



## Actual Wellpath Report

Blake U-7H AWP: Proj 18102'

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### REFERENCE WELLPATH IDENTIFICATION

Operator	<b>GASTAR EXPLORATION USA, INC.</b>	Slot	<b>Slot #U-7</b>
Area	<b>Marshall County, WV</b>	Well	<b>Blake U- 7H</b>
Field	<b>Marshall</b>	Wellbore	<b>Blake U-7H AWB</b>
Facility	<b>Blake Unit</b>		

### REPORT SETUP INFORMATION

Projection System	<b>NAD83 / UTM Zone 17 North, US feet</b>	Software System	<b>WellArchitect® 4.0.1</b>
North Reference	<b>Grid</b>	User	<b>Kroschr</b>
Scale	<b>0.999603</b>	Report Generated	<b>12/16/2014 at 12:38:11 PM</b>
Convergence at slot	<b>0.12° East</b>	Database/Source file	<b>WA_NorthEast/Blake_U-7H_AWB.xml</b>

### WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-93.10	-36.56	<b>1695170.45</b>	<b>14440798.64</b>	39°45'49.817"N	80°48'18.562"W
Facility Reference Pt			<b>1695207.00</b>	<b>14440891.70</b>	39°45'50.736"N	80°48'18.091"W
Field Reference Pt			<b>0.00</b>	<b>0.00</b>	0°00'00.000"	85°29'19.478"W

### WELLPATH DATUM

Calculation method	<b>Minimum curvature</b>	Nomac 323 (RT) to Facility Vertical Datum	<b>29.40ft</b>
Horizontal Reference Pt	<b>Slot</b>	Nomac 323 (RT) to Mean Sea Level	<b>1355.40ft</b>
Vertical Reference Pt	<b>Nomac 323 (RT)</b>	Nomac 323 (RT) to Mud Line at Slot (Slot #U-7)	<b>29.40ft</b>
MD Reference Pt	<b>Nomac 323 (RT)</b>	Section Origin	<b>N 0.00, E 0.00 ft</b>
Field Vertical Reference	<b>Mean Sea Level</b>	Section Azimuth	<b>291.92°</b>



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Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #U-7
Area	Marshall County, WV	Well	Blake U- 7H
Field	Marshall	Wellbore	Blake U-7H AWB
Facility	Blake Unit		

## WELLPATH DATA (187 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]
0.00†	0.000	280.270	0.00	0.00	0.00	0.00	1695170.45	14440798.64	39°45'49.817"N	80°48'18.562"W	0.00	0.000	0.00
29.40	0.000	280.270	29.40	0.00	0.00	0.00	1695170.45	14440798.64	39°45'49.817"N	80°48'18.562"W	0.00	0.000	0.00
100.00	0.660	280.270	100.00	0.40	0.07	-0.40	1695170.05	14440798.71	39°45'49.817"N	80°48'18.567"W	0.41	280.270	0.93
200.00	0.470	280.290	199.99	1.36	0.25	-1.37	1695169.08	14440798.89	39°45'49.819"N	80°48'18.579"W	1.39	280.276	0.19
300.00	0.410	270.780	299.99	2.10	0.33	-2.13	1695168.32	14440798.97	39°45'49.820"N	80°48'18.589"W	2.16	278.710	0.09
