WR-35
Rev. 8/23/13

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

API 47 - 085 - 10053 County Ritchie District Murphy
Quad Smithville 7.5' Pad Name none Field/Pool Name Eva Field
Farm name Schlabach, Dalen R. Well Number Heldreth M2
Operator (as registered with the OOG) Murvin & Meier Oil Co.
Address P. O. Box 396 City Olney State IL Zip 62450

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,319,638 Easting 497,671
Landing Point of Curve Northing n/a Easting n/a
Bottom Hole Northing 4,319,638 Easting 497,671

Elevation (ft) 836 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)
none

Date permit issued August 14, 2013 Date drilling commenced Sept, 28, 2013 Date drilling ceased October 7, 2013
Date completion activities began October 17, 2013 Date completion activities ceased November 13, 2013
Verbal plugging (Y/N) _____ Date permission granted _____ Granted by _____

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

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Freshwater depth(s) ft 32 Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Void(s) encountered (Y/N) depths N
Coal depth(s) ft None Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

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API 47- 085 - 10053 Farm name Schlabach, Dalen R. Well number Heldreth M2

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	17 1/2"	16"	39'	new			not cemented
Surface	15"	11 3/4"	336'	new	32#	43'	Y
Coal							
Intermediate 1	11"	8 5/8"	1710'	new	24#	43'	Y
Intermediate 2							
Intermediate 3							
Production	7 7/8"	4 1/2"	5926'	new	10.5#	3417'	N
Tubing							
Packer type and depth set							

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							
Surface	Type 1	190	15.6	1.18	224	surface	8
Coal							
Intermediate 1	Type 1	375	14.8	1.40	525	surface	10
Intermediate 2							
Intermediate 3							
Production	Type 1	510	13.5	1.54	785	2480'	
Tubing							

Drillers TD (ft) 6070' Loggers TD (ft) 5946'
Deepest formation penetrated Rhinestreet Plug back to (ft) n/a
Plug back procedure n/a

Kick off depth (ft) n/a

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 4 1/2" x 7 7/8": 5864', 5569', 5358', 5147', 4936', 4725', 4514', 4388', 4219', 3713', 3502', 3248', 3080'

WAS WELL COMPLETED AS SHOT HOLE □ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? □ Yes ■ No DETAILS

WERE TRACERS USED □ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 085 - 10053 Farm name Schlabach, Dalen R. Well number Heldreth M2

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	11-7-2013	5860	5898	24	Rhinestreet
2	11-7-2013	5562	5748	36	Rhinestreet
3	11-8-2013	5190	5392	20	1st Elk, Second Elk
4	11-8-2013	4782	4815	16	Alexander
5	11-8-2013	4490	4552	12	Benson
6	11-8-2013	3732	4240	20	Bradford
7	11-8-2013	3159	3524	18	Warren

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	11/7/13	18	3200	1530	1934	6,700	448	-
2	11/7/13	25	2450	2022	1282	29,200	810	94,000 scf
3	11/8/13	-	3210	3610	2853	-	-	500,000 scf
4	11/8/13	-	2800	2912	2288	-	-	700,000 scf
5	11/8/13	-	2600	2822	2122	-	-	500,000 scf
6	11/8/13	-	2480	2707	2021	-	-	700,000 scf
7	11/8/13	-	2425	2598	1817	-	-	500,000 scf

Please insert additional pages as applicable.

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API 47- 085 - 10053 Farm name Schlabach, Dalen R. Well number Heldreth M2

PRODUCING FORMATION(S)	DEPTHS	
same as perforation record	TVD	MD

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ■ Open Flow OIL TEST ■ Flow ☐ Pump

SHUT-IN PRESSURE Surface 1000 psi Bottom Hole psi DURATION OF TEST 72 hrs

OPEN FLOW Gas 100 mcfpd Oil trace bpd NGL - bpd Water - bpd GAS MEASURED BY ■ Estimated ☐ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT 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_2S, ETC)
	0	10	0	10	
Fill	10	20	10	20	
Sd, Sh	20	30	20	30	
River Rock	30	35	30	35	1 1/2" stream H20
Sd, Sh	35	120	35	120	
Shale	120	150	120	150	
Sd, Sh	150	230	150	230	
Shale	230	240	230	240	
Sd, Sh	240	485	240	485	
Shale	485	500	485	500	
Sd, Sh	500	520	500	520	
Shale	520	560	520	560	
Sd, Sh	560	1698	560	1698	
Big Lime	1698	1749	1698	1749	

Please insert additional pages as applicable.

Drilling Contractor Nexus Drilling Corporation
Address P. O. Box 903 City Jane Lew State WV Zip 26378

Logging Company Precision Energy Services, Inc.
Address 500 Winscott Road City Ft Worth State TX Zip 76126

Cementing Company Universal Well Services, Inc.
Address P. O. Box 200969 City Dallas State TX Zip 75320

Stimulating Company Universal Well Services, Inc.
Address P. O. Box 200969 City Dallas State TX Zip 75320

Please insert additional pages as applicable.

Completed by Kate M. Blackford Telephone 618-395-4405
Signature Kate M Blackford Title Executive Vice-President Date 2-10-2014

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

Lithology / Formation	Top Depth in FT Name TVD	Bottom Depth in FT TVD	Top Depth in FT MD	Bottom Depth in FT MD	Described Rock Type and Record Quantity and Type of Fluid (Freshwater, Brine, Oil, Gas, H2S, etc.)
Sd, Sh	1749	1792	1749	1792	
Big Injun	1792	1824	1792	1824	
Sd, Sh	1824	2204	1824	2204	
Berea	2204	2211	2204	2211	
Sd, Sh	2211	3158	2211	3158	
Warren	3158	3224	3158	3224	
Sd, Sh	3224	3506	3224	3506	
Speechley	3506	3530	3506	3530	
Sd, Sh	3530	3759	3530	3759	
Balltown	3759	4144	3759	4144	
Sd, Sh	4144	4229	4144	4229	
Bradford	4229	4242	4229	4242	
Shale	4242	4486	4242	4486	
Riley	4486	4496	4486	4496	
Shale	4496	4546	4496	4546	
Benson	4546	4558	4546	4558	
Shale	4558	4694	4558	4694	
Alexander	4694	4824	4694	4824	
Shale	4824	5106	4824	5106	
First Elk	5106	5196	5106	5196	
Shale	5196	5364	5196	5364	
Second Elk	5364	5399	5364	5399	
Shale	5399	5556	5399	5556	
Rhinestreet	5556	5898	5556	5898	
Shale	5898	6070	5898	6070	
Total Depth	6070		6070		

JR

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

API 47 - 085 - 10054 County Ritchie District Murphy
Quad Smithville 7.5' Pad Name none Field/Pool Name Eva Field
Farm name Yoder, Noah L. & Emma Well Number Sherwood #3
Operator (as registered with the OOG) Murvin & Meier Oil Co.
Address P. O. Box 396 City Olney State IL Zip 62450

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 192,404 Easting 1,567,409
Landing Point of Curve Northing n/a Easting n/a
Bottom Hole Northing 192,404 Easting 1,567,409

Elevation (ft) 1156 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)
none

Date permit issued August 9, 2013 Date drilling commenced October 9, 2013 Date drilling ceased October 18, 2013
Date completion activities began October 31, 2013 Date completion activities ceased November 2, 2013
Verbal plugging (Y/N) _____ Date permission granted _____ Granted by _____

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

Freshwater depth(s) ft 50 Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Void(s) encountered (Y/N) depths N
Coal depth(s) ft None Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

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API 47- 085 - 10054 Farm name Yoder, Noah L. & Emma Well number Sherwood #3

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		16"	25'	new	A500 42#		
Surface	15"	11 3/4"	294'	new	A500 32#	42'	Y
Coal							
Intermediate 1	11"	8 5/8"	2010'	new	J-55 24#	42	Y
Intermediate 2							
Intermediate 3							
Production	7 7/8"	4 1/2"	6270'	new	WT65 10.5#	5011' 4498'	N
Tubing							
Packer type and depth set							

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							
Surface	Type 1	164	15.6	1.18	194	surface	8
Coal							
Intermediate 1	Type 1	456	14.8	1.40	638	surface	8
Intermediate 2							
Intermediate 3							
Production	CBL Poz	530	13.5	1.54	816	3000'	
Tubing							

Drillers TD (ft) 6,320' Loggers TD (ft) 6,304'
Deepest formation penetrated Rhinestreet Plug back to (ft) n/a
Plug back procedure n/a

Kick off depth (ft) n/a

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 4 1/2" x 7 7/8": 6219', 6185', 6008', 5839', 5671', 5417', 5249', 5080', 4657', 4485', 4270', 4055', 3928', 3759'

WAS WELL COMPLETED AS SHOT HOLE □ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? □ Yes ■ No DETAILS

WERE TRACERS USED □ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 085 - 10054 Farm name Yoder, Noah L. & Emma Well number Sherwood #3

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	10-31-2013	6146	6234	44	Rhinestreet
2	10-31-2013	5892	6038	20	Rhinestreet
3	11-1-2013	5476	5700	22	1st Elk, Second Elk
4	11-1-2013	4832	5106	27	Alexander / Benson
5	11-1-2013	4249	4522	20	Bradford
6	11-1-2013	3442	3792	21	Warren

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	10/31/13	26	2320	1327	1320	60,100	1600	250,000 scf
2	10/31/13	29	2300	2000	1421	30,200	819	120,000 scf
3	11/1/13	40 scf/m	3123	3200	2485	-	-	600,000 scf
4	11/1/13	40 scf/m	2522	2780	1989	-	-	800,000 scf
5	11/1/13	40 scf/m	2566	2873	1844	-	-	700,000 scf
6	11/1/13	40 scf/m	2420	2643	1700	-	-	600,000 scf

Please insert additional pages as applicable.

