



GASTAR EXPLORATION USA, INC.

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

Slot: Slot #6
 Well: Armstrong 6H
 Wellbore: Armstrong 6H (PWB)



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 #6	32.01	24.01	1694267.000	14437183.000	39°45'14.089"N	80°48'29.978"W
Nomac 323 (RT) to Mud line (At Slot: Slot #6)				29.4ft		
Mean Sea Level to Mud line (At Slot: Slot #6)				-1278ft		
Nomac 323 (RT) to Mean Sea Level				1307.4ft		

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Armstrong 6H PBHL Rev-2	12485.77	6448.65	2853.14	-5585.23	1688704.00	14440035.00	39°45'42.398"N	80°49'41.420"W
Armstrong 6H PBHL Rev-1		6468.00	2853.14	-5585.23	1688704.00	14440035.00	39°45'42.398"N	80°49'41.420"W
Armstrong 6H LP Rev-1	6913.79	6507.00	750.63	-425.48	1693861.69	14437933.33	39°45'21.516"N	80°48'35.400"W

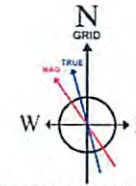
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	5725.40	13.070	12.410	5689.55	347.80	95.56	0.00	42.75
Projection	5785.40	13.070	12.410	5748.00	361.05	98.47	0.00	45.05
End of 3D Arc	6080.03	16.372	337.740	6033.46	432.17	89.88	3.14	79.84
LP	6913.79	90.600	292.170	6507.00	750.63	-425.48	9.50	677.28
BHL	12485.77	90.600	292.170	6448.65	2853.14	-5585.23	0.00	6248.95

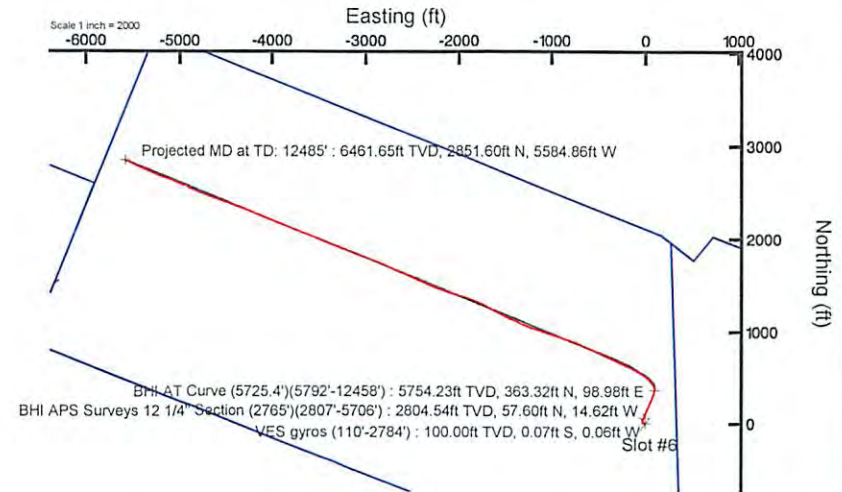
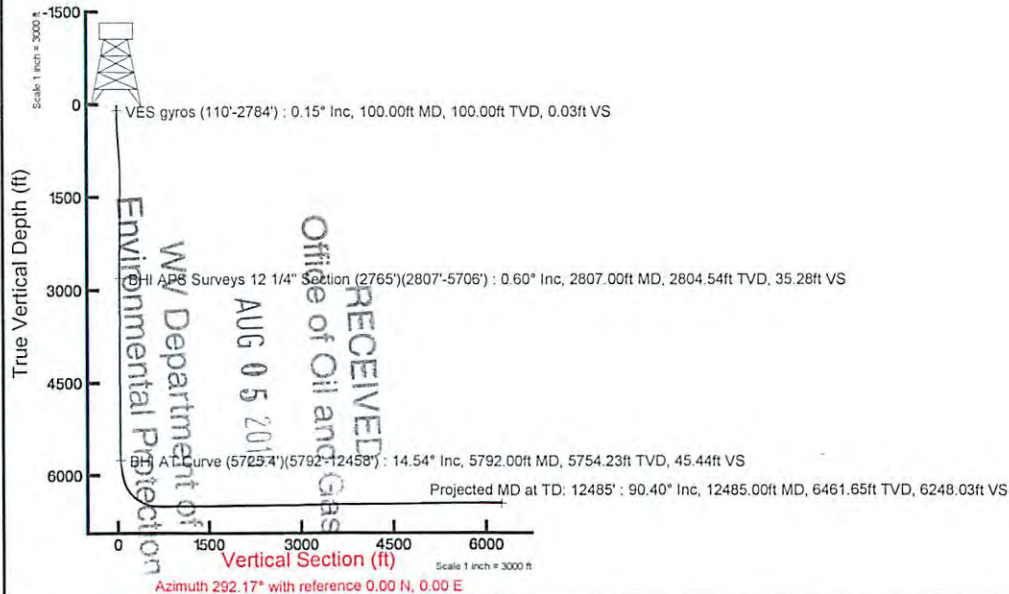
Plot reference wellpath is Armstrong 6H (PWP) Rev-C.0