400.00	0.400	276.840	399.99	2.77	0.37	-2.84	1695167.62	14440799.01	39°45'49.820"N	80°48'18.598"W	2.86	277.493	0.04
500.00	0.430	268.880	499.99	3.45	0.41	-3.56	1695166.89	14440799.05	39°45'49.821"N	80°48'18.607"W	3.58	276.530	0.06
600.00	0.390	283.770	599.98	4.13	0.48	-4.26	1695166.19	14440799.12	39°45'49.822"N	80°48'18.616"W	4.29	276.436	0.11
700.00	0.310	312.800	699.98	4.72	0.75	-4.79	1695165.66	14440799.39	39°45'49.824"N	80°48'18.623"W	4.85	278.845	0.19
800.00	0.180	74.090	799.98	4.85	0.97	-4.84	1695165.61	14440799.61	39°45'49.826"N	80°48'18.624"W	4.94	281.363	0.43
900.00	0.310	106.310	899.98	4.46	0.94	-4.43	1695166.02	14440799.58	39°45'49.826"N	80°48'18.618"W	4.53	281.978	0.18
1000.00	0.380	138.020	999.98	3.89	0.62	-3.95	1695166.50	14440799.26	39°45'49.823"N	80°48'18.612"W	4.00	278.886	0.20
1100.00	0.330	153.120	1099.98	3.38	0.11	-3.60	1695166.86	14440798.75	39°45'49.818"N	80°48'18.608"W	3.60	271.813	0.11
1200.00	0.170	127.870	1199.98	3.02	-0.23	-3.35	1695167.10	14440798.41	39°45'49.814"N	80°48'18.604"W	3.36	266.001	0.19
1300.00	1.460	149.400	1299.96	1.87	-1.42	-2.58	1695167.87	14440797.22	39°45'49.803"N	80°48'18.595"W	2.95	241.169	1.30
1400.00	1.390	132.580	1399.93	-0.28	-3.34	-1.04	1695169.41	14440795.30	39°45'49.784"N	80°48'18.575"W	3.50	197.321	0.42
1500.00	1.210	111.300	1499.91	-2.47	-4.54	0.84	1695171.29	14440794.10	39°45'49.772"N	80°48'18.551"W	4.62	169.579	0.51
1600.00	1.270	92.320	1599.88	-4.57	-4.97	2.93	1695173.38	14440793.67	39°45'49.767"N	80°48'18.524"W	5.77	149.516	0.41
1700.00	0.950	76.170	1699.87	-6.29	-4.82	4.84	1695175.29	14440793.82	39°45'49.769"N	80°48'18.500"W	6.83	134.878	0.44
1800.00	0.650	63.870	1799.86	-7.34	-4.37	6.15	1695176.60	14440794.27	39°45'49.773"N	80°48'18.483"W	7.55	125.385	0.34
1900.00	0.480	63.200	1899.85	-8.00	-3.93	7.04	1695177.48	14440794.71	39°45'49.778"N	80°48'18.472"W	8.06	119.195	0.17
2000.00	0.340	59.030	1999.85	-8.45	-3.59	7.66	1695178.11	14440795.05	39°45'49.781"N	80°48'18.464"W	8.46	115.099	0.14
2100.00	0.290	30.810	2099.85	-8.67	-3.22	8.05	1695178.50	14440795.42	39°45'49.785"N	80°48'18.459"W	8.67	111.805	0.16
2200.00	0.320	14.310	2199.85	-8.67	-2.73	8.25	1695178.69	14440795.91	39°45'49.789"N	80°48'18.456"W	8.69	108.329	0.09
2300.00	0.370	53.590	2299.84	-8.80	-2.27	8.58	1695179.02	14440796.37	39°45'49.794"N	80°48'18.452"W	8.87	104.825	0.24
2400.00	0.370	42.970	2399.84	-9.09	-1.84	9.06	1695179.50	14440796.80	39°45'49.798"N	80°48'18.446"W	9.24	101.497	0.07

