

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

API 47-017-06485 County Doddridge District Grant  
Quad Smithburg 7.5' Pad Name Pearl Jean Pad Field/Pool Name \_\_\_\_\_  
Farm name Pennington, Dean R. et al Well Number Manser Unit 1H  
Operator (as registered with the OOG) Antero Resources Corporation  
Address 1615 Wynkoop Street 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 4,348,479m Easting 528,200m  
Landing Point of Curve Northing 4,348,617.09m Easting 528,033.09m  
Bottom Hole Northing 4,350,548m Easting 527,397m

Elevation (ft) 1,141' 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)  
Air- Foam & 4% KCL  
Mud- Polymer

Date permit issued 06/10/2014 Date drilling commenced 07/04/2014 Date drilling ceased 10/27/2014  
Date completion activities began 12/02/2014 Date completion activities ceased 02/18/2015  
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 108', 238' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1,253' Void(s) encountered (Y/N) depths None  
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths None  
Is coal being mined in area (Y/N) No

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Reviewed by: JR 8/21/15  
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API 47-017 - 06485 Farm name Pennington, Dean R. et al Well number Manser Unit 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	24"	20"	40'	New	133#; J-55	N/A	Yes
Surface	17 1/2"	13 3/8"	372'	New	48#; H-40	N/A	Yes
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,566'	New	36#; J-55	N/A	Yes
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	14,074'	New	20#; P-110	N/A	Yes
Tubing		2 3/8"	7,087'		5.95#; N-80	N/A	
Packer type and depth set		N/A					

Comment Details \*sidetrack from 7,400' to 7,405'

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	150 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	398 sx	15.6	1.18	258	0'	8 Hrs.
Coal							
Intermediate 1	Class A	964 sx	15.6	1.18	804	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	980 sx (Lead); 1,127 sx (Tail)	13.5 (Lead); 15.2 (Tail)	1.44 (Lead); 1.80 (Tail)	2,751	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 14,074' MD; 6,961' TVD (BHL); 6,999' TVD (Deepest Point Drilled) Loggers TD (ft) 14,026'  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6,346'

\*\*This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Manser Unit 2H, API #47-017-06486). Please reference the wireline logs submitted with Form WR-35 for the Manser Unit 2H. A Cement Bond Log has been included with this submittal.

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

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

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

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

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Environmental Protection

API 47- 017 - 06485 Farm name Pennington, Dean R. et al Well number Manser Unit 1H

PERFORATION RECORD

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

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 (PSD)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)	
		<b>* PLEASE SEE ATTACHED EXHIBIT 2</b>							

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Please insert additional pages as applicable.

API 47- 017 - 06485 Farm name Pennington, Dean R. et al Well number Manser Unit 1H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6,932' (top)</u> TVD	<u>7,110' (top)</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 3,550 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs

OPEN FLOW Gas 8,192 mcfpd Oil \_\_\_\_\_ bpd NGL \_\_\_\_\_ bpd Water \_\_\_\_\_ 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 <sub>2</sub> S, ETC)
	<u>0</u>		<u>0</u>		

**\* PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Patterson - UTI Drilling Company LLC  
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company STRC  
Address 1560 Good Hope Pike City Clarksburg State WV Zip 26301

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

Stimulating Company Halliburton  
Address 121 Champion Way, Suite 200 City Canonsburg State PA Zip 15317

Please insert additional pages as applicable.

Completed by Megan Darling Telephone 303-357-7230  
Signature Megan C. Darling Title Permitting Agent Date 07/31/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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API 47-017-06485 Farm Name Pennington, Dean R. et al Well Number Manser Unit 1H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2-Dec-14	13,813	13,983	60	Marcellus
2	20-Dec-14	13,611	13,782	60	Marcellus
3	20-Dec-14	13,410	13,580	60	Marcellus
4	21-Dec-14	13,208	13,378	60	Marcellus
5	21-Dec-14	13,006	13,176	60	Marcellus
6	22-Dec-14	12,804	12,974	60	Marcellus
7	22-Dec-14	12,602	12,773	60	Marcellus
8	23-Dec-14	12,401	12,571	60	Marcellus
9	23-Dec-14	12,199	12,369	60	Marcellus
10	24-Dec-14	11,997	12,167	60	Marcellus
11	24-Dec-14	11,795	11,966	60	Marcellus
12	26-Dec-14	11,594	11,764	60	Marcellus
13	27-Dec-14	11,392	11,562	60	Marcellus
14	27-Dec-14	11,190	11,360	60	Marcellus
15	27-Dec-14	10,988	11,158	60	Marcellus
16	28-Dec-14	10,786	10,957	60	Marcellus
17	28-Dec-14	10,585	10,755	60	Marcellus
18	28-Dec-14	10,383	10,553	60	Marcellus
19	29-Dec-14	10,181	10,351	60	Marcellus
20	29-Dec-14	9,979	10,149	60	Marcellus
21	30-Dec-14	9,778	9,948	60	Marcellus
22	30-Dec-14	9,576	9,746	60	Marcellus
23	31-Dec-14	9,374	9,544	60	Marcellus
24	31-Dec-14	9,172	9,342	60	Marcellus
25	31-Dec-14	8,970	9,141	60	Marcellus
26	1-Jan-15	8,769	8,939	60	Marcellus
27	1-Jan-15	8,567	8,737	60	Marcellus
28	2-Jan-15	8,365	8,535	60	Marcellus
29	2-Jan-15	8,163	8,333	60	Marcellus
30	3-Jan-15	7,962	8,132	60	Marcellus
31	3-Jan-15	7,760	7,930	60	Marcellus
32	3-Jan-15	7,558	7,728	60	Marcellus
33	4-Jan-15	7,356	7,526	60	Marcellus
34	4-Jan-15	7,154	7,325	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 (bbls)	Amount of Nitrogen/ other (units)
1	20-Dec-14	62.8	6,925	5,491	4,670	249,488	6,787	N/A
2	20-Dec-14	62.8	6,819	5,373	5,211	232,544	6,519	N/A
3	20-Dec-14	63.1	6,541	5,250	4,918	250,850	6,722	N/A
4	21-Dec-14	62.3	6,612	5,157	4,940	251,620	6,880	N/A
5	21-Dec-14	63.4	6,603	5,179	5,073	249,741	6,632	N/A
6	22-Dec-14	63.6	6,517	5,285	5,175	253,671	6,652	N/A
7	22-Dec-14	61.8	6,488	5,267	5,158	248,623	6,605	N/A
8	23-Dec-14	61.2	6,681	5,389	5,049	247,009	6,591	N/A
9	23-Dec-14	64.2	6,688	5,307	5,535	249,683	6,558	N/A
10	24-Dec-14	65.2	6,568	5,225	5,307	248,808	6,568	N/A
11	24-Dec-14	66.1	6,577	5,252	5,172	242,225	6,462	N/A
12	26-Dec-14	65.2	6,633	5,261	5,595	247,025	6,503	N/A
13	27-Dec-14	62.8	6,392	5,279	5,111	246,564	6,446	N/A
14	27-Dec-14	67.0	6,610	5,261	5,325	248,755	6,494	N/A
15	27-Dec-14	62.6	6,627	5,369	5,336	250,076	6,360	N/A
16	28-Dec-14	61.7	6,636	5,279	5,390	247,020	6,369	N/A
17	28-Dec-14	66.7	6,432	5,126	5,129	247,697	6,406	N/A
18	28-Dec-14	62.7	6,420	5,172	5,312	247,705	6,865	N/A
19	29-Dec-14	68.0	6,723	5,450	5,458	244,872	6,649	N/A
20	29-Dec-14	63.3	6,616	5,364	5,117	246,859	6,847	N/A
21	30-Dec-14	63.5	6,363	5,366	5,318	248,850	6,356	N/A
22	30-Dec-14	63.9	6,144	5,161	5,098	248,799	6,397	N/A
23	31-Dec-14	61.8	6,254	5,351	6,304	249,383	6,304	N/A
24	31-Dec-14	63.2	6,341	5,300	4,919	225,526	6,999	N/A
25	31-Dec-14	62.9	6,200	5,294	4,977	248,264	6,347	N/A
26	1-Jan-15	63.6	6,204	5,264	4,993	248,695	6,269	N/A
27	1-Jan-15	64.4	6,192	5,278	5,068	249,729	6,251	N/A
28	2-Jan-15	64.7	6,187	5,514	5,364	250,034	6,191	N/A
29	2-Jan-15	63.8	6,338	5,515	5,244	249,439	6,240	N/A
30	3-Jan-15	58.9	6,270	5,668	5,273	190,003	6,036	N/A
31	3-Jan-15	65.1	6,522	5,665	5,512	248,501	6,166	N/A
32	3-Jan-15	64.5	6,440	5,849	5,506	247,211	6,085	N/A
33	4-Jan-15	62.8	6,636	6,050	5,757	249,817	6,168	N/A
34	4-Jan-15	64.4	6,452	5,774	5,577	248,482	6,058	N/A
AVG=		63.6	6,490	5,376	5,262	8,353,568	219,782	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	108'	N/A	108'	N/A
Fresh Water	238'	N/A	238'	N/A
Shale	0	168	0	168
Shale/ Trace Coal	est. 168	188	est. 168	188
Shale	est. 188	228	est. 188	228
Sandstone/ Siltstone	est. 228	288	est. 228	288
Shale/ Coal	est. 288	368	est. 288	368
Limestone/ Shale	est. 368	408	est. 368	408
Siltstone/ Shale	est. 408	568	est. 408	568
Shale/ Coal	est. 568	588	est. 568	588
Siltstone/ Limestone	est. 588	628	est. 588	628
Shale/ Limestone	est. 628	788	est. 628	788
Shale/ Siltstone	est. 788	988	est. 788	988
Shale/ Sandstone	est. 988	1,228	est. 988	1,228
Sandstone	est. 1228	1,408	est. 1228	1,408
Sandstone/ Coal	est. 1408	1,448	est. 1408	1,448
Sandstone	est. 1448	1,688	est. 1448	1,688
Siltstone	est. 1688	1,926	est. 1688	1,926
Big Lime	1,926	2,049	1,926	2,049
Big Injun	2,049	2,432	2,049	2,432
Gantz Sand	2,432	2,547	2,432	2,547
Fifty Foot Sandstone	2,547	2,606	2,547	2,606
Gordon	2,606	2,940	2,606	2,941
Fifth Sandstone	2,940	2,959	2,941	2,960
Bayard	2,959	3,371	2,960	3,373
Warren	3,371	3,680	3,373	3,682
Speechley	3,680	3,994	3,682	3,996
Baltown	3,994	4,457	3,996	4,459
Bradford	4,457	4,963	4,459	4,965
Benson	4,963	5,236	4,965	5,238
Alexander	5,236	5,444	5,238	5,446
Elk	5,444	5,993	5,446	5,995
Rhinestreet	5,993	6,367	5,995	6,371
Sycamore	6,367	6,680	6,371	6,716
Middlesex	6,680	6,818	6,716	6,894
Burkett	6,818	6,844	6,894	6,934
Tully	6,844	6,932	6,934	7,110
Marcellus	6,932	NA	7,110	NA

