

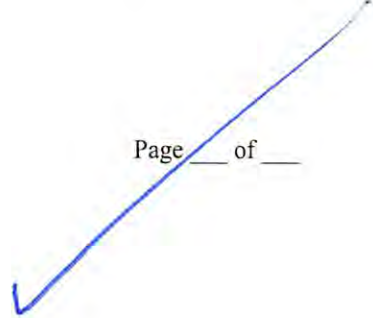
APPROVED

WR-35
Rev. 8/23/13

Page ___ of ___

NAME: Antero Resources

DATE: 5/25/16 State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work



API 47-017-06303 County Doddridge District Grant
Quad Smithburg 7.5' Pad Name RJ Smith Field/Pool Name ---
Farm name Smith, Robert J. Well Number Gibson Unit 1H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop St. City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4357399m Easting 523022m
Landing Point of Curve Northing 4357394.28m Easting 522741.30m
Bottom Hole Northing 4360101m Easting 521651m

Elevation (ft) 998' 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

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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)
Air- Foam & 4% KCL
Mud- Polymer

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Date permit issued 8/15/2013 Date drilling commenced 2/22/2015 Date drilling ceased 6/27/2015
Date completion activities began 11/5/2015 Date completion activities ceased 4/29/2016
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug
Freshwater depth(s) ft 181', 237' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 804', 1267', 1350', 1431' Void(s) encountered (Y/N) depths No
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

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Reviewed by: _____

AK 09/23/2016

API 47- 017 - 06303 Farm name Smith, Robert J. Well number Gibson Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	30"	20"	40'	New	94# J-55	N/A	Y
Surface	17- 1/2"	13- 3/8"	515'	New	48# H-40	N/A	Y*
Coal							
Intermediate 1	12-1/4"	9-5/8"	2550'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	16892'	New	23# P-110	N/A	Y
Tubing		2-3/8"	7094'		4.7# N-80	N/A	
Packer type and depth set		N/A					

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	193 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	612 sx	15.6	1.18	358	0'	8 Hrs.
Coal							
Intermediate 1	Class A	987 sx	15.6	1.18	799	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1053 sx (Lead) 1610 sx (Tail)	14.2 Lead 14.85 Tail	1.24 Lead 1.81 Tail	3421	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16892' MD, 6822' TVD (BHL), 6870' (Deepest Point Drilled) Loggers TD (ft) 16892'
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 6386'

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 _____
Conductor- 0
 Surface- 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface
 Intermediate- 1 above float joint, 1 above float collar, 1 every 4th joint to surface
 Production- 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

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 _____

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API 47- 017 - 06303 Farm name Smith, Robert J. Well number Gibson Unit 1H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
*PLEASE SEE ATTACHED EXHIBIT 1					

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
*PLEASE SEE ATTACHED EXHIBIT 2								

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Please insert additional pages as applicable.

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API 47- 017 - 06303 Farm name Smith, Robert J. Well number Gibson Unit 1H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6813' (TOP)</u> TVD	<u>7189' (TOP)</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3550 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 2873 mcfpd Oil 7 bpd NGL --- bpd Water 0 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	<u>0</u>		<u>0</u>		

***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Precision Drilling Company LP
Address 2640 Reach Rd. City Williamsport State PA Zip 17701

Logging Company Rush Wellsite Services
Address 600 Alpha Drive City Canonsburg State PA Zip 15317

Cementing Company Allied Gas & Oil Services, LLC
Address 1036 East Main St. City Bridgeport State WV Zip 26330

Stimulating Company Baker Hughes
Address 837 Philippi Pike City Clarksburg State WV Zip 26801

Please insert additional pages as applicable.

Completed by Kara Quackenbush Telephone 303-357-7233
Signature *Kara Quackenbush* Title Permit Representative Date 3/17/2016

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EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	5-Nov-15	16,631	16,800	60	Marcellus
2	9-Dec-15	16,431	16,600	60	Marcellus
3	9-Dec-15	16,231	16,400	60	Marcellus
4	9-Dec-15	16,031	16,200	60	Marcellus
5	10-Dec-15	15,831	16,000	60	Marcellus
6	10-Dec-15	15,631	15,800	60	Marcellus
7	10-Dec-15	15,431	15,599	60	Marcellus
8	10-Dec-15	15,231	15,399	60	Marcellus
9	11-Dec-15	15,030	15,199	60	Marcellus
10	11-Dec-15	14,830	14,999	60	Marcellus
11	11-Dec-15	14,630	14,799	60	Marcellus
12	11-Dec-15	14,430	14,599	60	Marcellus
13	11-Dec-15	14,230	14,399	60	Marcellus
14	12-Dec-15	14,030	14,199	60	Marcellus
15	12-Dec-15	13,830	13,999	60	Marcellus
16	12-Dec-15	13,630	13,799	60	Marcellus
17	12-Dec-15	13,430	13,598	60	Marcellus
18	13-Dec-15	13,230	13,398	60	Marcellus
19	13-Dec-15	13,029	13,198	60	Marcellus
20	13-Dec-15	12,829	12,998	60	Marcellus
21	13-Dec-15	12,629	12,798	60	Marcellus
22	14-Dec-15	12,429	12,598	60	Marcellus
23	14-Dec-15	12,229	12,398	60	Marcellus
24	14-Dec-15	12,029	12,198	60	Marcellus
25	14-Dec-15	11,829	11,998	60	Marcellus
26	14-Dec-15	11,629	11,798	60	Marcellus
27	14-Dec-15	11,429	11,597	60	Marcellus
28	15-Dec-15	11,229	11,397	60	Marcellus
29	15-Dec-15	11,028	11,197	60	Marcellus
30	15-Dec-15	10,828	10,997	60	Marcellus
31	16-Dec-15	10,628	10,797	60	Marcellus
32	16-Dec-15	10,428	10,597	60	Marcellus
33	16-Dec-15	10,228	10,397	60	Marcellus
34	16-Dec-15	10,028	10,197	60	Marcellus
35	16-Dec-15	9,828	9,997	60	Marcellus
36	16-Dec-15	9,628	9,796	60	Marcellus
37	17-Dec-15	9,428	9,596	60	Marcellus
38	17-Dec-15	9,228	9,396	60	Marcellus
39	17-Dec-15	9,027	9,196	60	Marcellus
40	17-Dec-15	8,827	8,996	60	Marcellus
41	17-Dec-15	8,627	8,796	60	Marcellus
42	17-Dec-15	8,427	8,596	60	Marcellus
43	18-Dec-15	8,227	8,396	60	Marcellus
44	18-Dec-15	8,027	8,196	60	Marcellus
45	18-Dec-15	7,827	7,996	60	Marcellus
46	18-Dec-15	7,627	7,795	60	Marcellus
47	18-Dec-15	7,427	7,595	60	Marcellus
48	18-Dec-15	7,227	7,395	60	Marcellus

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EXHIBIT 2

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbbls)	Amount of Nitrogen/ other (units)
1	8-Dec-15	60.7	7,027	5,846	5,256	251,829	6,530	N/A
2	9-Dec-15	67.6	7,120	6,255	5,317	250,384	6,495	N/A
3	9-Dec-15	67.0	7,089	5,997	5,483	250,690	6,519	N/A
4	9-Dec-15	68.0	7,298	5,856	4,582	251,199	6,527	N/A
5	10-Dec-15	69.0	7,359	5,738	5,301	251,787	6,421	N/A
6	10-Dec-15	70.0	7,130	5,870	5,076	249,833	6,355	N/A
7	10-Dec-15	69.0	7,122	5,775	5,509	249,680	6,404	N/A
8	10-Dec-15	69.0	7,196	5,579	5,023	248,809	6,345	N/A
9	11-Dec-15	69.0	7,234	5,881	5,373	245,059	6,351	N/A
10	11-Dec-15	58.0	7,368	5,820	5,253	226,545	6,418	N/A
11	11-Dec-15	70.0	7,090	5,985	5,157	251,401	6,373	N/A
12	11-Dec-15	68.6	6,959	5,607	5,530	250,591	6,367	N/A
13	11-Dec-15	69.5	7,024	5,694	5,519	250,127	6,289	N/A
14	12-Dec-15	74.0	7,148	5,679	5,379	250,845	6,357	N/A
15	12-Dec-15	71.0	7,094	5,500	5,314	249,814	6,430	N/A
16	12-Dec-15	72.9	6,919	5,627	4,933	250,999	6,412	N/A
17	12-Dec-15	73.5	7,051	5,866	5,422	251,388	6,399	N/A
18	13-Dec-15	72.4	6,982	5,658	5,259	252,030	6,408	N/A
19	13-Dec-15	69.7	7,083	5,680	5,704	232,025	6,010	N/A
20	13-Dec-15	69.1	6,796	5,548	5,149	250,840	6,189	N/A
21	13-Dec-15	71.8	6,901	5,617	5,439	251,773	6,306	N/A
22	14-Dec-15	72.1	6,880	5,750	5,422	250,673	6,284	N/A
23	14-Dec-15	73.0	6,743	5,535	5,054	250,648	6,349	N/A
24	14-Dec-15	72.3	6,646	5,636	5,208	250,554	6,175	N/A
25	14-Dec-15	71.3	6,672	5,452	5,459	249,475	6,172	N/A
26	14-Dec-15	70.9	6,726	5,457	5,383	249,945	6,106	N/A
27	14-Dec-15	69.6	6,968	5,530	5,197	239,568	6,083	N/A
28	15-Dec-15	70.1	6,722	5,680	5,302	250,804	6,257	N/A
29	15-Dec-15	70.9	7,086	5,623	5,684	225,000	5,994	N/A
30	15-Dec-15	70.9	6,686	5,508	5,083	252,987	6,331	N/A
31	16-Dec-15	69.9	6,735	5,557	5,560	251,900	6,251	N/A
32	16-Dec-15	69.9	6,979	5,532	4,979	213,734	6,786	N/A
33	16-Dec-15	71.9	6,689	5,563	5,832	252,509	6,326	N/A
34	16-Dec-15	71.7	6,944	5,490	5,194	251,946	6,393	N/A
35	16-Dec-15	69.7	6,880	5,512	5,131	250,823	6,223	N/A
36	16-Dec-15	69.0	6,881	5,578	4,944	211,026	6,552	N/A
37	17-Dec-15	69.9	7,053	5,716	5,460	251,314	6,089	N/A
38	17-Dec-15	69.8	6,581	5,694	5,271	252,902	6,213	N/A
39	17-Dec-15	70.5	6,533	5,619	4,968	251,538	6,109	N/A
40	17-Dec-15	72.0	6,536	5,526	4,985	251,747	6,154	N/A
41	17-Dec-15	70.6	6,687	5,611	5,045	252,262	6,093	N/A
42	17-Dec-15	70.5	7,071	5,593	5,218	163,368	6,290	N/A
43	18-Dec-15	68.6	6,685	5,619	4,364	252,043	6,152	N/A
44	18-Dec-15	71.3	6,589	5,648	4,323	251,898	6,085	N/A
45	18-Dec-15	70.6	6,486	5,471	5,731	250,096	6,041	N/A
46	18-Dec-15	70.1	6,735	5,481	5,453	243,594	6,140	N/A
47	18-Dec-15	68.8	6,605	5,607	4,510	251,768	6,180	N/A
48	18-Dec-15	70.2	6,232	5,717	3,710	252,345	6,030	N/A
AVG=		69.9	6,896	5,662	5,197	11,794,115	301,763	TOTAL

