

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

API 47-085-10080 County Ritchie District Clay
Quad Pullman 7.5' Pad Name Edwin Field/Pool Name ----
Farm name Quimby, Franklin P. Well Number Moats Unit 2H
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 4342357m Easting 508388m
Landing Point of Curve Northing 4342167.26m Easting 508099.16m
Bottom Hole Northing 4340459m Easting 508900m

Elevation (ft) 1191' 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 12/30/2013 Date drilling commenced 12/10/2014 Date drilling ceased 8/26/2015
Date completion activities began 10/17/2015 Date completion activities ceased 2/26/2016
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 49' Open mine(s) (Y/N) depths No
Salt water depth(s) ft None Identified Void(s) encountered (Y/N) depths No
Coal depth(s) ft 1287' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

APPROVED

NAME: Michael Gaff
DATE: 6/13/16

Reviewed by: _____
AX RB 12/02/2016
12/01/16

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API 47-085 - 10080 Farm name Quimby, Franklin P. Well number Moats Unit 2H

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# H-40	N/A	Y
Surface	17- 1/2"	13- 3/8"	377'	New	48# H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2566'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	13338'	New	20# P-110	N/A	Y
Tubing		2-3/8"	6859'		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	200 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	463 sx	15.6	1.18	262	0'	8 Hrs.
Coal							
Intermediate 1	Class A	1003 sx	15.6	1.18	804	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	891 sx (Lead) 1064 sx (Tail)	13.5 Lead 15.2 Tail	1.30 Lead 1.85 Tail	2582	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 13338' MD, 6657' TVD (BHL), 6662' (Deepest Point Drilled) Loggers TD (ft) 13287'
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 6205'

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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PRODUCING FORMATION(S)	DEPTHS	
<u>Marcellus</u>	<u>6543' (top)</u> TVD	<u>6894' (top)</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3000 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 3141 mcfpd Oil 36 bpd NGL --- bpd Water 204 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)
	0		0		

***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 60 Alpha Dr. City Canonsburg State PA Zip 15317

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

Stimulating Company US Well Services
Address 533 Industrial Park Dr. City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Kara Quackenbush Telephone 303-357-7233
Signature *KQ* Title Permit Representative Date 5/19/2016

