

PM

JK

State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Well Operator's Report of Well Work

API 47-51-01610 County Marshall District Franklin  
Quad New Martinsville 7.5' Pad Name Goudy Field/Pool Name \_\_\_\_\_  
Farm name PPG Industries, Inc. et al Well Number 1H  
Operator (as registered with the OOG) Gastar Exploration Inc.  
Address 229 West Main Street Suite 301 City Clarksburg State WV Zip 26301

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing "See attached report" Easting \_\_\_\_\_  
Landing Point of Curve Northing \_\_\_\_\_ Easting \_\_\_\_\_  
Bottom Hole Northing \_\_\_\_\_ Easting \_\_\_\_\_

Elevation (ft) 1238' GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine  
Mud Type(s) and Additive(s)  
Synthetic Oil Base Mud

Date permit issued January 29, 2013 Date drilling commenced 2/15/2013 Date drilling ceased 4/6/2013  
Date completion activities began 6/2/2013 Date completion activities ceased 8/29/2013  
Verbal plugging (Y/N) \_\_\_\_\_ Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

RECEIVED  
Office of Oil and Gas  
JUL 10 2014  
None  
None  
None  
None

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug  
Freshwater depth(s) ft 1255' Open mine(s) (Y/N) depths \_\_\_\_\_  
Salt water depth(s) ft 1670' Void(s) encountered (Y/N) depths \_\_\_\_\_  
Coal depth(s) ft 999'-1006' & 1221'-1245' Cavern(s) encountered (Y/N) depths \_\_\_\_\_  
Is coal being mined in area (Y/N) No

Reviewed by: \_\_\_\_\_

10/03/2014

API 47- 51 - 01610 Farm name PPG Industries, Inc. et al Well number 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	26"	20"	110'	New	PE / 54.5 #/ft		Yes
Surface	17.5"	13.375"	1305'	New	H-40 / 48 #/ft	83'	Yes
Coal							
Intermediate 1	12.25"	9.625"	2539'	New	J-55 / 36 #/ft	85'	Yes
Intermediate 2							
Intermediate 3							
Production	8.875"	5.5"	13,447'	New	P-110 / 20 #/ft		Yes
Tubing		2.375"	6793'	New	N80/4.7#		
Packer type and depth set							

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	297	15.6	1.19	353	Surface	12
Surface	Type 1	835	15.2	1.26	1052	Surface	8
Coal							8
Intermediate 1	Type 1	845	15	1.29	1090	Surface	8
Intermediate 2							
Intermediate 3							
Production	50:50 Class H / 50:50 Type 1	1315 / 1882	14.5 / 14.5	1.18	3772	Surface	
Tubing							

Drillers TD (ft) 13,475' Loggers TD (ft) N/A  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5851'

Check all wireline logs run  caliper  density  deviated/directional  induction  
 neutron  resistivity  gamma ray  temperature  sonic

Well cored  Yes  No Conventional Sidewall Were cuttings collected  Yes  No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING \_\_\_\_\_

Surface/Coal Casing - 3 Centralizers at 300' spacing  
 Intermediate Casing - 7 Centralizers at 300' Spacing  
 Production Casing - 188 Centralizers total - 1 centralizer every joint in the lateral and curve and 1 centralizer every third joint in the vertical section

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_









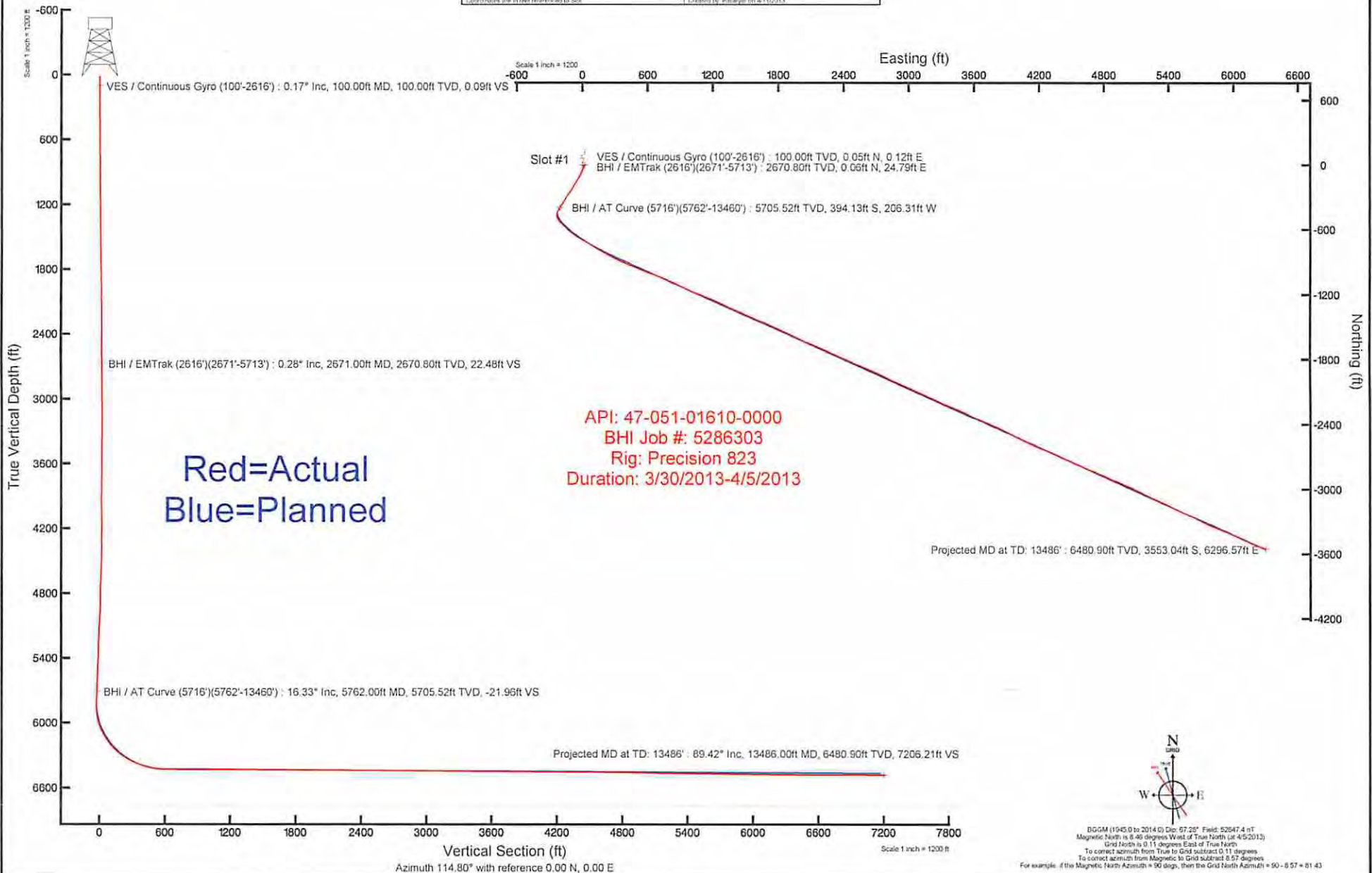
# GASTAR EXPLORATION USA, INC.

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

Slot: Slot #1  
 Well: Goudy 1H  
 Wellbore: Goudy 1H (PWB)



Plot reference wellpath is Goudy 1H Rev-B 0 (PWB)	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to Precision 823 (RT)	North Reference: Grid north
Measured depths are referenced to Precision 823 (RT)	Scale: True distance
Precision 823 (RT) to Mean Sea Level: 125.1 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot: Slot #1): -1238 feet	Created by: arslanger on 4/11/2013
Coordinates are in feet referenced to Slot	





# Actual Wellpath Report

MWD Surveys (5716')(5762'-13460')Proj:13486  
Page 1 of 12



## REFERENCE WELLPATH IDENTIFICATION

Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #1
Area	Marshall County, WV	Well	Goudy 1H
Field	Marshall	Wellbore	Goudy 1H (AWB)
Facility	Goudy		

## REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 3.0.3
North Reference	Grid	User	Edsaryar
Scale	0.999603	Report Generated	4/11/2013 at 2:09:10 PM
Convergence at slot	0.11° East	Database/Source file	Well Architect Eastern US/Goudy_1H_AWB_.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-78.63	-14.91	1688545.20	14430864.40	39°44'11.734"N	80°49'43.679"W
Facility Reference Pt			1688560.10	14430943.00	39°44'12.511"N	80°49'43.486"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

## WELLPATH DATUM

Calculation method	Minimum curvature	Precision 823 (RT) to Facility Vertical Datum	13.00ft
Horizontal Reference Pt	Slot	Precision 823 (RT) to Mean Sea Level	1251.00ft
Vertical Reference Pt	Precision 823 (RT)	Precision 823 (RT) to Mud Line at Slot (Slot #1)	13.00ft
MD Reference Pt	Precision 823 (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	114.80°

51-01610



# Actual Wellpath Report

MWD Surveys (5716')(5762'-13460')Proj:13486  
Page 2 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #1
Area	Marshall County, WV	Well	Goudy 1H
Field	Marshall	Wellbore	Goudy 1H (AWB)
Facility	Goudy		

