400620.3	39°45'19.217"N	80°48'29.132"W	504.78	6.03	0.58
5631.40	15.46	7.68	5562.41	147.02	517.69	55.11	516440.2	4400625.1	39°45'19.372"N	80°48'29.104"W	520.61	6.08	2.84
5694.40	16.35	7.26	5623.00	151.49	534.81	57.35	516440.8	4400630.3	39°45'19.541"N	80°48'29.075"W	537.87	6.12	1.42
5757.40	18.33	5.71	5683.14	156.68	553.46	59.46	516441.5	4400636.0	39°45'19.725"N	80°48'29.048"W	556.65	6.13	3.23
5810.00	18.99	4.83	5732.97	161.66	570.22	61.00	516442.0	4400641.1	39°45'19.891"N	80°48'29.027"W	573.47	6.11	1.36
5904.00	22.16	5.27	5820.96	171.55	603.12	63.92	516442.8	4400651.1	39°45'20.216"N	80°48'28.989"W	606.50	6.05	3.38
5998.00	28.12	9.00	5906.03	181.96	642.69	69.02	516444.4	4400663.2	39°45'20.607"N	80°48'28.923"W	646.39	6.13	6.56

51-01618

Environmental
Projection
of
Basis

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]
6044.00	27.94	6.53	5946.63	187.45	664.11	71.94	516445.3	4400669.7	39°45'20.818"N	80°48'28.885"W	667.99	6.18	2.55
6094.00	27.40	357.92	5990.93	195.46	687.25	72.86	516445.6	4400676.8	39°45'21.047"N	80°48'28.872"W	691.10	6.05	8.06
6188.00	22.33	346.89	6076.24	214.86	726.31	68.02	516444.1	4400688.7	39°45'21.433"N	80°48'28.933"W	729.48	5.35	7.29
6283.00	30.57	331.20	6161.32	244.30	765.17	52.24	516439.3	4400700.5	39°45'21.818"N	80°48'29.134"W	766.95	3.91	11.31
6378.00	39.96	317.44	6238.92	290.99	808.97	19.84	516429.4	4400713.8	39°45'22.251"N	80°48'29.548"W	809.22	1.41	12.90
6473.00	45.48	311.22	6308.72	350.79	853.82	-26.32	516415.3	4400727.5	39°45'22.695"N	80°48'30.138"W	854.22	358.23	7.31
6568.00	49.45	310.14	6372.93	417.28	899.42	-79.41	516399.2	4400741.4	39°45'23.147"N	80°48'30.816"W	902.92	354.95	4.26
6662.00	59.58	309.61	6427.43	490.23	948.41	-138.09	516381.3	4400756.3	39°45'23.633"N	80°48'31.566"W	958.41	351.72	10.79
6757.00	69.80	307.39	6467.99	572.68	1001.74	-205.25	516360.8	4400772.6	39°45'24.161"N	80°48'32.425"W	1022.55	348.42	10.96
6851.00	77.40	305.04	6494.52	660.21	1054.95	-277.97	516338.7	4400788.8	39°45'24.688"N	80°48'33.354"W	1090.95	345.24	8.43
6946.00	86.86	302.35	6507.51	752.41	1107.07	-356.18	516314.8	4400804.7	39°45'25.205"N	80°48'34.354"W	1162.95	342.17	10.34
7041.00	89.26	297.96	6510.73	846.48	1154.75	-438.25	516289.8	4400819.2	39°45'25.678"N	80°48'35.404"W	1235.11	339.22	5.26
7135.00	89.88	289.43	6511.44	940.37	1192.48	-524.24	516263.6	4400830.7	39°45'26.053"N	80°48'36.504"W	1302.63	336.27	9.10
7230.00	89.82	283.59	6511.69	1034.81	1219.47	-615.29	516235.9	4400838.9	39°45'26.321"N	80°48'37.669"W	1365.90	333.23	6.15
7326.00	89.85	286.08	6511.96	1129.95	1244.05	-708.08	516207.6	4400846.4	39°45'26.566"N	80°48'38.857"W	1431.44	330.35	2.59
7421.00	90.37	289.02	6511.78	1224.59	1272.69	-798.65	516180.0	4400855.1	39°45'26.851"N	80°48'40.015"W	1502.52	327.89	3.14
7516.00	90.31	291.49	6511.22	1319.51	1305.58	-887.77	516152.9	4400865.1	39°45'27.178"N	80°48'41.156"W	1578.81	325.79	2.60
7611.00	90.40	294.63	6510.63	1414.49	1342.78	-975.16	516126.3	4400876.5	39°45'27.548"N	80°48'42.274"W	1659.52	324.01	3.31
7706.00	90.34	293.88	6510.02	1509.44	1381.81	-1061.77	516099.9	4400888.4	39°45'27.935"N	80°48'43.382"W	1742.63	322.46	0.79
7802.00	90.34	292.79	6509.45	1605.43	1419.83	-1149.92	516073.0	4400900.0	39°45'28.313"N	80°48'44.509"W	1827.08	321.00	1.14
7897.00	90.34	292.94	6508.88	1700.42	1456.74	-1237.45	516046.3	4400911.2	39°45'28.679"N	80°48'45.629"W	1911.38	319.65	0.16
7992.00	90.37	293.01	6508.29	1795.42	1493.82	-1324.91	516019.7	4400922.5	39°45'29.047"N	80°48'46.748"W	1996.72	318.43	0.08
8087.00	90.37	294.79	6507.68	1890.38	1532.31	-1411.76	515993.2	4400934.2	39°45'29.430"N	80°48'47.859"W	2083.52	317.35	1.87
8181.00	90.43	295.23	6507.02	1984.29	1572.05	-1496.95	515967.3	4400946.3	39°45'29.824"N	80°48'48.949"W	2170.76	316.40	0.47
8276.00	90.67	294.02	6506.16	2079.22	1611.63	-1583.30	515941.0	4400958.4	39°45'30.217"N	80°48'50.053"W	2259.25	315.51	1.29
8370.00	90.62	292.62	6505.15	2173.20	1648.84	-1669.62	515914.7	4400969.7	39°45'30.587"N	80°48'51.158"W	2346.55	314.64	1.49
8465.00	90.65	291.56	6504.10	2268.19	1684.56	-1757.64	515887.9	4400980.6	39°45'30.941"N	80°48'52.284"W	2434.55	313.78	1.12
8559.00	90.65	291.23	6503.03	2362.17	1718.85	-1845.15	515861.2	4400991.1	39°45'31.282"N	80°48'53.404"W	2521.71	312.97	0.35
8654.00	90.59	290.88	6502.00	2457.13	1752.98	-1933.80	515834.2	4401001.5	39°45'31.621"N	80°48'54.538"W	2610.08	312.19	0.37
8749.00	90.65	291.46	6500.98	2552.10	1787.29	-2022.39	515807.2	4401011.9	39°45'31.962"N	80°48'55.671"W	2698.97	311.47	0.61
8844.00	90.68	292.28	6499.87	2647.09	1822.67	-2110.54	515780.3	4401022.7	39°45'32.313"N	80°48'56.799"W	2788.64	310.81	0.86