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API 47- 085 - 10054 Farm name Yoder, Noah L. & Emma Well number Sherwood #3

PRODUCING FORMATION(S)	DEPTHS	
same as perforation record	TVD	MD

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ■ Open Flow OIL TEST ■ Flow ☐ Pump

SHUT-IN PRESSURE Surface 1400 psi Bottom Hole psi DURATION OF TEST 72 hrs

OPEN FLOW Gas 100 mcfpd Oil - bpd NGL - bpd Water - bpd GAS MEASURED BY ■ Estimated ☐ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT 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_2S, ETC)
	0	10	0	10	
Fill	10	12	10	12	
Sd, Sh	12	15	12	15	
Red Rock	15	18	15	18	
Sand	18	30	18	30	
Sd, Sh	30	80	30	80	
Red Rock	80	90	80	90	
Sd, Sh	90	105	90	105	
Sand	105	345	105	345	
Sd, Sh RR	345	802	345	802	
Red Rock	802	833	802	833	
Sd, Sh	833	1500	833	1500	
Shale	1500	1508	1500	1508	
Sd, Sh	1508	1978	1508	1978	

Please insert additional pages as applicable.

Drilling Contractor Nexus Drilling Corporation
Address P. O. Box 903 City Jane Lew State WV Zip 26378

Logging Company Precision Energy Services, Inc.
Address 500 Winscott Road City Ft Worth State TX Zip 76126

Cementing Company Universal Well Services, Inc.
Address P. O. Box 200969 City Dallas State TX Zip 75320

Stimulating Company Universal Well Services, Inc.
Address P. O. Box 200969 City Dallas State TX Zip 75320

Please insert additional pages as applicable.

Completed by Kate M. Blackford Telephone 618-395-4405
Signature Kate M Blackford Title Executive Vice-President Date 2-5-2014

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

Lithology / Formation	Top Depth in FT Name TVD	Bottom Depth in FT TVD	Top Depth in FT MD	Bottom Depth in FT MD	Described Rock Type and Record Quantity and Type of Fluid (Freshwater, Brine, Oil, Gas, H2S, etc.)
Big Lime	1978	2044	1978	2044	
Sd, Sh	2044	2100	2044	2100	
Big Injun	2100	2148	2100	2148	
Sd, Sh	2148	2490	2148	2490	
Berea	2490	2498	2490	2498	
Sd, Sh	2498	2708	2498	2708	
Gordon	2708	2718	2708	2718	
Sd, Sh	2718	3439	2718	3439	
Warren	3439	3497	3439	3497	
Sd, Sh	3497	3763	3497	3763	
Speechley	3763	3799	3763	3799	
Sd, Sh	3799	4416	3799	4416	
Balltown	4416	4424	4416	4424	
Sd, Sh	4424	4513	4424	4513	
Bradford	4513	4524	4513	4524	
Shale	4525	4826	4524	4826	
Benson	4826	4858	4826	4858	
Shale	4858	4984	4858	4984	
Alexander	4984	5110	4984	5110	
Shale	5110	5380	5110	5380	
First Elk	5380	5486	5380	5486	
Shale	5486	5656	5486	5656	
Second Elk	5656	5702	5656	5702	
Shale	5702	5847	5702	5847	
Rhinestreet	5847	6264	5847	6264	
Shale	6264	6320	6264	6320	
Total Depth	6320		6320		

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

API 47 - 085 - 10061 County Ritchie District Murphy
Quad Smithville 7.5' Pad Name none Field/Pool Name Eva Field
Farm name Difilippo, Dennis N. & Debra Well Number Cox M2A
Operator (as registered with the OOG) Murvin & Meier Oil Co.
Address P. O. Box 396 City Olney State IL Zip 62450

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing 196,677	Easting 1,560,725
Landing Point of Curve	Northing n/a	Easting n/a
Bottom Hole	Northing 196,677	Easting 1,560,725

Elevation (ft) 1148 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)
5C-900 shale control co-polymer

Date permit issued August 26, 2013 Date drilling commenced Sept. 4, 2013 Date drilling ceased Sept. 15, 2013
Date completion activities began Sept. 25, 2013 Date completion activities ceased October 23, 2013
Verbal plugging (Y/N) _____ Date permission granted _____ Granted by _____

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

Freshwater depth(s) ft 50' (damp) Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2006' (damp) Void(s) encountered (Y/N) depths N
Coal depth(s) ft None Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

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API 47- 085 - 10061 Farm name Difilippo, Dennis N. & Debra Well number Cox M2A

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		16"	19'	new	A-500 42#		
Surface	15"	11 3/4"	550'	new	A-500 32#	42'	Y
Coal							
Intermediate 1	11"	8 5/8"	2055'	new	J-55 24#	42'	Y
Intermediate 2							
Intermediate 3							
Production	7 7/8"	4 1/2"	6282'	new	WT 65 10.5#	4518' 4165'	N
Tubing							
Packer type and depth set							

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							
Surface	A	325	15.6	1.18	383	surface	8
Coal							
Intermediate 1	A	485	14.8	1.40	679	surface	8
Intermediate 2							
Intermediate 3							
Production	CBL Poz	540	13.5	1.54	832	3000'	
Tubing							

Drillers TD (ft) 6330' Loggers TD (ft) 6332'
Deepest formation penetrated Rhinestreet Plug back to (ft) n/a
Plug back procedure n/a

Kick off depth (ft) n/a

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 4 1/2" x 7 7/8": 6238', 6017', 5841', 5665', 5488', 5312', 5091', 4826', 4606', 4429', 4209', 4032', 3856', 3680'

WAS WELL COMPLETED AS SHOT HOLE □ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? □ Yes ■ No DETAILS

WERE TRACERS USED □ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 085 - 10061 Farm name Difilippo, Dennis N. & Debra Well number Cox M2A

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	10-21-13	6140	6252	48	Rhinestreet
2	10-21-13	5864	6044	32	Rhinestreet
3	10-22-13	5510	5692	18	1st Elk, Second Elk
4	10-22-13	4824	5116	19	Alexander / Benson
5	10-22-13	4482	4570	16	Bradford
6	10-22-13	3520	3876	12	Warren

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	10/21/13	27	2300	1856	1068	60,200	1400	244,000 scf
2	10/21/13	31	2100	1950	2743	33,300	750	205,000 scf
3	10/22/13	23	2700	2832	2640	19,000	160	665,000 scf
4	10/22/13	40 mscf/m	2570	3009	2055	-	-	800,000 scf
5	10/22/13	"	2570	2792	1972	-	-	700,000 scf
6	10/22/13	"	2390	2660	2050	-	-	500,000 scf

Please insert additional pages as applicable.

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API 47- 085 - 10061 Farm name Difilippo, Dennis N. & Debra Well number Cox M2A

PRODUCING FORMATION(S) DEPTHS

same as perforation record _____ TVD _____ MD

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ■ Open Flow OIL TEST ■ Flow ☐ Pump

SHUT-IN PRESSURE Surface 1200 psi Bottom Hole _____ psi DURATION OF TEST 72 hrs

OPEN FLOW Gas 100 mcfpd Oil show bpd NGL - bpd Water - bpd GAS MEASURED BY ■ Estimated ☐ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT 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_2S, ETC)
	0	10	0	10	
Fill	10	12	10	12	
Sd, Sh, RR	12	40	12	40	
Sand	40	90	40	90	damp at 50'
Sd, Sh, RR	90	1175	90	1175	
Sd, Sh	1175	2060	1175	2060	damp at 2006'
Big Lime	2060	2170	2060	2470	
Big Injun	2170	2188	2170	2188	
Sh, Sd	2188	2768	2188	2768	
Gordon	2768	2778	2768	2778	
Sd, Sh	2778	4560	2778	4560	
Bradford	4560	4576	4560	4576	
Sd, Sh	4576	4872	4576	4872	
Benson	4872	4903	4872	4903	

Please insert additional pages as applicable.