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EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Fresh Water	181'	N/A	181'	N/A
Fresh Water	237'	N/A	237'	N/A
Siltstone	0	427	0	427
Sandstone	est. 427	597	est. 427	597
Dolostone/Sandstone/Siltstone	est. 597	637	est. 597	637
Sandstone and Siltstone w/trace coal	est. 637	697	est. 637	697
Siltstone	est. 697	877	est. 697	877
Shale	est. 877	1027	est. 877	1027
Sandstone	est. 1027	1107	est. 1027	1107
Sandstone w/trace coal	est. 1107	1197	est. 1107	1197
Sandstone	est. 1197	1527	est. 1197	1527
Siltstone	est. 1527	1587	est. 1527	1587
Sandstone	est. 1587	1647	est. 1587	1647
Shale	est. 1647	1707	est. 1647	1707
Sandstone	est. 1707	1737	est. 1707	1737
Shale	est. 1737	1867	est. 1737	1867
Siltstone	est. 1867	2008	est. 1867	2010
Big Lime	2008	2113	2010	2116
Big Injun	2113	2555	2116	2558
Gantz Sand	2555	2690	2558	2693
Fifty Foot Sandstone	2690	2781	2693	2784
Gordon	2781	3142	2784	3145
Fifth Sandstone	3142	3156	3145	3159
Bayard	3156	3500	3159	3503
Warren	3500	3889	3503	3892
Speechley	3889	4600	3892	4603
Bradford	4600	5083	4603	5088
Benson	5083	5349	5088	5363
Alexander	5349	5542	5363	5571
Elk	5542	6049	5571	6135
Rhinestreet	6049	6409	6135	6550
Sycamore	6409	6593	6550	6767
Middlesex	6593	6727	6767	6968
Burkett	6727	6757	6968	7028
Tully	6757	6813	7028	7189
Marcellus	6813	NA	7189	NA

*Please note Antero determines formation tops based on mud logs that are only run on one well on a multi-well pad. The measured Depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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Antero
 Doddridge County WV
 R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola
 Gibson Unit 1H
 Original Hole
 Plan 4

9:54, June 22 2015

NAD 1983 (NADCON CONUS)
 Universal Transverse Mercator (US Survey Feet)
 Zone 17N (84 W to 78 W)



Azimuths to Grid North
 True North: -0.17°
 Magnetic North: -8.70°

Magnetic Field
 Strength: 52173.0nT
 Dip Angle: 66.54°
 Date: 5/20/2015
 Model: BGGM2014

John F. Marshall (724) 812-1467 jmarshall@cresteddirectional.com

SURFACE DETAILS Ground Level: 998.0 KB Elevation @ 1016.0usft (Precision 522 (18'))

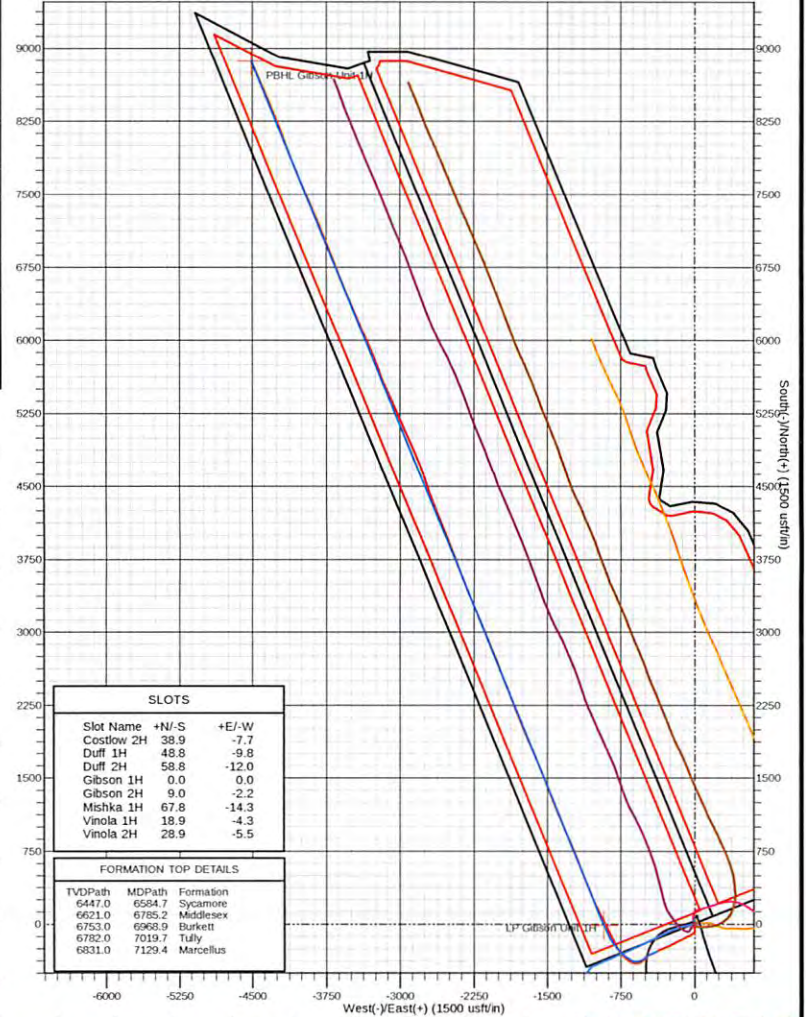
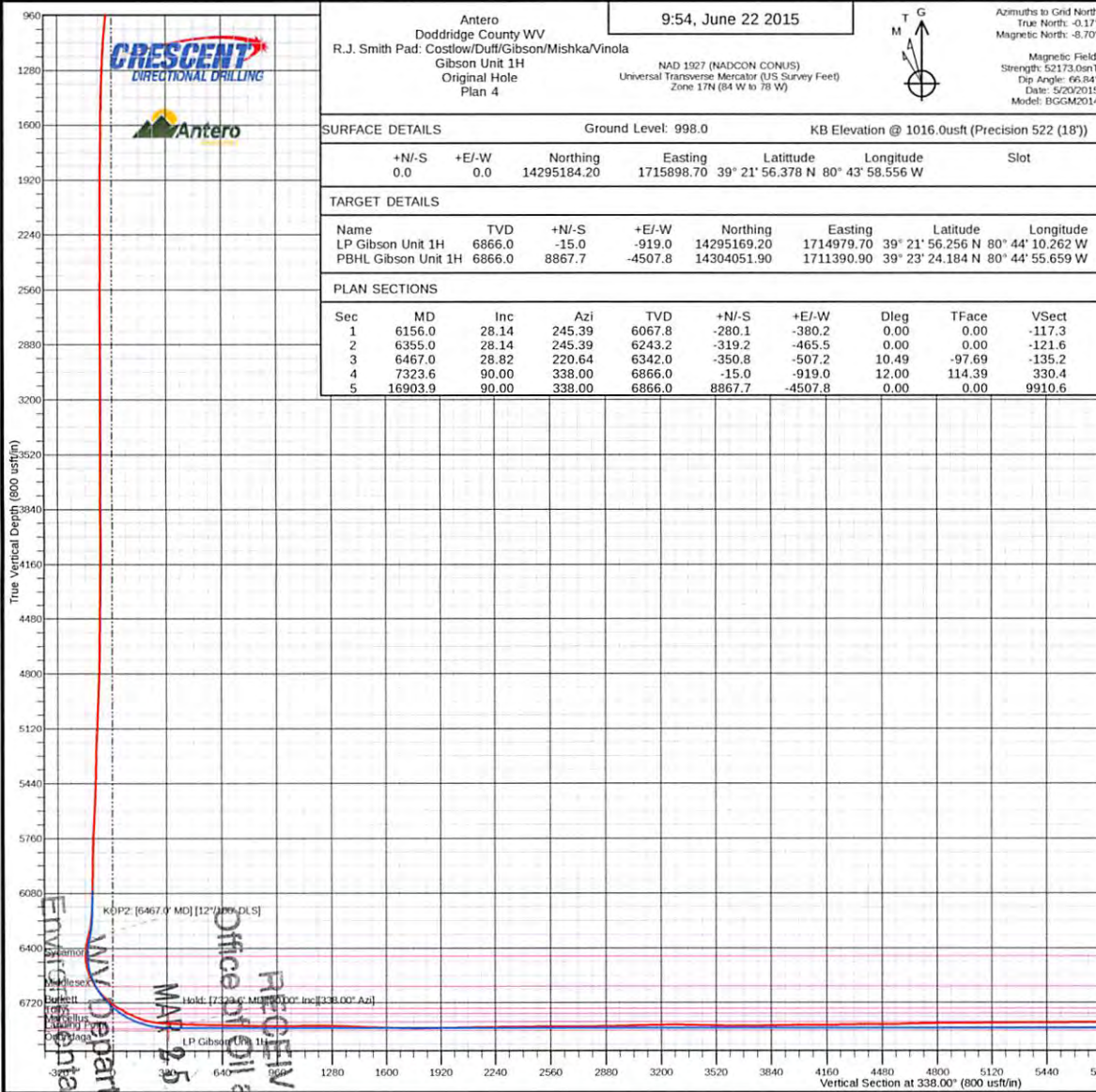
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14295184.20	1715898.70	39° 21' 56.378 N	80° 43' 58.556 W	

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP Gibson Unit 1H	6866.0	-15.0	-919.0	14295169.20	1714979.70	39° 21' 56.256 N	80° 44' 10.262 W
PBHL Gibson Unit 1H	6866.0	8867.7	-4507.8	14304051.90	1711390.90	39° 23' 24.184 N	80° 44' 55.659 W

PLAN SECTIONS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
1	6156.0	28.14	245.39	6067.8	-280.1	-380.2	0.00	0.00	-117.3
2	6355.0	28.14	245.39	6243.2	-319.2	-465.5	0.00	0.00	-121.6
3	6467.0	28.82	220.64	6342.0	-350.8	-507.2	10.49	-97.69	-135.2
4	7323.6	90.00	338.00	6866.0	-15.0	-919.0	12.00	114.39	330.4
5	16903.9	90.00	338.00	6866.0	8867.7	-4507.8	0.00	0.00	9910.6