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

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EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	17-Oct-15	13,080	13,247	60	Marcellus
2	7-Jan-16	12,881	13,049	60	Marcellus
3	7-Jan-16	12,683	12,850	60	Marcellus
4	7-Jan-16	12,485	12,652	60	Marcellus
5	8-Jan-16	12,287	12,454	60	Marcellus
6	8-Jan-16	12,088	12,256	60	Marcellus
7	8-Jan-16	11,890	12,057	60	Marcellus
8	8-Jan-16	11,692	11,859	60	Marcellus
9	9-Jan-16	11,493	11,661	60	Marcellus
10	9-Jan-16	11,295	11,462	60	Marcellus
11	9-Jan-16	11,097	11,264	60	Marcellus
12	9-Jan-16	10,899	11,066	60	Marcellus
13	10-Jan-16	10,700	10,867	60	Marcellus
14	11-Jan-16	10,502	10,669	60	Marcellus
15	12-Jan-16	10,304	10,471	60	Marcellus
16	12-Jan-16	10,105	10,273	60	Marcellus
17	12-Jan-16	9,907	10,074	60	Marcellus
18	13-Jan-16	9,709	9,876	60	Marcellus
19	13-Jan-16	9,510	9,678	60	Marcellus
20	13-Jan-16	9,312	9,479	60	Marcellus
21	13-Jan-16	9,114	9,281	60	Marcellus
22	14-Jan-16	8,916	9,083	60	Marcellus
23	14-Jan-16	8,717	8,885	60	Marcellus
24	14-Jan-16	8,519	8,686	60	Marcellus
25	14-Jan-16	8,321	8,488	60	Marcellus
26	15-Jan-16	8,122	8,290	60	Marcellus
27	15-Jan-16	7,924	8,091	60	Marcellus
28	15-Jan-16	7,726	7,893	60	Marcellus
29	16-Jan-16	7,528	7,695	60	Marcellus
30	16-Jan-16	7,329	7,496	60	Marcellus
31	16-Jan-16	7,131	7,298	60	Marcellus
32	16-Jan-16	6,933	7,100	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	6-Jan-16	70.6	6,852	5,428	3,609	248,440	6,834	N/A
2	7-Jan-16	71.7	6,573	5,184	4,801	247,750	6,638	N/A
3	7-Jan-16	69.2	6,431	5,230	4,769	247,920	6,508	N/A
4	7-Jan-16	70.4	6,785	5,195	4,645	247,650	6,487	N/A
5	8-Jan-16	69.7	7,391	5,255	4,090	121,190	6,740	N/A
6	8-Jan-16	71.8	6,354	5,151	3,743	242,650	6,619	N/A
7	8-Jan-16	71.5	6,444	5,662	4,412	244,220	6,596	N/A
8	8-Jan-16	71.3	6,572	5,268	4,343	246,970	6,377	N/A
9	9-Jan-16	71.6	6,678	5,780	4,854	209,570	6,339	N/A
10	9-Jan-16	71.4	6,407	5,257	3,568	241,940	6,439	N/A
11	9-Jan-16	72.5	6,618	5,620	3,874	246,515	6,506	N/A
12	9-Jan-16	69.1	6,616	5,530	4,555	248,700	6,327	N/A
13	10-Jan-16	68.3	7,033	5,718	3,584	131,840	6,721	N/A
14	11-Jan-16	69.3	6,702	5,578	4,937	210,150	7,176	N/A
15	12-Jan-16	70.5	6,450	5,861	4,760	248,850	6,417	N/A
16	12-Jan-16	70.7	6,399	5,640	3,767	240,760	6,253	N/A
17	12-Jan-16	71.2	6,487	5,787	3,670	249,000	6,422	N/A
18	13-Jan-16	69.7	6,452	5,252	4,692	249,650	7,344	N/A
19	13-Jan-16	70.6	6,091	5,622	4,852	248,700	6,261	N/A
20	13-Jan-16	70.7	6,327	5,231	4,757	251,850	6,338	N/A
21	13-Jan-16	72.1	6,527	5,345	4,863	248,480	6,236	N/A
22	14-Jan-16	72.2	6,344	5,195	4,775	248,300	6,172	N/A
23	14-Jan-16	71.5	6,588	5,561	4,065	249,640	6,201	N/A
24	14-Jan-16	72.4	6,053	5,014	4,728	249,230	6,150	N/A
25	14-Jan-16	71.6	6,075	5,096	4,515	247,990	6,130	N/A
26	15-Jan-16	72.3	6,359	4,748	4,427	250,400	7,000	N/A
27	15-Jan-16	72.6	6,076	5,044	4,636	251,300	6,116	N/A
28	15-Jan-16	72.2	6,107	5,188	5,089	246,700	6,088	N/A
29	16-Jan-16	72.3	5,864	5,211	5,085	249,000	6,073	N/A
30	16-Jan-16	72.0	6,039	5,158	4,748	244,750	6,138	N/A
31	16-Jan-16	72.0	6,034	5,088	4,908	245,510	6,091	N/A
32	16-Jan-16	70.9	5,919	5,493	4,145	249,820	6,123	N/A
	AVG=	71.1	6,426	5,356	4,446	7,605,435	6,433	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	49'	N/A	49'	N/A
Sandy Shale	0	187	0	187
Sandstone	est. 187	447	est. 187	447
Shale/Siltstone	est. 447	647	est. 447	647
Shaley Limestone	est. 647	727	est. 647	727
Shale/Siltstone	est. 727	1127	est. 727	1127
Shaley Limestone	est. 1127	1287	est. 1127	1287
Coal	est. 1287	1307	est. 1287	1307
Shaley Limestone (trace coal)	est. 1307	1627	est. 1307	1627
Shale/Siltstone	est. 1627	1787	est. 1627	1787
Sandstone/Siltstone	est. 1787	1827	est. 1787	1827
Sandstone/Siltstone with trace coal	est. 1827	2007	est. 1827	2007
Silty Sandstone	est. 2007	2160	est. 2007	2162
Big Lime	2160	2258	2162	2260
Big Injun	2258	2658	2260	2660
Gantz Sand	2658	2857	2660	2859
Fifty Foot Sandstone	2857	2914	2859	2916
Gordon	2914	3062	2916	3064
Fifth Sandstone	3062	3203	3064	3205
Bayard	3203	3630	3205	3632
Warren	3630	4035	3632	4037
Speechley	4035	4277	4037	4281
Baltown	4277	4716	4281	4738
Bradford	4716	5092	4738	5149
Benson	5092	5355	5149	5435
Alexander	5355	5565	5435	5662
Elk	5565	5932	5662	6063
Rhinestreet	5932	6226	6063	6394
Sycamore	6226	6383	6394	6587
Middlesex	6383	6490	6587	6767
Burkett	6490	6510	6767	6833
Tully	6510	6543	6833	6894
Marcellus	6543	NA	6894	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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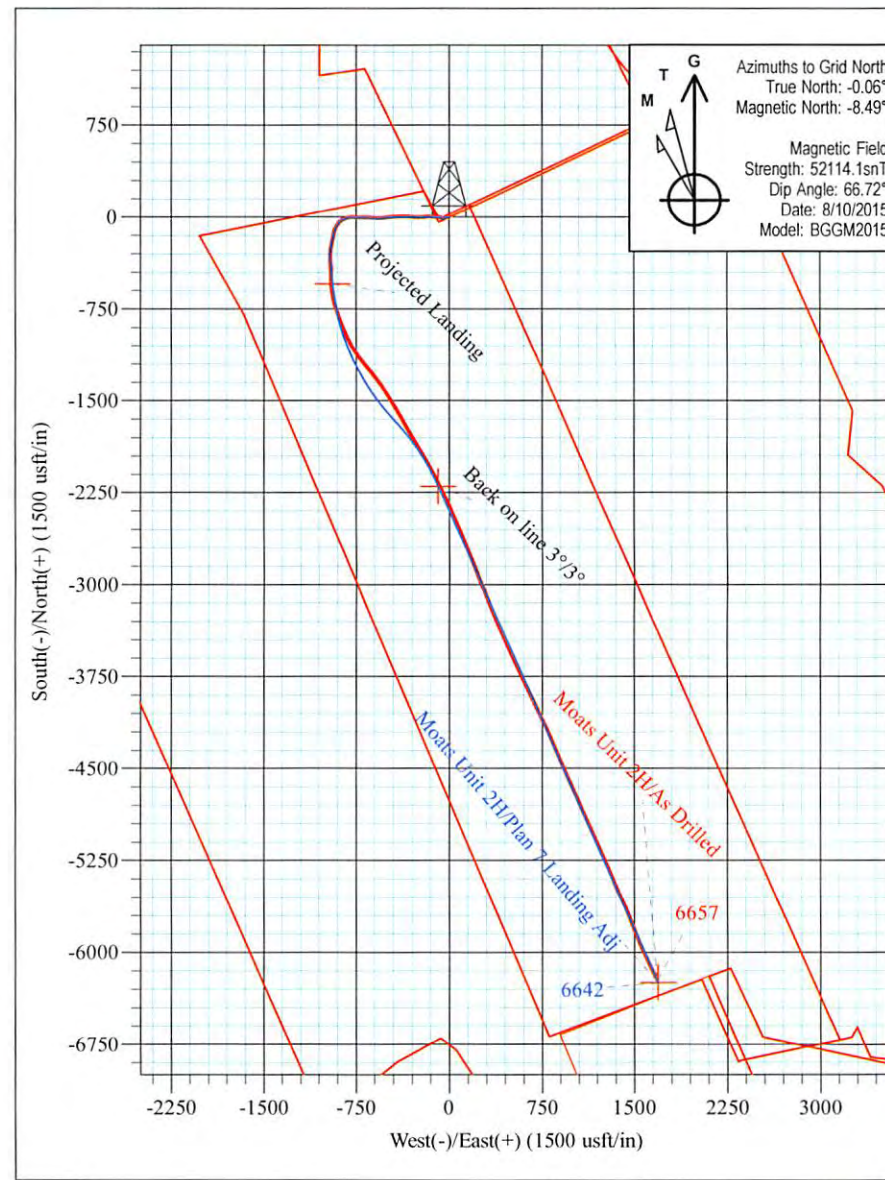
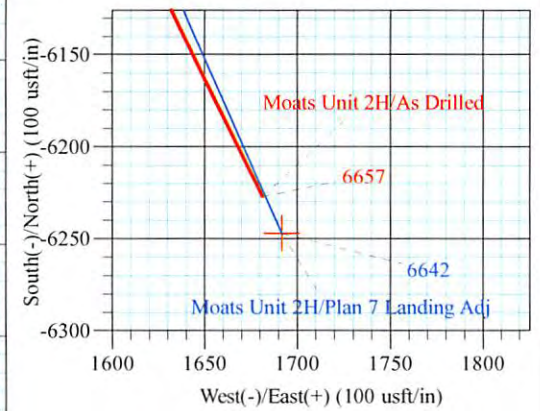
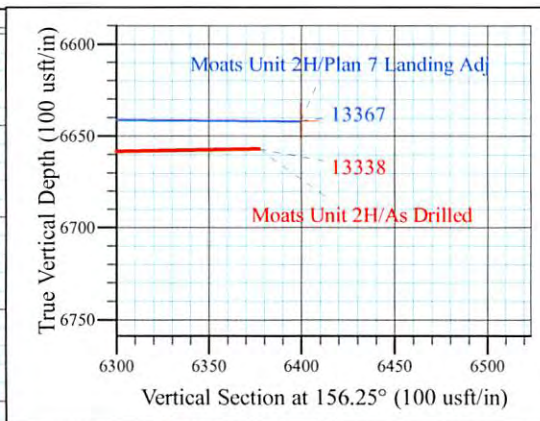
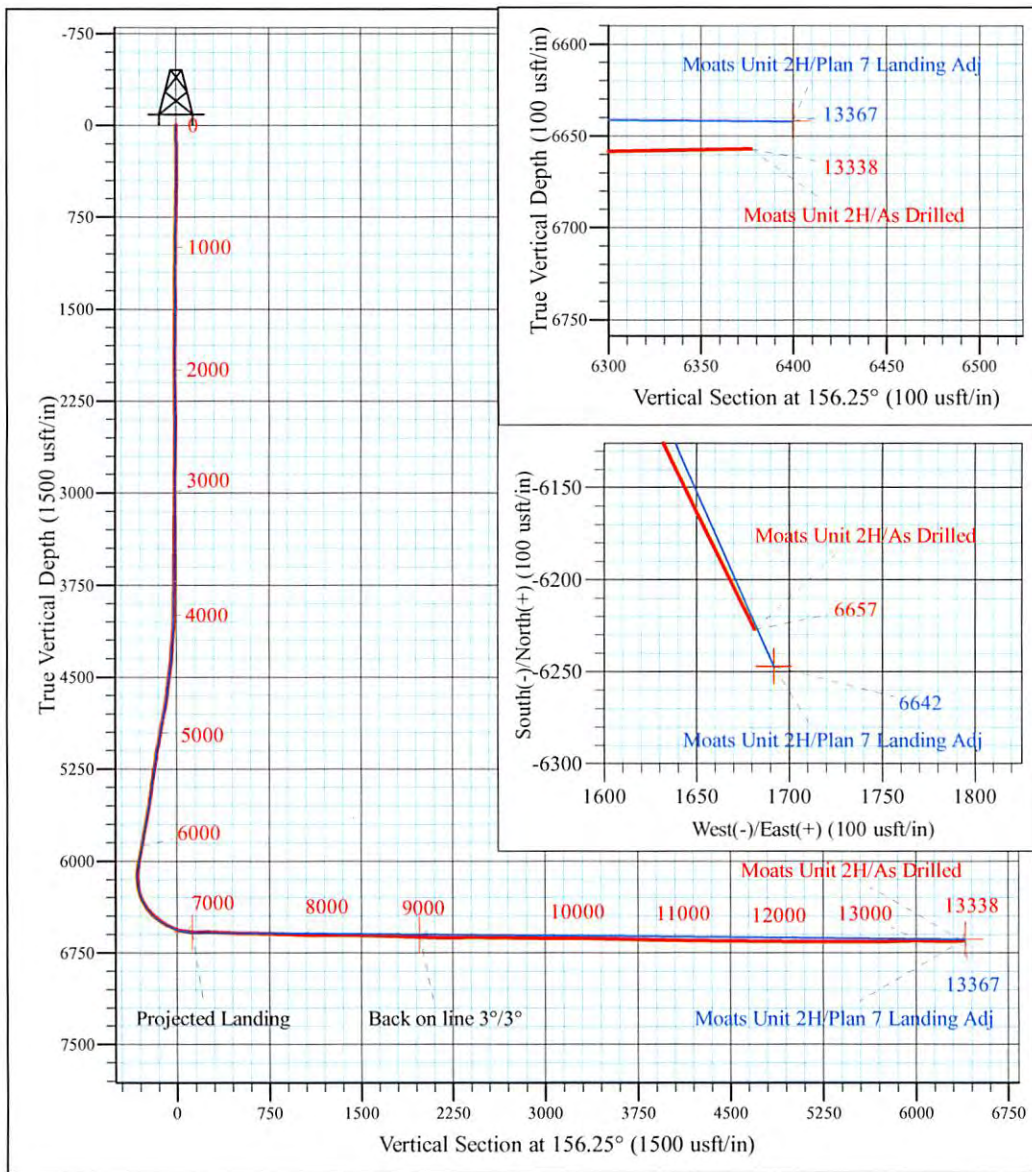
Edwin Pad: Hornet/Miracle/Moats/Myrtle
 Moats Unit 2H
 Plan 7 Landing Adj
 Precision 522: GL 1191' + KB 18' @ 1209.0usft
 Ritchie County WV

PROJECT DETAILS:
 Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: Zone 17N (84 W to 78 W)
 System Datum: Mean Sea Level



WELL DETAILS: **Moats Unit 2H SHL**

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	14245835.57	1667887.57	39° 13' 49.392 N	80° 54' 10.765 W



Moats Unit 2H
Approx. BHL
 39° 12' 47.800 N 80° 53' 49.479 W

Shane Rhodes
 8:12, August 26 2015
 Scientific Drilling International
 124 Vista Drive
 Charleroi, PA 15022



Antero

Ritchie County WV
Edwin Pad: Hornet/Miracle/Moats/Myrtle
Moats Unit 2H

Original Wellpath

Design: As Drilled

Standard Survey Report

26 August, 2015



www.scientificdrilling.com

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Company:	Antero	Local Co-ordinate Reference:	Well Moats Unit 2H
Project:	Ritchie County WV	TVD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Site:	Edwin Pad: Hornet/Miracle/Moats/Myrtle	MD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Well:	Moats Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Project	Ritchie County WV, Ritchie County WV, WV North		
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	Edwin Pad: Hornet/Miracle/Moats/Myrtle				
Site Position:	Northing:	14,245,885.63 usft	Latitude:	39° 13' 49.887 N	
From:	Map	Easting:	1,667,891.73 usft	Longitude:	80° 54' 10.711 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.06 °