**WELLPATH DATA (268 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00†	0.000	69.050	0.00	0.00	0.00	0.00	1688545.20	14430864.40	39°44'11.734"N	80°49'43.679"W	0.00	0.000	0.00	0.00	0.00
13.00	0.000	69.050	13.00	0.00	0.00	0.00	1688545.20	14430864.40	39°44'11.734"N	80°49'43.679"W	0.00	0.000	0.00	0.00	0.00
103.00	0.180	69.050	103.00	0.10	0.05	0.13	1688545.33	14430864.45	39°44'11.734"N	80°49'43.677"W	0.14	69.050	0.20	0.20	0.00
203.00	0.310	211.860	203.00	0.18	-0.12	0.14	1688545.34	14430864.28	39°44'11.733"N	80°49'43.677"W	0.18	132.155	0.47	0.13	142.81
303.00	0.070	200.000	303.00	0.15	-0.41	-0.03	1688545.17	14430863.99	39°44'11.730"N	80°49'43.679"W	0.41	183.872	0.24	-0.24	-11.86
403.00	0.310	141.920	403.00	0.39	-0.68	0.12	1688545.32	14430863.72	39°44'11.727"N	80°49'43.677"W	0.69	170.148	0.28	0.24	-58.08
503.00	0.450	117.680	503.00	1.03	-1.08	0.63	1688545.83	14430863.32	39°44'11.723"N	80°49'43.671"W	1.25	149.539	0.21	0.14	-24.24
603.00	0.030	120.290	602.99	1.44	-1.27	1.00	1688546.20	14430863.13	39°44'11.721"N	80°49'43.666"W	1.62	141.729	0.42	-0.42	2.61
703.00	0.570	121.690	702.99	1.96	-1.55	1.45	1688546.65	14430862.85	39°44'11.719"N	80°49'43.660"W	2.12	136.856	0.54	0.54	1.40
803.00	0.170	130.340	802.99	2.60	-1.90	1.99	1688547.18	14430862.50	39°44'11.715"N	80°49'43.654"W	2.75	133.793	0.40	-0.40	8.65
903.00	0.260	158.730	902.99	2.91	-2.21	2.18	1688547.38	14430862.19	39°44'11.712"N	80°49'43.651"W	3.11	135.393	0.14	0.09	28.39
1003.00	0.340	141.970	1002.99	3.33	-2.66	2.45	1688547.64	14430861.75	39°44'11.708"N	80°49'43.648"W	3.61	137.359	0.12	0.08	-16.76
1103.00	0.480	109.180	1102.99	4.02	-3.03	3.02	1688548.22	14430861.37	39°44'11.704"N	80°49'43.640"W	4.28	135.029	0.27	0.14	-32.79
1203.00	0.590	106.290	1202.98	4.94	-3.31	3.91	1688549.11	14430861.09	39°44'11.701"N	80°49'43.629"W	5.13	130.215	0.11	0.11	-2.89
1303.00	0.730	98.850	1302.98	6.06	-3.55	5.04	1688550.24	14430860.85	39°44'11.699"N	80°49'43.615"W	6.16	125.186	0.16	0.14	-7.44
1403.00	0.920	108.040	1402.97	7.47	-3.90	6.43	1688551.63	14430860.50	39°44'11.695"N	80°49'43.597"W	7.52	121.226	0.23	0.19	9.19
1503.00	0.790	80.520	1502.95	8.84	-4.03	7.87	1688553.07	14430860.37	39°44'11.694"N	80°49'43.578"W	8.85	117.125	0.43	-0.13	-27.52
1603.00	1.100	88.480	1602.94	10.27	-3.89	9.51	1688554.71	14430860.51	39°44'11.695"N	80°49'43.557"W	10.28	112.263	0.34	0.31	7.96
1703.00	1.300	89.910	1702.92	12.16	-3.87	11.61	1688556.80	14430860.53	39°44'11.695"N	80°49'43.530"W	12.23	108.427	0.20	0.20	1.43
1803.00	1.390	81.840	1802.89	14.21	-3.69	13.94	1688559.14	14430860.71	39°44'11.697"N	80°49'43.501"W	14.42	104.837	0.21	0.09	-8.07
1903.00	1.330	68.270	1902.86	16.02	-3.09	16.22	1688561.41	14430861.31	39°44'11.703"N	80°49'43.471"W	16.51	100.790	0.33	-0.06	-13.57
2003.00	0.940	58.260	2002.84	17.27	-2.23	18.00	1688563.19	14430862.17	39°44'11.712"N	80°49'43.449"W	18.13	97.065	0.44	-0.39	-10.01
2103.00	1.100	67.500	2102.83	18.38	-1.43	19.58	1688564.77	14430862.97	39°44'11.719"N	80°49'43.428"W	19.63	94.181	0.23	0.16	9.24
2203.00	0.690	84.420	2202.82	19.55	-1.01	21.07	1688566.26	14430863.39	39°44'11.724"N	80°49'43.409"W	21.09	92.733	0.48	-0.41	16.92
2303.00	0.850	68.520	2302.81	20.58	-0.68	22.36	1688567.55	14430863.72	39°44'11.727"N	80°49'43.393"W	22.37	91.730	0.27	0.16	-15.90
2403.00	0.190	89.450	2402.80	21.24	-0.40	23.21	1688568.40	14430864.00	39°44'11.729"N	80°49'43.382"W	23.22	90.993	0.68	-0.66	20.93
2503.00	0.430	91.950	2502.80	21.74	-0.41	23.75	1688568.94	14430863.99	39°44'11.729"N	80°49'43.375"W	23.76	90.997	0.24	0.24	2.50
2603.00	0.500	55.650	2602.80	22.31	-0.18	24.49	1688569.68	14430864.22	39°44'11.732"N	80°49'43.365"W	24.49	90.421	0.30	0.07	-36.30
2619.00	0.350	36.650	2618.80	22.35	-0.10	24.58	1688569.77	14430864.30	39°44'11.732"N	80°49'43.364"W	24.58	90.236	1.27	-0.94	-118.75
2674.00	0.280	75.030	2673.80	22.49	0.07	24.81	1688570.00	14430864.47	39°44'11.734"N	80°49'43.361"W	24.81	89.843	0.40	-0.13	69.78

51-01610





**Actual Wellpath Report**  
 MWD Surveys (S716)(S762-13460) Proj:13486  
 Page 3 of 12



**REFERENCE WELLPATH IDENTIFICATION**

Operator	GASTAR EXPLORATION USA, INC.
Area	Marshall County, WV
Field	Marshall
Facility	Goudy
Slot	Wellbore
Slot #1	Goudy 1H (AWB)

WELLPATH DATA (268 stations)															
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]
2737.00	0.180	16.450	2736.80	22.59	0.20	24.98	1688570.17	14430864.60	39°44'11.735"N	80°49'43.359"W	24.98	89.535	0.38	-0.16	-92.98
2800.00	0.220	11.980	2799.80	22.55	0.42	25.04	1688570.23	14430864.82	39°44'11.738"N	80°49'43.358"W	25.04	89.048	0.07	0.06	-7.10
2863.00	0.220	354.700	2862.79	22.46	0.65	25.05	1688570.24	14430865.05	39°44'11.740"N	80°49'43.358"W	25.06	88.503	0.10	0.00	-27.43
2927.00	0.140	57.930	2926.79	22.45	0.82	25.10	1688570.29	14430865.22	39°44'11.741"N	80°49'43.358"W	25.12	88.132	0.31	-0.12	98.80
2990.00	0.420	25.390	2989.79	22.49	1.07	25.27	1688570.46	14430865.47	39°44'11.744"N	80°49'43.355"W	25.29	87.580	0.49	0.44	-51.65
3054.00	0.370	32.320	3053.79	22.52	1.45	25.48	1688570.67	14430865.85	39°44'11.748"N	80°49'43.353"W	25.52	86.733	0.11	-0.08	10.83
3117.00	0.130	29.490	3116.79	22.55	1.69	25.62	1688570.81	14430866.09	39°44'11.750"N	80°49'43.351"W	25.68	86.229	0.38	-0.38	-4.49
3180.00	0.370	45.550	3179.79	22.63	1.89	25.80	1688570.99	14430866.29	39°44'11.752"N	80°49'43.349"W	25.87	85.803	0.39	0.38	25.49
3243.00	0.460	17.280	3242.79	22.67	2.28	26.02	1688571.21	14430866.68	39°44'11.756"N	80°49'43.346"W	26.12	84.999	0.35	0.14	-44.87
3305.00	0.340	346.660	3304.79	22.52	2.69	26.06	1688571.25	14430867.09	39°44'11.760"N	80°49'43.345"W	26.19	84.097	0.39	-0.19	-49.39
3368.00	0.260	307.730	3367.79	22.27	2.96	25.90	1688571.09	14430867.36	39°44'11.763"N	80°49'43.347"W	26.07	83.473	0.34	-0.13	-61.79
3431.00	0.280	339.440	3430.79	22.02	3.19	25.73	1688570.92	14430867.59	39°44'11.765"N	80°49'43.349"W	25.93	82.922	0.24	0.03	50.33
3494.00	0.340	317.910	3493.79	21.74	3.48	25.55	1688570.74	14430867.88	39°44'11.768"N	80°49'43.352"W	25.79	82.250	0.21	0.10	-34.17
3558.00	0.310	318.340	3557.78	21.40	3.75	25.31	1688570.50	14430868.15	39°44'11.770"N	80°49'43.355"W	25.59	81.577	0.05	-0.05	0.67
3621.00	0.400	267.550	3620.78	21.05	3.87	24.98	1688570.17	14430868.26	39°44'11.772"N	80°49'43.359"W	25.28	81.202	0.50	0.14	-80.62
3684.00	1.730	220.870	3683.77	20.59	3.14	24.14	1688569.33	14430867.54	39°44'11.764"N	80°49'43.370"W	24.34	82.594	2.36	2.11	-74.10
3715.00	3.020	209.350	3714.74	20.40	2.07	23.43	1688568.62	14430866.47	39°44'11.754"N	80°49'43.379"W	23.52	84.947	4.42	4.16	-37.16
3747.00	4.470	211.520	3746.68	20.19	0.27	22.36	1688567.56	14430864.67	39°44'11.736"N	80°49'43.393"W	22.37	89.298	4.55	4.53	6.78
3779.00	5.320	210.030	3778.56	19.91	-2.07	20.97	1688566.16	14430862.33	39°44'11.713"N	80°49'43.411"W	21.07	95.647	2.69	2.66	-4.66
3810.00	5.660	211.190	3809.42	19.60	-4.63	19.46	1688564.65	14430859.78	39°44'11.688"N	80°49'43.430"W	20.00	103.371	1.15	1.10	3.74
3841.00	5.480	214.870	3840.27	19.18	-7.15	17.82	1688563.01	14430857.26	39°44'11.663"N	80°49'43.451"W	19.20	111.855	1.29	-0.58	11.87
3873.00	5.360	214.480	3872.13	18.66	-9.63	16.10	1688561.29	14430854.77	39°44'11.638"N	80°49'43.473"W	18.76	120.892	0.39	-0.37	-1.22
3904.00	5.420	216.180	3902.99	18.12	-12.01	14.42	1688559.61	14430852.40	39°44'11.615"N	80°49'43.495"W	18.76	129.792	0.55	0.19	5.48
3936.00	4.980	204.510	3934.86	17.83	-14.49	12.95	1688558.14	14430849.91	39°44'11.590"N	80°49'43.514"W	19.43	138.220	3.57	-1.37	-36.47
3968.00	5.750	200.200	3966.72	17.97	-17.26	11.82	1688557.01	14430847.15	39°44'11.563"N	80°49'43.528"W	20.92	145.599	2.71	2.41	-13.47
3999.00	7.080	197.220	3997.52	18.35	-20.54	10.72	1688555.91	14430843.87	39°44'11.531"N	80°49'43.542"W	23.17	152.449	4.42	4.29	-9.61
4030.00	8.270	196.780	4028.25	18.91	-24.50	9.51	1688554.70	14430839.91	39°44'11.492"N	80°49'43.558"W	26.28	158.792	3.84	3.84	-1.42
4062.00	9.160	197.240	4059.88	19.56	-29.14	8.09	1688553.29	14430835.27	39°44'11.446"N	80°49'43.576"W	30.24	164.486	2.79	2.78	1.44
4093.00	9.970	200.030	4090.44	20.11	-34.02	6.44	1688551.64	14430830.40	39°44'11.398"N	80°49'43.597"W	34.62	169.283	3.01	2.61	9.00
4125.00	10.380	202.510	4121.94	20.46	-39.28	4.39	1688549.58	14430825.13	39°44'11.346"N	80°49'43.624"W	39.53	173.630	1.87	1.28	7.75