\*Please note Antero determines shallow 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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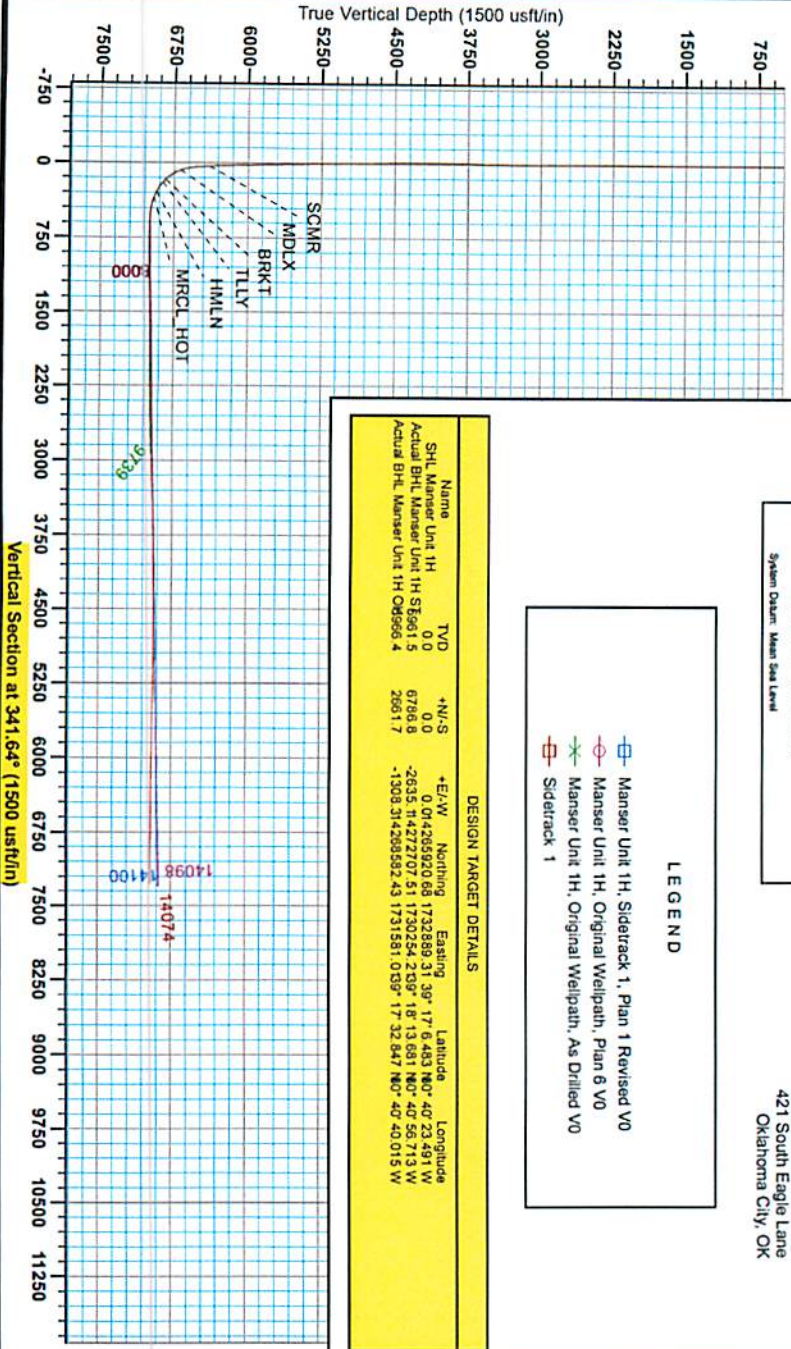
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10/23/2015

17.06485



Antero Resources  
 Manser Unit 1H  
 Doddridge County WV  
 Northing: 14265920.69  
 Easting: 1732889.32  
 Sidertrack 1



**WELL DETAILS: Manser Unit 1H**

WGS 84 Ellipsoid: 114.0  
 Ellipsoid Height: 172889.32  
 Zone: 17N  
 Datum: NAD 83  
 Projection: UTM  
 Units: Meter

**REFERENCE INFORMATION**

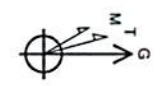
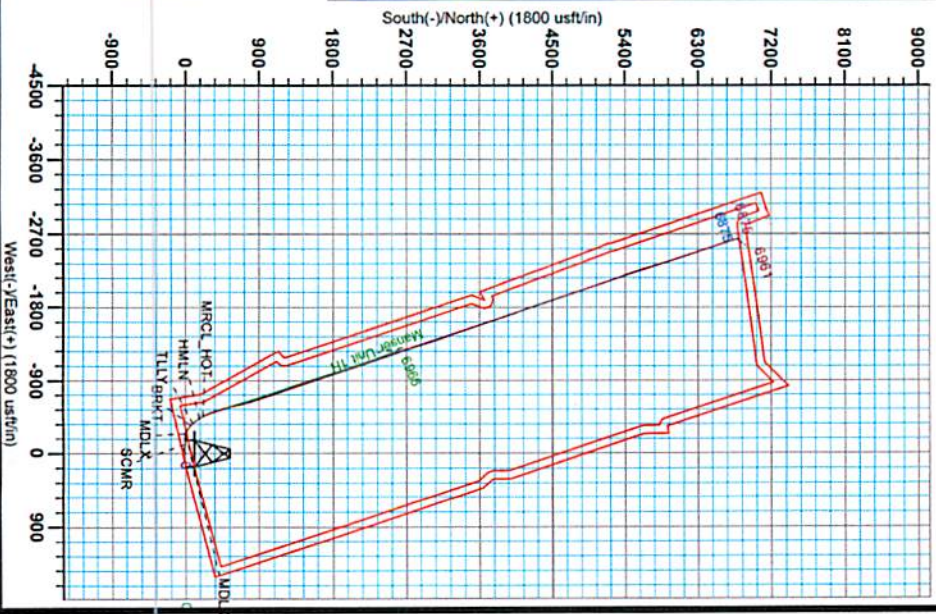
Geographic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: NAD 83 (FADCON CONUS)  
 Spheroid: GRS 80  
 Zone: 17N (84 W to 78 W)  
 System Datum: Mean Sea Level