Well	Moats Unit 2H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,245,835.57 usft	Latitude:	39° 13' 49.392 N
	+E/-W	0.0 usft	Easting:	1,667,887.57 usft	Longitude:	80° 54' 10.765 W
Position Uncertainty	2.0 usft		Wellhead Elevation:	1,209.0 usft	Ground Level:	1,191.0 usft

Wellbore	Original Wellpath				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2015	8/10/2015	-8.43	66.72	52,114

Design	As Drilled				
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	156.25	

Survey Program	Date	8/26/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
30.0	6,002.6	Survey #8 Final Gyro to KOP (Original We	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
6,144.0	13,338.0	Survey #9 SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

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	
30.0	0.28	196.31	30.0	-0.1	0.0	0.1	0.93	0.93	0.00	
First SDI Gyro @ 30 MD										
55.0	0.57	196.31	55.0	-0.2	-0.1	0.2	1.16	1.16	0.00	
80.0	0.85	196.31	80.0	-0.5	-0.2	0.4	1.12	1.12	0.00	
105.0	1.14	196.31	105.0	-1.0	-0.3	0.8	1.16	1.16	0.00	
130.0	1.06	196.65	130.0	-1.4	-0.4	1.1	0.32	-0.32	1.36	
155.0	0.85	200.94	155.0	-1.8	-0.6	1.4	0.89	-0.84	27.86	
180.0	0.87	197.40	180.0	-2.2	-0.7	1.7	0.23	0.08	-14.16	
205.0	0.62	206.49	205.0	-2.5	-0.8	1.9	1.10	-1.00	36.36	

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Well:	Moats Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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)
230.0	0.47	202.30	230.0	-2.7	-0.9	2.1	0.62	-0.60	-16.76
255.0	0.31	210.84	255.0	-2.8	-1.0	2.2	0.68	-0.64	34.16
280.0	0.18	212.27	280.0	-2.9	-1.0	2.3	0.52	-0.52	5.72
305.0	0.16	250.15	305.0	-3.0	-1.1	2.3	0.45	-0.08	151.52
330.0	0.10	256.12	330.0	-3.0	-1.1	2.3	0.25	-0.24	23.88
355.0	0.21	266.47	355.0	-3.0	-1.2	2.3	0.45	0.44	41.40
380.0	0.16	253.69	380.0	-3.0	-1.3	2.2	0.26	-0.20	-51.12
405.0	0.12	257.58	405.0	-3.0	-1.3	2.2	0.16	-0.16	15.56
430.0	0.15	216.56	430.0	-3.1	-1.4	2.3	0.39	0.12	-164.08
455.0	0.22	269.06	455.0	-3.1	-1.4	2.2	0.70	0.28	210.00
480.0	0.56	281.70	480.0	-3.1	-1.6	2.2	1.39	1.36	50.56
505.0	1.02	285.29	505.0	-3.0	-1.9	1.9	1.85	1.84	14.36
530.0	1.52	282.76	530.0	-2.9	-2.5	1.6	2.01	2.00	-10.12
555.0	2.09	283.00	555.0	-2.7	-3.3	1.1	2.28	2.28	0.96
580.0	2.81	277.65	579.9	-2.5	-4.3	0.5	3.02	2.88	-21.40
605.0	3.32	275.17	604.9	-2.3	-5.6	-0.1	2.11	2.04	-9.92
630.0	3.68	271.29	629.9	-2.3	-7.2	-0.8	1.72	1.44	-15.52
655.0	4.28	269.51	654.8	-2.3	-8.9	-1.5	2.45	2.40	-7.12
680.0	4.74	264.56	679.7	-2.4	-10.9	-2.2	2.41	1.84	-19.80
705.0	5.57	260.07	704.6	-2.7	-13.1	-2.8	3.69	3.32	-17.96
730.0	5.74	260.08	729.5	-3.1	-15.5	-3.4	0.68	0.68	0.04
755.0	5.83	259.75	754.4	-3.5	-18.0	-4.0	0.38	0.36	-1.32
780.0	5.81	258.87	779.2	-4.0	-20.5	-4.6	0.37	-0.08	-3.52
805.0	5.75	258.47	804.1	-4.5	-22.9	-5.1	0.29	-0.24	-1.60
830.0	5.76	259.58	829.0	-5.0	-25.4	-5.7	0.45	0.04	4.44
855.0	5.16	256.20	853.9	-5.5	-27.7	-6.2	2.72	-2.40	-13.52
880.0	4.70	254.51	878.8	-6.0	-29.8	-6.5	1.93	-1.84	-6.76
905.0	4.54	253.76	903.7	-6.6	-31.7	-6.8	0.68	-0.64	-3.00
930.0	4.45	253.07	928.6	-7.1	-33.6	-7.0	0.42	-0.36	-2.76
955.0	3.90	255.54	953.6	-7.6	-35.4	-7.3	2.31	-2.20	9.88
980.0	3.71	255.58	978.5	-8.0	-37.0	-7.5	0.76	-0.76	0.16
1,005.0	3.58	256.95	1,003.4	-8.4	-38.5	-7.8	0.63	-0.52	5.48
1,030.0	3.25	256.66	1,028.4	-8.7	-40.0	-8.1	1.32	-1.32	-1.16
1,055.0	3.06	256.96	1,053.4	-9.1	-41.3	-8.3	0.76	-0.76	1.20
1,080.0	2.74	258.30	1,078.3	-9.3	-42.5	-8.6	1.31	-1.28	5.36
1,105.0	2.54	257.47	1,103.3	-9.6	-43.7	-8.8	0.81	-0.80	-3.32
1,130.0	2.28	255.28	1,128.3	-9.8	-44.7	-9.0	1.10	-1.04	-8.76
1,155.0	2.21	255.71	1,153.3	-10.1	-45.6	-9.2	0.29	-0.28	1.72
1,180.0	1.93	259.22	1,178.2	-10.3	-46.5	-9.3	1.23	1.23	14.04
1,205.0	1.74	258.02	1,203.2	-10.4	-47.3	-9.5	0.78	-0.76	1.60
1,230.0	1.57	258.83	1,228.2	-10.6	-48.0	-9.7	0.49	-0.68	3.24
1,255.0	1.36	257.52	1,253.2	-10.7	-48.6	-9.8	0.85	0.84	-5.24
1,280.0	1.10	252.12	1,278.2	-10.8	-49.2	-9.9	1.14	-1.04	-21.60



Scientific Drilling International
Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Moats Unit 2H
Project:	Ritchie County WV	TVD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Site:	Edwin Pad: Hornet/Miracle/Moats/Myrtle	MD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Well:	Moats Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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)	
1,305.0	0.99	249.24	1,303.2	-11.0	-49.6	-9.9	0.49	-0.44	-11.52	
1,330.0	0.94	253.02	1,328.2	-11.1	-50.0	-10.0	0.32	-0.20	15.12	
1,355.0	0.83	253.89	1,353.2	-11.2	-50.4	-10.0	0.44	-0.44	3.48	
1,380.0	0.76	254.57	1,378.2	-11.3	-50.7	-10.1	0.28	-0.28	2.72	
1,405.0	0.61	259.97	1,403.2	-11.4	-51.0	-10.1	0.65	-0.60	21.60	
1,430.0	0.55	263.07	1,428.2	-11.4	-51.2	-10.2	0.27	-0.24	12.40	
1,455.0	0.53	267.72	1,453.2	-11.4	-51.5	-10.3	0.19	-0.08	18.60	
1,480.0	0.50	268.41	1,478.2	-11.5	-51.7	-10.3	0.12	-0.12	2.76	
1,505.0	0.56	272.39	1,503.2	-11.5	-51.9	-10.4	0.28	0.24	15.92	
1,530.0	0.44	279.71	1,528.2	-11.4	-52.1	-10.5	0.54	-0.48	29.28	
1,555.0	0.41	280.07	1,553.2	-11.4	-52.3	-10.6	0.12	-0.12	1.44	
1,580.0	0.51	279.02	1,578.2	-11.4	-52.5	-10.7	0.40	0.40	-4.20	
1,605.0	0.48	272.95	1,603.2	-11.3	-52.7	-10.9	0.24	-0.12	-24.28	
1,630.0	0.45	273.03	1,628.2	-11.3	-52.9	-10.9	0.12	-0.12	0.32	
1,655.0	0.41	272.24	1,653.2	-11.3	-53.1	-11.0	0.16	-0.16	-3.16	
1,680.0	0.36	266.48	1,678.2	-11.3	-53.3	-11.1	0.25	-0.20	-23.04	
1,705.0	0.39	267.84	1,703.2	-11.3	-53.5	-11.2	0.13	0.12	5.44	
1,730.0	0.36	262.67	1,728.2	-11.3	-53.6	-11.2	0.18	-0.12	-20.68	
1,755.0	0.31	256.86	1,753.2	-11.4	-53.8	-11.2	0.24	-0.20	-23.24	
1,780.0	0.30	259.71	1,778.2	-11.4	-53.9	-11.3	0.07	-0.04	11.40	
1,805.0	0.29	253.22	1,803.2	-11.4	-54.0	-11.3	0.14	-0.04	-25.96	
1,830.0	0.27	263.55	1,828.2	-11.5	-54.1	-11.3	0.22	-0.08	41.32	
1,855.0	0.28	253.55	1,853.2	-11.5	-54.3	-11.3	0.20	0.04	-40.00	
1,880.0	0.23	258.28	1,878.2	-11.5	-54.4	-11.4	0.22	-0.20	18.92	
1,905.0	0.19	237.38	1,903.2	-11.5	-54.4	-11.4	0.34	-0.16	-83.60	
1,930.0	0.12	208.24	1,928.2	-11.6	-54.5	-11.3	0.41	-0.28	-116.56	
1,955.0	0.10	237.14	1,953.2	-11.6	-54.5	-11.3	0.23	-0.08	115.60	
1,980.0	0.04	235.02	1,978.2	-11.6	-54.6	-11.3	0.24	-0.24	-8.48	
2,005.0	0.07	209.89	2,003.2	-11.7	-54.6	-11.3	0.15	0.12	-100.52	
2,030.0	0.05	286.21	2,028.2	-11.7	-54.6	-11.3	0.30	-0.08	305.28	
2,055.0	0.08	296.08	2,053.2	-11.7	-54.6	-11.3	0.13	0.12	39.48	
2,080.0	0.12	248.37	2,078.2	-11.7	-54.6	-11.3	0.36	0.16	-190.84	
2,105.0	0.17	253.46	2,103.2	-11.7	-54.7	-11.3	0.21	0.20	20.36	
2,130.0	0.14	258.48	2,128.2	-11.7	-54.8	-11.4	0.13	-0.12	20.08	
2,155.0	0.13	245.05	2,153.2	-11.7	-54.8	-11.4	0.13	-0.04	-53.72	
2,180.0	0.23	200.21	2,178.2	-11.8	-54.9	-11.3	0.66	0.40	-179.36	
2,205.0	0.14	227.46	2,203.2	-11.8	-54.9	-11.3	0.49	-0.36	109.00	
2,230.0	0.10	206.12	2,228.2	-11.9	-54.9	-11.3	0.24	-0.16	-85.36	
2,255.0	0.12	236.74	2,253.2	-11.9	-55.0	-11.2	0.24	0.08	122.48	
2,280.0	0.12	283.55	2,278.2	-11.9	-55.0	-11.3	0.38	0.00	187.24	
2,305.0	0.15	252.60	2,303.2	-11.9	-55.1	-11.3	0.31	0.12	-123.80	
2,330.0	0.23	247.17	2,328.2	-12.0	-55.2	-11.3	0.33	0.32	-21.72	
2,355.0	0.22	243.78	2,353.2	-12.0	-55.2	-11.3	0.07	-0.04	-13.56	