Slot Name	+N/-S	+E/-W
Costlow 2H	38.9	-7.7
Duff 1H	45.8	-9.8
Duff 2H	58.8	-12.0
Gibson 1H	0.0	0.0
Gibson 2H	9.0	-2.2
Mishka 1H	67.8	-14.3
Vinola 1H	18.9	-4.3
Vinola 2H	28.9	-5.5

TVDPath	MDPath	Formation
6447.0	6584.7	Sycamore
6621.0	6785.2	Middlesex
6753.0	6968.9	Burkett
6782.0	7019.4	Tully
6831.0	7129.4	Marcellus

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Antero

Doddridge County WV

R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola

Gibson Unit 1H

Original Hole

Design: Surveys

Standard Survey Report

22 June, 2015

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Environmental Protection

09/23/2016

Survey Report

Company: Antero	Local Co-ordinate Reference: Well Gibson Unit 1H
Project: Doddridge County WV	TVD Reference: KB Elevation @ 1016.0usft (Precision 522 (18'))
Site: R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola	MD Reference: KB Elevation @ 1016.0usft (Precision 522 (18'))
Well: Gibson Unit 1H	North Reference: Grid
Wellbore: Original Hole	Survey Calculation Method: Minimum Curvature
Design: Surveys	Database: North East R5000 Database

Project Doddridge County WV, McClellan District
Map System: Universal Transverse Mercator (US Survey Feet) System Datum: Mean Sea Level
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: Zone 17N (84 W to 78 W)

Site R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola					
Site Position:		Northing:	14,295,223.06 usft	Latitude:	39° 21' 56.762 N
From: Map		Easting:	1,715,891.05 usft	Longitude:	80° 43' 58.652 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.17 °

Well Gibson Unit 1H, Marcellus						
Well Position	+N/-S	0.0 usft	Northing:	14,295,184.20 usft	Latitude:	39° 21' 56.378 N
	+E/-W	0.0 usft	Easting:	1,715,898.70 usft	Longitude:	80° 43' 58.556 W
Position Uncertainty		2.0 usft	Wellhead Elevation:	1,009.0 usft	Ground Level:	998.0 usft

Wellbore Original Hole					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	5/20/2015	-8.53	66.84	52,173

Design Surveys					
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	338.00	

Survey Program Date 6/22/2015					
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
105.0	6,156.0	Final Gyro (Original Hole)	NS-GYRO-SS	NS Gyro single shots	
6,324.0	16,892.0	Crescent Surveys (Original Hole)	MWD+HDGM+MS-Edit	OWSG MWD + HDGM + Multi-Station Correction	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
105.0	0.11	172.61	105.0	-0.1	0.0	-0.1	0.10	0.10	0.00	
130.0	0.07	184.77	130.0	-0.1	0.0	-0.1	0.18	-0.16	48.64	
155.0	0.18	207.42	155.0	-0.2	0.0	-0.2	0.47	0.44	40.60	
180.0	0.15	161.93	180.0	-0.3	0.0	-0.2	0.52	-0.42	-181.96	
205.0	0.14	224.89	205.0	-0.3	0.0	-0.3	0.61	-0.04	251.84	
230.0	0.11	236.84	230.0	-0.3	-0.1	-0.3	0.16	-0.12	47.80	
255.0	0.15	227.26	255.0	-0.4	-0.1	-0.3	0.18		48.32	
280.0	0.16	212.00	280.0	-0.4	-0.2	-0.3	0.17	0.04	-61.04	

Survey Report

Company: Antero	Local Co-ordinate Reference: Well Gibson Unit 1H
Project: Doddridge County WV	TVD Reference: KB Elevation @ 1016.0usft (Precision 522 (18'))
Site: R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola	MD Reference: KB Elevation @ 1016.0usft (Precision 522 (18'))
Well: Gibson Unit 1H	North Reference: Grid
Wellbore: Original Hole	Survey Calculation Method: Minimum Curvature
Design: Surveys	Database: North East R5000 Database

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
305.0	0.09	240.24	305.0	-0.5	-0.2	-0.4	0.37	-0.28	112.96	
330.0	0.04	229.34	330.0	-0.5	-0.2	-0.4	0.21	-0.20	-43.60	
355.0	0.28	234.57	355.0	-0.5	-0.3	-0.4	0.96	0.96	20.92	
380.0	0.15	244.96	380.0	-0.6	-0.3	-0.4	0.54	-0.52	41.56	
405.0	0.16	230.81	405.0	-0.6	-0.4	-0.4	0.16	0.04	-56.60	
430.0	0.28	215.86	430.0	-0.7	-0.5	-0.5	0.53	0.48	-59.80	
455.0	0.26	212.25	455.0	-0.8	-0.5	-0.5	0.10	-0.08	-14.44	
480.0	0.32	191.57	480.0	-0.9	-0.6	-0.6	0.48	0.24	-82.72	
505.0	0.42	179.54	505.0	-1.1	-0.6	-0.8	0.50	0.40	-48.12	
530.0	0.73	180.79	530.0	-1.3	-0.6	-1.0	1.24	1.24	5.00	
555.0	1.37	185.08	555.0	-1.8	-0.6	-1.4	2.58	2.56	17.16	
580.0	2.07	179.14	580.0	-2.5	-0.6	-2.1	2.89	2.80	-23.76	
605.0	2.66	179.22	605.0	-3.5	-0.6	-3.1	2.36	2.36	0.32	
630.0	3.29	179.68	629.9	-4.8	-0.6	-4.3	2.52	2.52	1.84	
655.0	3.90	180.63	654.9	-6.4	-0.6	-5.7	2.45	2.44	3.80	
680.0	4.33	181.02	679.8	-8.2	-0.6	-7.4	1.72	1.72	1.56	
705.0	4.47	179.79	704.7	-10.1	-0.7	-9.1	0.68	0.56	-4.92	
730.0	5.25	177.32	729.6	-12.2	-0.6	-11.1	3.23	3.12	-9.88	
755.0	5.64	176.77	754.5	-14.6	-0.5	-13.4	1.57	1.56	-2.20	
780.0	5.68	177.93	779.4	-17.1	-0.4	-15.7	0.48	0.16	4.64	
805.0	5.72	177.70	804.3	-19.6	-0.3	-18.0	0.18	0.16	-0.92	
830.0	5.80	177.41	829.2	-22.1	-0.2	-20.4	0.34	0.32	-1.16	
855.0	5.75	176.91	854.0	-24.6	0.0	-22.8	0.28	-0.20	-2.00	
880.0	5.81	177.02	878.9	-27.1	0.1	-25.1	0.24	0.24	0.44	
905.0	5.98	176.82	903.8	-29.6	0.2	-27.6	0.68	0.68	-0.80	
930.0	6.04	176.08	928.6	-32.3	0.4	-30.1	0.39	0.24	-2.96	
955.0	6.05	177.19	953.5	-34.9	0.5	-32.6	0.47	0.04	4.44	
980.0	6.13	177.64	978.4	-37.5	0.7	-35.1	0.37	0.32	1.80	
1,005.0	5.92	177.13	1,003.2	-40.2	0.8	-37.5	0.87	-0.84	-2.04	
1,030.0	5.41	175.16	1,028.1	-42.6	1.0	-39.9	2.18	-2.04	-7.88	
1,055.0	5.13	174.83	1,053.0	-44.9	1.2	-42.1	1.13	-1.12	-1.32	
1,080.0	4.80	174.04	1,077.9	-47.1	1.4	-44.1	1.35	-1.32	-3.16	
1,105.0	4.58	173.43	1,102.8	-49.1	1.6	-46.1	0.90	-0.88	-2.44	
1,130.0	4.15	172.95	1,127.7	-51.0	1.8	-47.9	1.73	-1.72	-1.92	
1,155.0	3.86	173.13	1,152.7	-52.7	2.0	-49.6	1.16	-1.16	0.72	
1,180.0	3.61	173.29	1,177.6	-54.3	2.2	-51.2	1.00	-1.00	0.64	
1,205.0	3.12	174.12	1,202.6	-55.8	2.4	-52.6	1.97	1.96	3.62	
1,230.0	2.83	174.76	1,227.6	-57.1	2.5	-53.9	1.17	1.16	2.56	
1,255.0	2.59	175.77	1,252.5	-58.3	2.6	-55.0	0.98	0.96	4.04	
1,280.0	2.22	175.24	1,277.5	-59.3	2.7	-56.0	1.48	1.48	-2.12	
1,305.0	2.03	176.18	1,302.5	-60.2	2.8	-56.9	0.77	0.76	-0.76	
1,330.0	1.83	175.97	1,327.5	-61.1	2.8	-57.7	0.80	-0.80	-0.84	

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Survey Report

Company:	Antero	Local Co-ordinate Reference:	Well Gibson Unit 1H
Project:	Doddridge County WV	TVD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Site:	R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola	MD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Well:	Gibson Unit 1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	North East R5000 Database