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 #6): -1278 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: frisjesl on 7/31/2014

API: 47-051-01617-0000
 Rig: Nomac 323
 BHI Job #: 5847830
 Duration: 07.23.2014 - 07.27.2014



BGGM (1945.0 to 2016.0) Dip: 67.23° Field: 52484.9 nT
 Magnetic North is 8.54 degrees West of True North (at 7/1/2014)
 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



51-01617

REFERENCE WELLPATH IDENTIFICATION			
Operator	GASTAR EXPLORATION INC.	Slot	Slot #6
Area	Marshall County, WV	Well	Armstrong 6H
Field	Marshall	Wellbore	Armstrong 6H (AWB)
Facility	Armstrong	Wellpath	Armstrong 6H (AWP) Proj: 12,485'
		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	221.18	0.00	0.00	0.00	0.00	516419.7	4400462.3	39°45'14.089"N	80°48'29.978"W	0.00	0.00	0.00
29.40	0.00	221.18	29.40	0.00	0.00	0.00	516419.7	4400462.3	39°45'14.089"N	80°48'29.978"W	0.00	0.00	0.00
119.40	0.19	221.18	119.40	0.05	-0.11	-0.10	516419.7	4400462.1	39°45'14.088"N	80°48'29.980"W	0.15	221.18	0.21
219.40	0.52	218.43	219.40	0.23	-0.59	-0.49	516419.6	4400462.0	39°45'14.083"N	80°48'29.985"W	0.77	219.56	0.33
319.40	1.13	255.39	319.39	1.15	-1.20	-1.73	516419.2	4400461.8	39°45'14.077"N	80°48'30.000"W	2.10	235.26	0.78
419.40	2.95	294.61	419.32	4.51	-0.37	-5.02	516418.2	4400462.1	39°45'14.085"N	80°48'30.043"W	5.03	265.74	2.19
519.40	4.65	308.74	519.10	10.96	3.23	-10.52	516416.5	4400463.2	39°45'14.121"N	80°48'30.113"W	11.01	287.09	1.93
619.40	5.05	318.52	618.75	18.79	9.07	-16.60	516414.7	4400464.9	39°45'14.179"N	80°48'30.191"W	18.91	298.65	0.92
719.40	4.99	326.78	718.36	26.32	16.00	-21.90	516413.0	4400467.1	39°45'14.248"N	80°48'30.258"W	27.12	306.16	0.72
819.40	5.66	330.64	817.93	33.76	23.94	-26.70	516411.6	4400469.5	39°45'14.326"N	80°48'30.319"W	35.86	311.89	0.76
919.40	5.08	332.33	917.49	41.00	32.16	-31.17	516410.2	4400472.0	39°45'14.407"N	80°48'30.376"W	44.79	315.90	0.60
1019.40	2.77	341.72	1017.25	45.95	38.38	-33.98	516409.4	4400473.9	39°45'14.469"N	80°48'30.412"W	51.26	318.47	2.39
1119.40	1.80	1.82	1117.17	48.07	42.24	-34.69	516409.1	4400475.0	39°45'14.507"N	80°48'30.421"W	54.66	320.60	1.24
1219.40	1.06	46.70	1217.14	48.23	44.44	-33.97	516409.4	4400475.7	39°45'14.529"N	80°48'30.412"W	55.94	322.61	1.29
1319.40	1.22	41.20	1317.12	47.50	45.88	-32.60	516409.8	4400476.2	39°45'14.543"N	80°48'30.394"W	56.28	324.61	0.19
1419.40	1.19	43.93	1417.10	46.77	47.43	-31.17	516410.2	4400476.6	39°45'14.558"N	80°48'30.376"W	56.76	326.68	0.06
1519.40	1.00	56.49	1517.08	45.89	48.66	-29.73	516410.7	4400477.0	39°45'14.570"N	80°48'30.358"W	57.02	328.58	0.31
1619.40	0.99	58.32	1617.07	44.89	49.59	-28.26	516411.1	4400477.3	39°45'14.580"N	80°48'30.339"W	57.08	330.32	0.03
1719.40	1.19	66.28	1717.05	43.66	50.47	-26.58	516411.6	4400477.6	39°45'14.588"N	80°48'30.317"W	57.04	332.23	0.25
1819.40	0.89	66.85	1817.03	42.39	51.19	-24.91	516412.1	4400477.8	39°45'14.595"N	80°48'30.296"W	56.93	334.05	0.30
1919.40	0.88	86.91	1917.02	41.15	51.54	-23.43	516412.6	4400477.9	39°45'14.599"N	80°48'30.277"W	56.61	335.55	0.31
2019.40	0.78	90.95	2017.01	39.82	51.57	-21.98	516413.0	4400477.9	39°45'14.599"N	80°48'30.258"W	56.06	336.91	0.12
2119.40	0.89	82.50	2117.00	38.51	51.66	-20.53	516413.5	4400477.9	39°45'14.600"N	80°48'30.240"W	55.59	338.32	0.16
2219.40	0.82	64.07	2216.99	37.36	52.07	-19.12	516413.9	4400478.0	39°45'14.604"N	80°48'30.222"W	55.47	339.84	0.28
2319.40	0.85	61.00	2316.98	36.41	52.74	-17.83	516414.3	4400478.2	39°45'14.611"N	80°48'30.205"W	55.67	341.32	0.05