Scientific Drilling International
Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Moats Unit 2H
Project:	Ritchie County WV	TVD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Site:	Edwin Pad: Hornet/Miracle/Moats/Myrtle	MD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Well:	Moats Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

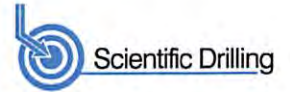
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,380.0	0.20	218.64	2,378.2	-12.0	-55.3	-11.3	0.37	-0.08	-100.56
2,405.0	0.23	254.60	2,403.2	-12.1	-55.4	-11.2	0.54	0.12	143.84
2,430.0	0.17	201.70	2,428.2	-12.1	-55.5	-11.2	0.74	-0.24	-211.60
2,455.0	0.11	247.81	2,453.2	-12.2	-55.5	-11.2	0.49	-0.24	184.44
2,480.0	0.23	216.81	2,478.2	-12.2	-55.5	-11.2	0.59	0.48	-124.00
2,505.0	0.35	266.86	2,503.2	-12.3	-55.6	-11.2	1.07	0.48	200.20
2,530.0	0.35	279.09	2,528.2	-12.3	-55.8	-11.2	0.30	0.00	48.92
2,555.0	0.36	290.71	2,553.2	-12.2	-56.0	-11.3	0.29	0.04	46.48
2,580.0	0.47	290.80	2,578.2	-12.2	-56.1	-11.5	0.44	0.44	0.36
2,605.0	0.51	282.54	2,603.2	-12.1	-56.3	-11.6	0.32	0.16	-33.04
2,630.0	0.61	292.88	2,628.2	-12.0	-56.6	-11.8	0.57	0.40	41.36
2,655.0	0.53	290.49	2,653.2	-11.9	-56.8	-11.9	0.33	-0.32	-9.56
2,680.0	0.45	278.73	2,678.2	-11.9	-57.0	-12.1	0.51	-0.32	-47.04
2,705.0	0.45	277.98	2,703.2	-11.9	-57.2	-12.2	0.02	0.00	-3.00
2,730.0	0.40	287.09	2,728.2	-11.8	-57.4	-12.3	0.34	-0.20	36.44
2,755.0	0.34	283.15	2,753.2	-11.8	-57.5	-12.4	0.26	-0.24	-15.76
2,780.0	0.35	292.61	2,778.2	-11.7	-57.7	-12.5	0.23	0.04	37.84
2,805.0	0.38	295.15	2,803.2	-11.7	-57.8	-12.6	0.14	0.12	10.16
2,830.0	0.48	302.47	2,828.2	-11.6	-58.0	-12.8	0.46	0.40	29.28
2,855.0	0.40	292.28	2,853.2	-11.5	-58.1	-12.9	0.45	-0.32	-40.76
2,880.0	0.40	296.74	2,878.2	-11.4	-58.3	-13.0	0.12	0.00	17.84
2,905.0	0.46	295.02	2,903.2	-11.3	-58.5	-13.2	0.25	0.24	-6.88
2,930.0	0.54	296.18	2,928.2	-11.2	-58.7	-13.3	0.32	0.32	4.64
2,955.0	0.51	296.30	2,953.2	-11.1	-58.9	-13.5	0.12	-0.12	0.48
2,980.0	0.54	300.23	2,978.2	-11.0	-59.1	-13.7	0.19	0.12	15.72
3,005.0	0.55	300.30	3,003.2	-10.9	-59.3	-13.9	0.04	0.04	0.28
3,030.0	0.63	300.46	3,028.2	-10.8	-59.5	-14.1	0.32	0.32	0.64
3,055.0	0.61	294.41	3,053.2	-10.6	-59.7	-14.3	0.27	-0.08	-24.20
3,080.0	0.63	286.23	3,078.2	-10.6	-60.0	-14.5	0.36	0.08	-32.72
3,105.0	0.69	293.46	3,103.2	-10.5	-60.3	-14.7	0.41	0.24	28.92
3,130.0	0.72	292.07	3,128.2	-10.3	-60.5	-14.9	0.14	0.12	-5.56
3,155.0	0.64	283.74	3,153.2	-10.2	-60.8	-15.1	0.51	-0.32	-33.32
3,180.0	0.67	287.14	3,178.2	-10.2	-61.1	-15.3	0.20	0.12	13.60
3,205.0	0.65	284.55	3,203.1	-10.1	-61.4	-15.5	0.14	-0.08	-10.36
3,230.0	0.55	280.27	3,228.1	-10.0	-61.6	-15.6	0.44	-0.40	-17.12
3,255.0	0.55	279.04	3,253.1	-10.0	-61.9	-15.8	0.05	0.00	-4.92
3,280.0	0.61	286.82	3,278.1	-9.9	-62.1	-15.9	0.40	0.24	31.12
3,305.0	0.65	281.86	3,303.1	-9.9	-62.4	-16.1	0.27	0.16	-19.84
3,330.0	0.57	283.87	3,328.1	-9.8	-62.6	-16.3	0.33	-0.32	8.04
3,355.0	0.68	289.67	3,353.1	-9.7	-62.9	-16.4	0.51	0.44	23.20
3,380.0	0.62	288.62	3,378.1	-9.6	-63.2	-16.6	0.24	-0.24	-4.20
3,405.0	0.68	299.19	3,403.1	-9.5	-63.4	-16.8	0.54	0.24	42.28
3,430.0	0.63	300.15	3,428.1	-9.4	-63.7	-17.1	0.20	-0.20	3.84
3,455.0	0.57	301.00	3,453.1	-9.2	-63.9	-17.3	0.24	-0.24	3.40