2500.00	0.280	35.020	2499.84	-9.26	-1.41	9.42	1695179.86	14440797.23	39°45'49.803"N	80°48'18.441"W	9.52	98.490	0.10
2600.00	0.250	260.100	2599.84	-9.13	-1.24	9.34	1695179.79	14440797.40	39°45'49.804"N	80°48'18.442"W	9.42	97.579	0.49
2700.00	0.720	227.710	2699.84	-8.67	-1.70	8.66	1695179.11	14440796.94	39°45'49.800"N	80°48'18.451"W	8.83	101.125	0.53
2800.00	0.590	222.830	2799.83	-8.21	-2.50	7.85	1695178.29	14440796.14	39°45'49.792"N	80°48'18.461"W	8.24	107.696	0.14



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Operator	GASTAR EXPLORATION USA, INC.		Slot	Slot #U-7
Area	Marshall County, WV		Well	Blake U- 7H
Field	Marshall		Wellbore	Blake U-7H AWB
Facility	Blake Unit			

WELLPATH DATA (187 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]
2900.00	0.610	235.070	2899.82	-7.74	-3.19	7.06	1695177.51	14440795.46	39°45'49.785"N	80°48'18.471"W	7.75	114.287	0.13
3000.00	0.580	235.040	2999.82	-7.17	-3.78	6.21	1695176.66	14440794.86	39°45'49.779"N	80°48'18.482"W	7.27	121.337	0.03
3100.00	0.620	229.980	3099.81	-6.64	-4.42	5.38	1695175.83	14440794.22	39°45'49.773"N	80°48'18.493"W	6.96	129.396	0.07
3200.00	0.580	220.370	3199.81	-6.23	-5.15	4.64	1695175.09	14440793.49	39°45'49.766"N	80°48'18.502"W	6.93	138.007	0.11
3300.00	0.570	209.750	3299.80	-6.00	-5.97	4.06	1695174.51	14440792.67	39°45'49.758"N	80°48'18.510"W	7.22	145.759	0.11
3400.00	0.500	208.630	3399.80	-5.88	-6.78	3.61	1695174.06	14440791.86	39°45'49.750"N	80°48'18.516"W	7.68	152.000	0.07
3500.00	0.330	194.230	3499.80	-5.87	-7.45	3.33	1695173.78	14440791.20	39°45'49.743"N	80°48'18.519"W	8.16	155.922	0.20
3600.00	0.140	170.730	3599.79	-5.97	-7.85	3.28	1695173.73	14440790.80	39°45'49.739"N	80°48'18.520"W	8.50	157.336	0.21
3700.00	0.070	160.380	3699.79	-6.07	-8.02	3.32	1695173.77	14440790.62	39°45'49.737"N	80°48'18.519"W	8.68	157.544	0.07
3800.00	0.140	353.070	3799.79	-6.05	-7.96	3.32	1695173.77	14440790.68	39°45'49.738"N	80°48'18.519"W	8.63	157.347	0.21
3900.00	0.300	309.420	3899.79	-5.75	-7.67	3.11	1695173.55	14440790.97	39°45'49.741"N	80°48'18.522"W	8.28	157.966	0.22
4000.00	0.270	266.910	3999.79	-5.28	-7.52	2.67	1695173.12	14440791.12	39°45'49.742"N	80°48'18.528"W	7.98	160.466	0.21
4100.00	0.300	195.720	4099.79	-5.10	-7.78	2.36	1695172.81	14440790.86	39°45'49.740"N	80°48'18.532"W	8.13	163.122	0.33
4200.00	0.370	102.870	4199.79	-5.44	-8.11	2.61	1695173.05	14440790.53	39°45'49.736"N	80°48'18.528"W	8.52	162.185	0.49
4300.00	0.480	63.840	4299.79	-6.04	-8.00	3.30	1695173.75	14440790.65	39°45'49.738"N	80°48'18.520"W	8.65	157.595	0.30
4400.00	0.370	36.270	4399.79	-6.40	-7.55	3.86	1695174.31	14440791.09	39°45'49.742"N	80°48'18.512"W	8.48	152.903	0.23
4500.00	0.220	94.950	4499.78	-6.67	-7.31	4.25	1695174.69	14440791.34	39°45'49.744"N	80°48'18.507"W	8.45	149.842	0.32
4600.00	0.890	92.150	4599.78	-7.58	-7.35	5.21	1695175.66	14440791.29	39°45'49.744"N	80°48'18.495"W	9.01	144.663	0.67
4700.00	0.840	83.360	4699.77	-8.96	-7.30	6.72	1695177.16	14440791.35	39°45'49.744"N	80°48'18.476"W	9.92	137.369	0.14
4800.00	0.460	82.270	4799.76	-9.95	-7.16	7.84	1695178.29	14440791.48	39°45'49.746"N	80°48'18.461"W	10.62	132.386	0.38
4900.00	0.650	122.250	4899.76	-10.86	-7.41	8.72	1695179.17	14440791.24	39°45'49.743"N	80°48'18.450"W	11.44	130.343	0.42
5000.00	0.880	102.570	4999.75	-12.17	-7.88	9.95	1695180.40	14440790.77	39°45'49.739"N	80°48'18.434"W	12.69	128.367	0.35
5100.00	0.610	114.830	5099.74	-13.46	-8.27	11.18	1695181.63	14440790.38	39°45'49.735"N	80°48'18.419"W	13.91	126.476	0.31
5200.00	0.260	124.470	5199.74	-14.21	-8.62	11.85	1695182.30	14440790.02	39°45'49.731"N	80°48'18.410"W	14.66	126.025	0.36
5300.00	0.560	110.320	5299.73	-14.92	-8.92	12.50	1695182.94	14440789.73	39°45'49.728"N	80°48'18.402"W	15.35	125.508	0.31
5400.00	0.520	109.090	5399.73	-15.87	-9.24	13.38	1695183.83	14440789.41	39°45'49.725"N	80°48'18.390"W	16.26	124.605	0.04