5/-01610



# Actual Wellpath Report

MWD Surveys (5716')(5762'-13460')Proj:13486  
Page 4 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #1
Area	Marshall County, WV	Well	Goudy 1H
Field	Marshall	Wellbore	Goudy 1H (AWB)
Facility	Goudy		

### WELLPATH DATA (268 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
4156.00	11.180	204.770	4152.39	20.57	-44.59	2.06	1688547.26	14430819.83	39°44'11.293"N	80°49'43.654"W	44.64	177.359	2.92	2.58	7.29
4188.00	11.830	205.590	4183.75	20.53	-50.37	-0.66	1688544.54	14430814.05	39°44'11.236"N	80°49'43.689"W	50.37	180.750	2.09	2.03	2.56
4220.00	12.810	205.690	4215.01	20.43	-56.52	-3.61	1688541.59	14430807.90	39°44'11.175"N	80°49'43.727"W	56.64	183.659	3.06	3.06	0.31
4251.00	13.190	206.660	4245.22	20.26	-62.78	-6.69	1688538.51	14430801.65	39°44'11.114"N	80°49'43.766"W	63.14	186.083	1.41	1.23	3.13
4283.00	13.500	205.020	4276.36	20.13	-69.43	-9.91	1688535.30	14430795.00	39°44'11.048"N	80°49'43.807"W	70.13	188.122	1.53	0.97	-5.12
4314.00	13.960	204.320	4306.47	20.14	-76.11	-12.98	1688532.23	14430788.32	39°44'10.982"N	80°49'43.847"W	77.21	189.677	1.58	1.48	-2.26
4346.00	14.380	203.710	4337.50	20.25	-83.27	-16.17	1688529.04	14430781.16	39°44'10.911"N	80°49'43.888"W	84.82	190.987	1.39	1.31	-1.91
4377.00	15.340	203.860	4367.46	20.39	-90.54	-19.37	1688525.83	14430773.89	39°44'10.839"N	80°49'43.929"W	92.59	192.077	3.10	3.10	0.48
4409.00	15.750	204.920	4398.29	20.45	-98.35	-22.92	1688522.29	14430766.09	39°44'10.762"N	80°49'43.975"W	100.99	193.115	1.56	1.28	3.31
4440.00	16.090	207.060	4428.10	20.27	-105.99	-26.64	1688518.57	14430758.45	39°44'10.687"N	80°49'44.023"W	109.29	194.109	2.19	1.10	6.90
4472.00	16.250	210.090	4458.83	19.69	-113.82	-30.90	1688514.31	14430750.63	39°44'10.610"N	80°49'44.077"W	117.94	195.191	2.68	0.50	9.47
4503.00	16.370	211.000	4488.59	18.82	-121.32	-35.33	1688509.89	14430743.13	39°44'10.536"N	80°49'44.134"W	126.35	196.236	0.91	0.39	2.94
4535.00	16.490	211.850	4519.28	17.77	-129.04	-40.05	1688505.17	14430735.41	39°44'10.459"N	80°49'44.195"W	135.11	197.242	0.84	0.37	2.66
4567.00	16.590	210.460	4549.96	16.76	-136.83	-44.76	1688500.46	14430727.62	39°44'10.382"N	80°49'44.255"W	143.97	198.114	1.28	0.31	-4.34
4598.00	16.290	211.200	4579.69	15.84	-144.37	-49.26	1688495.96	14430720.09	39°44'10.308"N	80°49'44.313"W	152.54	198.839	1.18	-0.97	2.39
4630.00	15.650	211.480	4610.45	14.84	-151.89	-53.84	1688491.39	14430712.57	39°44'10.234"N	80°49'44.372"W	161.15	199.516	2.01	-2.00	0.88
4662.00	14.710	214.800	4641.34	13.63	-158.90	-58.41	1688486.82	14430705.56	39°44'10.165"N	80°49'44.430"W	169.30	200.182	4.00	-2.94	10.38
4725.00	14.240	212.090	4702.34	11.26	-172.04	-67.09	1688478.14	14430692.43	39°44'10.035"N	80°49'44.542"W	184.66	201.304	1.31	-0.75	-4.30
4787.00	14.250	210.170	4762.43	9.58	-185.10	-74.98	1688470.25	14430679.38	39°44'09.906"N	80°49'44.643"W	199.70	202.051	0.76	0.02	-3.10
4850.00	14.030	207.750	4823.52	8.46	-198.56	-82.43	1688462.80	14430665.92	39°44'09.773"N	80°49'44.739"W	214.99	202.545	1.00	-0.35	-3.84
4912.00	14.610	209.590	4883.60	7.42	-212.01	-89.79	1688455.45	14430652.48	39°44'09.640"N	80°49'44.833"W	230.24	202.953	1.19	0.94	2.97
4975.00	15.420	211.580	4944.45	5.77	-226.05	-98.10	1688447.14	14430638.44	39°44'09.502"N	80°49'44.940"W	246.42	203.459	1.52	1.29	3.16
5038.00	15.440	215.880	5005.18	3.17	-239.98	-107.40	1688437.84	14430624.51	39°44'09.364"N	80°49'45.060"W	262.92	204.110	1.82	0.03	6.83
5102.00	14.440	216.740	5067.01	-0.12	-253.28	-117.17	1688428.08	14430611.22	39°44'09.233"N	80°49'45.185"W	279.07	204.825	1.60	-1.56	1.34
5165.00	13.620	215.170	5128.13	-3.08	-265.64	-126.14	1688419.11	14430598.87	39°44'09.111"N	80°49'45.300"W	294.07	205.401	1.43	-1.30	-2.49
5228.00	13.630	214.050	5189.36	-5.61	-277.85	-134.57	1688410.69	14430586.66	39°44'08.990"N	80°49'45.408"W	308.72	205.841	0.42	0.02	-1.78
5291.00	13.930	211.850	5250.55	-7.73	-290.45	-142.73	1688402.53	14430574.07	39°44'08.866"N	80°49'45.513"W	323.62	206.170	0.96	0.48	-3.49
5354.00	14.080	210.750	5311.68	-9.46	-303.47	-150.64	1688394.62	14430561.05	39°44'08.738"N	80°49'45.615"W	338.81	206.400	0.49	0.24	-1.75
5417.00	14.070	210.700	5372.78	-11.04	-316.64	-158.47	1688386.79	14430547.88	39°44'08.608"N	80°49'45.715"W	354.09	206.587	0.02	-0.02	-0.08
5481.00	14.990	212.930	5434.74	-13.01	-330.28	-166.94	1688378.32	14430534.25	39°44'08.473"N	80°49'45.824"W	370.07	206.815	1.68	1.44	3.48

51-01610



# Actual Wellpath Report

MWD Surveys (5716')(5762'-13460')Proj:13486  
Page 5 of 12



REFERENCE WELLPATH IDENTIFICATION															
Operator	GASTAR EXPLORATION USA, INC.							Slot	Slot #1						
Area	Marshall County, WV							Well	Goudy 1H						
Field	Marshall							Wellbore	Goudy 1H (AWB)						
Facility	Goudy														