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Scientific Drilling International
Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Moats Unit 2H
Project:	Ritchie County WV	TVD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Site:	Edwin Pad: Hornet/Miracle/Moats/Myrtle	MD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Well:	Moats Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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	0.64	300.06	3,478.1	-9.1	-64.1	-17.5	0.28	0.28	-3.76	
3,505.0	0.67	293.94	3,503.1	-9.0	-64.4	-17.7	0.30	0.12	-24.48	
3,530.0	0.75	297.50	3,528.1	-8.8	-64.7	-17.9	0.37	0.32	14.24	
3,555.0	0.80	301.03	3,553.1	-8.7	-65.0	-18.2	0.28	0.20	14.12	
3,580.0	0.78	295.43	3,578.1	-8.5	-65.3	-18.5	0.32	-0.08	-22.40	
3,605.0	0.72	287.33	3,603.1	-8.4	-65.6	-18.7	0.49	-0.24	-32.40	
3,630.0	0.55	293.03	3,628.1	-8.3	-65.8	-18.9	0.72	-0.68	22.80	
3,655.0	0.62	299.55	3,653.1	-8.2	-66.1	-19.1	0.39	0.28	26.08	
3,680.0	0.53	295.50	3,678.1	-8.1	-66.3	-19.3	0.39	-0.36	-16.20	
3,705.0	0.66	290.81	3,703.1	-8.0	-66.5	-19.5	0.55	0.52	-18.76	
3,730.0	0.71	288.20	3,728.1	-7.9	-66.8	-19.7	0.24	0.20	-10.44	
3,755.0	0.55	282.63	3,753.1	-7.8	-67.1	-19.9	0.68	-0.64	-22.28	
3,780.0	0.51	285.77	3,778.1	-7.7	-67.3	-20.0	0.20	-0.16	12.56	
3,805.0	0.53	277.46	3,803.1	-7.7	-67.5	-20.1	0.31	0.08	-33.24	
3,830.0	0.50	301.93	3,828.1	-7.6	-67.7	-20.3	0.88	-0.12	97.88	
3,855.0	0.46	290.41	3,853.1	-7.5	-67.9	-20.5	0.42	-0.16	-46.08	
3,880.0	0.46	274.47	3,878.1	-7.5	-68.1	-20.6	0.51	0.00	-63.76	
3,905.0	0.62	286.34	3,903.1	-7.4	-68.3	-20.7	0.78	0.64	47.48	
3,930.0	0.63	292.35	3,928.1	-7.4	-68.6	-20.9	0.27	0.04	24.04	
3,955.0	0.64	298.10	3,953.1	-7.2	-68.8	-21.1	0.26	0.04	23.00	
3,980.0	0.77	290.81	3,978.1	-7.1	-69.1	-21.3	0.63	0.52	-29.16	
4,005.0	1.57	282.12	4,003.1	-7.0	-69.6	-21.6	3.27	3.20	-34.76	
4,030.0	2.68	277.20	4,028.1	-6.8	-70.5	-22.1	4.50	4.44	-19.68	
4,055.0	3.67	275.91	4,053.0	-6.7	-71.9	-22.8	3.97	3.96	-5.16	
4,080.0	4.63	279.57	4,078.0	-6.4	-73.7	-23.8	3.98	3.84	14.64	
4,105.0	5.64	280.50	4,102.9	-6.0	-75.9	-25.0	4.05	4.04	3.72	
4,130.0	6.50	281.24	4,127.7	-5.5	-78.5	-26.5	3.45	3.44	2.96	
4,155.0	7.05	281.47	4,152.6	-5.0	-81.4	-28.2	2.20	2.20	0.92	
4,180.0	7.45	282.69	4,177.4	-4.3	-84.5	-30.1	1.71	1.60	4.88	
4,205.0	7.77	281.48	4,202.1	-3.6	-87.7	-32.0	1.43	1.28	-4.84	
4,230.0	8.49	276.97	4,226.9	-3.0	-91.2	-33.9	3.85	2.88	-18.04	
4,255.0	9.01	273.06	4,251.6	-2.7	-95.0	-35.8	3.16	2.08	-15.64	
4,280.0	9.43	271.52	4,276.3	-2.6	-99.0	-37.5	1.95	1.68	-6.16	
4,305.0	9.62	272.75	4,300.9	-2.4	-103.1	-39.3	1.11	0.76	4.92	
4,330.0	10.24	274.31	4,325.6	-2.1	-107.4	-41.3	2.70	2.48	6.24	
4,355.0	10.82	275.01	4,350.1	-1.8	-112.0	-43.5	2.38	2.32	2.80	
4,380.0	11.67	275.47	4,374.7	-1.3	-116.8	-45.8	3.42	3.40	1.84	
4,405.0	12.44	274.59	4,399.1	-0.9	-122.0	-48.4	3.17	3.08	-3.32	
4,430.0	13.52	274.27	4,423.5	-0.4	-127.6	-51.0	4.33	4.32	-1.28	
4,455.0	14.60	274.00	4,447.7	0.0	-133.7	-53.8	4.33	4.33	-1.08	
4,480.0	15.31	273.64	4,471.9	0.4	-140.1	-56.8	2.86	2.84	-1.44	
4,505.0	16.01	272.95	4,495.9	0.8	-146.9	-59.9	2.90	2.80	-2.76	
4,530.0	16.83	271.44	4,519.9	1.1	-153.9	-63.0	3.70	3.28	-6.04	

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Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Moats Unit 2H
Project:	Ritchie County WV	TVD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Site:	Edwin Pad: Hornet/Miracle/Moats/Myrtle	MD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Well:	Moats Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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	17.89	269.13	4,543.8	1.1	-161.4	-66.0	5.06	4.24	-9.24
4,580.0	18.55	267.07	4,567.5	0.9	-169.2	-68.9	3.69	2.64	-8.24
4,605.0	19.00	266.55	4,591.2	0.4	-177.2	-71.8	1.92	1.80	-2.08
4,630.0	19.35	266.48	4,614.8	-0.1	-185.4	-74.6	1.40	1.40	-0.28
4,655.0	19.63	266.64	4,638.4	-0.6	-193.7	-77.5	1.14	1.12	0.64
4,680.0	20.22	266.74	4,661.9	-1.1	-202.2	-80.5	2.36	2.36	0.40
4,705.0	20.62	266.76	4,685.3	-1.6	-211.0	-83.5	1.60	1.60	0.08
4,730.0	21.64	267.88	4,708.6	-2.0	-220.0	-86.8	4.39	4.08	4.48
4,755.0	22.13	268.97	4,731.8	-2.2	-229.3	-90.3	2.55	1.96	4.36
4,780.0	22.59	270.45	4,754.9	-2.3	-238.8	-94.1	2.91	1.84	5.92
4,805.0	23.62	272.12	4,777.9	-2.1	-248.6	-98.2	4.88	4.12	6.68
4,830.0	23.71	272.85	4,800.8	-1.6	-258.6	-102.7	1.23	0.36	2.92
4,855.0	23.90	273.02	4,823.7	-1.1	-268.7	-107.2	0.81	0.76	0.68
4,880.0	23.97	273.03	4,846.6	-0.6	-278.8	-111.8	0.28	0.28	0.04
4,905.0	24.47	273.01	4,869.4	0.0	-289.1	-116.4	2.00	2.00	-0.08
4,930.0	24.58	272.85	4,892.1	0.5	-299.4	-121.0	0.51	0.44	-0.64
4,955.0	24.31	272.01	4,914.9	0.9	-309.8	-125.6	1.76	-1.08	-3.36
4,980.0	24.03	271.20	4,937.7	1.2	-320.0	-130.0	1.74	-1.12	-3.24
5,005.0	23.89	270.37	4,960.5	1.4	-330.1	-134.2	1.46	-0.56	-3.32
5,030.0	23.55	269.00	4,983.4	1.3	-340.2	-138.2	2.59	-1.36	-5.48
5,055.0	23.71	268.54	5,006.3	1.1	-350.2	-142.0	0.98	0.64	-1.84
5,080.0	23.94	268.61	5,029.2	0.8	-360.3	-145.9	0.93	0.92	0.28
5,105.0	23.90	268.60	5,052.0	0.6	-370.4	-149.7	0.16	-0.16	-0.04
5,130.0	23.82	268.52	5,074.9	0.3	-380.6	-153.6	0.35	-0.32	-0.32
5,155.0	23.40	268.31	5,097.8	0.1	-390.6	-157.4	1.71	-1.68	-0.84
5,180.0	23.35	268.25	5,120.8	-0.2	-400.5	-161.1	0.22	-0.20	-0.24
5,205.0	23.04	267.73	5,143.7	-0.6	-410.3	-164.7	1.49	-1.24	-2.08
5,230.0	22.86	267.71	5,166.8	-1.0	-420.1	-168.3	0.72	-0.72	-0.08
5,255.0	22.89	268.04	5,189.8	-1.3	-429.8	-171.9	0.53	0.12	1.32
5,280.0	22.88	268.43	5,212.8	-1.6	-439.5	-175.5	0.61	-0.04	1.56
5,305.0	22.72	268.34	5,235.9	-1.9	-449.2	-179.2	0.66	-0.64	-0.36
5,330.0	22.77	268.18	5,258.9	-2.2	-458.8	-182.8	0.32	0.20	-0.64
5,355.0	23.23	267.50	5,281.9	-2.6	-468.6	-186.4	2.12	1.84	-2.72
5,380.0	23.74	266.74	5,304.9	-3.1	-478.5	-189.9	2.37	2.04	-3.04
5,405.0	23.56	266.13	5,327.8	-3.7	-488.6	-193.4	1.22	-0.72	-2.44
5,430.0	23.77	265.49	5,350.7	-4.4	-498.6	-196.7	1.33	0.84	-2.56
5,455.0	23.45	264.66	5,373.6	-5.3	-508.5	-200.0	1.85	-1.28	-3.32
5,480.0	23.11	263.93	5,396.5	-6.3	-518.4	-203.0	1.78	-1.36	-2.92
5,505.0	22.45	263.44	5,419.6	-7.3	-528.0	-205.9	2.75	2.64	-1.96
5,530.0	22.23	263.91	5,442.7	-8.4	-537.4	-208.8	1.13	0.88	-1.68
5,555.0	21.51	266.65	5,465.9	-9.1	-546.7	-211.8	5.00	-2.88	10.96
5,580.0	21.50	269.43	5,489.2	-9.5	-555.9	-215.2	4.08	-0.04	11.12
5,605.0	21.65	270.76	5,512.4	-9.4	-565.1	-218.9	2.05	0.60	5.32