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 AUG 05 2015
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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]
2419.40	0.73	43.18	2416.97	35.72	53.57	-16.74	516414.6	4400478.5	39°45'14.619"N	80°48'30.191"W	56.12	342.64	0.27
2519.40	0.72	32.77	2516.96	35.37	54.56	-15.97	516414.8	4400478.8	39°45'14.628"N	80°48'30.181"W	56.85	343.69	0.13
2619.40	0.79	17.62	2616.95	35.31	55.74	-15.42	516415.0	4400479.2	39°45'14.640"N	80°48'30.174"W	57.84	344.54	0.21
2719.40	0.54	24.98	2716.95	35.35	56.83	-15.01	516415.1	4400479.5	39°45'14.651"N	80°48'30.169"W	58.78	345.20	0.26
2784.40	0.58	27.56	2781.94	35.30	57.40	-14.73	516415.2	4400479.7	39°45'14.656"N	80°48'30.165"W	59.26	345.61	0.07
2826.40	0.61	24.52	2823.94	35.27	57.79	-14.54	516415.3	4400479.8	39°45'14.660"N	80°48'30.163"W	59.59	345.88	0.10
2919.40	0.80	25.90	2916.93	35.21	58.82	-14.05	516415.4	4400480.1	39°45'14.671"N	80°48'30.157"W	60.48	346.57	0.21
3014.40	0.94	31.81	3011.92	35.03	60.08	-13.35	516415.6	4400480.5	39°45'14.683"N	80°48'30.148"W	61.55	347.47	0.17
3108.40	0.98	18.32	3105.91	34.96	61.50	-12.69	516415.8	4400480.9	39°45'14.697"N	80°48'30.139"W	62.80	348.34	0.24
3203.40	0.98	13.78	3200.90	35.13	63.06	-12.24	516416.0	4400481.4	39°45'14.712"N	80°48'30.133"W	64.24	349.02	0.08
3298.40	1.04	12.70	3295.88	35.39	64.69	-11.86	516416.1	4400481.9	39°45'14.729"N	80°48'30.128"W	65.77	349.61	0.07
3392.40	1.69	1.68	3389.85	36.02	66.91	-11.63	516416.2	4400482.6	39°45'14.750"N	80°48'30.125"W	67.91	350.14	0.74
3486.40	0.44	211.18	3483.84	36.56	67.99	-11.78	516416.1	4400482.9	39°45'14.761"N	80°48'30.127"W	69.00	350.17	2.22
3580.40	1.80	182.03	3577.82	36.11	66.20	-12.01	516416.1	4400482.4	39°45'14.743"N	80°48'30.130"W	67.28	349.71	1.52
3674.40	2.00	178.10	3671.77	34.93	63.09	-12.01	516416.1	4400481.4	39°45'14.713"N	80°48'30.130"W	64.22	349.22	0.25
3766.40	0.33	150.44	3763.75	34.07	61.25	-11.83	516416.1	4400480.8	39°45'14.695"N	80°48'30.128"W	62.38	349.07	1.86
3861.40	0.25	160.13	3858.75	33.71	60.82	-11.62	516416.2	4400480.7	39°45'14.690"N	80°48'30.125"W	61.92	349.18	0.10
3955.40	0.34	149.78	3952.75	33.36	60.39	-11.41	516416.2	4400480.6	39°45'14.686"N	80°48'30.123"W	61.45	349.30	0.11
4049.40	0.32	140.31	4046.75	32.90	59.94	-11.11	516416.3	4400480.4	39°45'14.682"N	80°48'30.119"W	60.96	349.50	0.06
4144.40	0.80	24.80	4141.74	32.64	60.34	-10.66	516416.5	4400480.6	39°45'14.685"N	80°48'30.113"W	61.27	349.98	1.03
4175.40	1.80	17.78	4172.73	32.67	61.00	-10.42	516416.5	4400480.8	39°45'14.692"N	80°48'30.110"W	61.88	350.31	3.26
4207.40	2.47	20.77	4204.71	32.72	62.12	-10.02	516416.7	4400481.1	39°45'14.703"N	80°48'30.105"W	62.93	350.84	2.12
4239.40	2.87	19.79	4236.68	32.77	63.52	-9.50	516416.8	4400481.5	39°45'14.717"N	80°48'30.098"W	64.23	351.49	1.26
4270.40	3.79	21.95	4267.62	32.81	65.20	-8.86	516417.0	4400482.0	39°45'14.734"N	80°48'30.090"W	65.80	352.26	2.99
4302.40	4.45	22.23	4299.54	32.81	67.33	-7.99	516417.3	4400482.7	39°45'14.755"N	80°48'30.079"W	67.81	353.23	2.06
4334.40	5.59	20.36	4331.42	32.86	69.94	-6.98	516417.6	4400483.5	39°45'14.780"N	80°48'30.066"W	70.29	354.30	3.60
4365.40	6.65	19.62	4362.24	32.99	73.05	-5.85	516417.9	4400484.4	39°45'14.811"N	80°48'30.051"W	73.28	355.42	3.43
4397.40	7.82	17.34	4393.99	33.25	76.87	-4.58	516418.3	4400485.6	39°45'14.849"N	80°48'30.035"W	77.01	356.59	3.76
4428.40	8.69	15.90	4424.66	33.69	81.14	-3.31	516418.7	4400486.9	39°45'14.891"N	80°48'30.018"W	81.21	357.66	2.88
4460.40	9.42	14.16	4456.28	34.30	85.92	-2.03	516419.1	4400488.4	39°45'14.938"N	80°48'30.002"W	85.95	358.65	1.59
4492.40	9.42	13.67	4487.87	35.03	90.85	-0.81	516419.5	4400489.9	39°45'14.987"N	80°48'29.986"W	90.85	359.49	0.24