8/19/15

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]
8938.00	90.68	293.34	6498.76	2741.08	1859.11	-2197.18	515753.9	4401033.8	39°45'32.675"N	80°48'57.907"W	2878.18	310.24	1.13
9033.00	90.71	293.46	6497.61	2836.06	1896.84	-2284.36	515727.4	4401045.3	39°45'33.050"N	80°48'59.023"W	2969.23	309.71	0.13
9128.00	90.80	293.16	6496.35	2931.04	1934.42	-2371.60	515700.8	4401056.7	39°45'33.423"N	80°49'00.139"W	3060.47	309.20	0.33
9222.00	90.95	293.19	6494.92	3025.02	1971.41	-2458.01	515674.5	4401068.0	39°45'33.790"N	80°49'01.244"W	3150.92	308.73	0.16
9317.00	91.23	291.65	6493.11	3120.00	2007.64	-2545.81	515647.7	4401079.0	39°45'34.150"N	80°49'02.368"W	3242.18	308.26	1.65
9411.00	91.26	292.04	6491.07	3213.97	2042.61	-2633.04	515621.1	4401089.7	39°45'34.498"N	80°49'03.484"W	3332.44	307.80	0.42
9506.00	91.23	291.82	6489.01	3308.95	2078.08	-2721.14	515594.3	4401100.5	39°45'34.850"N	80°49'04.611"W	3423.89	307.37	0.23
9601.00	91.05	291.56	6487.12	3403.92	2113.18	-2809.40	515567.4	4401111.2	39°45'35.199"N	80°49'05.740"W	3515.43	306.95	0.33
9696.00	90.74	292.38	6485.63	3498.90	2148.72	-2897.49	515540.6	4401122.0	39°45'35.552"N	80°49'06.867"W	3607.28	306.56	0.92
9791.00	90.61	293.43	6484.51	3593.89	2185.69	-2984.99	515513.9	4401133.3	39°45'35.919"N	80°49'07.987"W	3699.65	306.21	1.11
9886.00	90.43	293.99	6483.65	3688.87	2223.89	-3071.97	515487.4	4401144.9	39°45'36.298"N	80°49'09.099"W	3792.45	305.90	0.62
9981.00	90.40	293.41	6482.96	3783.84	2262.07	-3158.95	515460.9	4401156.6	39°45'36.677"N	80°49'10.212"W	3885.35	305.61	0.61
10077.00	90.46	292.98	6482.24	3879.83	2299.88	-3247.19	515434.0	4401168.1	39°45'37.052"N	80°49'11.341"W	3979.16	305.31	0.45
10170.00	90.55	293.65	6481.42	3972.82	2336.69	-3332.59	515408.0	4401179.3	39°45'37.418"N	80°49'12.434"W	4070.17	305.04	0.73
10263.00	90.62	293.14	6480.47	4065.80	2373.61	-3417.94	515382.0	4401190.6	39°45'37.785"N	80°49'13.526"W	4161.29	304.78	0.55
10358.00	90.52	292.48	6479.53	4160.79	2410.44	-3505.51	515355.3	4401201.8	39°45'38.150"N	80°49'14.646"W	4254.27	304.51	0.70
10452.00	90.55	291.33	6478.65	4254.78	2445.51	-3592.72	515328.7	4401212.5	39°45'38.498"N	80°49'15.762"W	4346.05	304.24	1.22
10547.00	90.52	290.18	6477.76	4349.73	2479.17	-3681.55	515301.7	4401222.7	39°45'38.833"N	80°49'16.899"W	4438.48	303.96	1.21
10642.00	90.92	291.01	6476.57	4444.67	2512.59	-3770.47	515274.6	4401232.9	39°45'39.165"N	80°49'18.036"W	4530.95	303.68	0.97
10738.00	90.83	291.65	6475.10	4540.64	2547.50	-3859.88	515247.3	4401243.5	39°45'39.512"N	80°49'19.180"W	4624.76	303.43	0.67