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Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Moats Unit 2H
Project:	Ritchie County WV	TVD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Site:	Edwin Pad: Hornet/Miracle/Moats/Myrtle	MD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Well:	Moats Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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)
5,630.0	21.78	271.29	5,535.6	-9.3	-574.3	-222.8	0.94	0.52	2.12
5,655.0	21.84	271.72	5,558.9	-9.0	-583.6	-226.8	0.68	0.24	1.72
5,680.0	22.01	271.90	5,582.0	-8.7	-592.9	-230.8	0.73	0.68	0.72
5,705.0	22.56	271.98	5,605.2	-8.4	-602.4	-234.9	2.20	2.20	0.32
5,730.0	22.82	272.29	5,628.2	-8.1	-612.0	-239.1	1.14	1.04	1.24
5,755.0	22.95	272.41	5,651.3	-7.7	-621.7	-243.4	0.55	0.52	0.48
5,780.0	23.21	272.79	5,674.3	-7.2	-631.5	-247.7	1.20	1.04	1.52
5,805.0	23.15	272.84	5,697.3	-6.7	-641.4	-252.1	0.25	-0.24	0.20
5,830.0	23.09	272.79	5,720.2	-6.3	-651.2	-256.5	0.25	-0.24	-0.20
5,855.0	23.08	271.25	5,743.2	-5.9	-661.0	-260.8	2.42	-0.04	-6.16
5,880.0	23.03	270.06	5,766.3	-5.8	-670.8	-264.8	1.87	-0.20	-4.76
5,905.0	23.54	269.75	5,789.2	-5.8	-680.6	-268.8	2.10	2.04	-1.24
5,930.0	23.91	269.76	5,812.1	-5.9	-690.7	-272.8	1.48	1.48	0.04
5,955.0	23.67	269.65	5,835.0	-5.9	-700.8	-276.8	0.98	-0.96	-0.44
5,980.0	23.85	270.24	5,857.9	-5.9	-710.9	-280.9	1.19	0.72	2.36
6,002.0	24.60	271.85	5,877.9	-5.7	-719.9	-284.7	4.53	3.40	7.30
Last SDI Gyro @ 6002 MD									
6,002.6	24.62	271.89	5,878.5	-5.7	-720.1	-284.8	4.53	3.44	7.08
6,144.0	24.58	270.83	6,007.0	-4.3	-779.0	-309.8	0.31	-0.03	-0.75
First SDI MWD @ 6144 MD									
6,175.0	24.27	267.20	6,035.3	-4.6	-791.8	-314.7	4.94	-1.00	-11.71
6,205.0	24.10	261.47	6,062.6	-5.8	-804.0	-318.5	7.84	-0.57	-19.10
6,236.0	25.20	255.05	6,090.8	-8.4	-816.6	-321.2	9.33	3.55	-20.71
6,267.0	26.58	251.47	6,118.7	-12.3	-829.6	-322.8	6.72	4.45	-11.55
6,298.0	28.23	247.63	6,146.2	-17.3	-842.9	-323.6	7.80	5.32	-12.39
6,327.0	29.21	240.58	6,171.7	-23.4	-855.5	-323.1	12.15	3.38	-24.31
6,358.0	30.68	233.56	6,198.5	-31.8	-868.4	-320.6	12.25	4.74	-22.65
6,389.0	31.74	227.19	6,225.1	-42.1	-880.8	-316.2	11.18	3.42	-20.55
6,412.0	31.96	221.66	6,244.6	-50.7	-889.2	-311.7	12.73	0.94	-24.06
Sycamore @ 6412 MD									
6,419.0	32.07	219.99	6,250.5	-53.5	-891.7	-310.1	12.73	1.62	-23.81
6,450.0	32.28	214.05	6,276.8	-66.7	-901.6	-302.1	10.22	0.68	-19.16
6,481.0	33.93	209.54	6,302.7	-81.1	-910.5	-292.5	9.56	5.32	-14.55
6,512.0	36.20	204.28	6,328.1	-97.0	-918.5	-281.2	12.19	7.32	-16.97
6,543.0	37.27	198.63	6,353.0	-114.2	-925.3	-268.1	11.43	3.45	-18.23
6,574.0	38.92	194.23	6,377.4	-132.5	-930.7	-253.5	10.24	5.32	-14.19
6,604.0	42.21	191.52	6,400.2	-151.6	-935.0	-237.9	12.44	10.97	-9.03
6,605.0	42.33	191.49	6,400.9	-152.2	-935.2	-237.3	12.16	12.02	-2.69
Middlesex @ 6605 MD									
6,635.0	45.94	190.74	6,422.4	-172.7	-939.2	-220.2	12.16	12.03	-2.51
6,666.0	49.61	191.06	6,443.3	-195.3	-943.5	-201.3	11.86	11.84	-1.03
6,697.0	54.04	191.47	6,462.4	-219.1	-948.3	-181.3	14.33	14.29	1.32
6,728.0	57.50	189.69	6,479.9	-244.3	-953.0	-160.2	12.13	11.16	-5.74
6,759.0	60.44	187.46	6,495.8	-270.6	-956.9	-137.7	11.31	9.48	-3.19

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Scientific Drilling International
Survey Report



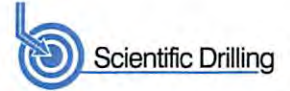
Company:	Antero	Local Co-ordinate Reference:	Well Moats Unit 2H
Project:	Ritchie County WV	TVD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Site:	Edwin Pad: Hornet/Miracle/Moats/Myrtle	MD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Well:	Moats Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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)	
6,785.0	61.94	184.41	6,508.4	-293.3	-959.3	-117.9	11.80	5.78	-11.74	
Burkett @ 6785 MD										
6,790.0	62.24	183.83	6,510.7	-297.7	-959.6	-114.0	11.80	5.94	-11.54	
6,820.0	63.52	179.41	6,524.4	-324.3	-960.4	-89.9	13.79	4.27	-14.73	
6,851.0	64.64	176.11	6,537.9	-352.2	-959.3	-64.0	10.23	3.61	-10.65	
Tully @ 6851 MD										
6,882.0	67.72	176.10	6,550.5	-380.5	-957.3	-37.3	9.94	9.94	-0.03	
6,905.0	70.75	176.79	6,558.6	-402.0	-956.0	-17.1	13.45	13.16	2.99	
MRCL_HOT @ 6905 MD										
6,913.0	71.80	177.02	6,561.2	-409.5	-955.6	-10.0	13.45	13.17	2.91	
6,944.0	75.62	177.76	6,569.9	-439.2	-954.2	17.7	12.53	12.32	2.39	
6,975.0	79.85	178.75	6,576.5	-469.5	-953.3	45.8	14.00	13.65	3.19	
7,006.0	83.40	179.19	6,581.0	-500.2	-952.8	74.1	11.54	11.45	1.42	
7,036.0	85.52	177.26	6,583.9	-530.0	-951.8	101.8	9.54	7.07	-6.43	
7,067.0	88.95	175.51	6,585.4	-560.9	-949.9	130.8	12.42	11.06	-5.65	
7,098.0	89.95	171.68	6,585.7	-591.7	-946.4	160.4	12.77	3.23	-12.35	
7,129.0	90.57	170.35	6,585.5	-622.3	-941.6	190.4	4.73	2.00	-4.29	
7,222.0	88.62	165.85	6,586.2	-713.3	-922.4	281.4	5.27	-2.10	-4.84	
7,314.0	88.02	162.35	6,588.9	-801.7	-897.2	372.5	3.86	-0.65	-3.80	
7,407.0	88.65	158.50	6,591.6	-889.3	-866.1	465.2	4.19	0.68	-4.14	
7,499.0	88.82	154.16	6,593.6	-973.5	-829.2	557.1	4.72	0.18	-4.72	
7,592.0	89.56	150.84	6,594.9	-1,056.0	-786.2	649.9	3.66	0.80	-3.57	
7,684.0	88.52	145.38	6,596.5	-1,134.1	-737.7	740.9	6.04	-1.13	-5.93	
7,777.0	86.84	139.31	6,600.2	-1,207.6	-680.9	831.1	6.77	-1.81	-6.53	
7,869.0	87.38	141.31	6,604.9	-1,278.3	-622.3	919.4	2.25	0.59	2.17	
7,962.0	88.62	143.51	6,608.1	-1,351.9	-565.6	1,009.7	2.71	1.33	2.37	
8,055.0	90.30	147.16	6,609.0	-1,428.4	-512.7	1,101.0	4.32	1.81	3.92	
8,147.0	89.42	150.17	6,609.2	-1,507.0	-464.8	1,192.1	3.41	-0.96	3.27	
8,240.0	89.56	150.55	6,610.1	-1,587.8	-418.8	1,284.6	0.44	0.15	0.41	
8,332.0	89.43	151.54	6,610.9	-1,668.3	-374.3	1,376.3	1.09	-0.14	1.08	
8,425.0	88.49	149.96	6,612.6	-1,749.4	-328.9	1,468.8	1.98	-1.01	-1.70	
8,517.0	89.23	149.53	6,614.4	-1,828.9	-282.5	1,560.2	0.93	0.80	-0.47	
8,609.0	89.70	149.16	6,615.2	-1,908.0	-235.6	1,651.5	0.65	0.51	-0.40	
8,702.0	87.04	151.15	6,617.9	-1,988.6	-189.4	1,744.0	3.57	-2.86	2.14	
8,794.0	88.69	151.18	6,621.3	-2,069.2	-145.0	1,835.5	1.79	1.79	0.03	
8,887.0	88.09	152.32	6,623.9	-2,151.1	-101.0	1,928.2	1.38	-0.65	1.23	
8,979.0	88.15	153.99	6,626.9	-2,233.1	-59.5	2,020.0	1.82	0.07	1.82	
9,072.0	88.59	155.80	6,629.6	-2,317.3	-20.1	2,112.9	2.00	0.47	1.95	
9,164.0	90.27	156.18	6,630.5	-2,401.3	17.4	2,204.9	1.87	1.83	0.41	
9,257.0	90.74	157.18	6,629.7	-2,486.7	54.2	2,297.9	1.19	0.51	1.04	
9,349.0	90.47	156.82	6,628.7	-2,571.4	90.1	2,389.9	0.49	-0.29	-0.39	
9,442.0	89.43	158.38	6,628.8	-2,657.4	125.6	2,482.9	2.02	1.68	1.68	
9,534.0	88.12	158.54	6,630.8	-2,742.9	159.3	2,574.8	1.43	-1.42	0.17	
9,627.0	89.13	158.70	6,633.0	-2,829.5	193.2	2,667.7	1.10	1.09	0.17	

