

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

API 47-061-01736 County Monongalia District Clay  
Quad Blacksville Pad Name Fisher Field/Pool Name \_\_\_\_\_  
Farm name Aaron K. Fisher Well Number Fisher 7H  
Operator (as registered with the OOG) Northeast Natural Energy LLC  
Address 707 Virginia Street E., Suite 1200 City Charleston State WV Zip 25301

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4394316.5 Easting 567404.1  
Landing Point of Curve Northing 4394185.2 Easting 566740.3  
Bottom Hole Northing 4395773.4 Easting 565498.1

Elevation (ft) 1,453' GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine

Mud Type(s) and Additive(s)  
Synthetic Based Mud - Horizontal Section: BIO-BASE 365, CALCIUM CHLORIDE POWDER, G-SEAL PLUS, HRP, LIME, M-I WATE (BARITE),  
M-I-X II MEDIUM, MEGADRIL P SYSTEM, MEGADRIL P SYSTEM RENTAL, MEGAMUL, SAFE-CARB 250, VERSATHIN HF, VERSAWET, VG-PLUS, VINSEAL MEDIUM, WALNUT NUT PLUG MEDIUM

Date permit issued 12/07/2015 Date drilling commenced 08/26/2017 Date drilling ceased 10/30/2017  
Date completion activities began 12/13/2017 Date completion activities ceased 01/12/2018 Office of Oil and Gas  
Verbal plugging (Y/N) \_\_\_\_\_ Date permission granted \_\_\_\_\_ Granted by MAY 31 2018

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug RECEIVED  
WV Department of Environmental Protection

Freshwater depth(s) ft 1,352' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 2,500' Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 350';1,930' Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed

Reviewed by:  
*[Signature]*  
6/11/2018

API 47-061 - 01736 Farm name Aaron K. Fisher Well number Fisher 7H

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"	24"	40'	N	94.71	N/A	Grouted In
Surface	17-1/2"	13-3/8"	1,423'	N	54.5	N/A	Y, 50Bbl.
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,580'	N	40	N/A	Y, 3Bbl.
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5 1/2"	16,146'	N	20	N/A	N, EST. 1,580'
Tubing	N/A	2-7/8"	N/A	N	6.5	N/A	
Packer type and depth set							

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

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	4,500 PSI Grout	-	-	3 Yds	-	-	-
Surface	Class A + 2%	1,165	15.6	1.21	1,409.65	Surface	8
Coal							
Intermediate 1	Class A + 1%	920	15.6	1.21	1,113.2	Surface	8
Intermediate 2							
Intermediate 3							
Production	50:50 Plus Additives	3,207	14.5	1.19	3,795	1,580'	48
Tubing							

Drillers TD (ft) 16,189' Loggers TD (ft) 16,159'

Deepest formation penetrated Marcellus Plug back to (ft) \_\_\_\_\_

Plug back procedure \_\_\_\_\_

Kick off depth (ft) 6,940'

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

RECEIVED  
Office of Oil and Gas  
MAY 31 2018

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

Surface: Bow spring centralizers every 3rd joint or approximately 120'

Intermediate: Bow spring centralizers every 3rd joint or approximately 120'

Production: Rigid body centralizers placed at a minimum of every other joint (~80') from TD to surface

WV Department of  
Environmental Protection

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 \_\_\_\_\_





# HALLIBURTON

## Job Information

Job Tubulars/Tools											
Description	Size in	Weight lbm/ft	ID in	Thread	Grade	Top MD ft	Btm MD ft	Top TVD ft	Btm TVD ft	Shoe Jnt ft	% Excess
24" Conductor	24	94.62	23.75			0	40				
17-1/2" Open Hole			17.5			40	1460				30
13-3/8" Surface Casing	13.375	54.5	12.615	BTC	J-55	0	1423			45	