5500.00	0.060	122.320	5499.73	-16.37	-9.41	13.86	1695184.30	14440789.23	39°45'49.723"N	80°48'18.384"W	16.75	124.183	0.46
5600.00	0.450	126.190	5599.73	-16.80	-9.67	14.22	1695184.66	14440788.97	39°45'49.721"N	80°48'18.380"W	17.20	124.223	0.39
5700.00	0.470	129.360	5699.72	-17.57	-10.16	14.85	1695185.30	14440788.48	39°45'49.716"N	80°48'18.372"W	18.00	124.383	0.03
5800.00	0.190	133.650	5799.72	-18.12	-10.54	15.29	1695185.73	14440788.11	39°45'49.712"N	80°48'18.366"W	18.57	124.575	0.28



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Blake U-7H AWP: Proj 18102'

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Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #U-7
Area	Marshall County, WV	Well	Blake U- 7H
Field	Marshall	Wellbore	Blake U-7H AWB
Facility	Blake Unit		

## WELLPATH DATA (187 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]
5900.00	0.730	136.740	5899.72	-18.85	-11.12	15.85	1695186.29	14440787.53	39°45'49.706"N	80°48'18.359"W	19.36	125.050	0.54
6000.00	0.590	120.350	5999.71	-19.94	-11.84	16.73	1695187.17	14440786.80	39°45'49.699"N	80°48'18.348"W	20.49	125.293	0.23
6100.00	0.670	167.800	6099.71	-20.78	-12.67	17.30	1695187.74	14440785.97	39°45'49.691"N	80°48'18.340"W	21.44	126.230	0.51
6200.00	1.080	169.350	6199.69	-21.61	-14.17	17.59	1695188.04	14440784.48	39°45'49.676"N	80°48'18.337"W	22.59	128.849	0.41
6300.00	0.830	168.200	6299.68	-22.52	-15.81	17.92	1695188.36	14440782.84	39°45'49.660"N	80°48'18.333"W	23.89	131.419	0.25
6400.00	1.130	178.410	6399.67	-23.32	-17.50	18.09	1695188.53	14440781.15	39°45'49.643"N	80°48'18.330"W	25.17	134.048	0.35
6500.00	1.650	172.720	6499.64	-24.41	-19.91	18.30	1695188.74	14440778.73	39°45'49.619"N	80°48'18.328"W	27.05	137.417	0.54
6600.00	1.310	174.130	6599.60	-25.65	-22.48	18.60	1695189.04	14440776.17	39°45'49.594"N	80°48'18.324"W	29.18	140.394	0.34
6700.00	1.410	183.320	6699.57	-26.57	-24.84	18.65	1695189.09	14440773.81	39°45'49.571"N	80°48'18.323"W	31.06	143.111	0.24
6800.00	1.170	163.130	6799.55	-27.60	-27.05	18.87	1695189.31	14440771.60	39°45'49.549"N	80°48'18.321"W	32.98	145.099	0.51
6900.00	0.900	194.040	6899.53	-28.35	-28.79	18.98	1695189.42	14440769.86	39°45'49.532"N	80°48'18.319"W	34.48	146.608	0.61
7000.00	1.400	183.340	6999.51	-28.85	-30.77	18.71	1695189.16	14440767.88	39°45'49.512"N	80°48'18.323"W	36.01	148.691	0.54
7100.00	1.020	174.630	7099.49	-29.65	-32.88	18.73	1695189.17	14440765.78	39°45'49.491"N	80°48'18.323"W	37.84	150.333	0.42
7200.00	1.240	175.100	7199.47	-30.54	-34.84	18.90	1695189.35	14440763.81	39°45'49.472"N	80°48'18.320"W	39.64	151.517	0.22
7300.00	1.160	174.620	7299.45	-31.49	-36.93	19.09	1695189.53	14440761.73	39°45'49.451"N	80°48'18.318"W	41.57	152.662	0.08
7400.00	0.590	169.150	7399.44	-32.24	-38.44	19.28	1695189.72	14440760.22	39°45'49.436"N	80°48'18.316"W	43.00	153.361	0.58
7500.00	0.930	174.250	7499.43	-32.89	-39.75	19.46	1695189.90	14440758.90	39°45'49.423"N	80°48'18.313"W	44.26	153.917	0.35
7600.00	0.630	177.430	7599.42	-33.50	-41.11	19.57	1695190.01	14440757.55	39°45'49.410"N	80°48'18.312"W	45.53	154.547	0.30
7700.00	0.750	176.140	7699.41	-34.01	-42.31	19.63	1695190.08	14440756.35	39°45'49.398"N	80°48'18.311"W	46.65	155.106	0.12
7800.00	0.910	133.870	7799.40	-35.03	-43.51	20.25	1695190.69	14440755.14	39°45'49.386"N	80°48'18.303"W	48.00	155.043	0.62
7900.00	0.400	138.660	7899.40	-36.08	-44.33	21.05	1695191.50	14440754.33	39°45'49.378"N	80°48'18.293"W	49.07	154.593	0.51
8000.00	0.670	130.860	7999.39	-36.94	-44.97	21.73	1695192.17	14440753.69	39°45'49.372"N	80°48'18.285"W	49.95	154.213	0.28
8100.00	0.510	113.020	8099.39	-37.94	-45.53	22.58	1695193.02	14440753.13	39°45'49.366"N	80°48'18.274"W	50.82	153.621	0.24
8200.00	0.800	145.990	8199.38	-38.97	-46.28	23.38	1695193.82	14440752.38	39°45'49.359"N	80°48'18.263"W	51.85	153.199	0.46
8300.00	0.380	100.360	8299.37	-39.87	-46.92	24.10	1695194.54	14440751.74	39°45'49.352"N	80°48'18.254"W	52.74	152.817	0.60
8400.00	0.080	296.050	8399.37	-40.12	-46.95	24.36	1695194.80	14440751.71	39°45'49.352"N	80°48'18.251"W	52.89	152.577	0.46

8500.00	0.530	24.970	8499.37	-40.08	-46.50	24.49	1695194.93	14440752.16	39°45'49.357"N	80°48'18.249"W	52.55	152.223	0.53
8600.00	0.680	307.950	8599.37	-39.53	-45.71	24.22	1695194.66	14440752.94	39°45'49.364"N	80°48'18.253"W	51.73	152.085	0.76
8700.00	0.370	5.270	8699.36	-38.87	-45.03	23.78	1695194.22	14440753.63	39°45'49.371"N	80°48'18.258"W	50.92	152.160	0.57
8800.00	0.530	322.980	8799.36	-38.38	-44.34	23.53	1695193.97	14440754.32	39°45'49.378"N	80°48'18.261"W	50.19	152.042	0.36



# Actual Wellpath Report

Blake U-7H AWP: Proj 18102'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	GASTAR EXPLORATION USA, INC.		Slot	Slot #U-7
Area	Marshall County, WV		Well	Blake U- 7H
Field	Marshall		Wellbore	Blake U-7H AWB
Facility	Blake Unit			