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
1,355.0	1.63	174.50	1,352.5	-61.8	2.9	-58.4	0.82	-0.80	-5.88	
1,380.0	1.44	173.49	1,377.4	-62.5	2.9	-59.0	0.77	-0.76	-4.04	
1,405.0	1.39	170.84	1,402.4	-63.1	3.0	-59.6	0.33	-0.20	-10.60	
1,430.0	1.24	172.42	1,427.4	-63.7	3.1	-60.2	0.62	-0.60	6.32	
1,455.0	1.05	170.14	1,452.4	-64.2	3.2	-60.7	0.78	-0.76	-9.12	
1,480.0	0.94	167.88	1,477.4	-64.6	3.3	-61.1	0.47	-0.44	-9.04	
1,505.0	0.89	169.31	1,502.4	-65.0	3.3	-61.5	0.22	-0.20	5.72	
1,530.0	0.84	167.23	1,527.4	-65.3	3.4	-61.9	0.24	-0.20	-8.32	
1,555.0	0.75	176.56	1,552.4	-65.7	3.5	-62.2	0.63	-0.36	37.32	
1,580.0	0.75	171.37	1,577.4	-66.0	3.5	-62.5	0.27	0.00	-20.76	
1,605.0	0.63	173.54	1,602.4	-66.3	3.5	-62.8	0.49	-0.48	8.68	
1,630.0	0.57	174.91	1,627.4	-66.6	3.6	-63.1	0.25	-0.24	5.48	
1,655.0	0.48	169.70	1,652.4	-66.8	3.6	-63.3	0.41	-0.36	-20.84	
1,680.0	0.42	167.25	1,677.4	-67.0	3.6	-63.5	0.25	-0.24	-9.80	
1,705.0	0.45	160.79	1,702.4	-67.2	3.7	-63.7	0.23	0.12	-25.84	
1,730.0	0.50	167.27	1,727.4	-67.4	3.8	-63.9	0.29	0.20	25.92	
1,755.0	0.50	168.54	1,752.4	-67.6	3.8	-64.1	0.04	0.00	5.08	
1,780.0	0.53	175.61	1,777.4	-67.8	3.8	-64.3	0.28	0.12	28.28	
1,805.0	0.41	173.59	1,802.4	-68.0	3.8	-64.5	0.48	-0.48	-8.08	
1,830.0	0.39	172.54	1,827.4	-68.2	3.9	-64.7	0.09	-0.08	-4.20	
1,855.0	0.40	177.15	1,852.4	-68.4	3.9	-64.8	0.13	0.04	18.44	
1,880.0	0.38	170.08	1,877.4	-68.5	3.9	-65.0	0.21	-0.08	-28.28	
1,905.0	0.33	174.19	1,902.4	-68.7	3.9	-65.2	0.22	-0.20	16.44	
1,930.0	0.28	177.78	1,927.4	-68.8	3.9	-65.3	0.21	-0.20	14.36	
1,955.0	0.23	169.23	1,952.4	-68.9	3.9	-65.4	0.25	-0.20	-34.20	
1,980.0	0.31	171.78	1,977.4	-69.0	4.0	-65.5	0.32	0.32	10.20	
2,005.0	0.20	160.96	2,002.4	-69.2	4.0	-65.6	0.48	-0.44	-43.28	
2,030.0	0.32	166.05	2,027.4	-69.3	4.0	-65.7	0.49	0.48	20.36	
2,055.0	0.23	174.24	2,052.4	-69.4	4.0	-65.8	0.39	-0.36	32.76	
2,080.0	0.28	194.77	2,077.4	-69.5	4.0	-65.9	0.41	0.20	82.12	
2,105.0	0.17	218.21	2,102.4	-69.6	4.0	-66.0	0.57	-0.44	93.76	
2,130.0	0.16	184.32	2,127.4	-69.6	4.0	-66.1	0.39	-0.04	-135.56	
2,155.0	0.19	209.15	2,152.4	-69.7	3.9	-66.1	0.32	0.12	99.32	
2,180.0	0.24	185.00	2,177.4	-69.8	3.9	-66.2	0.41	0.20	-96.60	
2,205.0	0.05	164.14	2,202.4	-69.9	3.9	-66.2	0.78	-0.76	-83.44	
2,230.0	0.10	222.41	2,227.4	-69.9	3.9	-66.3	0.34	0.20	233.08	
2,255.0	0.13	199.69	2,252.4	-69.9	3.9	-66.3	0.22	0.12	-90.88	
2,280.0	0.23	173.48	2,277.4	-70.0	3.9	-66.4	0.51	-0.40	104.84	
2,305.0	0.14	160.03	2,302.4	-70.1	3.9	-66.4	0.40	-0.36	-58.80	
2,330.0	0.13	186.84	2,327.4	-70.1	3.9	-66.5	0.25	-0.04	107.24	
2,355.0	0.05	311.74	2,352.4	-70.2	3.9	-66.5	0.66	0.00	204.60	
2,380.0	0.18	150.10	2,377.4	-70.2	3.9	-66.5	0.91	0.32	-646.56	
2,405.0	0.12	237.74	2,402.4	-70.2	3.9	-66.6	0.85	-0.24	350.56	

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09/23/2016

Survey Report

Company:	Antero	Local Co-ordinate Reference:	Well Gibson Unit 1H
Project:	Doddridge County WV	TVD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Site:	R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola	MD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Well:	Gibson Unit 1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	North East R5000 Database

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
2,430.0	0.17	205.84	2,427.4	-70.3	3.9	-66.6	0.37	0.20	-127.60	
2,455.0	0.06	242.25	2,452.4	-70.3	3.8	-66.6	0.51	-0.44	145.64	
2,480.0	0.10	221.93	2,477.4	-70.3	3.8	-66.6	0.19	0.16	-81.28	
2,505.0	0.08	230.27	2,502.4	-70.4	3.8	-66.7	0.10	-0.08	33.35	
2,530.0	0.08	234.79	2,527.4	-70.4	3.7	-66.7	0.03	0.00	18.08	
2,555.0	0.11	206.85	2,552.4	-70.4	3.7	-66.7	0.22	0.12	-111.76	
2,580.0	0.09	195.34	2,577.4	-70.5	3.7	-66.7	0.11	-0.08	-46.04	
2,605.0	0.10	196.25	2,602.4	-70.5	3.7	-66.8	0.04	0.04	3.64	
2,630.0	0.16	187.94	2,627.4	-70.6	3.7	-66.8	0.25	0.24	-33.24	
2,655.0	0.15	203.57	2,652.4	-70.6	3.7	-66.9	0.17	-0.04	62.52	
2,680.0	0.18	204.43	2,677.4	-70.7	3.6	-66.9	0.12	0.12	3.44	
2,705.0	0.20	219.99	2,702.4	-70.8	3.6	-67.0	0.22	0.08	62.24	
2,730.0	0.19	207.98	2,727.4	-70.8	3.5	-67.0	0.17	-0.04	-48.04	
2,755.0	0.19	232.13	2,752.4	-70.9	3.5	-67.0	0.32	0.00	96.60	
2,780.0	0.22	230.51	2,777.4	-70.9	3.4	-67.1	0.12	0.12	-6.48	
2,805.0	0.18	226.29	2,802.4	-71.0	3.4	-67.1	0.17	-0.16	-16.88	
2,830.0	0.19	235.92	2,827.4	-71.1	3.3	-67.1	0.13	0.04	38.52	
2,855.0	0.27	230.46	2,852.4	-71.1	3.2	-67.1	0.33	0.32	-21.84	
2,880.0	0.18	233.13	2,877.4	-71.2	3.1	-67.2	0.36	-0.36	10.68	
2,905.0	0.12	270.68	2,902.4	-71.2	3.1	-67.2	0.45	-0.24	150.20	
2,930.0	0.12	220.66	2,927.4	-71.2	3.0	-67.2	0.41	0.00	-200.08	
2,955.0	0.09	251.80	2,952.4	-71.2	3.0	-67.2	0.25	-0.12	124.56	
2,980.0	0.15	226.38	2,977.4	-71.3	3.0	-67.2	0.32	0.24	-101.68	
3,005.0	0.11	229.86	3,002.4	-71.3	2.9	-67.2	0.16	-0.16	13.92	
3,030.0	0.07	194.35	3,027.4	-71.3	2.9	-67.2	0.27	-0.16	-142.04	
3,055.0	0.10	204.25	3,052.4	-71.4	2.9	-67.3	0.13	0.12	39.60	
3,080.0	0.16	198.59	3,077.4	-71.4	2.9	-67.3	0.25	0.24	-22.64	
3,105.0	0.16	204.15	3,102.4	-71.5	2.8	-67.4	0.06	0.00	22.24	
3,130.0	0.13	217.84	3,127.4	-71.6	2.8	-67.4	0.18	-0.12	54.76	
3,155.0	0.19	190.27	3,152.4	-71.6	2.8	-67.4	0.38	0.24	-110.28	
3,180.0	0.15	211.05	3,177.4	-71.7	2.8	-67.5	0.29	-0.16	83.12	
3,205.0	0.15	197.22	3,202.4	-71.7	2.7	-67.5	0.14	0.00	-55.32	
3,230.0	0.15	210.38	3,227.4	-71.8	2.7	-67.6	0.14	0.00	52.64	
3,255.0	0.15	213.62	3,252.4	-71.9	2.7	-67.6	0.03	0.00	12.96	
3,280.0	0.09	214.73	3,277.4	-71.9	2.6	-67.7	0.24	-0.24	4.44	
3,305.0	0.11	247.99	3,302.4	-71.9	2.6	-67.7	0.24	0.08	133.04	
3,330.0	0.16	194.68	3,327.4	-72.0	2.6	-67.7	0.52	0.20	-213.24	
3,355.0	0.08	199.40	3,352.4	-72.0	2.6	-67.7	0.32	0.00	-18.68	
3,380.0	0.11	180.31	3,377.4	-72.1	2.6	-67.8	0.17	0.12	-76.36	
3,405.0	0.11	176.16	3,402.4	-72.1	2.6	-67.8	0.03	0.00	216.00	
3,430.0	0.09	177.54	3,427.4	-72.2	2.6	-67.9	0.08	0.08	5.52	
3,455.0	0.18	182.44	3,452.4	-72.2	2.6	-67.9	0.36	0.36	-19.60	

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WV Department of
Environmental Protection
COMPASS 5000.1 Build 73

Survey Report

Company:	Antero	Local Co-ordinate Reference:	Well Gibson Unit 1H
Project:	Doddridge County WV	TVD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Site:	R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola	MD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Well:	Gibson Unit 1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	North East R5000 Database