**PROJECT DETAILS: Doddridge County WV**

Client: Antero Resources  
 Well Name: Manser Unit 1H  
 Location: 421 South Eagle Lane, Oklahoma City, OK  
 Date: October 29, 2014

**LEGEND**

- Manser Unit 1H, Sidertrack 1, Plan 1 Revised VO
- Manser Unit 1H, Original Wellpath, Plan 6 VO
- Manser Unit 1H, Original Wellpath, As Drilled VO
- Sidertrack 1



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Asimuth to Grid North: 0.21°  
 True North: 0.21°  
 Magnetic North: -8.70°  
 Strength: 52199.0nT  
 Dip Angle: 66.82°  
 Date: 10/18/2014  
 Model: BCGM2014

10/23/2015



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# Antero Resources

Doddridge County WV  
Zimka/Manser Pad  
Manser Unit 1H  
Sidetrack 1

Design: Sidetrack 1

## EOW Completion Report

10 November, 2014

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Manser Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Site:</b>	Zimka/Manser Pad	<b>MD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Well:</b>	Manser Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Sidetrack 1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Sidetrack 1	<b>Database:</b>	Oklahoma District

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

<b>Site</b>	Zimka/Manser Pad				
<b>Site Position:</b>		<b>Northing:</b>	14,265,927.56 usft	<b>Latitude:</b>	39° 17' 6.551 N
<b>From:</b>	Map	<b>Easting:</b>	1,732,882.20 usft	<b>Longitude:</b>	80° 40' 23.581 W
<b>Position Uncertainty:</b>	2.0 usft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	0.21 °

<b>Well</b>	Manser Unit 1H, Marcellus					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,265,920.69 usft	<b>Latitude:</b>	39° 17' 6.483 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,732,889.32 usft	<b>Longitude:</b>	80° 40' 23.491 W
<b>Position Uncertainty</b>		2.0 usft	<b>Wellhead Elevation:</b>	1,165.0 usft	<b>Ground Level:</b>	1,141.0 usft

<b>Wellbore</b>	Sidetrack 1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2014	10/19/2014	-8.55	66.82	52,199

<b>Design</b>	Sidetrack 1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	7,400.0
<b>Vertical Section:</b>		<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
		0.0	0.0	0.0	341.64

<b>Survey Program</b>	Date 10/28/2014				
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
36.0	6,079.3	Survey #8 Final Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
6,095.0	7,400.0	Survey #9 MWD (Original Wellpath)	MWD SDI	MWD - Standard ver 1.0.1	
7,446.0	14,074.0	Survey #1 SDI MWD (Sidetrack 1)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

<b>Survey</b>								
<b>MD (usft)</b>	<b>Inc (°)</b>	<b>Azi (azimuth) (°)</b>	<b>TVD (usft)</b>	<b>N/S (usft)</b>	<b>E/W (usft)</b>	<b>V. Sec (usft)</b>	<b>DLeg (°/100usft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	
36.0	0.01	206.43	36.0	0.0	0.0	0.0	0.03	
61.0	0.02	206.43	61.0	0.0	0.0	0.0	0.04	
86.0	0.03	206.43	86.0	0.0	0.0	0.0	0.04	
111.0	0.05	206.43	111.0	0.0	0.0	0.0	0.08	
136.0	0.06	206.43	136.0	-0.1	0.0	0.0	0.04	
161.0	0.07	206.43	161.0	-0.1	0.0	0.0	0.04	
186.0	0.08	206.43	186.0	-0.1	-0.1	0.0	0.04	
211.0	0.09	206.43	211.0	-0.1	-0.1	0.0	0.04	
236.0	0.19	196.67	236.0	-0.2	-0.1	0.0	0.41	

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Manser Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Site:</b>	Zimka/Manser Pad	<b>MD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Well:</b>	Manser Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Sidetrack 1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Sidetrack 1	<b>Database:</b>	Oklahoma District

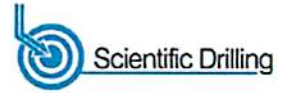
Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)	
261.0	0.25	221.41	261.0	-0.3	-0.1	-0.2	0.44	
286.0	0.19	230.89	286.0	-0.3	-0.2	-0.3	0.28	
311.0	0.21	222.06	311.0	-0.4	-0.3	-0.3	0.15	
336.0	0.19	259.36	336.0	-0.5	-0.3	-0.3	0.52	
361.0	0.09	267.09	361.0	-0.5	-0.4	-0.3	0.41	
386.0	0.11	271.25	386.0	-0.5	-0.4	-0.3	0.09	
411.0	0.06	254.03	411.0	-0.5	-0.5	-0.3	0.22	
436.0	0.10	242.90	436.0	-0.5	-0.5	-0.3	0.17	
461.0	0.15	234.54	461.0	-0.5	-0.6	-0.3	0.21	
486.0	0.25	246.02	486.0	-0.5	-0.6	-0.3	0.43	
511.0	0.14	256.02	511.0	-0.6	-0.7	-0.3	0.46	
536.0	0.24	226.57	536.0	-0.6	-0.8	-0.3	0.55	
561.0	0.17	235.10	561.0	-0.7	-0.9	-0.4	0.30	
586.0	0.15	214.23	586.0	-0.7	-0.9	-0.4	0.24	
611.0	0.21	247.04	611.0	-0.8	-1.0	-0.4	0.47	
636.0	0.20	227.39	636.0	-0.8	-1.0	-0.4	0.28	
661.0	0.22	242.34	661.0	-0.9	-1.1	-0.5	0.23	
686.0	0.10	254.60	686.0	-0.9	-1.2	-0.5	0.50	
711.0	0.19	246.44	711.0	-0.9	-1.2	-0.5	0.37	
736.0	0.24	231.23	736.0	-1.0	-1.3	-0.5	0.30	
761.0	0.21	253.30	761.0	-1.0	-1.4	-0.5	0.36	
786.0	0.13	276.12	786.0	-1.0	-1.5	-0.5	0.41	
811.0	0.08	309.24	811.0	-1.0	-1.5	-0.5	0.31	
836.0	0.15	274.06	836.0	-1.0	-1.6	-0.5	0.39	
861.0	0.05	287.04	861.0	-1.0	-1.6	-0.4	0.41	
886.0	0.11	278.99	886.0	-1.0	-1.6	-0.4	0.24	
911.0	0.26	256.45	911.0	-1.0	-1.7	-0.4	0.66	
936.0	0.06	191.99	936.0	-1.0	-1.8	-0.4	0.96	
961.0	0.15	229.64	961.0	-1.1	-1.8	-0.4	0.44	
986.0	0.16	274.94	986.0	-1.1	-1.9	-0.4	0.48	
1,011.0	0.22	249.95	1,011.0	-1.1	-1.9	-0.4	0.40	
1,036.0	0.17	269.66	1,036.0	-1.1	-2.0	-0.4	0.33	
1,061.0	0.19	266.68	1,061.0	-1.1	-2.1	-0.4	0.09	
1,086.0	0.26	267.25	1,086.0	-1.1	-2.2	-0.4	0.28	
1,111.0	0.25	286.33	1,111.0	-1.1	-2.3	-0.3	0.34	
1,136.0	0.25	271.59	1,136.0	-1.1	-2.4	-0.3	0.26	
1,161.0	0.32	243.73	1,161.0	-1.1	-2.5	-0.3	0.61	
1,186.0	0.35	254.74	1,186.0	-1.2	-2.7	-0.3	0.28	
1,211.0	0.37	245.08	1,211.0	-1.2	-2.8	-0.3	0.26	
1,236.0	0.43	239.38	1,236.0	-1.3	-3.0	-0.3	0.29	
1,261.0	0.53	249.30	1,261.0	-1.4	-3.2	-0.3	0.52	
1,286.0	0.60	266.76	1,286.0	-1.4	-3.4	-0.3	0.74	
1,311.0	0.65	263.97	1,311.0	-1.5	-3.7	-0.2	0.23	
1,336.0	0.96	238.99	1,336.0	-1.6	-4.0	-0.2	1.85	
1,361.0	0.58	250.19	1,361.0	-1.7	-4.3	-0.3	1.63	