WELLPATH DATA (187 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]
8900.00	0.180	89.780	8899.36	-38.13	-43.97	23.41	1695193.85	14440754.69	39°45'49.382"N	80°48'18.263"W	49.81	151.966	0.65
9000.00	0.420	77.190	8999.36	-38.58	-43.88	23.93	1695194.37	14440754.77	39°45'49.382"N	80°48'18.256"W	49.98	151.402	0.25
9100.00	0.260	75.140	9099.36	-39.06	-43.75	24.50	1695194.94	14440754.91	39°45'49.384"N	80°48'18.249"W	50.14	150.747	0.16
9200.00	0.440	110.680	9199.36	-39.63	-43.82	25.08	1695195.52	14440754.83	39°45'49.383"N	80°48'18.242"W	50.49	150.217	0.27
9300.00	0.540	112.850	9299.35	-40.48	-44.14	25.87	1695196.31	14440754.52	39°45'49.380"N	80°48'18.231"W	51.17	149.623	0.10
9400.00	1.250	101.340	9399.34	-42.03	-44.54	27.38	1695197.82	14440754.12	39°45'49.376"N	80°48'18.212"W	52.28	148.421	0.73
9500.00	1.180	119.400	9499.32	-44.12	-45.26	29.34	1695199.78	14440753.40	39°45'49.369"N	80°48'18.187"W	53.94	147.042	0.39
9606.00	1.600	116.360	9605.29	-46.68	-46.45	31.62	1695202.06	14440752.21	39°45'49.357"N	80°48'18.158"W	56.19	145.756	0.40
9880.00	6.190	108.200	9878.58	-65.24	-52.77	49.09	1695219.52	14440745.89	39°45'49.294"N	80°48'17.934"W	72.07	137.067	1.68
9974.00	10.400	107.230	9971.58	-78.76	-56.87	62.01	1695232.44	14440741.80	39°45'49.253"N	80°48'17.769"W	84.14	132.520	4.48
10070.00	11.950	108.740	10065.75	-97.32	-62.63	79.70	1695250.12	14440736.04	39°45'49.196"N	80°48'17.543"W	101.36	128.158	1.64
10164.00	12.240	111.240	10157.67	-117.00	-69.36	98.21	1695268.62	14440729.31	39°45'49.129"N	80°48'17.306"W	120.23	125.233	0.64
10260.00	11.110	112.910	10251.68	-136.43	-76.65	116.21	1695286.62	14440722.02	39°45'49.057"N	80°48'17.076"W	139.21	123.407	1.23
10354.00	11.210	105.890	10343.91	-154.57	-82.68	133.34	1695303.74	14440716.00	39°45'48.997"N	80°48'16.856"W	156.89	121.800	1.45
10449.00	8.200	107.180	10437.54	-170.51	-87.21	148.70	1695319.09	14440711.47	39°45'48.952"N	80°48'16.660"W	172.39	120.390	3.18
10544.00	3.250	49.370	10532.09	-178.51	-87.46	157.23	1695327.62	14440711.22	39°45'48.949"N	80°48'16.551"W	179.91	119.084	7.40
10640.00	7.370	311.350	10627.79	-173.95	-81.60	154.67	1695325.05	14440717.07	39°45'49.007"N	80°48'16.583"W	174.87	117.817	8.81
10734.00	14.630	299.190	10720.02	-156.46	-71.82	139.76	1695310.15	14440726.85	39°45'49.104"N	80°48'16.774"W	157.13	117.198	8.07
10829.00	22.610	297.020	10809.97	-126.32	-57.65	112.97	1695283.37	14440741.02	39°45'49.245"N	80°48'17.117"W	126.83	117.035	8.43
10925.00	32.040	290.790	10895.18	-82.37	-40.18	72.62	1695243.05	14440758.47	39°45'49.418"N	80°48'17.633"W	83.00	118.955	10.25
11020.00	42.780	289.780	10970.53	-24.77	-20.26	18.55	1695188.99	14440778.39	39°45'49.616"N	80°48'18.325"W	27.47	137.527	11.32
11114.00	57.270	290.790	11030.76	47.04	4.71	-48.81	1695121.66	14440803.35	39°45'49.864"N	80°48'19.187"W	49.04	275.509	15.44
11210.00	62.330	289.770	11079.04	129.95	33.44	-126.62	1695043.88	14440832.07	39°45'50.150"N	80°48'20.182"W	130.96	284.793	5.35
11305.00	69.650	287.890	11117.67	216.54	61.39	-208.71	1694961.83	14440860.00	39°45'50.428"N	80°48'21.232"W	217.55	286.391	7.91
11400.00	74.450	288.060	11146.94	306.67	89.27	-294.65	1694875.92	14440887.88	39°45'50.705"N	80°48'22.332"W	307.87	286.856	5.06
11495.00	80.170	288.790	11167.80	399.14	118.56	-382.54	1694788.07	14440917.15	39°45'50.997"N	80°48'23.457"W	400.49	287.220	6.07



11590.00	83.490	291.320	11181.30	493.11	150.81	-470.85	1694699.79	14440949.39	39°45'51.317"N	80°48'24.587"W	494.41	287.760	4.38
11685.00	85.750	295.690	11190.21	587.62	188.52	-557.55	1694613.12	14440987.09	39°45'51.692"N	80°48'25.696"W	588.56	288.682	5.16
11780.00	86.150	295.940	11196.92	682.17	229.79	-642.86	1694527.85	14441028.34	39°45'52.101"N	80°48'26.787"W	682.69	289.669	0.50
11875.00	87.810	294.580	11201.92	776.87	270.27	-728.65	1694442.09	14441068.80	39°45'52.503"N	80°48'27.885"W	777.16	290.351	2.26



# Actual Wellpath Report

Blake U-7H AWP: Proj 18102'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #U-7
Area	Marshall County, WV	Well	Blake U- 7H
Field	Marshall	Wellbore	Blake U-7H AWB
Facility	Blake Unit		