Drilling Contractor Nexus Drilling Corporation
Address P. O. Box 903 City Jane Lew State WV Zip 26378

Logging Company Precision Energy Services, Inc.
Address 500 Winscott Road City Ft Worth State TX Zip 76126

Cementing Company Universal Well Services, Inc.
Address P. O. Box 200969 City Dallas State TX Zip 75320

Stimulating Company Universal Well Services, Inc.
Address P. O. Box 200969 City Dallas State TX Zip 75320

Please insert additional pages as applicable.

Completed by Kate M. Blackford Telephone 618-395-4405
Signature Kate M Blackford Title Executive Vice-President Date 2-10-2014

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

Lithology / Formation	Top Depth in FT Name TVD	Bottom Depth in FT TVD	Top Depth in FT MD	Bottom Depth in FT MD	Described Rock Type and Record Quantity and Type of Fluid (Freshwater, Brine, Oil, Gas, H2S, etc.)
Sd, Sh	4903	5121	4903	5121	
Alexander	5121	5146	5121	5146	
Sd, Sh	5146	5422	5146	5422	
First Elk	5422	5520	5422	5520	
Sd, Sh	5520	5655	5520	5655	
Second Elk	5655	5728	5655	5728	
Sd, Sh	5728	5860	5728	5860	
Rhinestreet	5860	6248	5860	6248	
Shale	6248	6332	6248	6332	
Total Depth	6332		6332		

JE

WR-35
Rev (9-11)

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

DATE: 8/12/2013
API #: 47-095-02067

Farm name: Moore, Forest & Brenda Operator Well No.: Sweeney Unit 2H

LOCATION: Elevation: 749' Quadrangle: Center Point 7.5'

District: McElroy County: Tyler
Latitude: 9,015' Feet South of 39 Deg. 25 Min. 00 Sec.
Longitude 7,553' Feet West of 80 Deg. 42 Min. 30 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	40'	40'	38 Cu. Ft Class A
Agent: CT Corporation System	13 3/8" 48#	378'	378'	252 Cu. Ft Class A
Inspector: Joe Taylor	9 5/8" 36#	2,600'	2,600'	1059 Cu. Ft Class A
Date Permit Issued: 10/31/2012	5 1/2" 20#	13,163'	13,163'	3182 Cu. Ft Class H
Date Well Work Commenced: 11/29/2012				
Date Well Work Completed: 7/19/2013	2 3/8" 4.7#	6,700'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ✓ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 6681' TVD (Deepest Point Drilled)				
Total Measured Depth (ft): 13,163' MD, 6677' TVD (BHL)				
Fresh Water Depth (ft.): 275'				
Salt Water Depth (ft.): 1616'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 672', 747'				
Void(s) encountered (N/Y) Depth(s) None				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Marcellus Pay zone depth (ft) 6,574' (TOP)
Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow 8,034 MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure 3,550 psig (surface pressure) after ---- Hours

Second producing formation_____ Pay zone depth (ft)_____
Gas: Initial open flow_____MCF/d Oil: Initial open flow_____Bbl/d
Final open flow_____MCF/d Final open flow _____Bbl/d
Time of open flow between initial and final tests_____Hours
Static rock Pressure_____psig (surface pressure) after _____Hours

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DEC 11 2013
W.V. Department of
Environmental Protection

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Kaitlin Buck 12/10/2013
Signature Date

95-02067

Were core samples taken? Yes_____ No X

Were cuttings caught during drilling? Yes_____ No X

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Yes - CBL,

This is a subsequent well. Antero only runs wireline logs on the first well on a multi-well pad (Ed Arnold Unit 1H API#47-095-02038). Please reference the wireline logs submitted with Form WR-35 for Ed Arnold Unit 1H.

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Perforations: 6,788'- 13,108' (1,944 Holes)

Frac'd w/ 14,104 gals 15% HCL Acid, 164,582 bbls Slick Water carrying 772,195# 100 mesh,

2,890,155# 40/70 sand and 1,706,585# 20/40 sand.

Plug Back Details Including Plug Type and Depth(s): N/A

Formations Encountered:	Top Depth /	Bottom Depth
Surface:		
Gantz Sand	est 2678'	2803'
Fifty Foot Sand	est 2804'	2918'
Gordon	est 2919'	3122'
Fifth Sandstone	est 3123'	3153'
Bayard	est 3154'	3526'
Warren	est 3527'	3903'
Speechley	est 3904'	4183'
Balltown	est 4184'	4381'
Bradford	est 4382'	4836'
Benson	est 4837'	5090'
Alexander	est 5091'	5283'
Elk	est 5284'	5901'
Rhinestreet	est 5902'	6178'
Sycamore	6179'	6395'
West River Shale	6396'	5484'
Burkett	5485'	6512'
Tully	6513'	6573'
Marcellus	6574'	6681' TVD

95-08067

ANTERO RESOURCES

Antero Resources
Sweeney Unit 2H
Tyler County WV
Northing: 14306200.00
Easting: 1713804.31
Original Wellpath

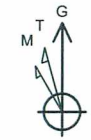
WELL DETAILS: Sweeney Unit 2H

Ground Level: 749.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14306200.00	1713804.31	39° 23' 45.356 N	80° 44' 24.829 W	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SHL Sweeney Unit 2H	0.0	0.0	0.0	14306200.00	1713804.31	39° 23' 45.356 N	80° 44' 24.829 W	Point
Actual BHL Sweeney Unit 2H	6676.5	-1562.0	6674.5	14304638.04	1720478.84	39° 23' 29.714 N	80° 42' 59.840 W	Point



To convert Magnetic North to Grid, Subtract 8.63°
To convert True North to Grid, Subtract 0.16°

Azimuths to Grid North
True North: -0.17°
Magnetic North: -8.63°

Magnetic Field
Strength: 52522.0snT
Dip Angle: 67.03°
Date: 1/9/2013
Model: IGRF2010