### WELLPATH DATA (268 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
5544.00	14.840	211.150	5495.61	-15.06	-344.02	-175.55	1688369.72	14430520.51	39°44'08.337"N	80°49'45.934"W	386.22	207.034	0.77	-0.24	-2.83
5607.00	15.040	211.590	5556.48	-16.91	-357.89	-184.00	1688361.27	14430506.65	39°44'08.200"N	80°49'46.043"W	402.42	207.209	0.36	0.32	0.70
5670.00	16.180	211.840	5617.16	-18.96	-372.31	-192.91	1688352.36	14430492.24	39°44'08.058"N	80°49'46.157"W	419.32	207.391	1.81	1.81	0.40
5716.00	16.170	211.770	5661.35	-20.52	-383.17	-199.65	1688345.63	14430481.39	39°44'07.951"N	80°49'46.244"W	432.06	207.522	0.24	-0.24	-0.15
5762.00	16.330	210.810	5705.52	-21.96	-394.13	-206.31	1688338.97	14430470.42	39°44'07.843"N	80°49'46.329"W	444.87	207.630	0.81	0.57	-2.09
5806.00	15.970	211.070	5747.79	-23.27	-404.63	-212.60	1688332.68	14430459.93	39°44'07.739"N	80°49'46.410"W	457.09	207.719	0.83	-0.82	0.59
5851.00	16.190	211.550	5791.03	-24.69	-415.28	-219.08	1688326.21	14430449.29	39°44'07.634"N	80°49'46.493"W	469.53	207.814	0.57	0.49	1.07
5896.00	16.210	206.870	5834.24	-25.65	-426.23	-225.20	1688320.09	14430438.34	39°44'07.526"N	80°49'46.572"W	482.07	207.850	2.90	0.04	-10.40
5941.00	17.580	199.330	5877.30	-25.23	-438.25	-230.29	1688315.00	14430426.33	39°44'07.407"N	80°49'46.637"W	495.07	207.721	5.74	3.04	-16.76
5985.00	20.140	189.350	5918.95	-22.58	-452.00	-233.72	1688311.57	14430412.58	39°44'07.271"N	80°49'46.682"W	508.85	207.343	9.34	5.82	-22.68
6030.00	22.310	175.060	5960.92	-16.27	-468.17	-234.25	1688311.05	14430396.42	39°44'07.112"N	80°49'46.689"W	523.50	206.581	12.43	4.82	-31.76
6075.00	23.590	159.390	6002.40	-5.61	-485.12	-230.34	1688314.95	14430379.47	39°44'06.944"N	80°49'46.639"W	537.03	205.399	13.83	2.84	-34.82
6120.00	25.150	145.490	6043.42	9.04	-501.44	-221.74	1688323.54	14430363.16	39°44'06.782"N	80°49'46.530"W	548.28	203.856	13.18	3.47	-30.89
6164.00	28.380	140.330	6082.71	26.52	-517.20	-209.77	1688335.52	14430347.41	39°44'06.626"N	80°49'46.377"W	558.12	202.077	9.04	7.34	-11.73
6209.00	32.490	138.480	6121.50	47.25	-534.49	-194.92	1688350.36	14430330.12	39°44'06.455"N	80°49'46.187"W	568.92	200.036	9.37	9.13	-4.11
6254.00	36.290	137.320	6158.63	70.63	-553.34	-177.88	1688367.40	14430311.28	39°44'06.269"N	80°49'45.969"W	581.22	197.821	8.57	8.44	-2.58
6299.00	39.690	134.790	6194.09	96.44	-573.26	-158.64	1688386.62	14430291.37	39°44'06.072"N	80°49'45.724"W	594.80	195.469	8.31	7.56	-5.62
6343.00	44.230	132.360	6226.80	124.29	-593.51	-137.32	1688407.93	14430271.13	39°44'05.871"N	80°49'45.451"W	609.19	193.027	10.96	10.32	-5.52
6388.00	48.850	129.460	6257.75	155.67	-614.86	-112.63	1688432.62	14430249.78	39°44'05.659"N	80°49'45.136"W	625.09	190.380	11.28	10.27	-6.44
6433.00	52.560	126.600	6286.25	189.56	-636.29	-85.19	1688460.04	14430228.36	39°44'05.447"N	80°49'44.785"W	641.97	187.626	9.60	8.24	-6.36
6478.00	56.230	123.730	6312.45	225.54	-657.34	-55.28	1688489.94	14430207.32	39°44'05.239"N	80°49'44.403"W	659.66	184.807	9.66	8.16	-6.38
6522.00	60.630	121.010	6335.48	262.69	-677.38	-23.62	1688521.59	14430187.29	39°44'05.040"N	80°49'43.998"W	677.80	181.997	11.30	10.00	-6.18
6567.00	64.430	120.620	6356.23	302.39	-697.83	10.67	1688555.86	14430166.85	39°44'04.837"N	80°49'43.559"W	697.91	179.124	8.48	8.44	-0.87
6612.00	68.310	120.890	6374.27	343.39	-718.91	46.09	1688591.27	14430145.78	39°44'04.628"N	80°49'43.107"W	720.39	176.332	8.64	8.62	0.60
6657.00	71.440	120.870	6389.75	385.40	-740.59	82.35	1688627.51	14430124.10	39°44'04.413"N	80°49'42.643"W	745.16	173.655	6.96	6.96	-0.04
6702.00	75.380	121.760	6402.60	428.24	-763.01	119.18	1688664.33	14430101.70	39°44'04.191"N	80°49'42.172"W	772.26	171.122	8.96	8.76	1.98
6746.00	77.820	120.550	6412.79	470.77	-785.15	155.81	1688700.95	14430079.57	39°44'03.972"N	80°49'41.704"W	800.46	168.776	6.16	5.55	-2.75
6791.00	80.790	118.830	6421.14	514.82	-807.04	194.22	1688739.34	14430057.68	39°44'03.754"N	80°49'41.213"W	830.08	166.469	7.59	6.60	-3.82
6836.00	85.380	117.650	6426.56	559.40	-828.17	233.56	1688778.67	14430036.56	39°44'03.545"N	80°49'40.710"W	860.48	164.250	10.53	10.20	-2.62
6881.00	90.030	117.850	6428.36	604.29	-849.10	273.34	1688818.43	14430015.64	39°44'03.337"N	80°49'40.201"W	892.02	162.156	10.34	10.33	0.44

51-01610



# Actual Wellpath Report

MWD Surveys (5716')(5762'-13460')Proj:13486  
Page 6 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #1
Area	Marshall County, WV	Well	Goudy 1H
Field	Marshall	Wellbore	Goudy 1H (AWB)
Facility	Goudy		

### WELLPATH DATA (268 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
6926.00	90.120	116.730	6428.30	649.25	-869.73	313.33	1688858.41	14429995.01	39°44'03.133"N	80°49'39.689"W	924.45	160.188	2.50	0.20	-2.49
6970.00	90.310	114.770	6428.14	693.24	-888.85	352.96	1688898.02	14429975.91	39°44'02.943"N	80°49'39.183"W	956.37	158.342	4.48	0.43	-4.45
7015.00	89.780	113.580	6428.10	738.24	-907.28	394.02	1688939.06	14429957.49	39°44'02.760"N	80°49'38.658"W	989.14	156.525	2.89	-1.18	-2.64
7060.00	89.850	112.680	6428.25	783.22	-924.95	435.40	1688980.42	14429939.82	39°44'02.585"N	80°49'38.128"W	1022.31	154.793	2.01	0.16	-2.00
7105.00	89.850	112.220	6428.36	828.18	-942.14	476.99	1689022.00	14429922.64	39°44'02.414"N	80°49'37.596"W	1056.00	153.148	1.02	0.00	-1.02
7149.00	89.630	111.210	6428.56	872.12	-958.42	517.86	1689062.86	14429906.37	39°44'02.252"N	80°49'37.074"W	1089.38	151.616	2.35	-0.50	-2.30
7194.00	89.570	111.150	6428.88	917.02	-974.68	559.82	1689104.80	14429890.11	39°44'02.091"N	80°49'36.537"W	1124.01	150.128	0.19	-0.13	-0.13
7239.00	89.630	111.010	6429.19	961.93	-990.86	601.81	1689146.77	14429873.94	39°44'01.930"N	80°49'36.000"W	1159.30	148.727	0.34	0.13	-0.31
7284.00	89.600	111.430	6429.49	1006.84	-1007.15	643.76	1689188.70	14429857.65	39°44'01.768"N	80°49'35.463"W	1195.31	147.414	0.94	-0.07	0.93
7328.00	89.630	111.660	6429.79	1050.77	-1023.31	684.68	1689229.61	14429841.50	39°44'01.608"N	80°49'34.940"W	1231.24	146.214	0.53	0.07	0.52
7373.00	89.600	111.420	6430.09	1095.69	-1039.83	726.54	1689271.45	14429824.99	39°44'01.444"N	80°49'34.405"W	1268.50	145.058	0.54	-0.07	-0.53
7418.00	89.600	112.460	6430.41	1140.64	-1056.64	768.28	1689313.17	14429808.18	39°44'01.277"N	80°49'33.871"W	1306.42	143.979	2.31	0.00	2.31
7463.00	89.600	114.290	6430.72	1185.62	-1074.49	809.58	1689354.46	14429790.34	39°44'01.100"N	80°49'33.343"W	1345.35	143.004	4.07	0.00	4.07
7508.00	89.290	115.050	6431.16	1230.62	-1093.27	850.47	1689395.33	14429771.56	39°44'00.913"N	80°49'32.820"W	1385.12	142.120	1.82	-0.69	1.69
7552.00	89.420	115.400	6431.65	1274.61	-1112.02	890.27	1689435.12	14429752.82	39°44'00.727"N	80°49'32.311"W	1424.50	141.320	0.85	0.30	0.80
7597.00	89.450	116.040	6432.10	1319.60	-1131.55	930.81	1689475.64	14429733.30	39°44'00.533"N	80°49'31.792"W	1465.20	140.559	1.42	0.07	1.42
7642.00	89.510	115.300	6432.50	1364.60	-1151.04	971.37	1689516.18	14429713.82	39°44'00.340"N	80°49'31.274"W	1506.14	139.839	1.65	0.13	-1.64
7687.00	89.320	113.210	6432.96	1409.59	-1169.53	1012.39	1689557.19	14429695.34	39°44'00.156"N	80°49'30.749"W	1546.85	139.119	4.66	-0.42	-4.64
7732.00	89.290	111.560	6433.51	1454.54	-1186.66	1054.00	1689598.78	14429678.21	39°43'59.986"N	80°49'30.217"W	1587.16	138.388	3.67	-0.07	-3.67
7776.00	89.570	111.380	6433.95	1498.47	-1202.77	1094.94	1689639.71	14429662.11	39°43'59.826"N	80°49'29.693"W	1626.51	137.687	0.76	0.64	-0.41
7821.00	89.600	111.640	6434.27	1543.39	-1219.27	1136.81	1689681.55	14429645.62	39°43'59.662"N	80°49'29.158"W	1667.02	137.004	0.58	0.07	0.58
7866.00	89.600	112.810	6434.59	1588.35	-1236.29	1178.46	1689723.19	14429628.61	39°43'59.493"N	80°49'28.625"W	1707.98	136.372	2.60	0.00	2.60
7910.00	89.600	113.710	6434.89	1632.33	-1253.66	1218.89	1689763.60	14429611.24	39°43'59.321"N	80°49'28.108"W	1748.53	135.806	2.05	0.00	2.05
7955.00	89.630	115.100	6435.20	1677.32	-1272.25	1259.86	1689804.56	14429592.65	39°43'59.136"N	80°49'27.584"W	1790.50	135.280	3.09	0.07	3.09
8000.00	89.630	115.390	6435.49	1722.32	-1291.45	1300.56	1689845.24	14429573.47	39°43'58.946"N	80°49'27.063"W	1832.84	134.798	0.64	0.00	0.64
8045.00	89.630	115.040	6435.78	1767.32	-1310.62	1341.28	1689885.94	14429554.31	39°43'58.756"N	80°49'26.543"W	1875.30	134.338	0.78	0.00	-0.78
8089.00	89.570	114.870	6436.09	1811.32	-1329.18	1381.17	1689925.81	14429535.75	39°43'58.571"N	80°49'26.033"W	1916.86	133.901	0.41	-0.14	-0.39
8134.00	89.570	113.890	6436.42	1856.32	-1347.75	1422.15	1689966.78	14429517.18	39°43'58.387"N	80°49'25.509"W	1959.33	133.461	2.18	0.00	-2.18
8179.00	89.600	113.360	6436.75	1901.31	-1365.79	1463.38	1690007.99	14429499.16	39°43'58.208"N	80°49'24.981"W	2001.71	133.024	1.18	0.07	-1.18
8224.00	89.570	113.980	6437.08	1946.30	-1383.85	1504.59	1690049.19	14429481.10	39°43'58.029"N	80°49'24.454"W	2044.22	132.606	1.38	-0.07	1.38