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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]
4523.40	10.12	13.45	4518.44	35.81	95.88	0.40	516419.8	4400491.4	39°45'15.037"N	80°48'29.970"W	95.88	0.24	3.23
4555.40	11.33	15.81	4549.88	36.58	101.64	1.91	516420.3	4400493.1	39°45'15.093"N	80°48'29.951"W	101.66	1.08	4.02
4587.40	11.65	16.27	4581.24	37.26	107.77	3.68	516420.8	4400495.0	39°45'15.154"N	80°48'29.928"W	107.83	1.95	1.04
4619.40	12.04	14.27	4612.56	38.05	114.10	5.40	516421.4	4400496.9	39°45'15.216"N	80°48'29.906"W	114.23	2.71	1.77
4682.40	13.27	18.89	4674.03	39.37	127.31	9.36	516422.6	4400501.0	39°45'15.347"N	80°48'29.855"W	127.66	4.21	2.53
4744.40	14.20	24.80	4734.26	39.43	140.95	14.86	516424.2	4400505.1	39°45'15.482"N	80°48'29.784"W	141.73	6.02	2.71
4807.40	14.25	23.87	4795.32	38.84	155.05	21.24	516426.2	4400509.4	39°45'15.621"N	80°48'29.702"W	156.50	7.80	0.37
4870.40	14.67	22.53	4856.33	38.56	169.51	27.43	516428.1	4400513.8	39°45'15.764"N	80°48'29.622"W	171.72	9.19	0.85
4933.40	14.28	25.46	4917.33	38.07	183.90	33.83	516430.0	4400518.2	39°45'15.906"N	80°48'29.540"W	186.98	10.42	1.32
4997.40	14.48	22.90	4979.32	37.51	198.40	40.34	516432.0	4400522.6	39°45'16.049"N	80°48'29.456"W	202.45	11.49	1.04
5059.40	12.38	23.47	5039.63	37.26	211.63	46.00	516433.7	4400526.7	39°45'16.179"N	80°48'29.384"W	216.58	12.26	3.39
5122.40	12.46	24.27	5101.15	36.86	224.02	51.48	516435.4	4400530.4	39°45'16.302"N	80°48'29.313"W	229.86	12.94	0.30
5186.40	12.25	23.72	5163.67	36.42	236.53	57.05	516437.1	4400534.2	39°45'16.425"N	80°48'29.241"W	243.32	13.56	0.38
5248.40	12.52	22.09	5224.23	36.26	248.78	62.22	516438.7	4400538.0	39°45'16.546"N	80°48'29.175"W	256.45	14.04	0.71
5311.40	13.31	19.78	5285.63	36.57	261.93	67.25	516440.2	4400542.0	39°45'16.676"N	80°48'29.110"W	270.43	14.40	1.50
5375.40	13.91	17.49	5347.84	37.50	276.20	72.05	516441.7	4400546.3	39°45'16.817"N	80°48'29.048"W	285.45	14.62	1.26
5437.40	13.23	21.04	5408.11	38.25	289.93	76.84	516443.1	4400550.5	39°45'16.953"N	80°48'28.986"W	299.94	14.84	1.73
5500.40	13.45	20.35	5469.41	38.63	303.53	81.98	516444.7	4400554.7	39°45'17.087"N	80°48'28.920"W	314.41	15.11	0.43
5564.40	11.97	20.71	5531.84	39.03	316.72	86.91	516446.2	4400558.7	39°45'17.217"N	80°48'28.857"W	328.43	15.35	2.32
5627.40	10.51	15.62	5593.63	39.85	328.37	90.77	516447.4	4400562.2	39°45'17.332"N	80°48'28.807"W	340.68	15.45	2.80
5725.40	13.07	12.41	5689.55	42.75	347.80	95.56	516448.8	4400568.1	39°45'17.524"N	80°48'28.745"W	360.69	15.36	2.70
5792.00	14.54	12.45	5754.23	45.44	363.32	98.98	516449.9	4400572.9	39°45'17.677"N	80°48'28.701"W	376.56	15.24	2.21
5858.00	14.78	357.03	5818.10	50.42	379.82	100.33	516450.3	4400577.9	39°45'17.840"N	80°48'28.683"W	392.85	14.80	5.91
5906.00	15.83	343.61	5864.41	57.10	392.22	98.16	516449.6	4400581.7	39°45'17.963"N	80°48'28.711"W	404.32	14.05	7.68
5955.00	15.61	332.98	5911.59	66.26	404.51	93.28	516448.1	4400585.4	39°45'18.085"N	80°48'28.773"W	415.12	12.99	5.89
6000.00	15.30	328.12	5954.97	75.65	414.94	87.40	516446.3	4400588.6	39°45'18.188"N	80°48'28.848"W	424.05	11.89	2.96
6095.00	15.87	325.41	6046.47	96.66	436.28	73.40	516442.1	4400595.1	39°45'18.399"N	80°48'29.026"W	442.41	9.55	0.97
6190.00	21.53	321.83	6136.43	122.69	460.70	55.24	516436.5	4400602.5	39°45'18.641"N	80°48'29.258"W	464.00	6.84	6.08
6285.00	31.33	314.52	6221.42	160.79	491.80	26.78	516427.9	4400612.0	39°45'18.949"N	80°48'29.622"W	492.53	3.12	10.85
6379.00	40.01	305.80	6297.76	212.89	526.71	-15.26	516415.1	4400622.7	39°45'19.295"N	80°48'30.159"W	526.93	358.34	10.68
6474.00	50.71	301.17	6364.43	279.09	563.71	-71.67	516397.9	4400633.9	39°45'19.661"N	80°48'30.880"W	568.25	352.76	11.78