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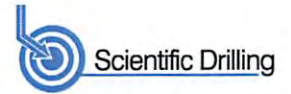


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Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Moats Unit 2H
Project:	Ritchie County WV	TVD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Site:	Edwin Pad: Hornet/Miracle/Moats/Myrtle	MD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Well:	Moats Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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)
9,719.0	89.40	159.18	6,634.2	-2,915.3	226.3	2,759.6	0.60	0.29	0.52
9,812.0	89.87	156.87	6,634.8	-3,001.6	261.1	2,852.5	2.53	0.51	-2.48
9,905.0	89.47	158.03	6,635.3	-3,087.5	296.7	2,945.5	1.32	-0.43	1.25
9,997.0	90.07	158.18	6,635.7	-3,172.8	331.0	3,037.5	0.67	0.65	0.16
10,090.0	90.61	157.35	6,635.1	-3,258.9	366.2	3,130.4	1.06	0.58	-0.89
10,182.0	90.34	157.40	6,634.4	-3,343.8	401.6	3,222.4	0.30	-0.29	0.05
10,275.0	89.47	157.08	6,634.5	-3,429.6	437.6	3,315.4	1.00	-0.94	-0.34
10,368.0	88.70	155.72	6,636.0	-3,514.8	474.8	3,408.4	1.68	-0.83	-1.46
10,460.0	87.92	155.04	6,638.7	-3,598.4	513.1	3,500.3	1.12	-0.85	-0.74
10,553.0	87.65	154.22	6,642.3	-3,682.4	553.0	3,593.2	0.93	-0.29	-0.88
10,645.0	88.73	154.40	6,645.2	-3,765.2	592.8	3,685.1	1.19	1.17	0.20
10,738.0	90.14	154.42	6,646.1	-3,849.1	633.0	3,778.1	1.52	1.52	0.02
10,830.0	88.06	155.41	6,647.6	-3,932.4	672.0	3,870.0	2.50	-2.26	1.08
10,923.0	88.56	154.61	6,650.3	-4,016.7	711.3	3,962.9	1.01	0.54	-0.86
11,015.0	88.46	154.93	6,652.7	-4,099.9	750.5	4,054.9	0.36	-0.11	0.35
11,108.0	89.54	154.82	6,654.3	-4,184.0	789.9	4,147.8	1.17	1.16	-0.12
11,200.0	89.67	155.95	6,655.0	-4,267.7	828.3	4,239.8	1.24	0.14	1.23
11,293.0	89.90	158.38	6,655.3	-4,353.4	864.3	4,332.8	2.62	0.25	2.61
11,386.0	88.96	156.38	6,656.2	-4,439.2	900.1	4,425.8	2.38	-1.01	-2.15
11,478.0	89.43	156.36	6,657.5	-4,523.5	937.0	4,517.8	0.51	0.51	-0.02
11,571.0	89.57	155.19	6,658.3	-4,608.3	975.1	4,610.8	1.27	0.15	-1.26
11,663.0	89.37	156.28	6,659.2	-4,692.2	1,012.9	4,702.8	1.20	-0.22	1.18
11,756.0	90.47	157.09	6,659.3	-4,777.6	1,049.8	4,795.7	1.47	1.18	0.87
11,848.0	89.47	154.50	6,659.4	-4,861.5	1,087.5	4,887.7	3.02	-1.09	-2.82
11,941.0	89.70	156.55	6,660.0	-4,946.1	1,126.0	4,980.7	2.22	0.25	2.20
12,034.0	89.57	154.66	6,660.6	-5,030.8	1,164.4	5,073.7	2.04	-0.14	-2.03
12,126.0	89.40	155.71	6,661.5	-5,114.3	1,203.0	5,165.7	1.16	-0.18	1.14
12,219.0	90.17	157.71	6,661.8	-5,199.7	1,239.8	5,258.7	2.30	0.83	2.15
12,312.0	90.94	157.55	6,660.9	-5,285.7	1,275.2	5,351.6	0.85	0.83	-0.17
12,404.0	90.37	157.59	6,659.9	-5,370.7	1,310.3	5,443.6	0.62	-0.62	0.04
12,497.0	89.47	156.88	6,660.0	-5,456.5	1,346.3	5,536.6	1.23	-0.97	-0.76
12,590.0	89.60	155.09	6,660.7	-5,541.4	1,384.1	5,629.6	1.93	0.14	-1.92
12,682.0	91.31	155.34	6,660.0	-5,625.0	1,422.7	5,721.6	1.88	1.86	0.27
12,775.0	90.57	158.73	6,658.5	-5,710.6	1,458.9	5,814.5	3.73	-0.80	3.65
12,867.0	90.81	160.26	6,657.4	-5,796.7	1,491.2	5,906.4	1.68	0.26	1.66
12,960.0	90.91	157.86	6,656.0	-5,883.6	1,524.4	5,999.3	2.58	0.11	-2.58
13,052.0	88.53	156.10	6,656.4	-5,968.2	1,560.4	6,091.2	3.22	-2.59	-1.91
13,145.0	89.06	155.66	6,658.4	-6,053.1	1,598.4	6,184.2	0.74	0.57	-0.47
13,237.0	90.61	154.60	6,658.7	-6,136.5	1,637.0	6,276.2	2.04	1.68	-1.15
13,269.0	90.94	153.80	6,658.2	-6,165.4	1,651.0	6,308.2	2.70	1.03	-2.50
Last SDI MWD @ 13269 MD									
13,338.0	90.94	153.80	6,657.1	-6,227.2	1,681.4	6,377.1	0.00	0.00	0.00
Projection To Bit @ 13338 MD / 6657 TVD									



Company:	Antero	Local Co-ordinate Reference:	Well Moats Unit 2H
Project:	Ritchie County WV	TVD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Site:	Edwin Pad: Hornet/Miracle/Moats/Myrtle	MD Reference:	Precision 522: GL 1191' + KB 18' @ 1209.0usft
Well:	Moats Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,412.0	6,244.6	Sycamore @ 6412 MD		0.00		
6,605.0	6,400.9	Middlesex @ 6605 MD		0.00		
6,785.0	6,508.4	Burkett @ 6785 MD		0.00		
6,851.0	6,537.9	Tully @ 6851 MD		0.00		
6,905.0	6,558.6	MRCL_HOT @ 6905 MD		0.00		

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
30.0	30.0	-0.1	0.0	First SDI Gyro @ 30 MD	
6,002.0	5,877.9	-5.7	-719.9	Last SDI Gyro @ 6002 MD	
6,144.0	6,007.0	-4.3	-779.0	First SDI MWD @ 6144 MD	
13,269.0	6,658.2	-6,165.4	1,651.0	Last SDI MWD @ 13269 MD	
13,338.0	6,657.1	-6,227.2	1,681.4	Projection To Bit @ 13338 MD / 6657 TVD	

Checked By: _____ Approved By: _____ Date: _____

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/6/2016
Job End Date:	1/16/2016
State:	West Virginia
County:	Ritchie
API Number:	47-085-10080-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Moats 2H
Longitude:	-80.90281700
Latitude:	39.23046900
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,662
Total Base Water Volume (gal):	8,961,666
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	Antero Resources	Base Fluid	Water	7732-18-5	100.00000	90.41464	
Sand	U.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	9.20043	
LGC-15	U.S. Well Services	Gelling Agents	Guar Gum	9000-30-0	50.00000	0.08147	
			Petroleum Distillates	64742-47-8	60.00000	0.07715	
			Suspending agent (solid)	14808-60-7	3.00000	0.01246	
			Surfactant	68439-51-0	3.00000	0.00489	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.50000	0.08599	
			Hydrogen Chloride	7647-01-0	18.00000	0.02054	
WFRA-405	U.S. Well Services	Friction Reducer	Water	7732-18-5	60.00000	0.03792	
			2-Propenoic acid, polymer with 2-propenamide	29003-06-9	30.00000	0.01896	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01526	
			Ethoxylated alcohol blend	68002-97-1	4.00000	0.00253	

SI-1100	U.S. Well Services	Scale Inhibitor					
			Water	7732-18-5	80.00000	0.01016	
			Ethylene Glycol	107-21-1	25.00000	0.00359	
			Copolymer of Maleic and Acrylic acid	52255-49-9	10.00000	0.00150	
			Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8	7.50000	0.00129	
			Hexamethylene tramine penta (methylene phosphonic acid)	34690-00-1	5.00000	0.00083	
			Phosphino carboxylic acid polymer	71050-62-9	5.00000	0.00083	
			Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5	2.00000	0.00033	
K-BAC 1020	U.S. Well Services	Anti-Bacterial Agent					
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00420	
			Deionized Water	7732-18-5	28.00000	0.00240	
AP One	U.S. Well Services	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00221	
AI-302	U.S. Well Services	Acid Corrosion Inhibitors					
			Water	7732-18-5	95.00000	0.00037	
			2-Propyn-1-olcompound with methyloxirane	38172-91-7	15.00000	0.00006	
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.							