## WELLPATH DATA (187 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]
11969.00	91.230	292.600	11202.71	870.80	307.88	-814.77	1694356.00	14441106.39	39°45'52.877"N	80°48'28.987"W	871.00	290.700	4.20
12064.00	91.320	291.350	11200.60	965.78	343.42	-902.85	1694267.96	14441141.92	39°45'53.230"N	80°48'30.114"W	965.96	290.825	1.32
12158.00	91.350	291.260	11198.41	1059.75	377.56	-990.40	1694180.44	14441176.05	39°45'53.569"N	80°48'31.234"W	1059.93	290.868	0.10
12254.00	91.290	288.960	11196.20	1155.67	410.56	-1080.52	1694090.36	14441209.03	39°45'53.897"N	80°48'32.387"W	1155.89	290.805	2.40
12349.00	91.450	289.530	11193.92	1250.54	441.86	-1170.18	1694000.73	14441240.32	39°45'54.208"N	80°48'33.534"W	1250.83	290.687	0.62
12445.00	91.570	291.400	11191.39	1346.47	475.41	-1260.09	1693910.86	14441273.86	39°45'54.542"N	80°48'34.685"W	1346.79	290.671	1.95
12539.00	91.450	291.750	11188.92	1440.43	509.97	-1347.47	1693823.51	14441308.40	39°45'54.885"N	80°48'35.803"W	1440.75	290.730	0.39
12634.00	91.720	292.620	11186.29	1535.40	545.82	-1435.40	1693735.62	14441344.25	39°45'55.241"N	80°48'36.928"W	1535.68	290.820	0.96
12727.00	91.420	292.230	11183.74	1628.36	581.29	-1521.34	1693649.72	14441379.70	39°45'55.594"N	80°48'38.027"W	1628.61	290.911	0.53
12821.00	91.450	293.990	11181.39	1722.30	618.17	-1607.77	1693563.33	14441416.56	39°45'55.960"N	80°48'39.133"W	1722.51	291.031	1.87
12916.00	91.420	294.980	11179.01	1817.18	657.53	-1694.19	1693476.93	14441455.91	39°45'56.351"N	80°48'40.239"W	1817.32	291.212	1.04
13010.00	91.510	294.290	11176.60	1911.04	696.70	-1779.61	1693391.55	14441495.06	39°45'56.740"N	80°48'41.332"W	1911.13	291.380	0.74
13106.00	91.320	293.220	11174.23	2006.96	735.36	-1867.45	1693303.75	14441533.70	39°45'57.123"N	80°48'42.456"W	2007.02	291.493	1.13
13200.00	91.450	290.990	11171.96	2100.93	770.72	-1954.51	1693216.72	14441569.05	39°45'57.475"N	80°48'43.570"W	2100.98	291.521	2.38
13295.00	91.200	292.860	11169.76	2195.90	806.18	-2042.61	1693128.65	14441604.50	39°45'57.827"N	80°48'44.697"W	2195.95	291.538	1.99
13391.00	91.200	292.960	11167.75	2291.86	843.54	-2131.02	1693040.28	14441641.85	39°45'58.198"N	80°48'45.828"W	2291.90	291.596	0.10
13485.00	91.230	289.880	11165.76	2385.83	877.86	-2218.49	1692952.84	14441676.15	39°45'58.539"N	80°48'46.947"W	2385.87	291.589	3.28
13580.00	91.200	291.550	11163.75	2480.78	911.45	-2307.33	1692864.04	14441709.73	39°45'58.873"N	80°48'48.084"W	2480.83	291.555	1.76
13675.00	91.080	291.260	11161.86	2575.76	946.12	-2395.76	1692775.65	14441744.38	39°45'59.217"N	80°48'49.215"W	2575.81	291.550	0.33
13769.00	91.110	289.560	11160.06	2669.70	978.89	-2483.84	1692687.60	14441777.14	39°45'59.543"N	80°48'50.343"W	2669.77	291.510	1.81
13862.00	91.420	289.950	11158.01	2762.61	1010.32	-2571.34	1692600.13	14441808.56	39°45'59.855"N	80°48'51.462"W	2762.71	291.451	0.54
13956.00	91.880	290.620	11155.30	2856.54	1042.89	-2659.48	1692512.03	14441841.12	39°46'00.179"N	80°48'52.590"W	2856.65	291.412	0.86
14050.00	92.000	292.800	11152.12	2950.48	1077.64	-2746.75	1692424.79	14441875.85	39°46'00.524"N	80°48'53.707"W	2950.59	291.422	2.32
14145.00	92.000	291.790	11148.80	3045.42	1113.66	-2834.60	1692336.98	14441911.86	39°46'00.882"N	80°48'54.831"W	3045.52	291.449	1.06
14240.00	92.060	292.730	11145.44	3140.35	1149.63	-2922.46	1692249.15	14441947.81	39°46'01.239"N	80°48'55.955"W	3140.45	291.473	0.99
14335.00	92.030	292.590	11142.05	3235.28	1186.20	-3010.07	1692161.58	14441984.37	39°46'01.602"N	80°48'57.076"W	3235.37	291.508	0.15

14429.00	92.090	292.410	11138.67	3329.22	1222.15	-3096.86	1692074.82	14442020.30	39°46'01.960"N	80°48'58.187"W	3329.29	291.536	0.20
14523.00	92.060	293.300	11135.26	3423.14	1258.64	-3183.42	1691988.30	14442056.77	39°46'02.322"N	80°48'59.294"W	3423.21	291.572	0.95
14617.00	91.450	291.550	11132.38	3517.09	1294.48	-3270.27	1691901.48	14442092.60	39°46'02.678"N	80°49'00.405"W	3517.15	291.595	1.97
14712.00	91.480	291.600	11129.96	3612.06	1329.40	-3358.59	1691813.20	14442127.51	39°46'03.025"N	80°49'01.536"W	3612.12	291.595	0.06



# Actual Wellpath Report

Blake U-7H AWP: Proj 18102'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #U-7
Area	Marshall County, WV	Well	Blake U- 7H
Field	Marshall	Wellbore	Blake U-7H AWB
Facility	Blake Unit		