51-01610



# Actual Wellpath Report

MWD Surveys (5716')(5762'-13460')Proj:13486  
Page 7 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #1
Area	Marshall County, WV	Well	Goudy 1H
Field	Marshall	Wellbore	Goudy 1H (AWB)
Facility	Goudy		

### WELLPATH DATA (268 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]	Build Rate ["/100ft]	Turn Rate ["/100ft]
8269.00	89.540	113.650	6437.42	1991.29	-1402.02	1545.76	1690090.34	14429462.94	39°43'57.848"N	80°49'23.928"W	2086.87	132.208	0.74	-0.07	-0.73
8313.00	89.570	114.480	6437.77	2035.28	-1419.96	1585.93	1690130.50	14429445.00	39°43'57.670"N	80°49'23.414"W	2128.73	131.840	1.89	0.07	1.89
8358.00	89.570	114.500	6438.10	2080.28	-1438.62	1626.88	1690171.43	14429426.36	39°43'57.485"N	80°49'22.890"W	2171.72	131.486	0.04	0.00	0.04
8403.00	89.600	114.320	6438.43	2125.28	-1457.21	1667.86	1690212.39	14429407.77	39°43'57.301"N	80°49'22.366"W	2214.78	131.144	0.41	0.07	-0.40
8448.00	89.660	114.320	6438.72	2170.28	-1475.75	1708.87	1690253.38	14429389.24	39°43'57.117"N	80°49'21.842"W	2257.89	130.813	0.13	0.13	0.00
8492.00	89.600	114.500	6439.00	2214.27	-1493.93	1748.93	1690293.43	14429371.07	39°43'56.936"N	80°49'21.329"W	2300.13	130.504	0.43	-0.14	0.41
8537.00	89.600	114.670	6439.32	2259.27	-1512.65	1789.85	1690334.34	14429352.35	39°43'56.750"N	80°49'20.806"W	2343.43	130.202	0.38	0.00	0.38
8582.00	89.600	114.880	6439.63	2304.27	-1531.51	1830.71	1690375.18	14429333.50	39°43'56.563"N	80°49'20.284"W	2386.84	129.915	0.47	0.00	0.47
8627.00	89.600	115.450	6439.95	2349.27	-1550.64	1871.44	1690415.89	14429314.38	39°43'56.373"N	80°49'19.763"W	2430.38	129.645	1.27	0.00	1.27
8671.00	89.570	116.610	6440.27	2393.26	-1569.95	1910.97	1690455.41	14429295.08	39°43'56.182"N	80°49'19.257"W	2473.17	129.405	2.64	-0.07	2.64
8716.00	89.600	115.990	6440.59	2438.24	-1589.89	1951.31	1690495.73	14429275.15	39°43'55.984"N	80°49'18.741"W	2517.02	129.172	1.38	0.07	-1.38
8761.00	89.630	114.590	6440.89	2483.24	-1609.11	1992.00	1690536.40	14429255.93	39°43'55.793"N	80°49'18.221"W	2560.72	128.931	3.11	0.07	-3.11
8806.00	89.540	113.590	6441.22	2528.23	-1627.48	2033.08	1690577.46	14429237.57	39°43'55.611"N	80°49'17.696"W	2604.24	128.677	2.23	-0.20	-2.22
8850.00	89.600	112.900	6441.55	2572.21	-1644.84	2073.50	1690617.88	14429220.21	39°43'55.438"N	80°49'17.179"W	2646.68	128.424	1.57	0.14	-1.57
8895.00	89.660	112.920	6441.84	2617.19	-1662.36	2114.95	1690659.31	14429202.70	39°43'55.264"N	80°49'16.649"W	2690.07	128.167	0.14	0.13	0.04
8940.00	89.600	113.560	6442.13	2662.17	-1680.12	2156.30	1690700.64	14429184.95	39°43'55.088"N	80°49'16.120"W	2733.57	127.925	1.43	-0.13	1.42
8985.00	89.510	113.210	6442.48	2707.15	-1697.98	2197.60	1690741.93	14429167.10	39°43'54.911"N	80°49'15.592"W	2777.15	127.691	0.80	-0.20	-0.78
9029.00	89.630	114.280	6442.81	2751.15	-1715.69	2237.88	1690782.18	14429149.39	39°43'54.735"N	80°49'15.077"W	2819.87	127.476	2.45	0.27	2.43
9074.00	89.690	114.900	6443.08	2796.14	-1734.42	2278.79	1690823.08	14429130.67	39°43'54.549"N	80°49'14.553"W	2863.76	127.275	1.38	0.13	1.38
9119.00	89.660	114.790	6443.33	2841.14	-1753.33	2319.63	1690863.90	14429111.77	39°43'54.361"N	80°49'14.031"W	2907.72	127.084	0.25	-0.07	-0.24
9164.00	89.600	114.230	6443.62	2886.14	-1771.99	2360.57	1690904.83	14429093.11	39°43'54.176"N	80°49'13.508"W	2951.65	126.894	1.25	-0.13	-1.24
9208.00	89.480	114.110	6443.98	2930.14	-1790.01	2400.71	1690944.96	14429075.11	39°43'53.997"N	80°49'12.994"W	2994.59	126.709	0.39	-0.27	-0.27
9253.00	89.630	113.380	6444.33	2975.13	-1808.13	2441.90	1690986.13	14429056.99	39°43'53.817"N	80°49'12.468"W	3038.46	126.518	1.66	0.33	-1.62
9298.00	89.540	113.960	6444.65	3020.12	-1826.19	2483.12	1691027.32	14429038.94	39°43'53.638"N	80°49'11.941"W	3082.34	126.332	1.30	-0.20	1.29
9343.00	89.690	113.450	6444.96	3065.11	-1844.28	2524.32	1691068.51	14429020.85	39°43'53.458"N	80°49'11.414"W	3126.27	126.152	1.18	0.33	-1.13
9387.00	89.600	112.600	6445.23	3109.09	-1861.49	2564.81	1691108.99	14429003.65	39°43'53.287"N	80°49'10.896"W	3169.14	125.971	1.94	-0.20	-1.93
9432.00	89.510	112.540	6445.58	3154.05	-1878.76	2606.36	1691150.52	14428986.39	39°43'53.116"N	80°49'10.364"W	3212.93	125.785	0.24	-0.20	-0.13
9477.00	89.570	113.420	6445.94	3199.03	-1896.33	2647.79	1691191.93	14428968.83	39°43'52.942"N	80°49'09.835"W	3256.82	125.610	1.96	0.13	1.96
9522.00	89.600	114.140	6446.26	3244.02	-1914.48	2688.97	1691233.10	14428950.69	39°43'52.761"N	80°49'09.308"W	3300.88	125.450	1.60	0.07	1.60
9566.00	89.540	115.800	6446.59	3288.01	-1933.05	2728.85	1691272.96	14428932.12	39°43'52.577"N	80°49'08.798"W	3344.15	125.313	3.78	-0.14	3.77

51-01610



# Actual Wellpath Report

MWD Surveys (5716')(5762'-13460')Proj:13486  
Page 8 of 12



## REFERENCE WELLPATH IDENTIFICATION

Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #1
Area	Marshall County, WV	Well	Goudy 1H
Field	Marshall	Wellbore	Goudy 1H (AWB)
Facility	Goudy		