51-01617

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 May 5 2015

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]
6569.00	57.71	297.46	6419.96	355.49	601.31	-138.85	516377.4	4400645.4	39°45'20.034"N	80°48'31.740"W	617.14	347.00	8.02
6664.00	68.50	296.33	6462.88	439.81	639.55	-214.32	516354.4	4400657.0	39°45'20.414"N	80°48'32.705"W	674.50	341.47	11.41
6758.00	76.46	296.03	6491.15	529.16	679.06	-294.70	516329.9	4400669.1	39°45'20.806"N	80°48'33.733"W	740.25	336.54	8.47
6852.00	82.69	295.24	6508.15	621.39	719.03	-378.01	516304.5	4400681.3	39°45'21.203"N	80°48'34.799"W	812.34	332.27	6.68
6948.00	90.55	295.39	6513.81	717.00	759.97	-464.57	516278.2	4400693.7	39°45'21.609"N	80°48'35.906"W	890.72	328.56	8.19
7043.00	90.55	295.40	6512.90	811.85	800.71	-550.38	516252.0	4400706.1	39°45'22.014"N	80°48'37.004"W	971.63	325.50	0.01
7137.00	90.18	294.35	6512.30	905.74	840.25	-635.66	516226.0	4400718.2	39°45'22.406"N	80°48'38.094"W	1053.61	322.89	1.18
7232.00	90.18	292.50	6512.00	1000.71	878.02	-722.83	516199.5	4400729.7	39°45'22.781"N	80°48'39.209"W	1137.28	320.54	1.95
7327.00	90.12	289.00	6511.75	1095.67	911.67	-811.65	516172.4	4400739.9	39°45'23.116"N	80°48'40.346"W	1220.62	318.32	3.68
7422.00	90.40	289.30	6511.32	1190.53	942.83	-901.39	516145.1	4400749.4	39°45'23.426"N	80°48'41.494"W	1304.39	316.29	0.43
7517.00	90.37	287.78	6510.68	1285.34	973.04	-991.46	516117.6	4400758.6	39°45'23.726"N	80°48'42.646"W	1389.17	314.46	1.60
7612.00	90.62	288.98	6509.86	1380.13	1002.99	-1081.61	516090.2	4400767.8	39°45'24.024"N	80°48'43.800"W	1475.08	312.84	1.29
7707.00	90.55	287.74	6508.89	1474.91	1032.91	-1171.76	516062.7	4400776.9	39°45'24.321"N	80°48'44.954"W	1562.03	311.40	1.31
7803.00	90.12	291.08	6508.33	1570.78	1064.81	-1262.29	516035.1	4400786.6	39°45'24.639"N	80°48'46.112"W	1651.43	310.15	3.51
7898.00	90.12	294.34	6508.13	1665.77	1101.48	-1349.92	516008.4	4400797.8	39°45'25.003"N	80°48'47.233"W	1742.28	309.21	3.43