## WELLPATH DATA (187 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]
14807.00	91.480	291.570	11127.50	3707.03	1364.33	-3446.89	1691724.93	14442162.43	39°46'03.372"N	80°49'02.666"W	3707.09	291.594	0.03
14901.00	91.510	291.880	11125.05	3800.99	1399.12	-3534.19	1691637.67	14442197.20	39°46'03.717"N	80°49'03.783"W	3801.05	291.598	0.33
14994.00	91.480	291.740	11122.62	3893.96	1433.66	-3620.50	1691551.39	14442231.73	39°46'04.060"N	80°49'04.887"W	3894.02	291.603	0.15
15090.00	91.510	291.620	11120.12	3989.93	1469.11	-3709.68	1691462.25	14442267.16	39°46'04.413"N	80°49'06.028"W	3989.99	291.605	0.13
15184.00	91.080	290.600	11117.99	4083.89	1502.96	-3797.35	1691374.62	14442301.00	39°46'04.749"N	80°49'07.150"W	4083.96	291.593	1.18
15278.00	91.140	290.380	11116.17	4177.85	1535.85	-3885.38	1691286.61	14442333.88	39°46'05.076"N	80°49'08.277"W	4177.92	291.568	0.24
15373.00	91.110	291.920	11114.31	4272.82	1570.12	-3973.96	1691198.07	14442368.14	39°46'05.416"N	80°49'09.410"W	4272.90	291.559	1.62
15467.00	91.140	291.130	11112.46	4366.80	1604.61	-4061.39	1691110.68	14442402.61	39°46'05.759"N	80°49'10.529"W	4366.88	291.558	0.84
15563.00	91.080	291.890	11110.60	4462.77	1639.80	-4150.69	1691021.42	14442437.78	39°46'06.108"N	80°49'11.671"W	4462.86	291.557	0.79
15656.00	91.420	292.770	11108.57	4555.75	1675.12	-4236.69	1690935.45	14442473.10	39°46'06.459"N	80°49'12.772"W	4555.83	291.573	1.01
15751.00	91.510	293.340	11106.15	4650.70	1712.32	-4324.08	1690848.10	14442510.27	39°46'06.828"N	80°49'13.890"W	4650.77	291.603	0.61
15846.00	91.050	294.790	11104.02	4745.61	1751.04	-4410.79	1690761.41	14442548.99	39°46'07.213"N	80°49'15.000"W	4745.66	291.653	1.60
15940.00	91.080	293.620	11102.28	4839.51	1789.58	-4496.51	1690675.73	14442587.50	39°46'07.595"N	80°49'16.096"W	4839.55	291.702	1.24
16035.00	91.110	291.240	11100.46	4934.48	1825.81	-4584.30	1690587.97	14442623.73	39°46'07.955"N	80°49'17.220"W	4934.52	291.716	2.51
16130.00	90.890	290.340	11098.80	5029.45	1859.53	-4673.10	1690499.21	14442657.43	39°46'08.290"N	80°49'18.356"W	5029.49	291.699	0.98
16225.00	90.830	290.220	11097.38	5124.40	1892.45	-4762.21	1690410.14	14442690.34	39°46'08.617"N	80°49'19.496"W	5124.45	291.672	0.14
16320.00	90.890	291.410	11095.95	5219.37	1926.21	-4850.99	1690321.39	14442724.08	39°46'08.952"N	80°49'20.633"W	5219.43	291.657	1.25
16414.00	90.890	291.820	11094.49	5313.36	1960.83	-4938.37	1690234.05	14442758.69	39°46'09.296"N	80°49'21.751"W	5313.41	291.656	0.44
16507.00	90.770	292.380	11093.14	5406.35	1995.81	-5024.53	1690147.92	14442793.66	39°46'09.644"N	80°49'22.853"W	5406.40	291.664	0.62
16602.00	90.890	292.240	11091.77	5501.34	2031.87	-5112.41	1690060.08	14442829.70	39°46'10.002"N	80°49'23.978"W	5501.39	291.675	0.19
16697.00	90.890	292.520	11090.29	5596.32	2068.04	-5200.24	1689972.28	14442865.86	39°46'10.361"N	80°49'25.102"W	5596.37	291.687	0.29
16792.00	90.680	292.660	11088.99	5691.31	2104.53	-5287.95	1689884.61	14442902.33	39°46'10.723"N	80°49'26.224"W	5691.35	291.702	0.27
16887.00	90.890	291.550	11087.69	5786.29	2140.27	-5375.95	1689796.64	14442938.06	39°46'11.078"N	80°49'27.350"W	5786.33	291.708	1.19
16982.00	90.800	291.570	11086.29	5881.28	2175.18	-5464.30	1689708.33	14442972.95	39°46'11.425"N	80°49'28.481"W	5881.32	291.706	0.10
17077.00	90.830	291.180	11084.94	5976.27	2209.80	-5552.75	1689619.91	14443007.56	39°46'11.769"N	80°49'29.613"W	5976.31	291.701	0.41
17171.00	90.800	289.320	11083.60	6070.21	2242.33	-5640.93	1689531.77	14443040.08	39°46'12.092"N	80°49'30.741"W	6070.27	291.678	1.98