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
3,480.0	0.18	186.63	3,477.4	-72.3	2.6	-68.0	0.05	0.00	16.76	
3,505.0	0.20	182.24	3,502.4	-72.4	2.5	-68.1	0.10	0.08	-17.56	
3,530.0	0.22	187.62	3,527.4	-72.5	2.5	-68.1	0.11	0.08	21.52	
3,555.0	0.26	196.10	3,552.4	-72.6	2.5	-68.2	0.21	0.16	33.92	
3,580.0	0.23	208.01	3,577.4	-72.7	2.5	-68.3	0.24	-0.12	47.64	
3,605.0	0.23	206.60	3,602.4	-72.8	2.4	-68.4	0.02	0.00	-5.64	
3,630.0	0.25	216.11	3,627.4	-72.8	2.4	-68.4	0.18	0.08	38.04	
3,655.0	0.17	220.29	3,652.4	-72.9	2.3	-68.5	0.33	-0.32	16.72	
3,680.0	0.15	219.58	3,677.4	-73.0	2.3	-68.5	0.08	-0.08	-2.84	
3,705.0	0.15	235.37	3,702.4	-73.0	2.2	-68.5	0.16	0.00	63.16	
3,730.0	0.16	233.70	3,727.4	-73.1	2.2	-68.5	0.04	0.04	-6.68	
3,755.0	0.20	221.82	3,752.4	-73.1	2.1	-68.6	0.22	0.16	-47.52	
3,780.0	0.18	229.67	3,777.4	-73.2	2.1	-68.6	0.13	-0.08	31.40	
3,805.0	0.17	244.66	3,802.4	-73.2	2.0	-68.6	0.19	-0.04	59.96	
3,830.0	0.12	240.59	3,827.4	-73.2	1.9	-68.6	0.20	-0.20	-16.28	
3,855.0	0.09	216.53	3,852.4	-73.3	1.9	-68.6	0.21	-0.12	-96.24	
3,880.0	0.10	228.31	3,877.4	-73.3	1.9	-68.7	0.09	0.04	47.12	
3,905.0	0.07	204.16	3,902.4	-73.3	1.9	-68.7	0.18	-0.12	-96.60	
3,930.0	0.06	192.49	3,927.4	-73.3	1.8	-68.7	0.07	-0.04	-46.68	
3,955.0	0.12	205.07	3,952.4	-73.4	1.8	-68.7	0.25	0.24	50.32	
3,980.0	0.18	195.44	3,977.4	-73.4	1.8	-68.8	0.26	0.24	-38.52	
4,005.0	0.18	187.23	4,002.4	-73.5	1.8	-68.8	0.10	0.00	-32.84	
4,030.0	0.14	199.99	4,027.4	-73.6	1.8	-68.9	0.21	-0.16	51.04	
4,055.0	0.20	188.88	4,052.4	-73.7	1.8	-69.0	0.27	0.24	-44.44	
4,080.0	0.22	190.03	4,077.4	-73.8	1.7	-69.0	0.08	0.08	4.60	
4,105.0	0.21	171.98	4,102.4	-73.8	1.7	-69.1	0.27	-0.04	-72.20	
4,130.0	0.26	175.33	4,127.4	-73.9	1.8	-69.2	0.21	0.20	13.40	
4,155.0	0.12	146.64	4,152.4	-74.0	1.8	-69.3	0.66	-0.56	-114.76	
4,180.0	0.22	166.49	4,177.4	-74.1	1.8	-69.4	0.46	0.40	79.40	
4,205.0	0.24	161.86	4,202.4	-74.2	1.8	-69.5	0.11	0.08	-18.52	
4,230.0	0.24	166.55	4,227.4	-74.3	1.9	-69.6	0.08	0.00	18.76	
4,255.0	0.25	158.65	4,252.4	-74.4	1.9	-69.7	0.14	0.04	-31.60	
4,280.0	0.27	152.20	4,277.4	-74.5	1.9	-69.8	0.14	0.08	-25.80	
4,305.0	0.29	129.28	4,302.4	-74.6	2.0	-69.9	0.45	0.08	-91.68	
4,330.0	0.32	137.79	4,327.4	-74.7	2.1	-70.0	0.22	0.12	34.04	
4,355.0	0.38	145.06	4,352.4	-74.8	2.2	-70.2	0.30	0.24	29.08	
4,380.0	0.35	124.11	4,377.4	-74.9	2.3	-70.3	0.54	-0.12	18.56	
4,405.0	0.39	126.67	4,402.4	-75.0	2.4	-70.5	0.17	0.16	10.24	
4,430.0	0.43	128.76	4,427.4	-75.1	2.6	-70.6	0.17	0.16	8.36	
4,455.0	0.50	137.87	4,452.4	-75.3	2.7	-70.8	0.41	0.24	56.40	
4,480.0	0.51	115.53	4,477.4	-75.4	2.9	-71.0	0.78	0.04	-89.36	
4,505.0	0.54	118.71	4,502.4	-75.5	3.1	-71.2	0.17	0.12	12.72	
4,530.0	0.64	112.39	4,527.4	-75.6	3.3	-71.3	0.48	0.40	35.28	

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Survey Report

Company:	Antero	Local Co-ordinate Reference:	Well Gibson Unit 1H
Project:	Doddridge County WV	TVD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Site:	R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola	MD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Well:	Gibson Unit 1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	North East R5000 Database

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,555.0	0.71	107.54	4,552.4	-75.7	3.6	-71.5	0.36	0.28	-19.40
4,580.0	0.73	105.64	4,577.4	-75.8	3.9	-71.7	0.12	0.08	-7.60
4,605.0	0.72	109.55	4,602.4	-75.9	4.2	-71.9	0.20	-0.04	15.64
4,630.0	0.74	112.31	4,627.4	-76.0	4.5	-72.2	0.16	0.08	11.04
4,655.0	0.82	115.64	4,652.4	-76.1	4.8	-72.4	0.37	0.32	13.32
4,680.0	0.80	141.34	4,677.4	-76.3	5.1	-72.7	1.44	-0.08	102.80
4,705.0	1.21	182.06	4,702.4	-76.7	5.2	-73.1	3.19	1.64	162.88
4,730.0	1.68	200.17	4,727.4	-77.4	5.1	-73.6	2.60	1.88	72.44
4,755.0	1.70	203.94	4,752.4	-78.0	4.8	-74.1	0.45	0.08	15.08
4,780.0	2.02	207.71	4,777.3	-78.8	4.4	-74.7	1.37	1.28	15.08
4,805.0	2.55	215.99	4,802.3	-79.6	3.9	-75.3	2.49	2.12	33.12
4,830.0	2.95	217.38	4,827.3	-80.6	3.2	-75.9	1.62	1.60	5.56
4,855.0	3.89	219.01	4,852.2	-81.7	2.3	-76.6	3.78	3.76	6.52
4,880.0	4.69	220.50	4,877.2	-83.2	1.1	-77.5	3.23	3.20	5.96
4,905.0	5.27	221.16	4,902.1	-84.8	-0.4	-78.5	2.33	2.32	2.64
4,930.0	5.65	222.66	4,927.0	-86.6	-2.0	-79.5	1.62	1.52	6.00
4,955.0	6.35	226.09	4,951.8	-88.4	-3.8	-80.6	3.14	2.80	13.72
4,980.0	7.27	227.47	4,976.7	-90.5	-5.9	-81.7	3.74	3.68	5.52
5,005.0	8.23	229.46	5,001.4	-92.7	-8.5	-82.8	3.99	3.84	7.96
5,030.0	8.94	230.91	5,026.1	-95.1	-11.3	-83.9	2.97	2.84	5.80
5,055.0	9.61	231.96	5,050.8	-97.6	-14.5	-85.1	2.76	2.68	4.20
5,080.0	10.49	233.71	5,075.4	-100.2	-18.0	-86.2	3.73	3.52	7.00
5,105.0	11.08	234.66	5,100.0	-103.0	-21.8	-87.3	2.46	2.36	3.80
5,130.0	11.71	236.45	5,124.5	-105.8	-25.8	-88.4	2.89	2.52	7.16
5,155.0	12.70	238.13	5,148.9	-108.6	-30.3	-89.4	4.21	3.96	6.72
5,180.0	13.57	239.44	5,173.3	-111.6	-35.1	-90.3	3.68	3.48	5.24
5,205.0	14.21	239.97	5,197.5	-114.6	-40.3	-91.1	2.61	2.56	2.12
5,230.0	14.91	241.19	5,221.7	-117.7	-45.8	-92.0	3.06	2.80	4.88
5,255.0	15.55	241.86	5,245.9	-120.8	-51.6	-92.7	2.66	2.56	2.68
5,280.0	16.18	242.83	5,269.9	-124.0	-57.6	-93.4	2.73	2.52	3.88
5,305.0	16.91	243.67	5,293.9	-127.2	-64.0	-94.0	3.07	2.92	3.36
5,330.0	17.85	244.39	5,317.7	-130.4	-70.7	-94.5	3.86	3.76	2.88
5,355.0	18.78	244.91	5,341.5	-133.8	-77.8	-94.9	3.78	3.72	2.08
5,380.0	19.58	245.39	5,365.1	-137.3	-85.2	-95.3	3.26	3.20	1.92
5,405.0	20.23	245.19	5,388.6	-140.8	-93.0	-95.7	2.61	2.60	-0.80
5,430.0	21.00	244.88	5,412.0	-144.5	-101.0	-96.2	3.11	3.08	-1.24
5,455.0	21.54	244.83	5,435.3	-148.4	-109.2	-96.7	2.16	2.16	0.20
5,480.0	21.93	244.90	5,458.5	-152.3	-117.6	-97.2	1.56	1.56	0.28
5,505.0	22.45	244.69	5,481.7	-156.3	-126.1	-97.7	2.10	2.08	-0.84
5,530.0	22.83	244.60	5,504.7	-160.5	-134.8	-98.3	1.53	1.53	-0.80
5,555.0	23.55	243.76	5,527.7	-164.8	-143.7	-98.9	3.17	2.86	-3.36
5,580.0	23.85	242.43	5,550.6	-169.3	-152.6	-99.8	2.45	2.45	-2.40

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Survey Report

Company:	Antero	Local Co-ordinate Reference:	Well Gibson Unit 1H
Project:	Doddridge County WV	TVD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Site:	R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola	MD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Well:	Gibson Unit 1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	North East R5000 Database