## WELLPATH DATA (268 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]	Build Rate ["/100ft]	Turn Rate ["/100ft]
9611.00	89.420	116.370	6447.00	3333.00	-1952.84	2769.27	1691313.36	14428912.34	39°43'52.381"N	80°49'08.281"W	3388.57	125.191	1.29	-0.27	1.27
9656.00	89.660	117.020	6447.36	3377.97	-1973.05	2809.47	1691353.55	14428892.14	39°43'52.180"N	80°49'07.767"W	3433.08	125.080	1.54	0.53	1.44
9701.00	89.750	115.260	6447.60	3422.96	-1992.87	2849.87	1691393.93	14428872.32	39°43'51.983"N	80°49'07.251"W	3477.54	124.965	3.92	0.20	-3.91
9746.00	89.690	113.240	6447.82	3467.96	-2011.36	2890.89	1691434.94	14428853.85	39°43'51.800"N	80°49'06.726"W	3521.76	124.828	4.49	-0.13	-4.49
9790.00	89.480	113.000	6448.13	3511.93	-2028.63	2931.36	1691475.39	14428836.58	39°43'51.628"N	80°49'06.209"W	3564.86	124.685	0.72	-0.48	-0.55
9835.00	89.600	113.050	6448.50	3556.91	-2046.23	2972.77	1691516.78	14428818.98	39°43'51.454"N	80°49'05.679"W	3608.94	124.541	0.29	0.27	0.11
9880.00	89.510	114.520	6448.85	3601.90	-2064.38	3013.95	1691557.94	14428800.84	39°43'51.273"N	80°49'05.152"W	3653.16	124.409	3.27	-0.20	3.27
9924.00	89.630	114.870	6449.18	3645.90	-2082.76	3053.92	1691597.90	14428782.47	39°43'51.091"N	80°49'04.641"W	3696.53	124.294	0.84	0.27	0.80
9969.00	89.630	114.640	6449.47	3690.90	-2101.61	3094.79	1691638.75	14428763.63	39°43'50.904"N	80°49'04.119"W	3740.92	124.180	0.51	0.00	-0.51
10014.00	89.600	114.660	6449.77	3735.90	-2120.37	3135.68	1691679.63	14428744.87	39°43'50.718"N	80°49'03.596"W	3785.30	124.067	0.08	-0.07	0.04
10059.00	89.540	114.310	6450.11	3780.90	-2139.02	3176.64	1691720.57	14428726.23	39°43'50.532"N	80°49'03.072"W	3829.68	123.955	0.79	-0.13	-0.78
10104.00	89.540	114.870	6450.47	3825.89	-2157.75	3217.55	1691761.47	14428707.51	39°43'50.347"N	80°49'02.549"W	3874.08	123.847	1.24	0.00	1.24
10148.00	89.600	114.550	6450.80	3869.89	-2176.14	3257.52	1691801.42	14428689.13	39°43'50.164"N	80°49'02.038"W	3917.53	123.744	0.74	0.14	-0.73
10193.00	89.600	114.540	6451.11	3914.89	-2194.83	3298.46	1691842.34	14428670.44	39°43'49.978"N	80°49'01.514"W	3961.96	123.640	0.02	0.00	-0.02
10238.00	89.660	113.120	6451.40	3959.88	-2213.01	3339.62	1691883.48	14428652.27	39°43'49.798"N	80°49'00.988"W	4006.30	123.531	3.16	0.13	-3.16
10282.00	89.570	112.950	6451.70	4003.86	-2230.23	3380.11	1691923.96	14428635.06	39°43'49.627"N	80°49'00.470"W	4049.58	123.417	0.44	-0.20	-0.39
10327.00	89.600	112.470	6452.02	4048.83	-2247.60	3421.62	1691965.45	14428617.69	39°43'49.454"N	80°48'59.939"W	4093.80	123.300	1.07	0.07	-1.07
10372.00	89.630	113.370	6452.33	4093.80	-2265.13	3463.06	1692006.88	14428600.18	39°43'49.280"N	80°48'59.409"W	4138.07	123.188	2.00	0.07	2.00
10416.00	89.540	115.380	6452.65	4137.80	-2283.29	3503.14	1692046.94	14428582.03	39°43'49.100"N	80°48'58.897"W	4181.55	123.096	4.57	-0.20	4.57
10461.00	89.510	116.430	6453.02	4182.79	-2302.94	3543.62	1692087.40	14428562.38	39°43'48.905"N	80°48'58.379"W	4226.20	123.019	2.33	-0.07	2.33
10506.00	89.630	115.950	6453.36	4227.77	-2322.80	3583.99	1692127.76	14428542.52	39°43'48.708"N	80°48'57.863"W	4270.88	122.947	1.10	0.27	-1.07
10551.00	89.720	114.990	6453.61	4272.77	-2342.16	3624.62	1692168.37	14428523.18	39°43'48.516"N	80°48'57.343"W	4315.50	122.870	2.14	0.20	-2.13
10595.00	89.570	114.140	6453.88	4316.77	-2360.45	3664.64	1692208.37	14428504.90	39°43'48.334"N	80°48'56.832"W	4359.04	122.786	1.96	-0.34	-1.93
10640.00	89.570	113.420	6454.22	4361.76	-2378.59	3705.81	1692249.53	14428486.76	39°43'48.154"N	80°48'56.305"W	4403.49	122.695	1.60	0.00	-1.60
10685.00	89.660	113.260	6454.52	4406.74	-2396.42	3747.13	1692290.83	14428468.94	39°43'47.977"N	80°48'55.777"W	4447.90	122.600	0.41	0.20	-0.36
10730.00	89.570	113.660	6454.83	4451.73	-2414.33	3788.41	1692332.10	14428451.03	39°43'47.799"N	80°48'55.249"W	4492.33	122.509	0.91	-0.20	0.89
10774.00	89.570	114.800	6455.16	4495.73	-2432.39	3828.53	1692372.20	14428432.98	39°43'47.620"N	80°48'54.736"W	4535.88	122.429	2.59	0.00	2.59
10819.00	89.630	116.370	6455.47	4540.72	-2451.82	3869.12	1692412.77	14428413.56	39°43'47.427"N	80°48'54.217"W	4580.56	122.362	3.49	0.13	3.49
10864.00	89.570	118.590	6455.79	4585.67	-2472.59	3909.04	1692452.68	14428392.80	39°43'47.221"N	80°48'53.706"W	4625.39	122.315	4.94	-0.13	4.93
10909.00	89.630	118.740	6456.10	4630.56	-2494.17	3948.52	1692492.14	14428371.23	39°43'47.007"N	80°48'53.202"W	4670.30	122.279	0.36	0.13	0.33

S1-01610



# Actual Wellpath Report

MWD Surveys (5716')(5762'-13460')Proj:13486  
Page 9 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #1
Area	Marshall County, WV	Well	Goudy 1H
Field	Marshall	Wellbore	Goudy 1H (AWB)
Facility	Goudy		

### WELLPATH DATA (268 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]	Build Rate ["/100ft]	Turn Rate ["/100ft]
10953.00	89.630	117.570	6456.38	4674.49	-2514.93	3987.31	1692530.92	14428350.47	39°43'46.801"N	80°48'52.706"W	4714.19	122.241	2.66	0.00	-2.66
10998.00	89.110	115.610	6456.88	4719.46	-2535.07	4027.55	1692571.14	14428330.34	39°43'46.601"N	80°48'52.191"W	4758.96	122.188	4.51	-1.16	-4.36
11043.00	89.110	114.550	6457.58	4764.45	-2554.14	4068.30	1692611.88	14428311.28	39°43'46.412"N	80°48'51.670"W	4803.62	122.121	2.36	0.00	-2.36
11088.00	89.110	115.780	6458.28	4809.45	-2573.28	4109.02	1692652.58	14428292.15	39°43'46.222"N	80°48'51.149"W	4848.28	122.057	2.73	0.00	2.73
11132.00	89.200	115.030	6458.93	4853.44	-2592.15	4148.76	1692692.31	14428273.28	39°43'46.035"N	80°48'50.641"W	4891.98	121.997	1.72	0.20	-1.70
11177.00	89.380	112.320	6459.48	4898.42	-2610.22	4189.97	1692733.50	14428255.22	39°43'45.855"N	80°48'50.114"W	4936.51	121.922	6.04	0.40	-6.02
11222.00	88.890	110.200	6460.16	4943.33	-2626.53	4231.90	1692775.41	14428238.92	39°43'45.693"N	80°48'49.578"W	4980.73	121.826	4.83	-1.09	-4.71
11266.00	89.050	110.810	6460.95	4987.20	-2641.94	4273.11	1692816.60	14428223.51	39°43'45.540"N	80°48'49.051"W	5023.87	121.727	1.43	0.36	1.39
11311.00	88.980	112.410	6461.73	5032.12	-2658.51	4314.94	1692858.41	14428206.95	39°43'45.375"N	80°48'48.516"W	5068.17	121.638	3.56	-0.16	3.56
11356.00	89.050	113.670	6462.50	5077.09	-2676.12	4356.34	1692899.80	14428189.35	39°43'45.200"N	80°48'47.987"W	5112.66	121.563	2.80	0.16	2.80
11401.00	88.800	114.880	6463.35	5122.08	-2694.62	4397.35	1692940.80	14428170.86	39°43'45.017"N	80°48'47.462"W	5157.29	121.499	2.75	-0.56	2.69
11446.00	88.770	115.180	6464.30	5167.07	-2713.65	4438.12	1692981.54	14428151.83	39°43'44.828"N	80°48'46.941"W	5202.00	121.443	0.67	-0.07	0.67
11490.00	89.050	115.080	6465.14	5211.06	-2732.33	4477.94	1693021.36	14428133.16	39°43'44.642"N	80°48'46.432"W	5245.73	121.391	0.68	0.64	-0.23
11535.00	89.350	114.230	6465.76	5256.06	-2751.10	4518.84	1693062.23	14428114.39	39°43'44.456"N	80°48'45.909"W	5290.41	121.333	2.00	0.67	-1.89
11580.00	89.320	113.940	6466.29	5301.05	-2769.47	4559.92	1693103.30	14428096.04	39°43'44.274"N	80°48'45.384"W	5335.05	121.272	0.65	-0.07	-0.64
11625.00	89.260	113.650	6466.84	5346.04	-2787.62	4601.09	1693144.45	14428077.89	39°43'44.094"N	80°48'44.857"W	5379.67	121.210	0.66	-0.13	-0.64
11669.00	89.320	113.320	6467.39	5390.02	-2805.15	4641.44	1693184.79	14428060.37	39°43'43.919"N	80°48'44.341"W	5423.27	121.148	0.76	0.14	-0.75
11714.00	89.380	113.000	6467.90	5435.00	-2822.85	4682.81	1693226.14	14428042.68	39°43'43.744"N	80°48'43.812"W	5467.83	121.082	0.72	0.13	-0.71
11759.00	89.450	112.930	6468.36	5479.98	-2840.41	4724.24	1693267.56	14428025.13	39°43'43.569"N	80°48'43.282"W	5512.39	121.016	0.22	0.16	-0.16
11804.00	89.540	113.220	6468.76	5524.95	-2858.05	4765.64	1693308.94	14428007.50	39°43'43.394"N	80°48'42.753"W	5556.96	120.952	0.67	0.20	0.64
11848.00	89.540	113.540	6469.11	5568.94	-2875.50	4806.03	1693349.31	14427990.04	39°43'43.221"N	80°48'42.236"W	5600.57	120.893	0.73	0.00	0.73
11893.00	89.380	113.140	6469.53	5613.92	-2893.33	4847.34	1693390.61	14427972.22	39°43'43.044"N	80°48'41.708"W	5645.18	120.833	0.96	-0.36	-0.89
11938.00	89.350	112.860	6470.03	5658.90	-2910.91	4888.76	1693432.01	14427954.65	39°43'42.869"N	80°48'41.178"W	5689.76	120.771	0.63	-0.07	-0.62
11983.00	89.350	112.990	6470.54	5703.87	-2928.44	4930.21	1693473.44	14427937.13	39°43'42.695"N	80°48'40.648"W	5734.34	120.709	0.29	0.00	0.29
12027.00	89.380	113.270	6471.03	5747.85	-2945.72	4970.67	1693513.88	14427919.85	39°43'42.523"N	80°48'40.131"W	5777.96	120.652	0.64	0.07	0.64
12072.00	89.420	113.160	6471.50	5792.83	-2963.46	5012.02	1693555.22	14427902.12	39°43'42.347"N	80°48'39.602"W	5822.58	120.595	0.26	0.09	-0.24
12117.00	89.320	114.240	6472.00	5837.82	-2981.55	5053.22	1693596.40	14427884.04	39°43'42.168"N	80°48'39.075"W	5867.26	120.542	2.41	-0.22	2.40
12162.00	89.380	116.740	6472.51	5882.81	-3000.91	5093.84	1693637.00	14427864.69	39°43'41.975"N	80°48'38.556"W	5912.08	120.503	5.56	0.13	5.56
12206.00	89.420	117.550	6472.97	5926.77	-3020.98	5132.99	1693676.14	14427844.62	39°43'41.776"N	80°48'38.056"W	5956.00	120.479	1.84	0.09	1.84
12251.00	89.320	116.490	6473.46	5971.73	-3041.43	5173.07	1693716.21	14427824.19	39°43'41.573"N	80°48'37.543"W	6000.91	120.453	2.37	-0.22	-2.36