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Manser Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Site:</b>	Zimka/Manser Pad	<b>MD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Well:</b>	Manser Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Sidetrack 1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Sidetrack 1	<b>Database:</b>	Oklahoma District

Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
1,386.0	0.54	262.97		1,386.0	-1.8	-4.5	-0.3		0.52
1,411.0	0.51	252.21		1,411.0	-1.8	-4.7	-0.2		0.41
1,436.0	0.46	250.28		1,436.0	-1.9	-4.9	-0.2		0.21
1,461.0	0.40	241.26		1,461.0	-2.0	-5.1	-0.3		0.36
1,486.0	0.35	230.94		1,486.0	-2.1	-5.3	-0.3		0.34
1,511.0	0.33	222.53		1,511.0	-2.2	-5.4	-0.4		0.21
1,536.0	0.23	202.29		1,536.0	-2.3	-5.4	-0.4		0.56
1,561.0	0.38	182.77		1,561.0	-2.4	-5.5	-0.6		0.72
1,586.0	0.44	179.38		1,586.0	-2.6	-5.5	-0.7		0.26
1,611.0	0.40	185.78		1,611.0	-2.8	-5.5	-0.9		0.25
1,636.0	0.40	171.10		1,636.0	-2.9	-5.5	-1.1		0.41
1,661.0	0.42	171.27		1,661.0	-3.1	-5.4	-1.2		0.08
1,686.0	0.48	162.06		1,686.0	-3.3	-5.4	-1.4		0.38
1,711.0	0.39	140.42		1,711.0	-3.5	-5.3	-1.6		0.74
1,736.0	0.51	106.22		1,736.0	-3.6	-5.1	-1.8		1.15
1,761.0	0.48	113.24		1,761.0	-3.6	-4.9	-1.9		0.27
1,786.0	0.53	118.65		1,786.0	-3.7	-4.7	-2.1		0.28
1,811.0	0.51	105.22		1,811.0	-3.8	-4.5	-2.2		0.49
1,836.0	0.51	108.84		1,836.0	-3.9	-4.3	-2.3		0.13
1,861.0	0.43	106.01		1,861.0	-3.9	-4.1	-2.4		0.33
1,886.0	0.53	90.08		1,886.0	-4.0	-3.9	-2.5		0.66
1,911.0	0.40	105.02		1,911.0	-4.0	-3.7	-2.6		0.71
1,936.0	0.34	95.25		1,936.0	-4.0	-3.6	-2.7		0.35
1,961.0	0.29	82.45		1,961.0	-4.0	-3.4	-2.7		0.34
1,986.0	0.21	112.05		1,986.0	-4.0	-3.3	-2.8		0.60
2,011.0	0.21	110.69		2,011.0	-4.1	-3.2	-2.8		0.02
2,036.0	0.15	102.97		2,036.0	-4.1	-3.2	-2.9		0.26
2,061.0	0.17	173.54		2,061.0	-4.1	-3.1	-2.9		0.74
2,086.0	0.05	243.12		2,086.0	-4.2	-3.1	-3.0		0.64
2,111.0	0.24	284.05		2,111.0	-4.2	-3.2	-2.9		0.82
2,136.0	0.25	244.80		2,136.0	-4.2	-3.3	-2.9		0.66
2,161.0	0.23	254.99		2,161.0	-4.2	-3.4	-2.9		0.19
2,186.0	0.20	274.97		2,186.0	-4.2	-3.5	-2.9		0.32
2,211.0	0.30	285.76		2,211.0	-4.2	-3.6	-2.9		0.44
2,236.0	0.32	279.62		2,236.0	-4.2	-3.7	-2.8		0.15
2,261.0	0.34	275.55		2,261.0	-4.2	-3.9	-2.7		0.12
2,286.0	0.43	284.86		2,286.0	-4.1	-4.0	-2.6		0.44
2,311.0	0.32	283.45		2,311.0	-4.1	-4.2	-2.6		0.44
2,336.0	0.28	292.54		2,336.0	-4.0	-4.3	-2.5		0.25
2,361.0	0.45	278.21		2,361.0	-4.0	-4.5	-2.4		0.77
2,386.0	0.41	288.69		2,386.0	-4.0	-4.6	-2.3		0.35
2,411.0	0.44	275.07		2,411.0	-3.9	-4.8	-2.2		0.42
2,436.0	0.43	273.18		2,436.0	-3.9	-5.0	-2.1		0.07
2,461.0	0.46	284.95		2,461.0	-3.9	-5.2	-2.0		0.38

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Manser Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Site:</b>	Zimka/Manser Pad	<b>MD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Well:</b>	Manser Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Sidetrack 1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Sidetrack 1	<b>Database:</b>	Oklahoma District

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)	
2,486.0	0.43	294.49	2,486.0	-3.8	-5.4	-1.9	0.32	
2,511.0	0.45	311.38	2,511.0	-3.7	-5.5	-1.8	0.52	
2,536.0	0.72	281.69	2,536.0	-3.6	-5.8	-1.6	1.59	
2,561.0	0.54	292.01	2,561.0	-3.5	-6.0	-1.5	0.85	
2,586.0	0.43	293.33	2,586.0	-3.5	-6.2	-1.3	0.44	
2,611.0	0.51	271.08	2,611.0	-3.4	-6.4	-1.2	0.79	
2,636.0	0.62	273.18	2,636.0	-3.4	-6.7	-1.1	0.45	
2,661.0	0.48	283.63	2,661.0	-3.4	-6.9	-1.0	0.69	
2,686.0	0.61	283.46	2,686.0	-3.3	-7.1	-0.9	0.52	
2,711.0	0.66	286.34	2,710.9	-3.2	-7.4	-0.7	0.24	
2,736.0	0.67	281.03	2,735.9	-3.2	-7.7	-0.6	0.25	
2,761.0	1.07	268.51	2,760.9	-3.2	-8.1	-0.5	1.76	
2,786.0	1.91	262.03	2,785.9	-3.2	-8.7	-0.3	3.42	
2,811.0	3.20	257.80	2,810.9	-3.4	-9.8	-0.2	5.21	
2,836.0	4.30	256.88	2,835.9	-3.8	-11.4	0.0	4.41	
2,861.0	5.25	256.49	2,860.8	-4.3	-13.4	0.2	3.80	
2,886.0	5.50	257.44	2,885.7	-4.8	-15.7	0.4	1.06	
2,911.0	5.51	256.91	2,910.5	-5.3	-18.0	0.6	0.21	
2,936.0	5.38	258.04	2,935.4	-5.8	-20.4	0.9	0.67	
2,961.0	5.47	258.18	2,960.3	-6.3	-22.7	1.1	0.36	
2,986.0	5.40	258.61	2,985.2	-6.8	-25.0	1.4	0.32	
3,011.0	5.44	258.01	3,010.1	-7.3	-27.3	1.7	0.28	
3,036.0	5.43	256.87	3,035.0	-7.8	-29.6	1.9	0.43	
3,061.0	5.24	253.79	3,059.9	-8.4	-31.9	2.1	1.37	
3,086.0	5.13	252.21	3,084.8	-9.0	-34.0	2.1	0.72	
3,111.0	5.09	252.29	3,109.7	-9.7	-36.1	2.2	0.16	
3,136.0	4.80	251.42	3,134.6	-10.4	-38.2	2.2	1.20	
3,161.0	3.83	244.92	3,159.5	-11.1	-39.9	2.1	4.34	
3,186.0	2.61	230.45	3,184.5	-11.8	-41.1	1.8	5.83	
3,211.0	1.80	205.63	3,209.5	-12.5	-41.7	1.3	4.94	
3,236.0	1.52	191.03	3,234.4	-13.2	-42.0	0.7	2.02	
3,261.0	1.34	184.25	3,259.4	-13.8	-42.1	0.1	0.99	
3,286.0	1.37	184.99	3,284.4	-14.4	-42.1	-0.4	0.14	
3,311.0	1.38	185.68	3,309.4	-15.0	-42.2	-1.0	0.08	
3,336.0	1.30	185.48	3,334.4	-15.6	-42.2	-1.5	0.32	
3,361.0	1.30	178.37	3,359.4	-16.1	-42.2	-2.0	0.64	
3,386.0	1.24	182.65	3,384.4	-16.7	-42.2	-2.5	0.45	
3,411.0	1.23	182.76	3,409.4	-17.2	-42.3	-3.0	0.04	
3,436.0	1.29	175.21	3,434.4	-17.8	-42.3	-3.6	0.71	
3,461.0	1.14	181.49	3,459.4	-18.3	-42.2	-4.1	0.80	
3,486.0	1.13	181.74	3,484.4	-18.8	-42.3	-4.5	0.04	
3,511.0	1.24	184.92	3,509.4	-19.3	-42.3	-5.0	0.51	
3,536.0	1.20	186.93	3,534.4	-19.9	-42.3	-5.5	0.23	
3,561.0	1.10	188.59	3,559.4	-20.4	-42.4	-6.0	0.42	