7993.00	90.28	294.29	6507.80	1760.70	1140.60	-1436.49	515982.0	4400809.7	39°45'25.391"N	80°48'48.340"W	1834.25	308.45	0.18
8088.00	90.22	295.94	6507.38	1855.57	1180.92	-1522.50	515955.8	4400822.0	39°45'25.791"N	80°48'49.441"W	1926.81	307.80	1.74
8182.00	90.09	299.71	6507.13	1949.09	1224.79	-1605.62	515930.5	4400835.3	39°45'26.227"N	80°48'50.504"W	2019.44	307.34	4.01
8277.00	90.61	298.68	6506.55	2043.38	1271.13	-1688.55	515905.2	4400849.5	39°45'26.686"N	80°48'51.564"W	2113.52	306.97	1.21
8371.00	90.58	296.64	6505.57	2136.94	1314.76	-1771.80	515879.9	4400862.8	39°45'27.119"N	80°48'52.629"W	2206.32	306.58	2.17
8466.00	90.55	290.54	6504.63	2231.86	1352.76	-1858.81	515853.4	4400874.3	39°45'27.496"N	80°48'53.742"W	2298.94	306.05	6.42
8561.00	90.65	284.69	6503.64	2326.51	1381.49	-1949.31	515825.8	4400883.1	39°45'27.782"N	80°48'54.900"W	2389.21	305.33	6.16
8655.00	90.49	287.35	6502.70	2419.96	1407.43	-2039.65	515798.3	4400891.0	39°45'28.040"N	80°48'56.056"W	2478.11	304.61	2.83
8750.00	90.49	289.53	6501.89	2514.75	1437.48	-2129.76	515770.8	4400900.1	39°45'28.339"N	80°48'57.209"W	2569.48	304.02	2.29
8845.00	90.58	289.59	6501.00	2609.64	1469.28	-2219.28	515743.5	4400909.8	39°45'28.655"N	80°48'58.355"W	2661.57	303.51	0.11
8940.00	90.49	293.30	6500.12	2704.62	1504.01	-2307.68	515716.6	4400920.4	39°45'29.000"N	80°48'59.486"W	2754.53	303.09	3.91
9035.00	90.55	294.08	6499.25	2799.58	1542.17	-2394.67	515690.1	4400932.0	39°45'29.379"N	80°49'00.599"W	2848.29	302.78	0.82
9129.00	90.58	294.31	6498.33	2893.51	1580.70	-2480.41	515664.0	4400943.8	39°45'29.762"N	80°49'01.696"W	2941.26	302.51	0.25
9224.00	90.83	293.38	6497.16	2988.47	1619.10	-2567.29	515637.5	4400955.5	39°45'30.143"N	80°49'02.807"W	3035.21	302.24	1.01
9318.00	90.80	293.28	6495.82	3082.44	1656.32	-2653.60	515611.2	4400966.8	39°45'30.513"N	80°49'03.911"W	3128.10	301.97	0.11
9413.00	90.86	294.97	6494.45	3177.37	1695.15	-2740.29	515584.8	4400978.7	39°45'30.898"N	80°49'05.020"W	3222.22	301.74	1.78