10833.00	90.95	293.32	6473.63	4635.63	2583.83	-3947.64	515220.6	4401254.6	39°45'39.872"N	80°49'20.303"W	4718.06	303.21	1.76
10927.00	90.92	293.02	6472.09	4729.61	2620.81	-4034.05	515194.3	4401265.9	39°45'40.240"N	80°49'21.409"W	4810.63	303.01	0.32
11022.00	90.65	293.71	6470.79	4824.59	2658.48	-4121.25	515167.7	4401277.3	39°45'40.614"N	80°49'22.524"W	4904.31	302.83	0.78
11117.00	90.59	292.65	6469.76	4919.57	2695.87	-4208.58	515141.1	4401288.7	39°45'40.985"N	80°49'23.642"W	4997.98	302.64	1.12
11212.00	90.55	290.36	6468.82	5014.55	2730.69	-4296.95	515114.2	4401299.3	39°45'41.331"N	80°49'24.772"W	5091.22	302.44	2.41
11306.00	90.62	289.09	6467.86	5108.43	2762.41	-4385.43	515087.2	4401309.0	39°45'41.646"N	80°49'25.905"W	5182.95	302.21	1.35
11401.00	90.58	289.95	6466.86	5203.30	2794.15	-4474.96	515059.9	4401318.7	39°45'41.961"N	80°49'27.050"W	5275.66	301.98	0.91
11496.00	90.74	291.80	6465.77	5298.25	2828.00	-4563.72	515032.9	4401329.0	39°45'42.298"N	80°49'28.186"W	5368.90	301.79	1.95
11589.00	90.40	291.71	6464.84	5391.24	2862.47	-4650.09	515006.6	4401339.5	39°45'42.640"N	80°49'29.291"W	5460.50	301.62	0.38
11684.00	90.40	292.77	6464.18	5486.24	2898.43	-4738.02	514979.8	4401350.5	39°45'42.997"N	80°49'30.416"W	5554.25	301.46	1.12
11779.00	90.43	294.89	6463.49	5581.20	2936.80	-4824.91	514953.3	4401362.1	39°45'43.378"N	80°49'31.528"W	5648.42	301.33	2.23

51-01618

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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]
11874.00	90.49	294.61	6462.73	5676.13	2976.58	-4911.18	514927.0	4401374.3	39°45'43.773"N	80°49'32.632"W	5742.80	301.22	0.30
11970.00	90.31	295.37	6462.06	5772.03	3017.13	-4998.19	514900.5	4401386.6	39°45'44.175"N	80°49'33.745"W	5838.24	301.12	0.81
12065.00	90.28	295.30	6461.57	5866.91	3057.78	-5084.06	514874.4	4401399.0	39°45'44.578"N	80°49'34.843"W	5932.76	301.03	0.08
12160.00	90.37	294.41	6461.03	5961.83	3097.71	-5170.25	514848.1	4401411.2	39°45'44.975"N	80°49'35.946"W	6027.22	300.93	0.94
12255.00	90.37	291.67	6460.42	6056.81	3134.89	-5257.67	514821.5	4401422.5	39°45'45.344"N	80°49'37.065"W	6121.32	300.81	2.88
12349.00	90.49	289.20	6459.71	6150.74	3167.70	-5345.74	514794.6	4401432.5	39°45'45.670"N	80°49'38.192"W	6213.80	300.65	2.63
12434.00	90.40	289.97	6459.05	6235.63	3196.19	-5425.82	514770.2	4401441.2	39°45'45.953"N	80°49'39.216"W	6297.24	300.50	0.91
12459.00	90.40	289.97	6458.88	6260.60	3204.73	-5449.32	514763.1	4401443.8	39°45'46.038"N	80°49'39.517"W	6321.82	300.46	0.00

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