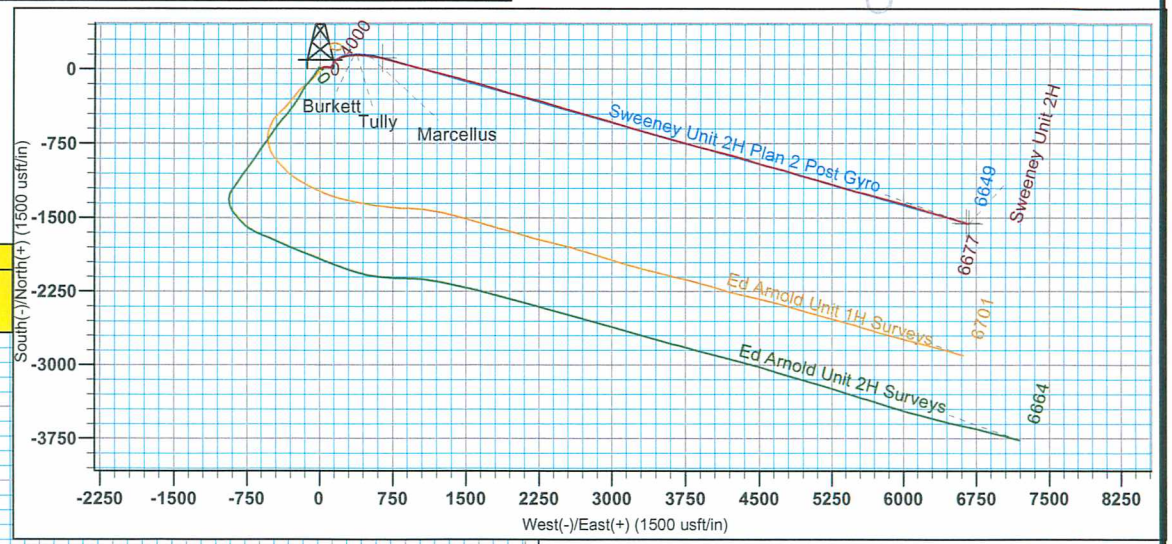
LEGEND

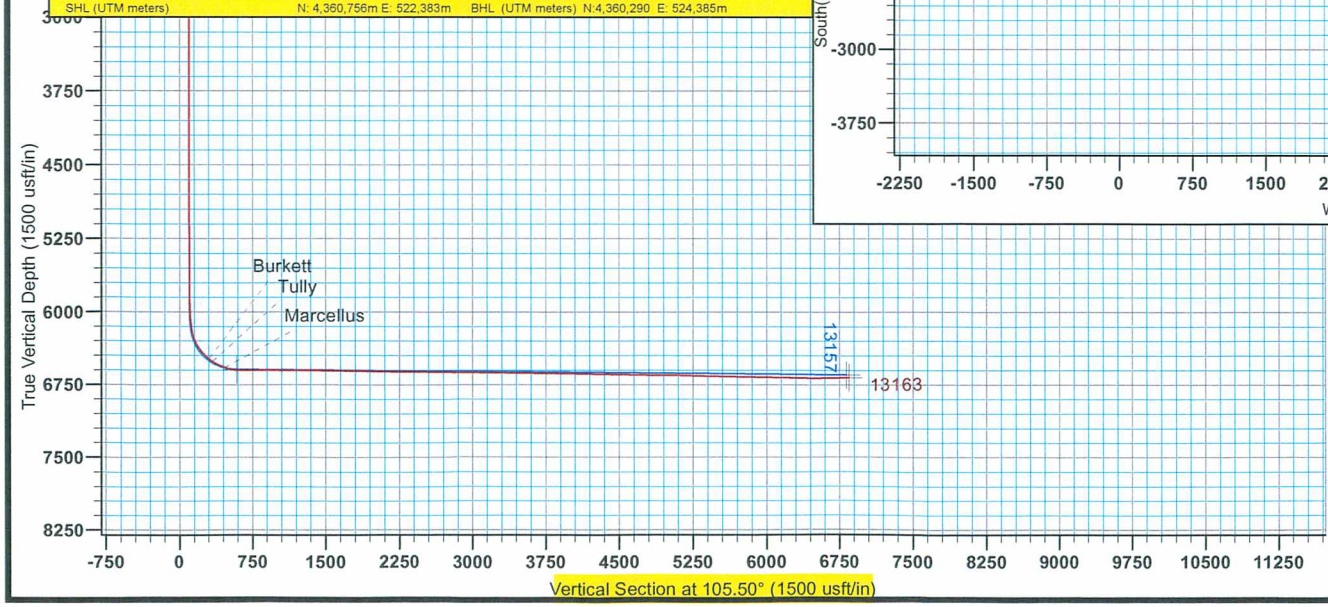
- Ed Arnold Unit 1H, Original Wellpath, Original Wellpath V0
- Sweeney Unit 2H, Original Wellpath, Plan 2 Post Gyro V0
- Ed Arnold Unit 2H, Original Wellpath, Original Wellpath V0
- Original Wellpath

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Sweeney Unit 2H	0.0	0.0	0.0	14306200.00	1713804.31	39° 23' 45.356 N	80° 44' 24.829 W
Actual BHL Sweeney Unit 2H	6676.5	-1562.0	6674.5	14304638.04	1720478.84	39° 23' 29.714 N	80° 42' 59.840 W

SHL (UTM meters) N: 4,360,756m E: 522,383m BHL (UTM meters) N:4,360,290 E: 524,385m





SITE DETAILS: Ed Arnold Pad
Ed Arnold Pad McElroy District

Site Centre Northing: 14306188.32
Easting: 1713823.50

Positional Uncertainity: 2.0
Convergence: 0.16
Local North: Grid

PROJECT DETAILS: Tyler County WV

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

FORMATION TOP DETAILS
No formation data is available

Genie Lightfoot 15:40, September 09 2013

Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

Scientific Drilling

95-02067

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/26/2013
Job End Date:	7/19/2013
State:	West Virginia
County:	Tyler
API Number:	47-095-02067-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Sweeney Unit 2H
Longitude:	-80.74023060
Latitude:	39.39593060
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,681
Total Base Water Volume (gal):	6,415,668
Total Base Non Water Volume:	259,548

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Environmental Protection

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	90.84997	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	8.89976	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.50000	0.08056	
			Hydrogen Chloride	7641-01-1	18.00000	0.01924	
WFRA-405	U.S. Well Services, LLC	Friction Reducer					
			Anionic Polyacrylamide	Proprietary	40.00000	0.02223	
			Water	7732-18-5	40.00000	0.02223	
			Petroleum Distillates	64742-47-8	40.00000	0.01790	
			Crystalline Salt	12125-02-9	5.00000	0.00278	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00278	
LGC-15	U.S. Well Services, LLC	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.02795	
			Petroleum Distillates	64742-47-8	60.00000	0.02647	
			Suspending agent (solid)	14808-60-7	3.00000	0.00427	

95-02067

			Surfactant	68439-51-0	3.00000	0.00168	
SI-1000	U.S. Well Services, LLC	Scale Inhibitor					
			Anionic Copolymer	Proprietary		0.00461	
			Ethylene Glycol	107-21-1	20.00000	0.00417	
			Water	7732-18-5	30.00000	0.00348	
K-BAC 1020	U.S. Well Services, LLC	Anti-Bacterial Agent					
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00542	
			Deionized Water	7732-18-5	28.00000	0.00310	
AP One	U.S. Well Services, LLC	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00091	
AI-300	U.S. Well Services, LLC	Acid Corrosion Inhibitor					
			Ethylene Glycol	107-21-1	40.00000	0.00021	
			N,N-Dimethylformamide	68-12-2	20.00000	0.00007	
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	15.00000	0.00006	
			Cinnamaldehyde	104-55-2	15.00000	0.00006	
			2-Butoxyethanol	111-76-2	15.00000	0.00005	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nolylphenyl)-omega-hydroxy, branched	127087-87-0	5.00000	0.00002	
			1-Decanol	112-30-1	5.00000	0.00002	
			Isopropyl Alcohol	67-63-0	2.50000	0.00001	
			1-Octanol	111-87-5	3.00000	0.00001	

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)

WR-35
Rev (9-11)

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

DATE: 8/12/2013
API #: 47-095-02068

Farm name: Moore, Forest & Brenda Operator Well No.: Sweeney Unit 1H

LOCATION: Elevation: 749' Quadrangle: Center Point 7.5'

District: McElroy County: Tyler
Latitude: 9,023' Feet South of 39 Deg. 25 Min. 00 Sec.
Longitude 7,558' Feet West of 80 Deg. 42 Min. 30 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 96#	40'	40'	38 Cu. Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	355'	355'	493 Cu. Ft. Class A
Inspector: Joe Taylor	9 5/8" 36#	2,586'	2,586'	1053 Cu. Ft. Class A
Date Permit Issued: 10/31/2012	5 1/2" 20#	13,297'	13,297'	3223 Cu. Ft. Class H
Date Well Work Commenced: 11/29/2012				
Date Well Work Completed: 6/26/2013	2 3/8" 4.7#	6,729'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 6693' TVD				
Total Measured Depth (ft): 13,297' MD				
Fresh Water Depth (ft.): 275'				
Salt Water Depth (ft.): 2063'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 672', 747'				
Void(s) encountered (N/Y) Depth(s) None				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Marcellus Pay zone depth (ft) 6572' (TOP)
Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow 7,311 MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure 3550 psig (surface pressure) after ---- Hours

Second producing formation_____ Pay zone depth (ft)_____
Gas: Initial open flow_____ MCF/d Oil: Initial open flow_____ Bbl/d
Final open flow_____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests_____ Hours
Static rock Pressure_____ psig (surface pressure) after _____ Hours

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DEC 11 2013
WV Dept. of Environmental Protection

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Kailen Buck 12/10/2013
Signature Date

95-02068

Were core samples taken? Yes_____ No X_____ Were cuttings caught during drilling? Yes_____ No X_____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Yes - CBL,

This is a subsequent well. Antero only runs wireline logs on the first well on a multi-well pad (Ed Arnold Unit 1H API#47-095-02038). Please reference the wireline logs submitted with Form WR-35 for Ed Arnold Unit 1H.

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Perforations: 6,831'- 13,242' (2592 Holes)

Frac'd w/ 18,500 gals HCL Acid, 182,219 bbls Slick Water carrying 724,690# 100 mesh,

2,335,445# 40/70 sand and 1,296,715# 20/40 sand.