51-01617

Approved
 Department of
 Environmental Protection
 and Gas
 August 5, 2015

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]
9507.00	90.80	291.81	6493.08	3271.32	1732.45	-2826.54	515558.5	4400990.0	39°45'31.268"N	80°49'06.124"W	3315.23	301.51	3.36
9602.00	91.38	291.12	6491.28	3366.30	1767.21	-2914.94	515531.6	4401000.6	39°45'31.614"N	80°49'07.255"W	3408.80	301.23	0.95
9698.00	91.26	291.03	6489.06	3462.26	1801.72	-3004.49	515504.3	4401011.1	39°45'31.957"N	80°49'08.401"W	3503.31	300.95	0.16
9792.00	90.46	290.06	6487.65	3556.21	1834.71	-3092.50	515477.5	4401021.2	39°45'32.284"N	80°49'09.527"W	3595.79	300.68	1.34
9887.00	90.68	294.24	6486.71	3651.18	1870.51	-3180.47	515450.7	4401032.1	39°45'32.640"N	80°49'10.652"W	3689.74	300.46	4.41
9982.00	90.61	291.59	6485.64	3746.16	1907.50	-3267.96	515424.0	4401043.4	39°45'33.007"N	80°49'11.771"W	3783.93	300.27	2.79
10078.00	90.59	291.46	6484.63	3842.15	1942.72	-3357.26	515396.8	4401054.1	39°45'33.357"N	80°49'12.914"W	3878.83	300.06	0.14
10171.00	90.61	292.48	6483.66	3935.14	1977.51	-3443.50	515370.6	4401064.7	39°45'33.703"N	80°49'14.017"W	3970.92	299.87	1.10
10264.00	90.58	293.77	6482.69	4028.12	2014.03	-3529.02	515344.5	4401075.8	39°45'34.065"N	80°49'15.111"W	4063.29	299.71	1.39
10359.00	90.65	292.03	6481.67	4123.10	2051.00	-3616.52	515317.8	4401087.1	39°45'34.432"N	80°49'16.231"W	4157.62	299.56	1.83
10453.00	90.55	291.28	6480.69	4217.09	2085.68	-3703.88	515291.2	4401097.6	39°45'34.777"N	80°49'17.349"W	4250.74	299.38	0.80
10548.00	90.55	293.80	6479.78	4312.08	2122.09	-3791.62	515264.5	4401108.7	39°45'35.138"N	80°49'18.471"W	4345.07	299.24	2.65
10643.00	90.49	292.43	6478.91	4407.06	2159.38	-3878.98	515237.9	4401120.1	39°45'35.509"N	80°49'19.589"W	4439.53	299.10	1.44
10739.00	90.74	290.66	6477.88	4503.04	2194.64	-3968.27	515210.7	4401130.8	39°45'35.859"N	80°49'20.731"W	4534.71	298.95	1.86
10834.00	91.26	292.51	6476.23	4598.02	2229.58	-4056.59	515183.8	4401141.5	39°45'36.206"N	80°49'21.861"W	4628.92	298.79	2.02
10928.00	91.26	292.24	6474.16	4692.00	2265.35	-4143.49	515157.3	4401152.4	39°45'36.561"N	80°49'22.973"W	4722.32	298.67	0.29
11023.00	90.68	292.11	6472.55	4786.98	2301.20	-4231.45	515130.5	4401163.3	39°45'36.917"N	80°49'24.099"W	4816.71	298.54	0.63