51-01610



# Actual Wellpath Report

MWD Surveys (5716)-(5762-13460) Proj:13486  
Page 10 of 12



## REFERENCE WELLPATH IDENTIFICATION

Operator	GASTAR EXPLORATION USA, INC.
Area	Marshall County, WV
Field	Marshall
Facility	Goudy
Well	Goudy IH (AWB)
Slot	Wellbore
Slot #1	Goudy IH

## WELLPATH DATA (268 stations)

MWD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US r]	[US r]	[ft]	[ft]	[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]
12296.00	89.320	115.640	6474.00	6016.72	-3061.20	5213.49	1693756.61	14427804.42	39°43'41.377"N	80°48'37.026"W	6045.78	120.420	1.89	0.00	-1.89
12341.00	89.380	114.510	6474.51	6061.71	-3080.27	5254.25	1693797.35	14427785.36	39°43'41.188"N	80°48'36.505"W	6090.58	120.381	2.51	0.13	-2.51
12386.00	89.380	113.990	6474.99	6106.71	-3098.75	5295.27	1693838.36	14427766.89	39°43'41.004"N	80°48'35.981"W	6135.32	120.336	1.16	0.00	-1.16
12430.00	89.290	114.590	6475.50	6150.70	-3116.85	5335.38	1693878.45	14427748.80	39°43'40.825"N	80°48'35.468"W	6179.08	120.293	1.38	-0.20	1.36
12475.00	89.420	115.600	6476.01	6195.70	-3135.93	5376.13	1693919.18	14427729.72	39°43'40.635"N	80°48'34.947"W	6223.89	120.255	2.26	0.29	2.24
12520.00	89.380	116.650	6476.48	6240.68	-3155.74	5416.53	1693959.56	14427709.92	39°43'40.438"N	80°48'34.430"W	6268.77	120.226	2.33	-0.09	2.33
12565.00	89.660	116.220	6476.86	6285.66	-3175.78	5456.82	1693999.84	14427689.89	39°43'40.240"N	80°48'33.915"W	6313.67	120.199	1.14	0.62	-0.96
12609.00	89.690	114.430	6477.11	6329.66	-3194.60	5496.59	1694039.59	14427671.08	39°43'40.053"N	80°48'33.407"W	6357.51	120.165	4.07	0.07	-4.07
12654.00	89.600	114.440	6477.39	6374.66	-3213.21	5537.56	1694080.55	14427652.47	39°43'39.868"N	80°48'32.883"W	6402.29	120.125	0.20	-0.20	0.02
12699.00	89.690	115.270	6477.67	6419.66	-3232.13	5578.39	1694121.36	14427633.57	39°43'39.680"N	80°48'32.361"W	6447.10	120.088	1.86	0.20	1.84
12744.00	89.630	116.590	6477.93	6464.65	-3251.80	5618.86	1694161.81	14427613.90	39°43'39.485"N	80°48'31.843"W	6491.98	120.059	2.94	-0.13	2.93
12788.00	89.970	117.520	6478.09	6508.61	-3271.81	5658.04	1694200.98	14427593.89	39°43'39.286"N	80°48'31.342"W	6535.92	120.039	2.25	0.77	2.11
12833.00	89.880	117.200	6478.15	6553.57	-3292.50	5698.01	1694240.93	14427573.22	39°43'39.081"N	80°48'30.831"W	6580.87	120.021	0.74	-0.20	-0.71
12878.00	90.060	115.580	6478.17	6598.55	-3312.50	5738.32	1694281.22	14427553.23	39°43'38.883"N	80°48'30.316"W	6625.78	119.996	3.62	0.40	-3.60
12923.00	90.030	113.510	6478.13	6643.54	-3331.19	5779.25	1694322.14	14427534.54	39°43'38.697"N	80°48'29.793"W	6670.57	119.959	4.60	-0.07	-4.60
12967.00	89.970	112.720	6478.13	6687.52	-3348.46	5819.71	1694362.59	14427517.27	39°43'38.525"N	80°48'29.275"W	6714.26	119.915	1.80	-0.14	-1.80
13012.00	90.000	112.520	6478.15	6732.49	-3365.77	5861.25	1694404.11	14427499.97	39°43'38.353"N	80°48'28.744"W	6758.90	119.866	0.45	0.07	-0.44
13057.00	90.030	112.230	6478.13	6777.45	-3382.90	5902.86	1694445.71	14427482.85	39°43'38.183"N	80°48'28.212"W	6803.52	119.817	0.65	0.07	-0.64
13102.00	89.910	112.600	6478.16	6822.41	-3400.06	5944.46	1694487.29	14427465.70	39°43'38.013"N	80°48'27.680"W	6848.14	119.768	0.86	-0.27	0.82
13146.00	89.940	113.460	6478.22	6866.39	-3417.27	5984.96	1694527.77	14427448.49	39°43'37.842"N	80°48'27.162"W	6891.84	119.725	1.96	0.07	1.95
13191.00	89.850	114.290	6478.30	6911.39	-3435.49	6026.11	1694568.90	14427430.29	39°43'37.661"N	80°48'26.636"W	6936.61	119.687	1.86	-0.20	1.84
13236.00	89.480	115.030	6478.56	6956.38	-3454.26	6067.00	1694609.78	14427411.52	39°43'37.475"N	80°48'26.113"W	6981.43	119.655	1.84	-0.82	1.64
13280.00	89.480	115.220	6478.96	7000.38	-3472.94	6106.84	1694649.60	14427392.85	39°43'37.289"N	80°48'25.604"W	7025.30	119.627	0.43	0.00	0.43
13325.00	89.420	114.240	6479.39	7045.38	-3491.77	6147.71	1694690.45	14427374.03	39°43'37.102"N	80°48'25.081"W	7070.13	119.596	2.18	-0.13	-2.18
13370.00	89.480	112.700	6479.82	7090.36	-3509.69	6188.98	1694731.71	14427356.11	39°43'36.924"N	80°48'24.553"W	7114.87	119.557	3.42	0.13	-3.42
13415.00	89.510	111.550	6480.22	7135.31	-3526.63	6230.67	1694773.38	14427339.17	39°43'36.756"N	80°48'24.020"W	7159.49	119.510	2.56	0.07	-2.56
13460.00	89.420	111.970	6480.64	7180.25	-3543.32	6272.46	1694815.15	14427322.50	39°43'36.590"N	80°48'23.486"W	7204.08	119.462	0.95	-0.20	0.93
13486.00	89.420	111.970	6480.90	7206.21	-3553.04	6296.57	1694839.25	14427312.78	39°43'36.493"N	80°48'23.178"W	7229.86	119.435	0.00	0.00	0.00

51-01610





# Actual Wellpath Report

MWD Surveys (5716')(5762'-13460')Proj:13486  
Page 11 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #1
Area	Marshall County, WV	Well	Goudy 1H
Field	Marshall	Wellbore	Goudy 1H (AWB)
Facility	Goudy		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Goudy 1H LP Rev-2		6431.00	-840.98	282.64	1688827.73	14430023.76	39°44'03.417"N	80°49'40.082"W	point
Goudy 1H PBHL Rev-2		6465.37	-3539.41	6260.60	1694803.30	14427326.40	39°43'36.629"N	80°48'23.638"W	point

WELLPATH COMPOSITION - Ref Wellbore: Goudy 1H (AWB)    Ref Wellpath: MWD Surveys (5716')(5762'-13460')Proj:13486				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
13.00	2619.00	Generic gyro - northseeking (Standard)	VES / Continuous Gyro <100' - 2616'>	Goudy 1H (AWB)
2619.00	5716.00	NaviTrak (Standard)	BHI / EMTrak <2671 - 5713>	Goudy 1H (AWB)
5716.00	13460.00	NaviTrak (AT Curve Short Spaced)	BHI / AutoTrak Curve <5762'-13460'>	Goudy 1H (AWB)
13460.00	13486.00	Blind Drilling (std)	Projection to bit	Goudy 1H (AWB)