Plug Back Details Including Plug Type and Depth(s): N/A

Formations Encountered:	Top Depth /	Bottom Depth
Surface:		
Gantz Sand	2678' est	2803'
Fifty Foot Sand	2804' est	2918'
Gordon	2919' est	3122'
Fifth Sandstone	3123' est	3153'
Bayard	3154' est	3526'
Warren	3527' est	3903'
Speechley	3904' est	4183'
Balltown	4184' est	4381'
Bradford	4382' est	4836'
Benson	4837' est	5090'
Alexander	5091' est	5283'
Elk	5284' est	5901'
Rhinestreet	5902' est	6184'
Sycamore	6185'	6223'
Middlesex	6224'	6485'
Burkett	6486'	6513'
Tully	6514'	6571'
Marcellus	6572'	6693' TVD

9S-02068

ANTERO RESOURCES

Antero Resources
Sweeney Unit 1H
Tyler County WV
Northing: 14306193.85
Easting: 1713795.42
Original Wellpath

WELL DETAILS: Sweeney Unit 1H

Ground Level: 749.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14306193.85	1713795.42	39° 23' 45.296 N	80° 44' 24.943 W	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SHL Sweeney Unit 1H	0.0	0.0	0.0	14306193.85	1713795.42	39° 23' 45.296 N	80° 44' 24.943 W	Point
Actual BHL Sweeney Unit 1H	6647.3	-2172.3	6440.8	14304021.58	1720236.17	39° 23' 23.626 N	80° 43' 2.957 W	Point
PBHLof Sweeney Unit 1H	6647.3	-2172.3	6440.8	14304021.58	1720236.17	39° 23' 23.626 N	80° 43' 2.957 W	Point

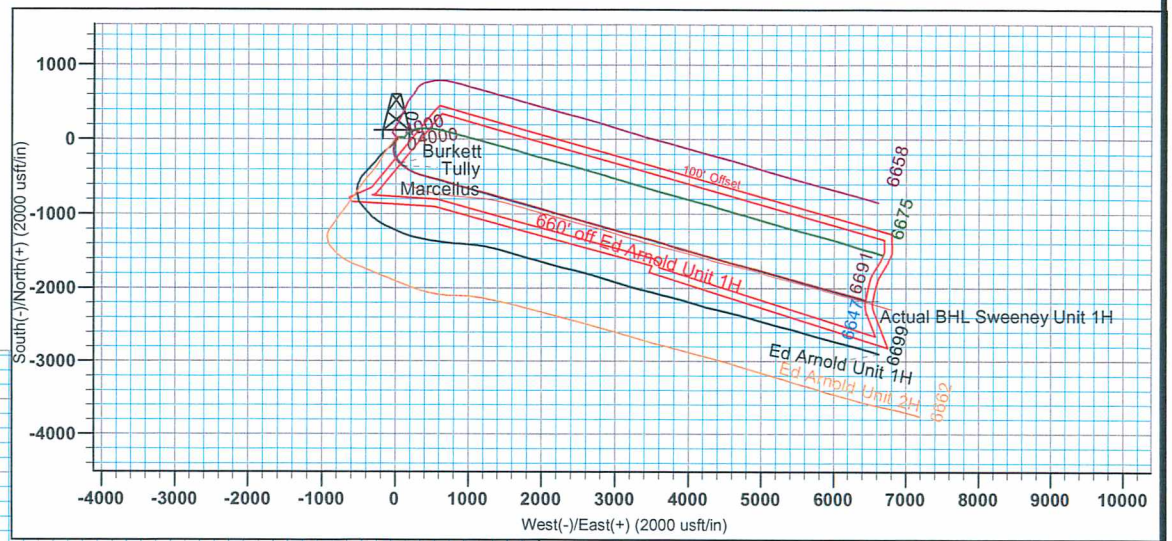
To convert Magnetic North to Grid, Subtract 8.63°
To convert True North to Grid, Subtract 0.16°

Azimuths to Grid North
True North: -0.17°
Magnetic North: -8.63°

Magnetic Field
Strength: 52522.3snT
Dip Angle: 67.03°
Date: 1/8/2013
Model: IGRF2010

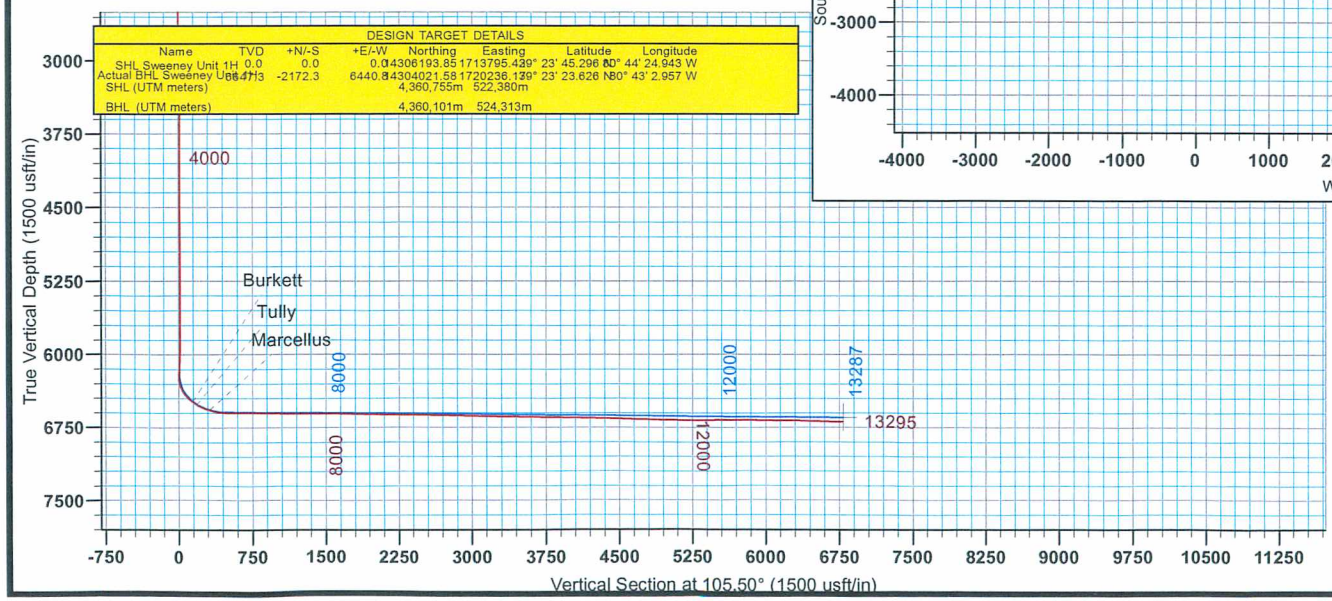
LEGEND

- Thorkildson Unit 1H, Original Wellpath, As Drilled V0
- Ed Arnold Unit 1H, Original Wellpath, Original Wellpath V0
- Sweeney Unit 2H, Original Wellpath, Original Wellpath V0
- Ed Arnold Unit 2H, Original Wellpath, Original Wellpath V0
- Sweeney Unit 1H, Original Wellpath, Plan 4 V0
- Original Wellpath



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Sweeney Unit 1H	0.0	0.0	0.0	14306193.85	1713795.42	39° 23' 45.296 N	80° 44' 24.943 W
Actual BHL Sweeney Unit 1H	6647.3	-2172.3	6440.8	14304021.58	1720236.17	39° 23' 23.626 N	80° 43' 2.957 W
SHL (UTM meters)				4,360,755m	522,380m		
BHL (UTM meters)				4,360,101m	524,313m		



SITE DETAILS: Ed Arnold Pad
Ed Arnold Pad McElroy District

Site Centre Northing: 14306188.32
Easting: 1713823.50

Positional Uncertainity: 2.0
Convergence: 0.16
Local North: Grid

PROJECT DETAILS: Tyler County WV

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

Genie Lightfoot
13:26, September 09 2013

Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

Scientific Drilling

95-02068

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/17/2013
Job End Date:	6/26/2013
State:	West Virginia
County:	Tyler
API Number:	47-095-02068-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Sweeney Unit 1H
Longitude:	-80.74026110
Latitude:	39.39591670
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,691
Total Base Water Volume (gal):	7,653,198
Total Base Non Water Volume:	224,225

RECEIVED Office of Oil & Gas DEC 11 2013 WV Department of Environmental Protection

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	93.34625	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	6.37178	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.50000	0.09862	
			Hydrogen Chloride	7641-01-1	18.00000	0.02356	
WFRA-405	U.S. Well Services, LLC	Friction Reducer					
			Water	7732-18-5	40.00000	0.02593	
			Anionic Polyacrylamide	Proprietary	40.00000	0.02593	
			Petroleum Distillates	64742-47-8	40.00000	0.02087	
			Crystalline Salt	12125-02-9	5.00000	0.00324	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00324	
LGC-15	U.S. Well Services, LLC	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.02704	
			Petroleum Distillates	64742-47-8	60.00000	0.02561	
			Suspending agent (solid)	14808-60-7	3.00000	0.00414	