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Manser Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Site:</b>	Zimka/Manser Pad	<b>MD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Well:</b>	Manser Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Sidetrack 1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Sidetrack 1	<b>Database:</b>	Oklahoma District

Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
3,586.0	1.03	192.22	192.22	3,584.4	-20.8	-42.5	-6.4	0.39	
3,611.0	1.01	203.22	203.22	3,609.4	-21.2	-42.6	-6.7	0.79	
3,636.0	0.94	199.77	199.77	3,634.3	-21.6	-42.8	-7.0	0.37	
3,661.0	0.98	201.69	201.69	3,659.3	-22.0	-42.9	-7.4	0.21	
3,686.0	0.93	197.51	197.51	3,684.3	-22.4	-43.1	-7.7	0.34	
3,711.0	0.93	200.09	200.09	3,709.3	-22.8	-43.2	-8.0	0.17	
3,736.0	0.90	204.74	204.74	3,734.3	-23.2	-43.4	-8.3	0.32	
3,761.0	0.92	207.43	207.43	3,759.3	-23.5	-43.5	-8.6	0.19	
3,786.0	0.73	213.40	213.40	3,784.3	-23.8	-43.7	-8.8	0.83	
3,811.0	0.76	217.22	217.22	3,809.3	-24.1	-43.9	-9.0	0.23	
3,836.0	0.69	217.38	217.38	3,834.3	-24.3	-44.1	-9.2	0.28	
3,861.0	0.65	217.96	217.96	3,859.3	-24.6	-44.3	-9.4	0.16	
3,886.0	0.69	230.19	230.19	3,884.3	-24.8	-44.5	-9.5	0.59	
3,911.0	0.55	227.07	227.07	3,909.3	-25.0	-44.7	-9.6	0.58	
3,936.0	0.54	240.59	240.59	3,934.3	-25.1	-44.9	-9.7	0.51	
3,961.0	0.51	234.04	234.04	3,959.3	-25.2	-45.1	-9.8	0.27	
3,986.0	0.41	228.84	228.84	3,984.3	-25.4	-45.2	-9.8	0.43	
4,011.0	0.54	239.41	239.41	4,009.3	-25.5	-45.4	-9.9	0.62	
4,036.0	0.55	237.89	237.89	4,034.3	-25.6	-45.6	-9.9	0.07	
4,061.0	0.57	238.52	238.52	4,059.3	-25.7	-45.8	-10.0	0.08	
4,086.0	0.61	245.76	245.76	4,084.3	-25.8	-46.0	-10.0	0.34	
4,111.0	0.63	242.02	242.02	4,109.3	-26.0	-46.3	-10.1	0.18	
4,136.0	0.67	259.53	259.53	4,134.3	-26.1	-46.5	-10.1	0.81	
4,161.0	0.60	259.76	259.76	4,159.3	-26.1	-46.8	-10.0	0.28	
4,186.0	0.63	259.40	259.40	4,184.3	-26.2	-47.1	-10.0	0.12	
4,211.0	0.73	269.56	269.56	4,209.3	-26.2	-47.4	-9.9	0.63	
4,236.0	0.74	271.41	271.41	4,234.3	-26.2	-47.7	-9.8	0.10	
4,261.0	0.69	268.60	268.60	4,259.3	-26.2	-48.0	-9.7	0.24	
4,286.0	0.74	273.84	273.84	4,284.3	-26.2	-48.3	-9.6	0.33	
4,311.0	0.81	275.30	275.30	4,309.3	-26.1	-48.6	-9.5	0.29	
4,336.0	0.62	263.59	263.59	4,334.3	-26.1	-49.0	-9.4	0.96	
4,361.0	0.69	270.62	270.62	4,359.3	-26.2	-49.2	-9.3	0.43	
4,386.0	0.72	276.88	276.88	4,384.3	-26.1	-49.5	-9.2	0.33	
4,411.0	0.71	278.42	278.42	4,409.3	-26.1	-49.9	-9.1	0.09	
4,436.0	0.85	278.21	278.21	4,434.3	-26.0	-50.2	-8.9	0.56	
4,461.0	0.84	281.63	281.63	4,459.3	-26.0	-50.6	-8.7	0.21	
4,486.0	0.85	285.74	285.74	4,484.3	-25.9	-50.9	-8.5	0.25	
4,511.0	0.89	286.72	286.72	4,509.3	-25.8	-51.3	-8.3	0.17	
4,536.0	0.81	289.39	289.39	4,534.3	-25.7	-51.6	-8.1	0.36	
4,561.0	0.89	289.30	289.30	4,559.3	-25.5	-52.0	-7.9	0.32	
4,586.0	0.88	290.93	290.93	4,584.3	-25.4	-52.3	-7.6	0.11	
4,611.0	0.99	290.05	290.05	4,609.3	-25.3	-52.7	-7.4	0.44	
4,636.0	1.08	288.40	288.40	4,634.3	-25.1	-53.1	-7.1	0.38	
4,661.0	1.05	291.95	291.95	4,659.3	-25.0	-53.6	-6.8	0.29	

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Manser Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Site:</b>	Zimka/Manser Pad	<b>MD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Well:</b>	Manser Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Sidetrack 1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Sidetrack 1	<b>Database:</b>	Oklahoma District

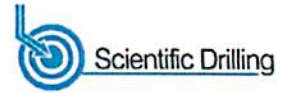
Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
4,686.0	1.14	291.81	291.81	4,684.3	-24.8	-54.0	-6.5	0.36	
4,711.0	1.13	289.25	289.25	4,709.3	-24.6	-54.5	-6.2	0.21	
4,736.0	1.19	295.06	295.06	4,734.2	-24.4	-55.0	-5.9	0.53	
4,761.0	1.04	292.54	292.54	4,759.2	-24.2	-55.4	-5.5	0.63	
4,786.0	1.23	294.16	294.16	4,784.2	-24.0	-55.9	-5.2	0.77	
4,811.0	1.24	291.96	291.96	4,809.2	-23.8	-56.4	-4.9	0.19	
4,836.0	1.25	295.89	295.89	4,834.2	-23.6	-56.8	-4.5	0.34	
4,861.0	1.29	293.91	293.91	4,859.2	-23.4	-57.4	-4.1	0.24	
4,886.0	1.26	295.88	295.88	4,884.2	-23.1	-57.9	-3.7	0.21	
4,911.0	1.34	294.87	294.87	4,909.2	-22.9	-58.4	-3.3	0.33	
4,936.0	1.37	296.73	296.73	4,934.2	-22.6	-58.9	-2.9	0.21	
4,961.0	1.36	295.40	295.40	4,959.2	-22.4	-59.4	-2.5	0.13	
4,986.0	1.27	300.73	300.73	4,984.2	-22.1	-59.9	-2.1	0.61	
5,011.0	1.44	295.17	295.17	5,009.2	-21.8	-60.5	-1.7	0.86	
5,036.0	1.49	294.58	294.58	5,034.2	-21.6	-61.0	-1.2	0.21	
5,061.0	1.46	296.65	296.65	5,059.2	-21.3	-61.6	-0.8	0.24	
5,086.0	1.50	299.47	299.47	5,084.2	-21.0	-62.2	-0.3	0.33	
5,111.0	1.58	299.32	299.32	5,109.1	-20.6	-62.8	0.2	0.32	
5,136.0	1.46	297.99	297.99	5,134.1	-20.3	-63.4	0.7	0.50	
5,161.0	1.43	298.64	298.64	5,159.1	-20.0	-63.9	1.1	0.14	
5,186.0	1.50	296.66	296.66	5,184.1	-19.7	-64.5	1.6	0.35	
5,211.0	1.59	297.86	297.86	5,209.1	-19.4	-65.1	2.1	0.38	
5,236.0	1.52	299.91	299.91	5,234.1	-19.1	-65.7	2.6	0.36	
5,261.0	1.48	296.77	296.77	5,259.1	-18.8	-66.3	3.0	0.37	
5,286.0	1.51	298.09	298.09	5,284.1	-18.5	-66.8	3.5	0.18	
5,311.0	1.74	297.48	297.48	5,309.1	-18.2	-67.5	4.0	0.92	
5,336.0	1.57	296.16	296.16	5,334.1	-17.8	-68.1	4.5	0.70	
5,361.0	1.51	297.13	297.13	5,359.1	-17.5	-68.7	5.0	0.26	
5,386.0	1.66	298.02	298.02	5,384.0	-17.2	-69.3	5.5	0.61	
5,411.0	1.69	300.69	300.69	5,409.0	-16.8	-70.0	6.0	0.33	
5,436.0	1.63	302.12	302.12	5,434.0	-16.5	-70.6	6.6	0.29	
5,461.0	1.80	305.47	305.47	5,459.0	-16.1	-71.2	7.2	0.79	
5,486.0	1.79	302.02	302.02	5,484.0	-15.6	-71.8	7.8	0.43	
5,511.0	1.92	299.61	299.61	5,509.0	-15.2	-72.5	8.4	0.61	
5,536.0	1.81	298.48	298.48	5,534.0	-14.8	-73.2	9.0	0.46	
5,561.0	1.97	297.08	297.08	5,559.0	-14.4	-74.0	9.6	0.67	
5,586.0	1.89	299.54	299.54	5,583.9	-14.0	-74.7	10.2	0.46	
5,611.0	1.86	300.38	300.38	5,608.9	-13.6	-75.4	10.8	0.16	
5,636.0	1.99	301.98	301.98	5,633.9	-13.2	-76.1	11.5	0.56	
5,661.0	2.22	305.05	305.05	5,658.9	-12.7	-76.9	12.2	1.02	
5,686.0	2.28	304.86	304.86	5,683.9	-12.1	-77.7	13.0	0.24	
5,711.0	2.24	302.25	302.25	5,708.9	-11.6	-78.5	13.8	0.44	
5,736.0	2.30	299.41	299.41	5,733.8	-11.1	-79.4	14.5	0.51	
5,761.0	2.30	302.54	302.54	5,758.8	-10.5	-80.2	15.3	0.50	