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,605.0	24.17	241.91	5,573.4	-174.0	-161.6	-100.8	1.53	1.28	-2.08
5,630.0	24.42	241.47	5,596.2	-178.9	-170.7	-102.0	1.23	1.00	-1.76
5,655.0	24.74	241.23	5,619.0	-183.9	-179.8	-103.2	1.34	1.28	-0.96
5,680.0	24.69	240.90	5,641.7	-189.0	-188.9	-104.4	0.59	-0.20	-1.32
5,705.0	25.07	240.78	5,664.3	-194.1	-198.1	-105.7	1.53	1.52	-0.48
5,730.0	25.31	240.95	5,687.0	-199.3	-207.4	-107.1	1.00	0.96	0.68
5,755.0	25.63	241.31	5,709.5	-204.5	-216.8	-108.4	1.42	1.28	1.44
5,780.0	25.74	241.74	5,732.1	-209.6	-226.4	-109.6	0.87	0.44	1.72
5,805.0	25.55	242.71	5,754.6	-214.7	-235.9	-110.7	1.84	-0.76	3.88
5,830.0	25.66	243.61	5,777.2	-219.6	-245.6	-111.6	1.62	0.44	3.60
5,855.0	25.61	244.63	5,799.7	-224.3	-255.3	-112.3	1.78	-0.20	4.08
5,880.0	25.53	245.57	5,822.2	-228.8	-265.1	-112.9	1.65	-0.32	3.76
5,905.0	25.72	246.00	5,844.8	-233.3	-274.9	-113.3	1.06	0.76	1.72
5,930.0	25.92	246.09	5,867.3	-237.7	-284.9	-113.6	0.82	0.80	0.36
5,955.0	26.19	246.30	5,889.7	-242.1	-294.9	-114.0	1.14	1.08	0.84
5,980.0	26.53	246.67	5,912.1	-246.5	-305.1	-114.3	1.51	1.36	1.48
6,005.0	27.14	246.68	5,934.5	-251.0	-315.5	-114.5	2.44	2.44	0.04
6,030.0	27.70	246.48	5,956.6	-255.6	-326.0	-114.8	2.27	2.24	-0.80
6,055.0	28.07	245.96	5,978.7	-260.3	-336.7	-115.2	1.77	1.48	-2.08
6,080.0	28.34	245.58	6,000.8	-265.1	-347.5	-115.7	1.30	1.08	-1.52
6,105.0	28.28	245.58	6,022.8	-270.0	-358.3	-116.2	0.24	-0.24	0.00
6,130.0	28.08	245.04	6,044.8	-275.0	-369.0	-116.7	1.30	-0.80	-2.16
6,155.0	28.12	245.38	6,066.9	-279.9	-379.7	-117.3	0.66	0.16	1.36
6,156.0	28.14	245.39	6,067.8	-280.1	-380.2	-117.3	2.05	2.00	1.00
End of Gyro: [6157.0' MD] [6068.8' TVD]									
6,324.0	27.64	243.34	6,216.2	-314.1	-451.0	-122.3	0.64	-0.30	-1.22
6,355.0	27.55	238.60	6,243.7	-321.1	-463.6	-124.0	7.09	-0.29	-15.29
6,386.0	28.23	228.12	6,271.1	-329.7	-475.1	-127.7	15.95	2.19	-33.81
6,417.0	29.89	223.31	6,298.2	-340.2	-485.9	-133.4	9.24	5.35	-15.52
6,448.0	32.11	221.02	6,324.8	-352.0	-496.6	-140.4	8.11	7.16	-7.39
6,478.0	31.26	224.85	6,350.3	-363.6	-507.3	-147.1	7.28	-2.83	12.77
6,509.0	31.35	231.33	6,376.8	-374.3	-519.3	-152.5	10.86	0.29	20.90
6,540.0	31.60	236.85	6,403.3	-383.8	-532.4	-156.4	9.33	0.81	17.81
6,571.0	31.26	244.22	6,429.7	-391.7	-546.5	-158.5	12.44	-1.10	23.77
6,602.0	30.75	252.58	6,456.3	-397.6	-561.3	-158.4	13.98	-1.65	26.97
6,633.0	30.73	260.05	6,483.0	-401.4	-576.6	-156.1	12.31	-0.06	24.10
6,664.0	30.56	269.77	6,509.7	-402.8	-592.3	-151.5	15.98	-0.55	31.35
6,695.0	31.70	279.00	6,536.2	-401.5	-608.3	-144.4	15.81	3.68	39.71
6,725.0	33.45	286.84	6,561.5	-397.9	-624.0	-135.2	15.22	5.83	26.33
6,756.0	35.35	293.81	6,587.1	-391.8	-640.4	-123.4	14.10	10.12	22.48
6,787.0	37.65	300.43	6,612.0	-383.4	-656.7	-109.4	14.70	7.42	51.26
6,818.0	40.79	304.77	6,636.0	-372.8	-673.2	-93.5	13.45	10.18	14.00
6,849.0	43.40	310.74	6,659.1	-360.1	-689.6	-75.5	15.41	8.42	19.26

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09/23/2016

Survey Report

Company:	Antero	Local Co-ordinate Reference:	Well Gibson Unit 1H
Project:	Doddridge County WV	TVD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Site:	R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola	MD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Well:	Gibson Unit 1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	North East R5000 Database

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
6,880.0	46.44	313.95	6,681.0	-345.3	-705.8	-55.8	12.23	9.81	10.35	
6,911.0	50.20	317.16	6,701.6	-328.8	-722.0	-34.4	14.38	12.13	10.35	
6,941.0	53.15	319.83	6,720.2	-311.2	-737.6	-12.2	12.06	9.83	8.90	
6,972.0	56.69	323.53	6,738.0	-291.2	-753.3	12.1	15.02	11.42	11.94	
7,003.0	59.91	327.77	6,754.3	-269.5	-768.1	37.9	15.60	10.39	13.68	
7,034.0	62.47	332.85	6,769.3	-245.9	-781.6	64.8	16.56	8.26	16.39	
7,065.0	64.10	334.09	6,783.2	-221.1	-793.9	92.4	6.36	5.26	4.00	
7,096.0	65.76	333.51	6,796.4	-195.9	-806.3	120.4	5.62	5.35	-1.87	
7,127.0	68.53	332.56	6,808.4	-170.5	-819.3	148.9	9.37	8.94	-3.06	
7,158.0	72.82	332.50	6,818.6	-144.5	-832.8	178.0	13.84	13.84	-0.19	
7,189.0	76.30	332.29	6,826.9	-118.0	-846.6	207.7	11.24	11.23	-0.68	
7,219.0	80.41	333.07	6,833.0	-91.9	-860.1	237.0	13.93	13.70	2.60	
7,250.0	82.52	333.63	6,837.6	-64.5	-873.8	267.5	7.04	6.81	1.81	
7,281.0	84.66	334.24	6,841.0	-36.9	-887.4	298.2	7.17	6.90	1.97	
7,312.0	87.79	333.65	6,843.1	-9.1	-901.0	329.1	10.27	10.10	-1.90	
7,343.0	87.57	332.37	6,844.3	18.5	-915.0	359.9	4.19	-0.71	-4.13	
7,382.0	86.79	332.65	6,846.2	53.1	-933.0	398.7	2.12	-2.00	0.72	
7,413.0	86.95	332.56	6,847.9	80.6	-947.2	429.5	0.59	0.52	-0.29	
7,443.0	88.21	333.56	6,849.2	107.3	-960.8	459.4	5.36	4.20	3.33	
7,474.0	88.69	334.06	6,850.0	135.1	-974.5	490.3	2.24	1.55	1.61	
7,567.0	90.06	337.35	6,851.0	219.8	-1,012.8	583.2	3.83	1.47	3.54	
7,659.0	88.04	337.90	6,852.6	304.9	-1,047.8	675.2	2.28	-2.20	0.60	
7,752.0	88.46	337.90	6,855.4	391.0	-1,082.7	768.1	0.45	0.45	0.00	
7,845.0	89.47	339.72	6,857.1	477.7	-1,116.3	861.1	2.24	1.09	1.96	
7,937.0	90.28	340.44	6,857.3	564.2	-1,147.7	953.1	1.18	0.88	0.78	
8,030.0	91.15	338.21	6,856.1	651.2	-1,180.5	1,046.0	2.57	0.94	-2.40	
8,122.0	90.89	338.64	6,854.5	736.7	-1,214.3	1,138.0	0.55	-0.28	0.47	
8,215.0	88.86	335.54	6,854.7	822.4	-1,250.5	1,231.0	3.98	-2.18	-3.33	
8,308.0	88.13	336.24	6,857.1	907.2	-1,288.5	1,323.9	1.09	-0.78	0.75	
8,400.0	88.35	335.96	6,860.0	991.3	-1,325.8	1,415.8	0.39	0.24	-0.30	
8,493.0	88.55	337.85	6,862.5	1,076.8	-1,362.2	1,508.7	2.04	0.22	2.03	
8,585.0	88.35	337.21	6,865.0	1,161.8	-1,397.4	1,600.7	0.73	-0.22	-0.70	
8,678.0	87.15	338.42	6,868.6	1,247.9	-1,432.5	1,693.6	1.83	-1.29	1.30	
8,770.0	91.45	340.47	6,869.7	1,334.0	-1,464.8	1,785.5	5.18	4.67	2.23	
8,862.0	91.62	337.93	6,867.3	1,419.9	-1,497.4	1,877.5	2.77	0.18	-2.76	
8,955.0	90.22	338.25	6,865.8	1,506.2	-1,532.1	1,970.5	1.54	-1.51	0.34	
9,048.0	91.15	338.77	6,864.7	1,592.7	-1,566.2	2,063.5	1.15	1.00	0.56	
9,140.0	91.56	337.31	6,862.5	1,678.0	-1,600.6	2,155.4	1.65	0.45	-1.59	
9,233.0	90.39	337.22	6,860.9	1,763.8	-1,636.5	2,248.4	1.26	1.26	-0.10	
9,325.0	90.53	335.63	6,860.2	1,848.1	-1,673.3	2,340.4	1.73	0.15	-1.73	
9,417.0	89.72	336.13	6,860.0	1,932.1	-1,710.9	2,432.3	1.03	-0.89	0.64	
9,510.0	90.61	338.86	6,859.7	2,018.0	-1,746.5	2,525.3	3.09	0.96	2.94	

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Survey Report

Company:	Antero	Local Co-ordinate Reference:	Well Gibson Unit 1H
Project:	Doddridge County WV	TVD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Site:	R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola	MD Reference:	KB Elevation @ 1016.0usft (Precision 522 (18'))
Well:	Gibson Unit 1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	North East R5000 Database