95-02068

			Surfactant	68439-51-0	3.00000	0.00162	
SI-1000	U.S. Well Services, LLC	Scale Inhibitor					
			Anionic Copolymer	Proprietary		0.00483	
			Ethylene Glycol	107-21-1	20.00000	0.00436	
			Water	7732-18-5	30.00000	0.00364	
K-BAC 1020	U.S. Well Services, LLC	Anti-Bacterial Agent					
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00515	
			Deionized Water	7732-18-5	28.00000	0.00294	
AP One	U.S. Well Services, LLC	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00065	
AI-300	U.S. Well Services, LLC	Acid Corrosion Inhibitor					
			Ethylene Glycol	107-21-1	40.00000	0.00026	
			N,N-Dimethylformamide	68-12-2	20.00000	0.00008	
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	15.00000	0.00007	
			Cinnamaldehyde	104-55-2	15.00000	0.00007	
			2-Butoxyethanol	111-76-2	15.00000	0.00006	
			1-Decanol	112-30-1	5.00000	0.00002	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nolylphenyl)-omega-hydroxy, branched	127087-87-0	5.00000	0.00002	
			1-Octanol	111-87-5	3.00000	0.00001	
			Isopropyl Alcohol	67-63-0	2.50000	0.00001	

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)

WR-35
Rev (9-11)

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

DATE: 8/12/2013
API #: 47-095-02078

Farm name: Moore, Forest and Brenda Operator Well No.: Thorkildson Unit 1H

LOCATION: Elevation: 749' Quadrangle: Center Point 7.5

District: McElroy County: Tyler
Latitude: 9,006' Feet South of 39 Deg. 25 Min. 00 Sec.
Longitude 7,547' Feet West of 80 Deg. 42 Min. 30 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	43'	43'	41 Cu. Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	350'	350'	486 Cu. Ft. Class A
Inspector: Joe Taylor	9 5/8" 36#	2,501'	2,501'	1018 Cu. Ft. Class A
Date Permit Issued: 1/11/2013	5 1/2" 20#	13,058'	13,058'	3183 Cu. Ft. Class H
Date Well Work Commenced: 2/3/2013				
Date Well Work Completed: 7/2/2013	2 3/8" 4.7#	6845'		
Verbal Plugging: N/A				
Date Permission granted on: N/A		Top	Bottom	
Rotary ☑ Cable ☐ Rig ☐	Cement Plug	372'	1104'	392 Cu Ft. Class A
Total Vertical Depth (ft): 6660' TVD				
Total Measured Depth (ft): 13,058' MD				
Fresh Water Depth (ft.): 275'				
Salt Water Depth (ft.): 1299'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 672, 747'				
Void(s) encountered (N/Y) Depth(s) None				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Marcellus Pay zone depth (ft) 6575' (TOP)
Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow 7,183 MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure 3550 psig (surface pressure) after ---- Hours

Second producing formation_____ Pay zone depth (ft)_____
Gas: Initial open flow_____MCF/d Oil: Initial open flow_____Bbl/d
Final open flow_____MCF/d Final open flow _____Bbl/d
Time of open flow between initial and final tests_____Hours
Static rock Pressure_____psig (surface pressure) after _____Hours

RECEIVED
Office of Oil and Gas
DEC 11 2013
WV Dept. of Environmental Protection

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Kaitlin Buck 12/10/2013
Signature Date

95-02078

Were core samples taken? Yes_____ No X

Were cuttings caught during drilling? Yes_____ No X

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Yes, CBL.

This is a subsequent well. Antero only runs wireline logs on the first well on a multi-well pad (Ed Arnold Unit 1H 47-095-02038). Please reference the wireline logs submitted with Form WR-35 for Ed Arnold Unit 1H.

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Perforations: 6,943'- 13,002' (1,512 Holes)

Frac'd w/ 10,500 gals 15% HCL Acid, 155,618 bbls Slick Water carrying 804,015# 100 mesh

2,875,405 40/70 sand and 1,514,055# 20/40 sand.

Plug Back Details Including Plug Type and Depth(s): N/A

Formations Encountered: Surface:	Top Depth	/ Bottom Depth
Gantz Sand	est2678'	2803'
Fifty Foot Sand	est 2804'	2918'
Gordon	est 2919'	3122'
Fifth Sandstone	est 3123'	3153'
Bayard	est 3154'	3526'
Warren	est 3527'	3903'
Speechley	est 3904'	4183'
Balltown	est 4184'	4381'
Bradford	est 4382'	4836'
Benson	est 4837'	5090'
Alexander	est 5091'	5283'
Elk	est 5284'	5901'
Rhinestreet	est 5902'	6184'
Sycamore	est 6185'	6345'
Middlesex	6346'	6485'
Burkett	6486'	6514'
Tully	6515'	6574'
Marcellus	6575'	6660' TVD

95-02078

ANTERO RESOURCES

Antero Resources
Thorkildson Unit 1H
Tyler County WV
Northing: 14306205.13
Easting: 1713812.23
As Drilled

WELL DETAILS: Thorkildson Unit 1H

Ground Level: 749.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14306205.13	1713812.23	39° 23' 45.407 N	80° 44' 24.728 W	

To convert Magnetic North to Grid, Subtract 8.64°
To convert True North to Grid, Subtract 0.16°

Azimuths to Grid North
True North: -0.17°
Magnetic North: -8.64°

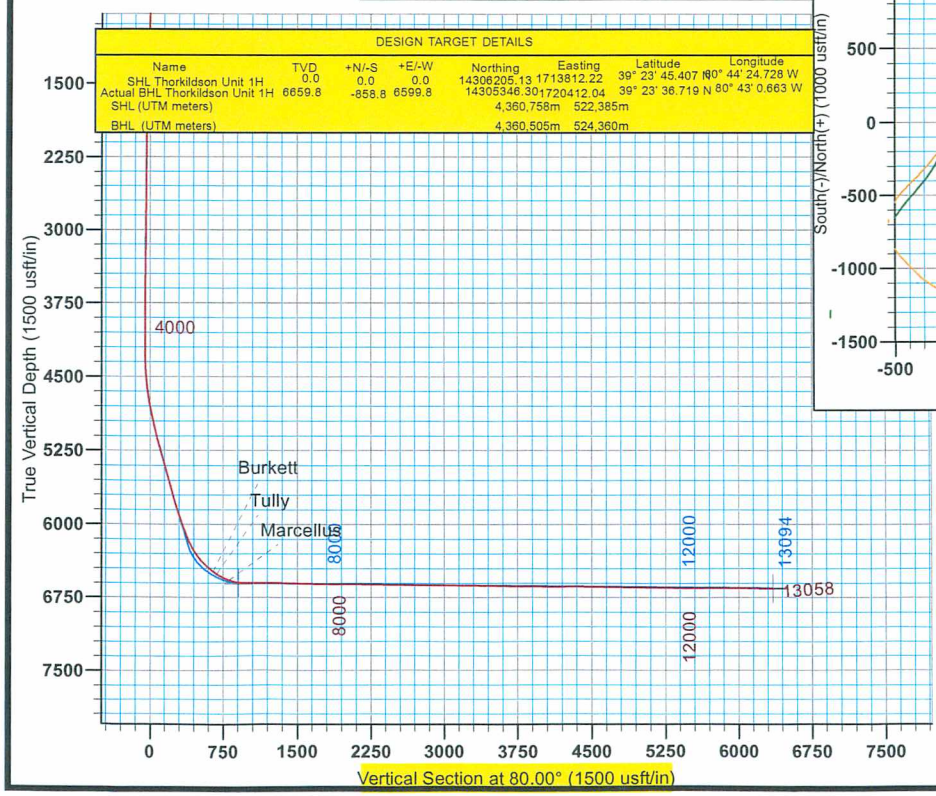
Magnetic Field
Strength: 52513.3snT
Dip Angle: 67.02°
Date: 2/4/2013
Model: IGRF2010