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Manser Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Site:</b>	Zimka/Manser Pad	<b>MD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Well:</b>	Manser Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Sidetrack 1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Sidetrack 1	<b>Database:</b>	Oklahoma District

Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
5,786.0	2.14	303.47	303.47	5,783.8	-10.0	-81.1	16.0	0.66	
5,811.0	2.15	306.01	306.01	5,808.8	-9.5	-81.8	16.8	0.38	
5,836.0	2.12	304.82	304.82	5,833.8	-8.9	-82.6	17.5	0.21	
5,861.0	2.20	302.09	302.09	5,858.8	-8.4	-83.4	18.3	0.52	
5,886.0	1.99	300.79	300.79	5,883.7	-7.9	-84.2	19.0	0.86	
5,911.0	2.01	302.59	302.59	5,908.7	-7.5	-84.9	19.6	0.26	
5,936.0	1.86	298.09	298.09	5,933.7	-7.1	-85.6	20.3	0.85	
5,961.0	1.81	304.65	304.65	5,958.7	-6.6	-86.3	20.9	0.86	
5,986.0	1.80	305.15	305.15	5,983.7	-6.2	-86.9	21.5	0.07	
6,011.0	1.83	302.21	302.21	6,008.7	-5.8	-87.6	22.1	0.39	
6,036.0	1.92	299.62	299.62	6,033.7	-5.3	-88.3	22.8	0.49	
6,061.0	1.75	298.42	298.42	6,058.6	-4.9	-89.0	23.3	0.70	
6,079.3	1.82	292.91	292.91	6,076.9	-4.7	-89.5	23.7	1.01	
6,095.0	1.60	297.02	297.02	6,092.6	-4.5	-89.9	24.1	1.60	
6,127.0	1.84	311.31	311.31	6,124.6	-4.0	-90.7	24.8	1.53	
6,158.0	2.70	302.84	302.84	6,155.6	-3.2	-91.7	25.8	2.97	
6,189.0	3.07	292.85	292.85	6,186.6	-2.5	-93.1	26.9	2.01	
6,221.0	3.36	282.27	282.27	6,218.5	-2.0	-94.8	28.0	2.06	
6,252.0	4.54	272.48	272.48	6,249.4	-1.7	-96.9	28.9	4.37	
6,283.0	4.26	269.43	269.43	6,280.3	-1.7	-99.3	29.7	1.18	
6,315.0	4.58	272.68	272.68	6,312.2	-1.7	-101.8	30.5	1.27	
6,346.0	6.84	273.93	273.93	6,343.1	-1.5	-104.8	31.6	7.30	
6,377.0	10.38	274.56	274.56	6,373.7	-1.1	-109.5	33.4	11.42	
6,409.0	13.14	271.06	271.06	6,405.1	-0.8	-116.0	35.8	8.90	
6,440.0	17.10	266.72	266.72	6,435.0	-1.0	-124.1	38.1	13.28	
6,472.0	20.46	261.48	261.48	6,465.3	-2.1	-134.3	40.3	11.74	
6,503.0	22.15	257.37	257.37	6,494.2	-4.2	-145.3	41.8	7.27	
6,534.0	23.33	258.32	258.32	6,522.7	-6.7	-157.1	43.1	3.99	
6,566.0	25.63	265.71	265.71	6,551.9	-8.5	-170.2	45.5	11.96	
6,597.0	27.74	269.91	269.91	6,579.6	-9.0	-184.1	49.4	9.13	
6,628.0	29.03	273.09	273.09	6,606.8	-8.6	-198.8	54.4	6.41	
6,659.0	28.57	274.96	274.96	6,634.0	-7.6	-213.7	60.1	3.26	
6,691.0	29.24	282.09	282.09	6,662.0	-5.3	-229.0	67.1	10.97	
6,722.0	31.82	288.88	288.88	6,688.7	-1.1	-244.1	75.9	13.88	
6,753.0	34.51	293.95	293.95	6,714.7	5.2	-259.9	86.7	12.46	
6,785.0	35.72	298.36	298.36	6,740.9	13.3	-276.4	99.7	8.78	
6,816.0	37.06	302.70	302.70	6,765.8	22.6	-292.2	113.5	9.36	
6,847.0	39.86	306.85	306.85	6,790.1	33.6	-308.0	128.9	12.28	
6,879.0	42.54	310.76	310.76	6,814.2	46.8	-324.4	146.7	11.61	
6,910.0	45.56	312.49	312.49	6,836.5	61.2	-340.5	165.3	10.49	
6,942.0	49.32	314.62	314.62	6,858.1	77.4	-357.6	186.1	12.73	
6,973.0	52.33	317.39	317.39	6,877.7	94.7	-374.3	207.8	11.93	
7,005.0	55.57	321.69	321.69	6,896.5	114.4	-391.0	231.7	14.85	
7,036.0	59.12	323.77	323.77	6,913.2	135.2	-406.8	256.4	12.77	

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Manser Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Site:</b>	Zimka/Manser Pad	<b>MD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Well:</b>	Manser Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Sidetrack 1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Sidetrack 1	<b>Database:</b>	Oklahoma District