* 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°15'00"

7,928'

6,255' TO BOTTOM HOLE
LATITUDE 39°15'00"

LONGITUDE 80°52'30"

7,144'

13,376' TO BOTTOM HOLE

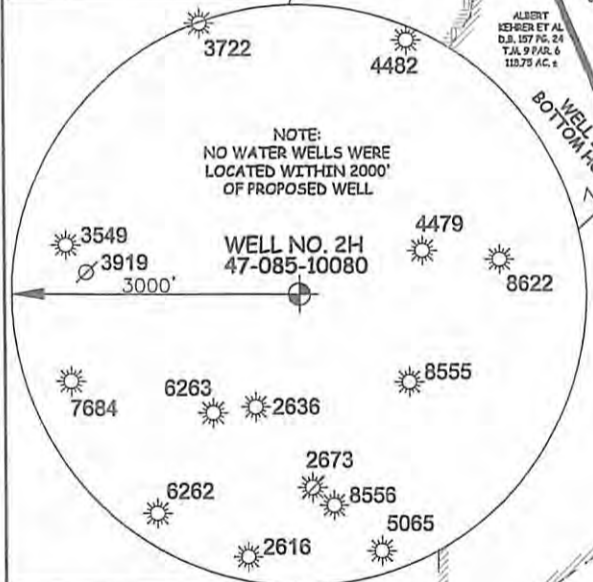
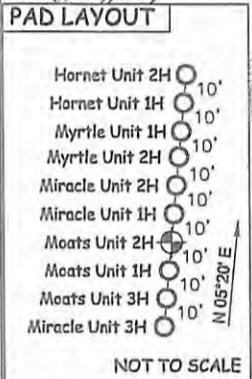
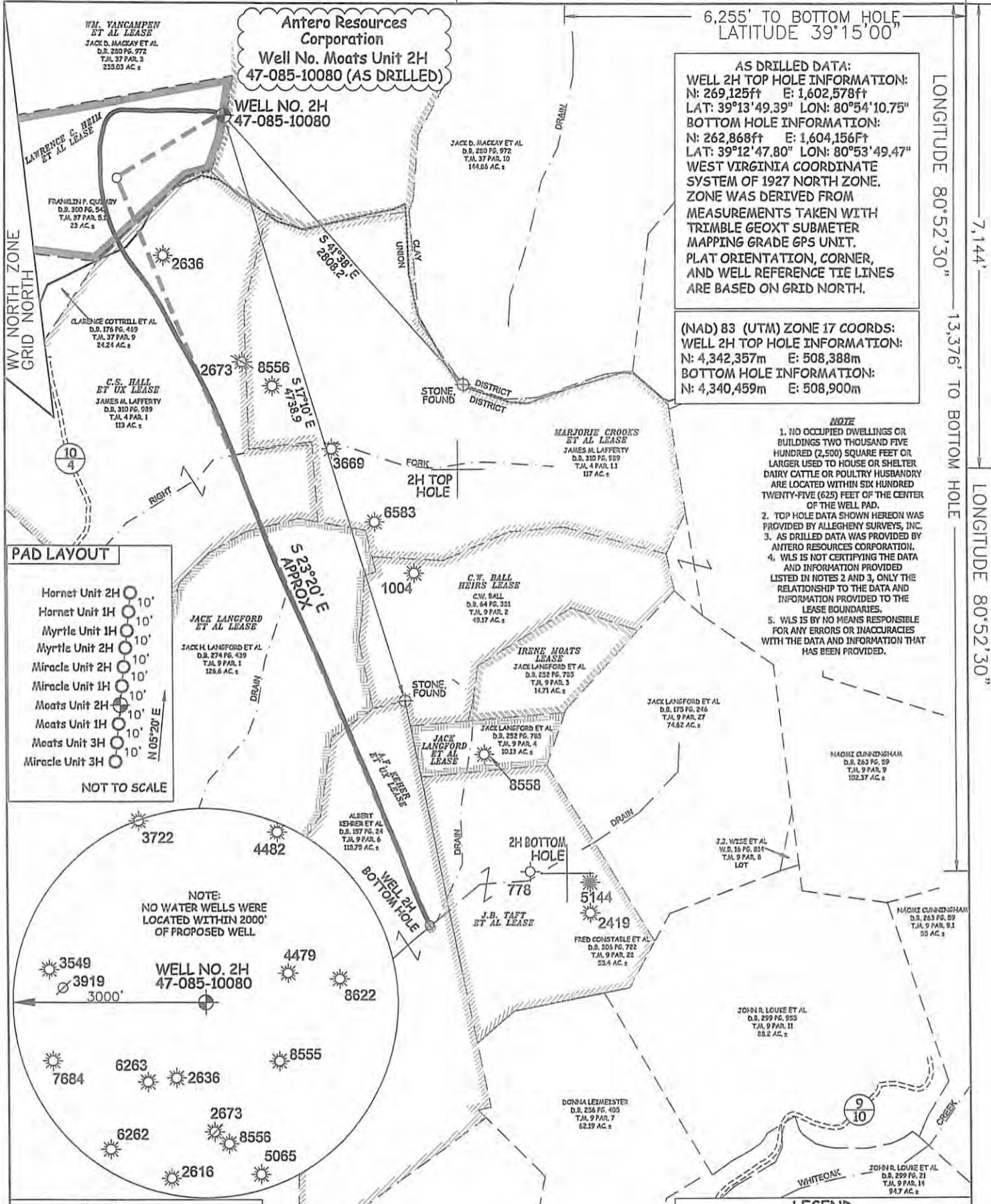
LONGITUDE 80°52'30"

Antero Resources Corporation
Well No. Moats Unit 2H
47-085-10080 (AS DRILLED)

AS DRILLED DATA:
WELL 2H TOP HOLE INFORMATION:
N: 269,125ft E: 1,602,578ft
LAT: 39°13'49.39" LON: 80°54'10.75"
BOTTOM HOLE INFORMATION:
N: 262,868ft E: 1,604,156ft
LAT: 39°12'47.80" LON: 80°53'49.47"
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 2H TOP HOLE INFORMATION:
N: 4,342,357m E: 508,388m
BOTTOM HOLE INFORMATION:
N: 4,340,459m E: 508,900m

- 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.
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LEGEND

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

JOB # 13-051WA
DRAWING # MOATS2HAD
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

DATE 2/24/2016
OPERATOR'S WELL# MOATS UNIT #2H

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 1,216' ORIGINAL - 1,191' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER
QUADRANGLE PULLMAN 7.5' DISTRICT CLAY (TH) UNION (BH) COUNTY RITCHIE

SURFACE OWNER FRANKLIN P. QUIMBY ACREAGE 23 ACRES +/-
OIL & GAS ROYALTY OWNER LAWRENCE C. HEIM ET AL; C.S. HALL ET UX; JACK LANGFORD ET AL; A.F. KEHRER ET UX LEASE ACREAGE 53 AC±; 113 AC±; 448.5 AC±; 118.75 AC±

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 6,377' TVD 13,338' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1615 WYNKOOP STREET ADDRESS CT CORPORATION SYSTEM
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

12/02/2016

COUNTY NAME PERMIT

LATITUDE 39°15'00"

7,928'

6,255' TO BOTTOM HOLE
LATITUDE 39°15'00"

LONGITUDE 80°52'30"

7,144'

13,376' TO BOTTOM HOLE

LONGITUDE 80°52'30"

WM. VANCAMPEN
ET AL LEASE
JACK D. MACLAY ET AL
D.B. 280 PG. 972
T.J.L. 37 PAR. 3
235.03 AC. ±

Antero Resources
Corporation
Well No. Moats Unit 2H
47-085-10080 (AS DRILLED)

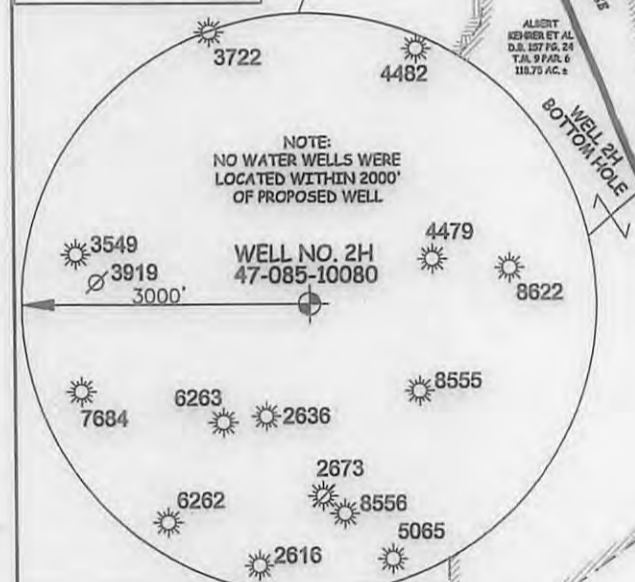
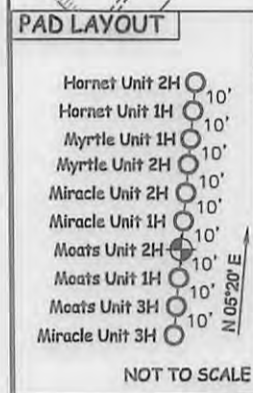
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WV NORTH ZONE
GRID NORTH

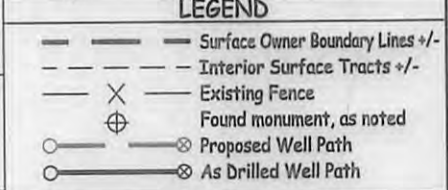


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STATE OF WEST VIRGINIA, DIVISION
OF ENVIRONMENTAL PROTECTION,
OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC
220 MASONIC AVE. PENNSBORO
WEST VIRGINIA 26415



DATE 2/24/2016
OPERATOR'S WELL# MOATS UNIT #2H

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

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
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COUNTY NAME PERMIT