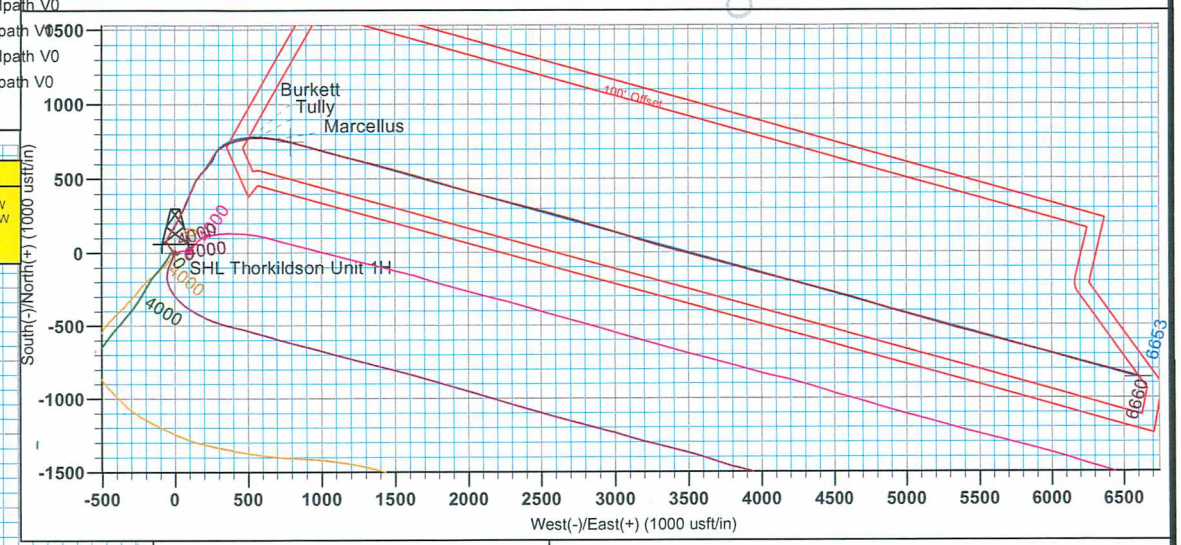
LEGEND

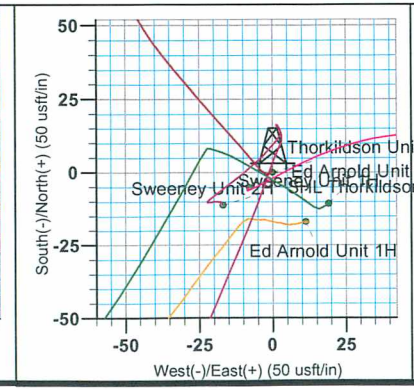
- Thorkildson Unit 1H, Original Wellpath, Plan 5 V0
- Ed Arnold Unit 1H, Original Wellpath, Original Wellpath V0
- Sweeney Unit 2H, Original Wellpath, Original Wellpath V0
- Ed Arnold Unit 2H, Original Wellpath, Original Wellpath V0
- Sweeney Unit 1H, Original Wellpath, Original Wellpath V0
- As Drilled

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Thorkildson Unit 1H	0.0	0.0	0.0	14306205.13	1713812.22	39° 23' 45.407 N	80° 44' 24.728 W
Actual BHL Thorkildson Unit 1H	6659.8	-858.8	6599.8	14305346.30	1720412.04	39° 23' 36.719 N	80° 43' 0.663 W
SHL (UTM meters)				4,360,758m	522,385m		
BHL (UTM meters)				4,360,505m	524,360m		







SITE DETAILS: Ed Arnold Pad
Ed Arnold Pad McElroy District

Site Centre Northing: 14306188.32
Easting: 1713823.50

Positional Uncertainity: 2.0
Convergence: 0.16
Local North: Grid

PROJECT DETAILS: Tyler County WV

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

FORMATION TOP DETAILS
No formation data is available

Genie Lightfoot 14:32, September 09 2013

Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

Scientific Drilling

Office of Oil and Gas
DEC 17 2013
Environmental Protection

95-02078

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/27/2013
Job End Date:	7/2/2013
State:	West Virginia
County:	Tyler
API Number:	47-095-02078-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Thorkildson Unit 1H
Longitude:	-80.74020280
Latitude:	39.39594720
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,660
Total Base Water Volume (gal):	6,535,998
Total Base Non Water Volume:	258,659

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	91.06141	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	8.67590	
LGC-15	U.S. Well Services, LLC	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.03757	
			Petroleum Distillates	64742-47-8	60.00000	0.03558	
			Suspending agent (solid)	14808-60-7	3.00000	0.00575	
			Surfactant	68439-51-0	3.00000	0.00225	
WFRA-405	U.S. Well Services, LLC	Friction Reducer					
			Water	7732-18-5	40.00000	0.02603	
			Anionic Polyacrylamide	Proprietary	40.00000	0.02603	
			Petroleum Distillates	64742-47-8	40.00000	0.02095	
			Crystalline Salt	12125-02-9	5.00000	0.00325	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00325	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.50000	0.06394	

95-02078

			Hydrogen Chloride	7641-01-1	18.00000	0.01527	
SI-1000	U.S. Well Services, LLC	Scale Inhibitor					
			Anionic Copolymer	Proprietary		0.00458	
			Ethylene Glycol	107-21-1	20.00000	0.00414	
			Water	7732-18-5	30.00000	0.00345	
K-BAC 1020	U.S. Well Services, LLC	Anti-Bacterial Agent					
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00572	
			Deionized Water	7732-18-5	28.00000	0.00327	
AP One	U.S. Well Services, LLC	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00126	
AI-300	U.S. Well Services, LLC	Acid Corrosion Inhibitor					
			Ethylene Glycol	107-21-1	40.00000	0.00017	
			Cinnamaldehyde	104-55-2	15.00000	0.00005	
			N,N-Dimethylformamide	68-12-2	20.00000	0.00005	
			2-Butoxyethanol	111-76-2	15.00000	0.00004	
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	15.00000	0.00004	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nolylphenyl)-omega-hydroxy, branched	127087-87-0	5.00000	0.00002	
			1-Decanol	112-30-1	5.00000	0.00001	
			1-Octanol	111-87-5	3.00000	0.00001	
			Isopropyl Alcohol	67-63-0	2.50000	0.00001	

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)

WR-35
Rev (9-11)

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

DATE: 8/12/2013
API #: 47-095-02079

Farm name: Moore, Forest and Brenda Operator Well No.: Thorkildson Unit 2H

LOCATION: Elevation: 749' Quadrangle: Center Point 7.5'

District: McElroy County: Tyler
Latitude: 8,998' Feet South of 39 Deg. 25 Min. 00 Sec.
Longitude 7,542' Feet West of 80 Deg. 42 Min. 30 Sec.

Company: Antero Resources Corporation

Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Denver, CO 80202	20" 94#	43'	43'	41 Cu. Ft. Class A
Agent: CT Corporation System	13 3/8" 48#	351'	351'	488 Cu. Ft. Class A
Inspector: Joe Taylor	9 5/8" 36#	2,606'	2,606'	1061 Cu. Ft. Class A
Date Permit Issued: 12/28/2012	5 1/2" 20#	12,564'	12,564'	3015 Cu. Ft. Class H
Date Well Work Commenced: 2/3/2013				
Date Well Work Completed: 7/8/2013	2 3/8" 4.7#	7,012'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 6676' TVD				
Total Measured Depth (ft): 12,564' MD				
Fresh Water Depth (ft.): 275'				
Salt Water Depth (ft.): 1940'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 672', 747'				
Void(s) encountered (N/Y) Depth(s) None				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Marcellus Pay zone depth (ft) 6580' (TOP)
Gas: Initial open flow ---- MCF/d Oil: Initial open flow ---- Bbl/d
Final open flow 7,854 MCF/d Final open flow ---- Bbl/d
Time of open flow between initial and final tests ---- Hours
Static rock Pressure 3550 psig (surface pressure) after ---- Hours

Second producing formation_____ Pay zone depth (ft)_____
Gas: Initial open flow_____MCF/d Oil: Initial open flow_____Bbl/d
Final open flow_____MCF/d Final open flow _____Bbl/d
Time of open flow between initial and final tests_____Hours
Static rock Pressure_____psig (surface pressure) after _____Hours

RECEIVED
Office of Oil and Gas
DEC 11 2013
Environmental Protection

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Kallen Buck 12/10/2013
Signature Date

95-02079

Were core samples taken? Yes_____ No X

Were cuttings caught during drilling? Yes_____ No X

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Yes, CBL.

This is a subsequent well. Antero only runs wireline logs on the first well on a multi-well pad (Ed Arnold Unit 1H 47-095-02038). Please reference the wireline logs submitted with Form WR-35 for Ed Arnold Unit 1H.

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Perforations: 7,163'- 12,508' (1,656 Holes)

Frac'd w/ 12,000 gals 15% HCL Acid, 143,687 bbls Slick Water carrying 692,930# 100 mesh 2,141,545# 40/70 sand and 1,217,135# 20/40 sand.