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,067.0	61.46	326.62	6,928.6	157.3	-422.2	282.2	10.99	
7,099.0	65.15	328.46	6,943.0	181.4	-437.5	310.0	12.62	
7,130.0	69.20	329.80	6,955.0	205.9	-452.2	337.9	13.66	
7,161.0	71.56	331.33	6,965.4	231.3	-466.5	366.5	8.92	
7,192.0	73.23	334.58	6,974.8	257.7	-480.0	395.7	11.35	
7,224.0	77.19	337.20	6,983.0	285.9	-492.6	426.5	14.69	
7,255.0	80.80	339.58	6,988.9	314.2	-503.8	456.9	13.87	
7,286.0	83.40	341.97	6,993.1	343.2	-513.9	487.6	11.34	
7,318.0	85.89	341.97	6,996.1	373.5	-523.8	519.4	7.78	
7,400.0	90.78	343.24	6,998.5	451.7	-548.3	601.4	6.16	
7,446.0	89.93	346.40	6,998.2	496.0	-560.3	647.3	7.11	
7,509.0	89.90	348.44	6,998.3	557.5	-574.0	709.9	3.24	
7,603.0	91.11	347.77	6,997.5	649.5	-593.4	803.3	1.47	
7,697.0	90.44	344.58	6,996.2	740.8	-615.8	897.0	3.47	
7,791.0	90.27	341.88	6,995.6	830.7	-643.0	991.0	2.88	
7,886.0	90.60	342.51	6,994.9	921.2	-672.0	1,086.0	0.75	
7,980.0	91.24	341.13	6,993.4	1,010.5	-701.3	1,180.0	1.62	
8,074.0	91.08	340.47	6,991.5	1,099.2	-732.2	1,273.9	0.72	
8,168.0	90.13	340.75	6,990.5	1,187.9	-763.4	1,367.9	1.05	
8,263.0	89.77	339.95	6,990.6	1,277.4	-795.4	1,462.9	0.92	
8,357.0	90.81	341.74	6,990.1	1,366.2	-826.2	1,556.9	2.20	
8,451.0	91.48	341.45	6,988.2	1,455.3	-855.9	1,650.8	0.78	
8,545.0	91.24	339.69	6,986.0	1,543.9	-887.2	1,744.8	1.89	
8,638.0	90.94	339.30	6,984.2	1,631.0	-919.7	1,837.7	0.53	
8,733.0	91.07	340.81	6,982.6	1,720.3	-952.1	1,932.7	1.60	
8,827.0	90.87	342.87	6,981.0	1,809.6	-981.4	2,026.6	2.20	
8,921.0	91.07	343.21	6,979.4	1,899.5	-1,008.8	2,120.6	0.42	
9,015.0	91.17	341.50	6,977.6	1,989.1	-1,037.3	2,214.6	1.82	
9,110.0	91.21	341.30	6,975.6	2,079.1	-1,067.6	2,309.6	0.21	
9,204.0	91.41	341.19	6,973.4	2,168.1	-1,097.8	2,403.5	0.24	
9,298.0	91.78	340.29	6,970.8	2,256.8	-1,128.8	2,497.5	1.03	
9,392.0	92.11	340.70	6,967.6	2,345.3	-1,160.2	2,591.4	0.56	
9,486.0	91.58	340.81	6,964.6	2,434.0	-1,191.2	2,685.3	0.58	
9,580.0	90.67	342.22	6,962.8	2,523.2	-1,221.0	2,779.3	1.79	
9,674.0	90.57	340.94	6,961.7	2,612.4	-1,250.7	2,873.3	1.37	
9,769.0	90.87	343.16	6,960.5	2,702.7	-1,279.9	2,968.3	2.36	
9,863.0	91.58	344.20	6,958.5	2,792.9	-1,306.3	3,062.2	1.34	
9,957.0	91.71	343.93	6,955.8	2,883.3	-1,332.1	3,156.1	0.32	
10,047.0	91.65	342.26	6,953.2	2,969.3	-1,358.3	3,246.6	1.86	
10,139.0	91.81	341.40	6,950.4	3,056.7	-1,387.0	3,338.0	0.95	
10,230.0	92.15	341.33	6,947.3	3,142.9	-1,416.0	3,428.9	0.38	
10,322.0	90.81	339.90	6,944.9	3,229.6	-1,446.6	3,520.8	2.13	
10,413.0	90.27	338.87	6,944.0	3,314.8	-1,478.6	3,611.8	1.28	
10,504.0	91.75	341.60	6,942.4	3,400.4	-1,509.4	3,702.7	3.41	
10,595.0	90.60	339.44	6,940.6	3,486.2	-1,539.7	3,793.7	2.69	

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<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Site:</b>	Zimka/Manser Pad	<b>MD Reference:</b>	Patterson 325 GL 1141 +24' RKB @ 1165.0usft
<b>Well:</b>	Manser Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Sidetrack 1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Sidetrack 1	<b>Database:</b>	Oklahoma District

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
10,686.0	89.90	340.14	6,940.2	3,571.6	-1,571.1	3,884.7	1.09
10,776.0	90.91	342.10	6,939.5	3,656.7	-1,600.3	3,974.6	2.45
10,867.0	90.50	341.27	6,938.4	3,743.1	-1,628.9	4,065.6	1.02
10,958.0	91.28	341.36	6,937.0	3,829.3	-1,658.0	4,156.6	0.86
11,049.0	90.57	341.75	6,935.5	3,915.6	-1,686.8	4,247.6	0.89
11,143.0	91.17	339.55	6,934.1	4,004.3	-1,717.9	4,341.6	2.43
11,237.0	91.58	339.06	6,931.9	4,092.2	-1,751.1	4,435.5	0.68
11,332.0	91.21	342.12	6,929.5	4,181.8	-1,782.7	4,530.4	3.24
11,426.0	88.05	339.63	6,930.1	4,270.5	-1,813.5	4,624.4	4.28
11,520.0	89.19	342.62	6,932.4	4,359.5	-1,843.9	4,718.3	3.40
11,614.0	89.63	342.38	6,933.4	4,449.1	-1,872.2	4,812.3	0.53
11,708.0	89.87	342.25	6,933.8	4,538.7	-1,900.7	4,906.3	0.29
11,802.0	89.60	342.13	6,934.2	4,628.2	-1,929.5	5,000.3	0.31
11,895.0	89.76	342.19	6,934.7	4,716.7	-1,957.9	5,093.3	0.18
11,989.0	89.60	341.62	6,935.3	4,806.0	-1,987.1	5,187.3	0.63
12,083.0	87.95	342.56	6,937.3	4,895.4	-2,016.0	5,281.3	2.02
12,177.0	89.36	342.60	6,939.5	4,985.1	-2,044.2	5,375.2	1.50
12,272.0	87.98	340.01	6,941.7	5,075.1	-2,074.6	5,470.2	3.09
12,366.0	88.59	340.69	6,944.5	5,163.5	-2,106.2	5,564.1	0.97
12,460.0	90.10	340.58	6,945.6	5,252.2	-2,137.4	5,658.1	1.61
12,554.0	90.27	339.19	6,945.3	5,340.5	-2,169.7	5,752.1	1.49
12,648.0	88.92	338.22	6,945.9	5,428.1	-2,203.8	5,845.9	1.77
12,742.0	88.42	340.88	6,948.1	5,516.1	-2,236.7	5,939.8	2.88
12,836.0	88.86	343.53	6,950.4	5,605.6	-2,265.4	6,033.8	2.86
12,931.0	90.50	343.00	6,950.9	5,696.5	-2,292.7	6,128.8	1.81
13,025.0	90.40	341.30	6,950.1	5,786.0	-2,321.5	6,222.7	1.81
13,119.0	90.00	342.97	6,949.8	5,875.5	-2,350.4	6,316.7	1.83
13,214.0	89.60	341.83	6,950.1	5,966.0	-2,379.1	6,411.7	1.27
13,308.0	89.80	343.37	6,950.6	6,055.7	-2,407.2	6,505.7	1.65
13,403.0	89.50	342.78	6,951.2	6,146.6	-2,434.9	6,600.7	0.70
13,497.0	87.75	340.96	6,953.5	6,235.9	-2,464.1	6,694.6	2.69
13,591.0	89.23	342.01	6,956.0	6,325.0	-2,493.9	6,788.6	1.93
13,686.0	88.86	341.92	6,957.5	6,415.3	-2,523.4	6,883.6	0.40
13,780.0	89.26	342.41	6,959.1	6,504.8	-2,552.1	6,977.6	0.67
13,874.0	89.93	343.87	6,959.7	6,594.8	-2,579.4	7,071.5	0.71
13,968.0	89.60	344.03	6,960.1	6,685.1	-2,605.4	7,165.5	0.39
14,020.0	89.26	344.19	6,960.6	6,735.1	-2,619.6	7,217.4	0.72
14,074.0	89.00	342.50	6,961.5	6,786.8	-2,635.1	7,271.4	0.75

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AUG 03 2015

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: WV Department of Environmental Protection

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/20/2014
Job End Date:	1/4/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06485-08-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Manser Unit 1H
Longitude:	-80.67301700
Latitude:	39.28522500
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,998
Total Base Water Volume (gal):	9,714,710
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
Fresh Water	Operator	Base Fluid	Fresh Water	7732-18-5	100.00000	90.39801	Density = 8.340
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00000	8.54835	
SAND - COMMON WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00000	0.77505	
HYDROCHLORIC ACID 10-30%	Halliburton	Solvent	Hydrochloric acid	7647-01-0	30.00000	0.06141	
WG-36 GELLING AGENT	Halliburton	Gelling Agent	Guar gum	9000-30-0	100.00000	0.04962	
SP BREAKER	Halliburton	Breaker	Sodium persulfate	7775-27-1	100.00000	0.00185	
P-65	Halliburton	Scale Inhibitor	Ammonium chloride	12125-02-9	10.00000	0.00140	
BE-9W	Halliburton	Biocide	Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00000	0.00081	
CA-1	Halliburton	Solvent					