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,603.0	90.87	337.66	6,858.5	2,104.4	-1,780.9	2,618.3	1.32	0.28	-1.29
9,695.0	89.61	338.97	6,858.1	2,189.8	-1,814.9	2,710.3	1.98	-1.37	1.42
9,788.0	90.25	339.16	6,858.2	2,276.7	-1,848.2	2,803.3	0.72	0.69	0.20
9,880.0	91.03	339.37	6,857.2	2,362.7	-1,880.7	2,895.2	0.88	0.85	0.23
9,973.0	91.37	337.97	6,855.3	2,449.3	-1,914.6	2,988.2	1.55	0.37	-1.51
10,066.0	91.93	337.94	6,852.6	2,535.5	-1,949.4	3,081.2	0.60	0.60	-0.03
10,158.0	90.87	339.65	6,850.3	2,621.3	-1,982.7	3,173.1	2.19	-1.15	1.86
10,251.0	90.75	337.84	6,849.0	2,707.9	-2,016.4	3,266.1	1.95	-0.13	-1.95
10,343.0	88.21	337.85	6,849.8	2,793.1	-2,051.1	3,358.1	2.76	-2.76	0.01
10,436.0	88.63	338.05	6,852.4	2,879.3	-2,086.0	3,451.0	0.50	0.45	0.22
10,529.0	88.55	337.30	6,854.7	2,965.3	-2,121.3	3,544.0	0.81	-0.09	-0.81
10,621.0	89.47	336.44	6,856.3	3,049.8	-2,157.5	3,636.0	1.37	1.00	-0.93
10,714.0	90.75	338.44	6,856.1	3,135.7	-2,193.1	3,729.0	2.55	1.38	2.15
10,806.0	91.76	338.01	6,854.1	3,221.1	-2,227.2	3,820.9	1.19	1.10	-0.47
10,899.0	90.11	337.79	6,852.6	3,307.3	-2,262.2	3,913.9	1.79	-1.77	-0.24
10,991.0	90.75	338.06	6,851.9	3,392.5	-2,296.8	4,005.9	0.76	0.70	0.29
11,084.0	90.70	336.59	6,850.7	3,478.3	-2,332.7	4,098.9	1.58	-0.05	-1.58
11,176.0	90.13	338.71	6,850.0	3,563.4	-2,367.6	4,190.9	2.39	-0.62	2.30
11,269.0	91.02	341.11	6,849.1	3,650.8	-2,399.6	4,283.8	2.75	0.96	2.58
11,362.0	91.31	338.95	6,847.2	3,738.1	-2,431.3	4,376.7	2.34	0.31	-2.32
11,454.0	89.47	337.71	6,846.6	3,823.6	-2,465.3	4,468.7	2.41	-2.00	-1.35
11,547.0	90.64	339.72	6,846.5	3,910.3	-2,499.1	4,561.7	2.50	1.26	2.16
11,639.0	92.07	340.75	6,844.3	3,996.8	-2,530.2	4,653.6	1.92	1.55	1.12
11,732.0	91.28	339.05	6,841.6	4,084.1	-2,562.1	4,746.5	2.01	-0.85	-1.83
11,825.0	90.53	339.48	6,840.1	4,171.1	-2,595.0	4,839.5	0.93	-0.81	0.46
11,917.0	90.20	337.53	6,839.6	4,256.7	-2,628.7	4,931.5	2.15	-0.36	-2.12
12,010.0	90.23	337.60	6,839.2	4,342.6	-2,664.2	5,024.5	0.08	0.03	0.08
12,102.0	90.50	340.48	6,838.6	4,428.5	-2,697.1	5,116.4	3.14	0.29	3.13
12,195.0	90.64	343.45	6,837.7	4,517.0	-2,725.9	5,209.2	3.20	0.15	3.19
12,287.0	89.94	340.63	6,837.2	4,604.5	-2,754.3	5,301.0	3.16	-0.76	-3.07
12,380.0	90.02	339.62	6,837.3	4,691.9	-2,785.9	5,393.9	1.09	0.09	-1.09
12,472.0	90.16	336.94	6,837.1	4,777.4	-2,819.9	5,485.9	2.92	0.15	-2.91
12,565.0	90.36	337.30	6,836.7	4,863.1	-2,856.1	5,578.9	0.44	0.22	0.39
12,657.0	91.20	336.13	6,835.4	4,947.6	-2,892.5	5,670.8	1.57	0.91	-1.27
12,750.0	89.72	336.16	6,834.7	5,032.6	-2,930.1	5,763.8	1.59	-1.59	0.03
12,842.0	89.94	336.00	6,835.0	5,116.7	-2,967.4	5,855.7	0.30	0.24	-0.17
12,935.0	90.56	338.03	6,834.6	5,202.3	-3,003.7	5,948.7	2.28	0.67	2.18
13,027.0	90.16	336.21	6,834.0	5,287.1	-3,039.5	6,040.7	2.03	-0.43	-1.98
13,119.0	90.30	335.67	6,833.6	5,371.1	-3,077.0	6,132.6	0.61	0.89	0.89
13,211.0	90.55	334.24	6,832.9	5,454.4	-3,115.9	6,224.5	1.58	0.27	-1.55
13,302.0	89.63	335.23	6,832.8	5,536.7	-3,154.7	6,315.4	1.49	-1.01	1.09
13,394.0	89.94	339.77	6,833.1	5,621.7	-3,189.9	6,407.3	4.95	0.34	4.93
13,485.0	89.80	340.14	6,833.3	5,707.2	-3,221.1	6,498.3	0.43	-0.15	0.41

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Survey Report

Company: Antero	Local Co-ordinate Reference: Well Gibson Unit 1H
Project: Doddridge County WV	TVD Reference: KB Elevation @ 1016.0usft (Precision 522 (18'))
Site: R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola	MD Reference: KB Elevation @ 1016.0usft (Precision 522 (18'))
Well: Gibson Unit 1H	North Reference: Grid
Wellbore: Original Hole	Survey Calculation Method: Minimum Curvature
Design: Surveys	Database: North East R5000 Database

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
13,577.0	89.69	338.63	6,833.8	5,793.3	-3,253.5	6,590.2	1.65	-0.12	-1.64	
13,669.0	90.16	337.27	6,833.9	5,878.6	-3,288.1	6,682.2	1.56	0.51	-1.48	
13,760.0	91.00	336.54	6,833.0	5,962.3	-3,323.8	6,773.2	1.22	0.92	-0.80	
13,851.0	91.08	337.36	6,831.3	6,046.0	-3,359.4	6,864.2	0.91	0.09	0.90	
13,944.0	89.91	337.83	6,830.5	6,132.0	-3,394.8	6,957.2	1.36	-1.26	0.51	
14,036.0	90.19	336.24	6,830.4	6,216.7	-3,430.7	7,049.2	1.75	0.30	-1.73	
14,129.0	89.97	337.42	6,830.3	6,302.2	-3,467.3	7,142.1	1.29	-0.24	1.27	
14,222.0	90.78	338.46	6,829.7	6,388.3	-3,502.2	7,235.1	1.42	0.87	1.12	
14,314.0	89.60	336.98	6,829.4	6,473.5	-3,537.1	7,327.1	2.06	-1.28	-1.61	
14,407.0	89.52	337.69	6,830.1	6,559.3	-3,572.9	7,420.1	0.77	-0.09	0.76	
14,500.0	90.53	338.84	6,830.0	6,645.7	-3,607.4	7,513.1	1.65	1.09	1.24	
14,592.0	90.72	339.28	6,829.0	6,731.6	-3,640.3	7,605.1	0.52	0.21	0.48	
14,685.0	89.97	338.99	6,828.5	6,818.5	-3,673.4	7,698.1	0.86	-0.81	-0.31	
14,778.0	90.30	338.57	6,828.3	6,905.2	-3,707.0	7,791.1	0.57	0.35	-0.45	
14,871.0	90.55	338.94	6,827.6	6,991.9	-3,740.7	7,884.1	0.48	0.27	0.40	
14,963.0	91.49	337.06	6,825.9	7,077.1	-3,775.2	7,976.0	2.28	1.02	-2.04	
15,056.0	89.90	337.76	6,824.8	7,163.0	-3,810.9	8,069.0	1.87	-1.71	0.75	
15,148.0	89.85	337.19	6,825.0	7,248.0	-3,846.2	8,161.0	0.62	-0.05	-0.62	
15,241.0	90.39	337.83	6,824.8	7,333.9	-3,881.7	8,254.0	0.90	0.58	0.69	
15,333.0	90.70	337.13	6,823.9	7,418.9	-3,917.0	8,346.0	0.83	0.34	-0.76	
15,426.0	89.81	336.24	6,823.5	7,504.3	-3,953.8	8,439.0	1.35	-0.96	-0.96	
15,519.0	89.72	337.00	6,823.9	7,589.7	-3,990.7	8,531.9	0.82	-0.10	0.82	
15,612.0	89.81	337.55	6,824.3	7,675.4	-4,026.6	8,624.9	0.60	0.10	0.59	
15,704.0	89.47	338.51	6,824.9	7,760.7	-4,061.0	8,716.9	1.11	-0.37	1.04	
15,797.0	89.81	337.65	6,825.5	7,847.0	-4,095.7	8,809.9	0.99	0.37	-0.92	
15,889.0	90.31	340.23	6,825.4	7,932.9	-4,128.8	8,901.9	2.86	0.54	2.80	
15,982.0	90.56	341.10	6,824.6	8,020.6	-4,159.6	8,994.8	0.97	0.27	0.94	
16,075.0	90.56	340.13	6,823.7	8,108.3	-4,190.5	9,087.7	1.04	0.00	-1.04	
16,167.0	90.03	337.16	6,823.3	8,194.0	-4,224.0	9,179.7	3.28	-0.58	-3.23	
16,260.0	90.28	337.64	6,823.0	8,279.9	-4,259.7	9,272.7	0.58	0.27	0.52	
16,352.0	90.56	337.56	6,822.3	8,364.9	-4,294.8	9,364.7	0.32	0.30	-0.09	
16,445.0	89.50	338.09	6,822.3	8,451.0	-4,329.9	9,457.7	1.27	-1.14	0.57	
16,537.0	90.31	337.03	6,822.4	8,536.1	-4,365.0	9,549.7	1.45	0.88	-1.15	
16,630.0	90.92	336.11	6,821.4	8,621.4	-4,401.9	9,642.6	1.19	0.66	-0.99	
16,722.0	89.67	336.48	6,821.0	8,705.6	-4,438.9	9,734.6	1.42	-1.36	0.40	
16,815.0	89.50	338.18	6,821.6	8,791.4	-4,474.8	9,827.6	1.84	-0.18	1.83	
16,892.0	89.50	338.18	6,822.3	8,862.9	-4,503.4	9,904.6	0.00	0.00	0.00	

PTB: [16892.0° MD][89.50° Inc][338.18° Azi]

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09/23/2016

Survey Report

Company: Antero	Local Co-ordinate Reference: Well Gibson Unit 1H
Project: Doddridge County WV	TVD Reference: KB Elevation @ 1016.0usft (Precision 522 (18'))
Site: R.J. Smith Pad: Costlow/Duff/Gibson/Mishka/Vinola	MD Reference: KB Elevation @ 1016.0usft (Precision 522 (18'))
Well: Gibson Unit 1H	North Reference: Grid
Wellbore: Original Hole	Survey Calculation Method: Minimum Curvature
Design: Surveys	Database: North East R5000 Database

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,156.0	6,067.8	-280.1	-380.2	End of Gyro: [6157.0' MD] [6068.8' TVD]
16,892.0	6,822.3	8,862.9	-4,503.4	PTB: [16892.0' MD][89.50° Inc][338.18° Azi]

Checked By: _____ Approved By: _____ Date: _____

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/8/2015
Job End Date:	12/18/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06303-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Gibson Unit 1H
Longitude:	-80.74867000
Latitude:	39.38985000
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,869
Total Base Water Volume (gal):	13,288,380
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00000	89.98957	
Sand, White	Baker Hughes	Proppant	Other Chemicals	NA		9.57939	
HCl, 20.1 - 28%	Baker Hughes	Acidizing	Other Chemicals	NA		0.21271	
GW-3LDF	Baker Hughes	Gelling Agent	Other Chemicals	NA		0.11816	
FRW-18	Baker Hughes	Friction Reducer	Other Chemicals	NA		0.01912	
Alpha 1427	Baker Hughes	Biocide	Other Chemicals	NA		0.00431	
Enzyme G-NE	Baker Hughes	Breaker	Other Chemicals	NA		0.00059	
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
		Other Chemicals	Crystalline Silica (Quartz)	14808-60-7		9.58376	
			Hydrochloric Acid	7647-01-0		0.05956	
			Guar Gum	9000-30-0		0.05251	