17266.00	90.830	290.480	11082.25	6165.14	2274.66	-5730.25	1689442.49	14443072.40	39°46'12.413"N	80°49'31.884"W	6165.21	291.651	1.22
17362.00	91.260	290.490	11080.50	6261.10	2308.26	-5820.16	1689352.61	14443105.98	39°46'12.747"N	80°49'33.035"W	6261.18	291.633	0.45
17457.00	91.230	291.500	11078.43	6356.06	2342.28	-5908.83	1689263.97	14443139.99	39°46'13.085"N	80°49'34.170"W	6356.15	291.624	1.06
17551.00	91.200	294.630	11076.44	6450.01	2379.10	-5995.29	1689177.55	14443176.79	39°46'13.450"N	80°49'35.276"W	6450.08	291.645	3.33



# Actual Wellpath Report

Blake U-7H AWP: Proj 18102'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #U-7
Area	Marshall County, WV	Well	Blake U- 7H
Field	Marshall	Wellbore	Blake U-7H AWB
Facility	Blake Unit		

## WELLPATH DATA (187 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]
17646.00	91.230	295.240	11074.42	6544.86	2419.14	-6081.41	1689091.46	14443216.82	39°46'13.848"N	80°49'36.378"W	6544.91	291.692	0.64
17742.00	91.230	293.100	11072.36	6640.76	2458.44	-6168.97	1689003.94	14443256.10	39°46'14.238"N	80°49'37.498"W	6640.79	291.728	2.23
17836.00	91.200	291.570	11070.37	6734.73	2494.15	-6255.90	1688917.05	14443291.79	39°46'14.592"N	80°49'38.611"W	6734.76	291.737	1.63
17931.00	90.950	292.530	11068.59	6829.71	2529.81	-6343.93	1688829.05	14443327.44	39°46'14.946"N	80°49'39.737"W	6829.74	291.741	1.04
18026.00	90.770	291.120	11067.16	6924.70	2565.12	-6432.11	1688740.90	14443362.74	39°46'15.297"N	80°49'40.866"W	6924.73	291.742	1.50
18074.00	90.890	291.270	11066.47	6972.69	2582.47	-6476.86	1688696.17	14443380.08	39°46'15.469"N	80°49'41.438"W	6972.72	291.738	0.40
18102.00	90.890	291.270	11066.03	7000.68	2592.63	-6502.95	1688670.09	14443390.23	39°46'15.570"N	80°49'41.772"W	7000.72	291.736	0.00

## HOLE & CASING SECTIONS - Ref Wellbore: Blake U-7H AWB Ref Wellpath: Blake U-7H AWP: Proj 18102'

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]
20in Casing Surface	29.40	1259.40	1230.00	29.40	1259.37	0.00	0.00	-0.70	-3.02



# Actual Wellpath Report

Blake U-7H AWP: Proj 18102'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #U-7
Area	Marshall County, WV	Well	Blake U- 7H
Field	Marshall	Wellbore	Blake U-7H AWB
Facility	Blake Unit		

## TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Blake 7H Prelim		6453.40	582.59	568.58	1695738.80	14441381.00	39°45'55.562"N	80°48'11.264"W	point
Blake 7H BHL:Plat Revised 04.17.14		10920.21	2591.22	-6503.24	1688669.80	14443388.83	39°46'15.556"N	80°49'41.776"W	point
Blake 7H BHL Rev-2		10928.19	2591.22	-6503.24	1688669.80	14443388.83	39°46'15.556"N	80°49'41.776"W	point
Blake 7H BHL Rev-3		10957.19	2591.22	-6503.24	1688669.80	14443388.83	39°46'15.556"N	80°49'41.776"W	point
Blake 7H TP		11035.40	-170.35	362.65	1695532.96	14440628.36	39°45'48.125"N	80°48'13.922"W	point
Blake 7H LP Rev-2		11101.00	127.66	-381.11	1694789.49	14440926.25	39°45'51.086"N	80°48'23.438"W	point
Blake 7H LP Rev-3		11130.00	127.66	-381.11	1694789.49	14440926.25	39°45'51.086"N	80°48'23.438"W	point

## WELLPATH COMPOSITION - Ref Wellbore: Blake U-7H AWB Ref Wellpath: Blake U-7H AWP: Proj 18102'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
29.40	9606.00	Generic gyro - northseeking (Standard)	03_VES Gyros <12.25">(100'-9606') Proj:9800'	Blake U-7H AWB
9606.00	18074.00	NaviTrak (AT Curve Short Spaced)	04_BHI ATC <8.5">(9606')(9880'-18074')	Blake U-7H AWB
18074.00	18102.00	Blind Drilling (std)	Projection to bit	Blake U-7H AWB



## Actual Wellpath Report

Blake U-7H AWP: Proj 18102'

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### REFERENCE WELLPATH IDENTIFICATION

Operator	<b>GASTAR EXPLORATION USA, INC.</b>	Slot	<b>Slot #U-7</b>
Area	<b>Marshall County, WV</b>	Well	<b>Blake U- 7H</b>
Field	<b>Marshall</b>	Wellbore	<b>Blake U-7H AWB</b>
Facility	<b>Blake Unit</b>		

### COMMENTS

#### Wellpath general comments

API: 47-051-01766-0000

BHI Job #: 6602848

Rig: Nomac 323

Duration: 12.04.2014 – 12.11.2014

VES Gyros <12.25">(100'-9606')

BHI ATC <8.5">(9606')(9880'-18074')

MD Projected to TD: 18102'