17-06485



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17.06485

FR-76	Halliburton	Friction Reducer	Paraffinic solvent	Confidential	100.00000	0.00015	
			Hydrotreated light petroleum distillate	6472-47-8	30.00000	0.00002	
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 Ingredient(s)	Water	7732-18-5		0.22119	
		Other Ingredient(s)	Organic phosphonate	Confidential		0.00839	
		Other Ingredient(s)	Propylene glycol	57-55-6		0.00486	
		Other Ingredient(s)	Bentonite, benzyl(hydrogenated tallow alkyl) dimethylammonium stearate complex	121888-68-4		0.00249	
		Other Ingredient(s)	Silica gel	112926-00-8		0.00050	
		Other Ingredient(s)	Surfactant mixture	Confidential		0.00050	
		Other Ingredient(s)	Surfactant mixture	Confidential		0.00050	
		Other Ingredient(s)	Formaldehyde	50-00-0		0.00014	
		Other Ingredient(s)	Crystalline Silica, Quartz	14808-60-7		0.00005	
		Other Ingredient(s)	Sodium sulfate	7757-82-6		0.00000	

\* 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)

Office of Oil and Gas  
 WV Department of Environmental Protection  
 3000 N. Sam Houston Pkwy E., Houston, TX 77032  
 281-871-6226  
 AUG 23 2015

LATITUDE 39°17'30" 1,847'

4,458' TO BOTTOM HOLE  
LATITUDE 39°20'00"

LONGITUDE 80°40'00"  
LONGITUDE 80°40'00"  
2,380'  
10,757' TO BOTTOM HOLE

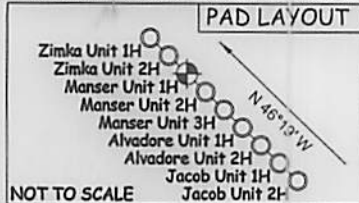
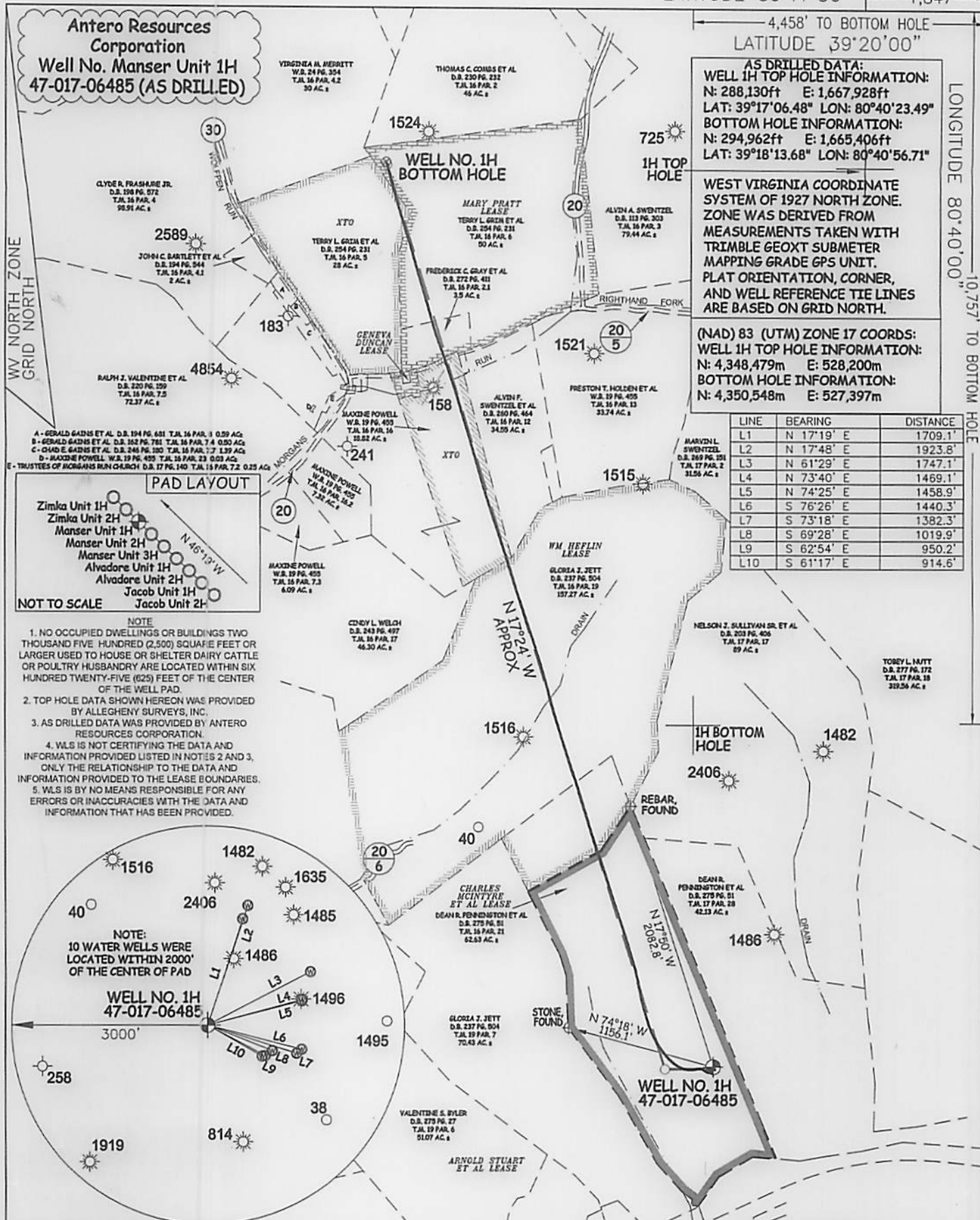
**Antero Resources Corporation**  
**Well No. Manser Unit 1H**  
**47-017-06485 (AS DRILLED)**

**AS DRILLED DATA:**  
**WELL 1H TOP HOLE INFORMATION:**  
N: 288,130ft E: 1,667,928ft  
LAT: 39°17'06.48" LON: 80°40'23.49"  
**BOTTOM HOLE INFORMATION:**  
N: 294,962ft E: 1,665,406ft  
LAT: 39°18'13.68" LON: 80°40'56.71"

**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: 4,348,479m E: 528,200m  
**BOTTOM HOLE INFORMATION:**  
N: 4,350,548m E: 527,397m

LINE	BEARING	DISTANCE
L1	N 17°19' E	1709.1'
L2	N 17°48' E	1923.8'
L3	N 61°29' E	1747.1'
L4	N 73°40' E	1469.1'
L5	N 74°25' E	1458.9'
L6	S 76°26' E	1440.3'
L7	S 73°18' E	1382.3'
L8	S 69°28' E	1019.9'
L9	S 62°54' E	950.2'
L10	S 61°17' E	914.6'



- NOTE**
1. NO OCCUPIED DWELLINGS OR 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.



JOB # **13-092WA**  
DRAWING # **MANSER1HAD**  
SCALE **1" = 1000**  
MINIMUM DEGREE OF ACCURACY **SUBMETER**  
PROVEN SOURCE OF ELEV. **SUBMETER MAPPING GRADE GPS**



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

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

DATE **06/12/15**  
OPERATOR'S WELL # **MANSER UNIT #1H**

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL   
(IF "GAS") PRODUCTION  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION **1,198' ORIGINAL - 1,141' AS DRILLED** WATERSHED **HEADWATERS MIDDLE ISLAND CREEK**  
QUADRANGLE **SMITHBURG 7.5'** DISTRICT **GRANT** COUNTY **DODDRIDGE**

SURFACE OWNER **DEAN R. PENNINGTON ET AL** ACREAGE **62.63 ACRES +/-**  
OIL & GAS ROYALTY OWNER **CHARLES MCINTYRE ET AL; WM HEFLIN; XTO; MARY PRATT; XTO** LEASE ACREAGE **70 ACRES +/-; 120.6 ACRES +/-; 16 ACRES +/-; 54 ACRES +/-; 28 ACRES +/-**

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY)  **AS DRILLED** PLUG & ABANDON  CLEAN OUT & REPLUG   
TARGET FORMATION **MARCELLUS** ESTIMATED DEPTH **6,961' TVD 14,074' MD**

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

COUNTY NAME PERMIT