51-01610



# Actual Wellpath Report

MWD Surveys (5716')(5762'-13460')Proj:13486  
Page 12 of 12



## REFERENCE WELLPATH IDENTIFICATION

Operator	GASTAR EXPLORATION USA, INC.	Slot	Slot #1
Area	Marshall County, WV	Well	Goudy 1H
Field	Marshall	Wellbore	Goudy 1H (AWB)
Facility	Goudy		

## COMMENTS

### Wellpath general comments

API: 47-051-01610-0000  
BHI Job #: 5286303  
Rig: Precision 823  
Duration: 3/30/2013-4/5/2013  
VES / Continuous Gyro (100'-2616')  
BHI / EMTrak (2616')(2671'-5713')  
BHI / AT Curve (5716')(5762'-13460')  
Projected MD at TD: 13486'

51-01610

51-01610

## Goudy 1H Completion Summary

Stage	Stimulation Date	Avg Pump Rate (BPM)	Avg Pressure (PSI)	Max Break Pres. (PSI)	ISIP (PSI)	Proppant (lbs)	Water (bbls)
1	6/13/2013	80	6774	4915	3399	121495	4737
2	6/17/2013	80	6641	5208	n/a	165099	5319
3	6/22/2013	80	6949	5476	3914	128202	4456
4	6/23/2013	80	6689	4904	3982	127070	4866
5	6/24/2013	80	6872	4898	4097	128731	4885
6	6/25/2013	80	6636	4663	3740	127741	4822
7	6/26/2013	80	6508	4898	3574	126754	4837
8	6/27/2013	81	6421	4648	3829	127252	4835
9	6/28/2013	80	6490	4798	3723	124446	4695
10	6/29/2013	80	6458	4774	3937	127957	4874
11	6/30/2013	80	6458	4777	3702	139585	5034
12	7/1/2013	80	6458	4804	3637	138634	5004
13	7/2/2013	80	6484	4793	3959	142340	5150
14	7/3/2013	80	6170	4791	4050	140108	5094
15	7/4/2013	80	6264	5108	3704	134504	5016
16	7/5/2013	80	6537	5001	3778	118266	4109
17	7/6/2013	78	8027	5143	4109	1250	1977
18	7/7/2013	80	6218	4762	3543	126636	4130
19	7/8/2013	80	6408	4894	3691	90499	3489
20	2/26/2013	80	5595	4748	3187	141785	4194
<b>Totals</b>						<b>2478354</b>	<b>91523</b>

10/03/2014

51-01610

Nitrogen/Other  
(units)

10/03/2014

# Hydraulic Fracturing DISCLOSURE



Please use the FracFocus XML submission process or create disclosures online.

[FIND A WELL BY STATE](#)

[ABOUT PROJECT PARTNERS](#)

(Note: Clicking the FracFocus, FIND A WELL links will open a new window.)

## Prepare Disclosure for FracFocus Submission

[Disclosure Lists](#) | [Dashboard](#)

Note: This window expires with 10 minutes of inactivity. After that you will be taken back to the dashboard.

[Preview Disclosure PDF](#)

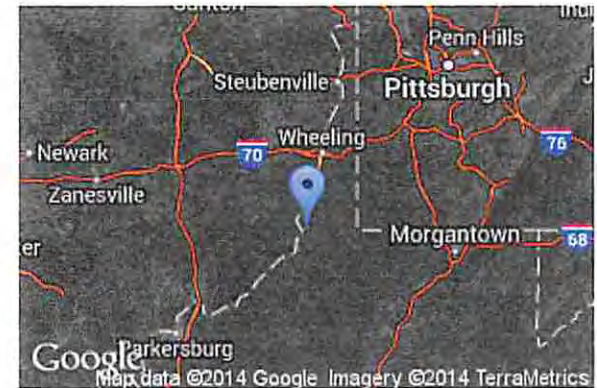
[Validate Disclosure](#)

[Submit To FracFocus](#)

## Hydraulic Fracturing Data

[Edit](#)

Job Start Date 6/13/2013	Job End Date 7/9/2013	API Number 47-051-01610-00-00	State & County West Virginia --- Marshall
Well Name Goudy 1H			
Longitude -80.80679	Latitude 39.72679	Datum NAD27	Federal/Tribal Well? <input type="checkbox"/>
True Vertical Depth (ft) 6479	Total Water Vol (gal) 3621702	Total Non Water Vol 0	Total Mass (lbs) 32941753.782



51-01610

### MSDS Chemical Ingredients

	Trade Name	Supplier	Purpose	Ingredients	CAS #	% High Additive	% HF Job	Comments	Ingredient Mass
<input type="button" value="Edit"/>	Water	Operator	Carrier	Water	7732-18-5	100%	91.641219%		30197026.9356
<input type="button" value="Edit"/>	Sand, White, 40/70	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100%	4.4524052%		1467128
<input type="button" value="Edit"/>	Sand, White, 30/50	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100%	2.8592387%		942158
<input type="button" value="Edit"/>	HCl, 10.1 - 15%	Baker Hughes	Acidizing	Water	7732-18-5	85%	.7606018%	SmartCare Product	250628.6412
				Hydrochloric Acid	7647-01-0	15%	.1342239%	SmartCare Product	44228.5837
<input type="button" value="Edit"/>	FRW-18	Baker Hughes	Friction Reducer	Petroleum Distillates	64742-47-8	30%	.0193187%	SmartCare Product	6365.7737
<input type="button" value="Edit"/>	Alpha 1427	Baker Hughes	Biocide	Glutaraldehyde	111-30-8	30%	.0071617%	SmartCare Product	2359.875
				Didecyl Dimethyl Ammonium Chloride	7173-51-5	10%	.0023872%	SmartCare Product	786.625
				Quaternary Ammonium Compound	68424-85-1	5%	.0011936%	SmartCare Product	393.3125
				Ethanol	64-17-5	5%	.0011936%	SmartCare Product	393.3125
<input type="button" value="Edit"/>	FRW-26D, bulk	Baker Hughes	Friction Reducer						

51-01610

			No Hazardous Ingredients	N.A.	100%	.0095474%		3146
<input type="button" value="Edit"/>	Scaletrol 720	Baker Hughes	Scale Inhibitor					
			Ethylene Glycol	107-21-1	30%	.0050406%	SmartCare Product	1660.9395
			Calcium Chloride	10043-52-4	5%	.0008401%	SmartCare Product	276.8232
<input type="button" value="Edit"/>	CI-14	Baker Hughes	Corrosion Inhibitor					
			Methanol	67-56-1	100%	.0026843%	SmartCare Product	884.5
			Polyoxyalkylenes	Trade Secret	30%	.0008053%	SmartCare Product	265.35
			Fatty Acids	Trade Secret	10%	.0002684%	SmartCare Product	88.45
			Olefin	Trade Secret	5%	.0001342%	SmartCare Product	44.225
			Propargyl Alcohol	107-19-7	5%	.0001342%	SmartCare Product	44.225
<input type="button" value="Edit"/>	Ferrotrol 300L	Baker Hughes	Iron Control					
			Citric Acid	77-92-9	60%	.0035012%	SmartCare Product	1153.6939
<input type="button" value="Edit"/>	Enzyme G-NE	Baker Hughes	Breaker					
			Water	7732-18-5	95%	.000024%	SmartCare Product	7.9209
			Hemicellulase Enzyme Concentrate	9025-56-3	5%	.0000013%	SmartCare Product	0.4169

5/0/6/0

### Non-MSDS Chemical Ingredients

	Trade Name	Supplier	Purpose	Ingredients	CAS #	% High Additive	% HF Job	Comments	Ingredient Mass
<input type="button" value="Edit"/>			Other Chemicals						
				Water	7732-18-5	0%	.0578667%		19067.8618
						0%	.0193187%		6365.7737

Poly (acrylamide-co-acrylic acid)	Trade Secret			
Anionic Water Soluble Polymer	Trade Secret	0%	.0095474%	3146
Polyacrylate	Trade Secret	0%	.0033604%	1107.293
Sorbitan Monooleate	Trade Secret	0%	.0032198%	1060.9623
Salt	Trade Secret	0%	.0032198%	1060.9623
Ethoxylated Alcohol	Trade Secret	0%	.0012879%	424.3849
Modified Thiorea Polymer	68527-49-1	0%	.0001879%	61.915
Hydrochloric Acid	7647-01-0	0%	.0000268%	8.845
Formaldehyde	50-00-0	0%	.0000268%	8.845
Potassium Chloride	7447-40-7	0%	.0000084%	2.7682
Sodium Chloride	7647-14-5	0%	.000005%	1.6609

Use Terms | © Copyright GWPC & IOGCC, 2010

51-01610



51-01610

Formations	Top TVD	Base TVD	Top MD	Base MD
SHALE	0	1000	0	1000
SEWICKLEY COAL	1000	1010	1000	1010
SHALE	1010	1220	1010	1220
PITTSBURGE COAL	1220	1230	1220	1230
SHALE AND SANDSTONE	1230	1685	1230	1685
3RD SALT SAND	1685	1740	1865	1740
SHALE	1740	1827	1740	1827
MAXTON	1827	1860	1827	1860
SHALE	1860	1883	1860	1883
BIG LIME	1883	1958	1883	1958
BIG INJUN	1958	2216	1958	2216
WEIR SILTSTONE	2216	2455	2216	2455
BEREA SILTSTONE	2455	2695	2455	2695
SAND AND SHALE	2695	3030	2695	3030
GORDON	3030	3070	3030	3070
SHALE	3070	3520	3070	3520
WARREN SANDSTONE	3520	3550	3520	3550
BRAILLER	3550	5013	3550	5014
JAVA SHALE	5013	5232	5014	5235
PIPE CREEK SHALE	5232	5432	5235	5435
SHALE	5432	5853	5435	5869
RHINESTREET	5853	6147	5869	6188
CASHAQUA	6147	6232	6188	6296
MIDDLESEX	6232	6256	6296	6331
WEST RIVER	6256	6323	6331	6440
GENESEO	6323	6347	6440	6490
TULLY LIMESTONE	6347	6378	6490	6567
HAMILTON	6378	6387	6567	6599
MARCELLUS	6387	na	6599	na
ONONDOGA	na	na	na	na

10/03/2014