11118.00	90.65	291.11	6471.45	4881.97	2336.19	-4319.76	515103.6	4401174.0	39°45'37.264"N	80°49'25.229"W	4911.02	298.41	1.05
11213.00	90.62	289.83	6470.40	4976.92	2369.41	-4408.76	515076.5	4401184.1	39°45'37.595"N	80°49'26.367"W	5005.12	298.26	1.35
11307.00	90.65	289.59	6469.35	5070.83	2401.11	-4497.25	515049.5	4401193.7	39°45'37.910"N	80°49'27.500"W	5098.09	298.10	0.26
11402.00	90.71	289.44	6468.23	5165.72	2432.84	-4586.78	515022.2	4401203.4	39°45'38.225"N	80°49'28.645"W	5192.04	297.94	0.17
11497.00	90.68	290.90	6467.07	5260.65	2465.59	-4675.95	514995.0	4401213.4	39°45'38.550"N	80°49'29.786"W	5286.17	297.80	1.54
11590.00	90.71	291.31	6465.95	5353.63	2499.08	-4762.70	514968.6	4401223.6	39°45'38.883"N	80°49'30.896"W	5378.54	297.69	0.44
11685.00	90.71	293.40	6464.77	5448.62	2535.21	-4850.55	514941.8	4401234.6	39°45'39.242"N	80°49'32.020"W	5473.13	297.59	2.20
11780.00	90.71	293.85	6463.59	5543.58	2573.27	-4937.58	514915.3	4401246.2	39°45'39.620"N	80°49'33.134"W	5567.90	297.53	0.47
11875.00	90.62	294.28	6462.49	5638.52	2612.01	-5024.32	514888.9	4401258.0	39°45'40.004"N	80°49'34.244"W	5662.72	297.47	0.46
11971.00	90.46	289.74	6461.58	5734.49	2647.98	-5113.30	514861.8	4401269.0	39°45'40.361"N	80°49'35.382"W	5758.26	297.38	4.73
12066.00	89.85	289.73	6461.33	5829.40	2680.06	-5202.71	514834.6	4401278.7	39°45'40.680"N	80°49'36.526"W	5852.43	297.25	0.64
12161.00	89.97	294.37	6461.48	5924.38	2715.71	-5290.74	514807.7	4401289.6	39°45'41.034"N	80°49'37.653"W	5947.02	297.17	4.89
12256.00	89.82	294.40	6461.65	6019.31	2754.93	-5377.27	514781.4	4401301.5	39°45'41.423"N	80°49'38.760"W	6041.91	297.13	0.16
12350.00	89.72	295.63	6462.03	6113.19	2794.68	-5462.45	514755.4	4401313.7	39°45'41.818"N	80°49'39.849"W	6135.84	297.10	1.31

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12445.00	90.40	294.57	6461.93	6208.06	2834.98	-5548.47	514729.2	4401325.9	39°45'42.218"N	80°49'40.950"W	6230.78	297.07	1.33
12458.00	90.40	294.55	6461.84	6221.05	2840.38	-5560.30	514725.6	4401327.6	39°45'42.271"N	80°49'41.101"W	6243.77	297.06	0.15
12485.00	90.40	294.55	6461.65	6248.03	2851.60	-5584.86	514718.1	4401331.0	39°45'42.382"N	80°49'41.415"W	6270.74	297.05	0.00

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