Plug Back Details Including Plug Type and Depth(s): N/A

Formations Encountered:	Top Depth /	Bottom Depth
Surface:		
Gantz Sand	est 2678'	2803'
Fifty Foot Sand	est 2804'	2918'
Gordon	est 2919'	3122'
Fifth Sandstone	est 3123'	3153'
Bayard	est 3154'	3526'
Warren	est 3527'	3903'
Speechley	est 3904'	4183'
Balltown	est 4184'	4381'
Bradford	est 4382'	4836'
Benson	est 4837'	5090'
Alexander	est 5091'	5283'
Elk	est 5284'	5901'
Rhinestreet	est 5902'	6184'
Sycamore	est 6185'	6352'
Middlesex	6353'	6491'
Burkett	6492'	6520'
Tully	6521'	6579'
Marcellus	6580'	6676' TVD

95-02079

ANTERO RESOURCES

Antero Resources
Thorkildson Unit 2H
Tyler County WV
Northing: 14306211.27
Easting: 1713821.12
As Drilled

LEGEND

- Thorkildson Unit 1H, Original Wellpath, As Drilled V0
- Ed Arnold Unit 1H, Original Wellpath, Original Wellpath V0
- Sweeney Unit 2H, Original Wellpath, Original Wellpath V0
- Thorkildson Unit 2H, Original Wellpath, Plan 5 V0
- Ed Arnold Unit 2H, Original Wellpath, Original Wellpath V0
- Sweeney Unit 1H, Original Wellpath, Original Wellpath V0
- As Drilled

G T M

To convert Magnetic North to Grid, Subtract 8.65°
To convert True North to Grid, Subtract 0.16°

Azimuths to Grid North
True North: -0.17°
Magnetic North: -8.65°

Magnetic Field
Strength: 52481.8snT
Dip Angle: 66.99°
Date: 5/9/2013
Model: IGRF2010

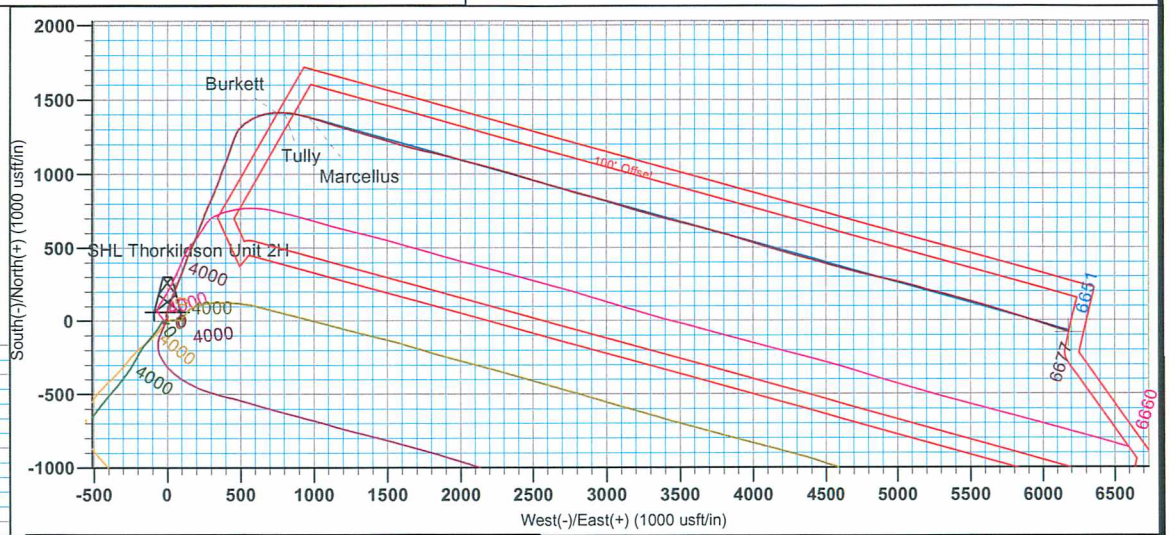
WELL DETAILS: Thorkildson Unit 2H

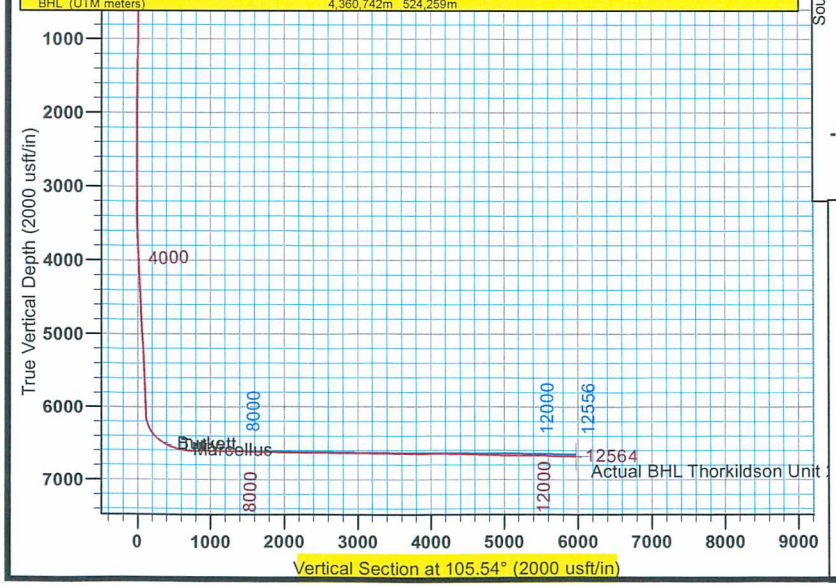
Ground Level: 749.0

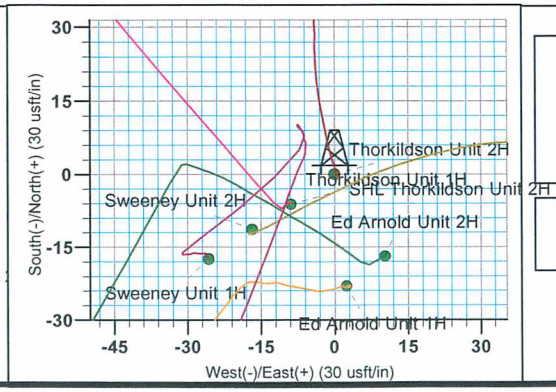
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14306211.27	1713821.12	39° 23' 45.467 N	80° 44' 24.615 W	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Thorkildson Unit 2H	0.0	0.0	0.0	14306211.27	1713821.12	39° 23' 45.467 N	80° 44' 24.615 W
Actual BHL Thorkildson Unit 2H	6276.6	-83.1	6179.0	14306128.13	1720000.13	39° 23' 44.462 N	80° 43' 5.880 W
SHL (UTM meters)				4,360,760m	522,388m		
BHL (UTM meters)				4,360,742m	524,259m		







SITE DETAILS: Ed Arnold Pad
Ed Arnold Pad McElroy District

Site Centre Northing: 14306188.32
Easting: 1713823.50

Positional Uncertainity: 2.0
Convergence: 0.16
Local North: Grid

PROJECT DETAILS: Tyler County WV

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

FORMATION TOP DETAILS
No formation data is available

Deanna Jacobs 15:05, September 09 2013

Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

Scientific Drilling

95.02079

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	7/3/2013
Job End Date:	7/8/2013
State:	West Virginia
County:	Tyler
API Number:	47-095-02079-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Thorkildson Unit 2H
Longitude:	-80.74017220
Latitude:	39.39596110
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,676
Total Base Water Volume (gal):	6,034,812
Total Base Non Water Volume:	200,334

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	92.46613	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	7.25984	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.50000	0.08036	
			Hydrogen Chloride	7641-01-1	18.00000	0.01920	
WFRA-405	U.S. Well Services, LLC	Friction Reducer					
			Water	7732-18-5	40.00000	0.02574	
			Anionic Polyacrylamide	Proprietary	40.00000	0.02574	
			Petroleum Distillates	64742-47-8	40.00000	0.02072	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00322	
			Crystalline Salt	12125-02-9	5.00000	0.00322	
LGC-15	U.S. Well Services, LLC	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.03410	
			Petroleum Distillates	64742-47-8	60.00000	0.03230	
			Suspending agent (solid)	14808-60-7	3.00000	0.00522	

95-02079

			Surfactant	68439-51-0	3.00000	0.00205	
SI-1000	U.S. Well Services, LLC	Scale Inhibitor					
			Anionic Copolymer	Proprietary		0.00455	
			Ethylene Glycol	107-21-1	20.00000	0.00411	
			Water	7732-18-5	30.00000	0.00343	
K-BAC 1020	U.S. Well Services, LLC	Anti-Bacterial Agent					
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00545	
			Deionized Water	7732-18-5	28.00000	0.00311	
AP One	U.S. Well Services, LLC	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00104	
AI-300	U.S. Well Services, LLC	Acid Corrosion Inhibitor					
			Ethylene Glycol	107-21-1	40.00000	0.00021	
			N,N-Dimethylformamide	68-12-2	20.00000	0.00007	
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	15.00000	0.00006	
			Cinnamaldehyde	104-55-2	15.00000	0.00006	
			2-Butoxyethanol	111-76-2	15.00000	0.00005	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nolylphenyl)-omega-hydroxy, branched	127087-87-0	5.00000	0.00002	
			1-Decanol	112-30-1	5.00000	0.00002	
			Isopropyl Alcohol	67-63-0	2.50000	0.00001	
			1-Octanol	111-87-5	3.00000	0.00001	

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)