		Petroleum Distillates	64742-47-8		0.04537
		Paraffinic Petroleum Distillate	64742-55-8		0.02626
		Poly (acrylamide-co-acrylic acid) partial sodium salt	62649-23-4		0.01912
		Ethylene Glycol	107-21-1		0.00488
		Isotridecanol, ethoxylated	9043-30-5		0.00438
		Sodium Chloride	7647-14-5		0.00335
		2-propenoic, polymer with sodium phosphinate, sodium salt	71050-62-9		0.00325
		Glutaraldehyde	111-30-8		0.00259
		Ammonium Chloride	12125-02-9		0.00191
		Oleamide DEA	93-83-4		0.00127
		Ethoxylated Alcohol	68551-12-2		0.00127
		Didecyl Dimethyl Ammonium Chloride	7173-51-5		0.00086
		Calcium Chloride	10043-52-4		0.00081
		Ethanol	64-17-5		0.00043
		Quaternary Ammonium Compound	68424-85-1		0.00043
		Sorbitan Monooleate	1338-43-8		0.00032
		Polyoxyethylene Sorbitan Monooleate	9005-65-6		0.00032
		Potassium Chloride	7447-40-7		0.00016
		2-Butoxy-1-Propanol	15821-83-7		0.00009
		Hemicellulase Enzyme Concentrate	9025-56-3		0.00003

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

LATITUDE 39°22'30"

6,954'

9,697' TO BOTTOM HOLE

LATITUDE 39°25'00"

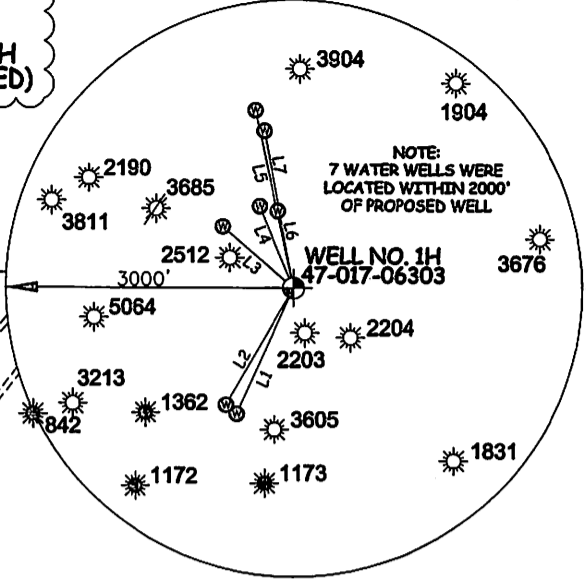
LONGITUDE 80°42'30"

3,402'

LONGITUDE 80°42'30"

11,423' TO BOTTOM HOLE

Antero Resources Corporation
Well No. Gibson Unit 1H
47-017-06303 (AS DRILLED)



NOTE:
7 WATER WELLS WERE
LOCATED WITHIN 2000'
OF PROPOSED WELL

AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
N: 317,683ft E: 1,651,423ft
LAT: 39°21'56.38" LON: 80°43'58.54"
BOTTOM HOLE INFORMATION:
N: 326,624ft E: 1,647,074ft
LAT: 39°23'24.15" LON: 80°44'55.50"
WEST VIRGINIA COORDINATE
SYSTEM OF 1927 NORTH ZONE.
ZONE WAS DERIVED FROM
MEASUREMENTS TAKEN WITH
TRIMBLE GEOXT SUBMETER
MAPPING GRADE GPS UNIT.
PLAT ORIENTATION, CORNER,
AND WELL REFERENCE TIE LINES
ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 1H TOP HOLE INFORMATION:
N: 4,357,399m E: 523,022m
BOTTOM HOLE INFORMATION:
N: 4,360,101m E: 521,651m

- NOTE
- ONE OCCUPIED DWELLING AND NO BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
 - TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
 - AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
 - WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE LEASE BOUNDARIES.
 - WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

LINE	BEARING	DISTANCE
L1	S 25°24' W	1398.0'
L2	S 31°15' W	1368.5'
L3	N 47°35' W	1007.0'
L4	N 22°05' W	962.1'
L5	N 12°08' W	1941.7'
L6	N 11°38' W	859.3'
L7	N 10°33' W	1710.2'

JOB # 12-138WA
DRAWING # GIBSON1HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

LEGEND

- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- - - Existing Fence
- ⊕ Found monument, as noted
- Proposed Well Path
- ⊗ As Drilled Well Path

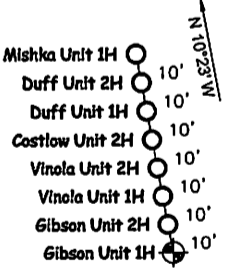
DATE 08/14/15

OPERATOR'S WELL # GIBSON UNIT #1H



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WILLOW LAND SURVEYING PLLC
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

PAD LAYOUT



NOT TO SCALE

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS
API WELL # 47 - 017 - 06303
STATE COUNTY PERMIT

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL
(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X
LOCATION: ELEVATION 1,004' ORIGINAL - 998' AS DRILLED WATERSHED MCELROY CREEK
QUADRANGLE SMITHBURG 7.5 (TH) CENTERPOINT 7.5 (TH) DISTRICT GRANT COUNTY DODDRIDGE

SURFACE OWNER ROBERT J. SMITH ACREAGE 100 ACRES +/-
OIL & GAS ROYALTY OWNER VINOLA BOSSALA; DUFF MISHKA; SILAS ASH; KENNETH HAMILTON ET AL; BEULAH CAYTON ET AL; MAUDE SHRADER ET AL; DOMINION APPALACHIAN DEV. LLC.
LEASE ACREAGE 120 ACRES±; 41 ACRES±; 120 ACRES±; 80 ACRES±; 123.5 ACRES±; 114.5 ACRES±; 167.29 ACRES±

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL
(SPECIFY) (X) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,822' TVD 16,892' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

09/23/2016

COUNTY NAME PERMIT

LATITUDE 39°22'30"

6,954'

9,697' TO BOTTOM HOLE

LATITUDE 39°25'00"

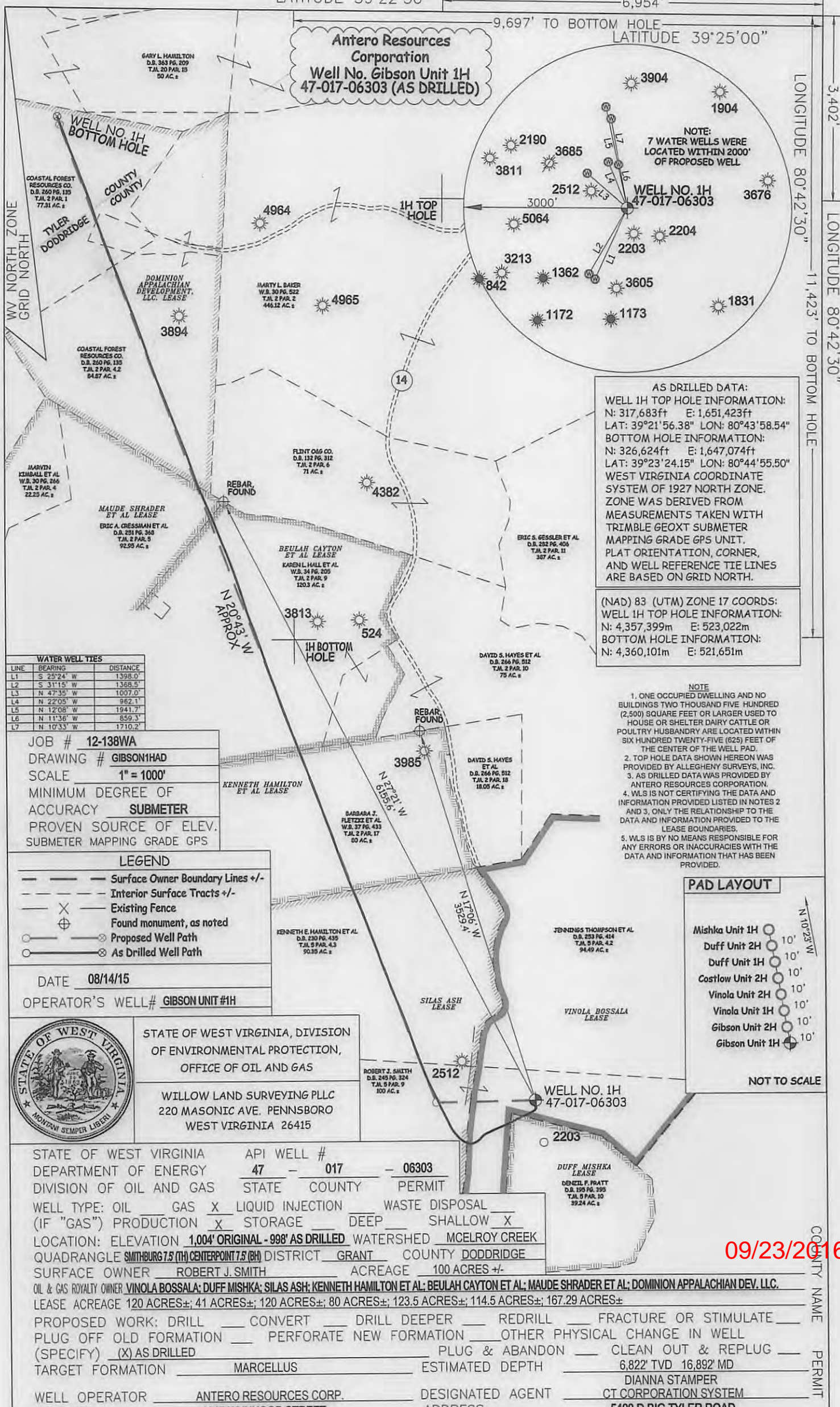
LONGITUDE 80°42'30"

LONGITUDE 80°42'30"

3,402'

11,423' TO BOTTOM HOLE

Antero Resources Corporation
Well No. Gibson Unit 1H
47-017-06303 (AS DRILLED)



AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
N: 317,683ft E: 1,651,423ft
LAT: 39°21'56.38" LON: 80°43'58.54"
BOTTOM HOLE INFORMATION:
N: 326,624ft E: 1,647,074ft
LAT: 39°23'24.15" LON: 80°44'55.50"
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 1H TOP HOLE INFORMATION:
N: 4,357,399m E: 523,022m
BOTTOM HOLE INFORMATION:
N: 4,360,101m E: 521,651m

- NOTE
- 1. ONE OCCUPIED DWELLING AND NO BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
 - 2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
 - 3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
 - 4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3. ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
 - 5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

WATER WELL TIES

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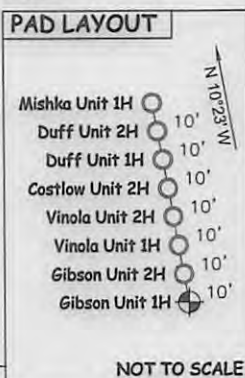
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DATE 08/14/15
OPERATOR'S WELL# GIBSON UNIT #1H



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WILLOW LAND SURVEYING PLLC
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STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

API WELL # 47 - 017 - 06303

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