## Fluids Pumped

Materials									
Stage/Plug #: 1									
Fluid #	Fluid Name	Package/SBM/Material Name	Rqstd Del Qty	UOM	Density lbm/gal	Yield ft <sup>3</sup> /sack	Water Req Gal/sack	Rate bbl/min	Total Mix Fluid Gal/sack
1	Fresh Water		200	bbl	8.33				
Fluid #	Fluid Name	Package/SBM/Material Name	Rqstd Del Qty	UOM	Density lbm/gal	Yield ft <sup>3</sup> /sack	Water Req Gal/sack	Rate bbl/min	Total Mix Fluid Gal/sack
2	Gel Spacer		25	bbl	8.4				
Fluid #	Fluid Name	Package/SBM/Material Name	Rqstd Del Qty	UOM	Density lbm/gal	Yield ft <sup>3</sup> /sack	Water Req Gal/sack	Rate bbl/min	Total Mix Fluid Gal/sack
3	Fresh Water		10	bbl	8.33				
Fluid #	Fluid Name	Package/SBM/Material Name	Rqstd Del Qty	UOM	Density lbm/gal	Yield ft <sup>3</sup> /sack	Water Req Gal/sack	Rate bbl/min	Total Mix Fluid Gal/sack
4	HalCem (TM) System	HALCEM (TM) SYSTEM	1165	sack	15.6	1.21	5.41	6	5.41
Fluid #	Fluid Name	Package/SBM/Material Name	Rqstd Del Qty	UOM	Density lbm/gal	Yield ft <sup>3</sup> /sack	Water Req Gal/sack	Rate bbl/min	Total Mix Fluid Gal/sack
5	Fresh Water Displacement		218.7	bbl	8.33			6	

RECEIVED  
Office of Oil and Gas  
MAY 31 2018  
WV Department of  
Environmental Protection

# HALLIBURTON

## Job Log

### 1.1 Job Event Log

Seq. No.	Activity	Date	Time	Comments
1	Call Out	8/27/2017	00:00:00	Crew called out for job.
2	Depart Yard Safety Meeting	8/27/2017	03:00:00	Discuss hazards and review JSA. Depart location to rig.
3	Arrive At Location	8/27/2017	07:00:00	Arrive at location discuss job details and calculations with company rep. TD of casing 1423 ft.
4	Pre-Rig Up Safety Meeting	8/27/2017	07:15:00	Discuss hazards and review JSA. Rig up all equipment.
5	Rig-Up Completed	8/27/2017	08:00:00	Rig up complete.
6	Pre-Job Safety Meeting	8/27/2017	08:10:00	Discuss hazards and sign JSA . Review job pump schedule with all crews involved during cmt job.
7	Start Job	8/27/2017	08:37:17	Start job
8	Pump Spacer 1	8/27/2017	08:38:00	Pump 5 bbls fresh water to fill lines.
9	Test Lines	8/27/2017	08:41:46	Test lines to 5000 psi/
10	Circulate Well	8/27/2017	08:45:34	Pump 200 bbls drill water to load hole.
11	Pump Spacer 2	8/27/2017	09:20:31	Pump 25 bbls gel spacer
12	Pump Cement	8/27/2017	09:30:57	Pump 251 bbls HalCem cmt @ 15.6 lbm/gal, 1.21 ft <sup>3</sup> /sk, 5.41 gal/sk. ( 1165 sks ) 77°F. Checked with mud scales 4 times during pumping.
13	Drop Top Plug	8/27/2017	10:26:59	Drop top plug (3rd party plug).
14	Pump Displacement	8/27/2017	10:27:33	Pump 218 bbls drill water displacement, 100 bbls into displacement pump was jacking shut down and reprimed pump and it still jacked slowed rate down to 3 to 4 bpm to keep cmt moving and finished displacement. Plug did not bump went 5 bbls over calculated. 50 bbls cement to surface.
15	Check Floats	8/27/2017	11:43:00	Floats held 1bbl back to pump unit.
16	End Job	8/27/2017	11:44:10	End job.
17	Pre-Rig Down Safety Meeting	8/27/2017	11:49:00	Discuss hazards and review JSA.
18	Rig-Down Equipment	8/27/2017	11:57:00	Rig down equipment
19	Rig-Down Completed	8/27/2017	12:40:00	Rig down complete.
20	Depart Location	8/27/2017	12:55:00	Held safety meeting and departed location.

# HALLIBURTON

## Job Information

Job Tubulars/Tools											
Description	Size in	Weight lbm/ft	ID in	Thread	Grade	Top MD ft	Btm MD ft	Top TVD ft	Btm TVD ft	Shoe Jnt ft	% Excess
13-3/8" Surface Casing	13.375	54.5	12.615	BTC	J-55	0	1423				
12-1/4" Open Hole			12.25			1423	2690				50
9-5/8" Intermediate Casing	9.625	40	8.835	8 RD	J-55	0	2651			45	

## Fluids Pumped

Materials									
Stage/Plug #: 1									
Fluid #	Fluid Name	Package/SBM/Material Name	Rqstd Del Qty	UOM	Density lbm/gal	Yield ft3/sack	Water Req Gal/sack	Rate bbl/min	Total Mix Fluid Gal/sack
1	Gel Spacer		25	bbl	8.4				
2	Water Spacer		10	bbl	8.33				
3	HalCem (TM) System	HALCEM (TM) SYSTEM	920	sack	15.6	1.209	5.42	5	5.42
4	Fresh Water Displacement		197.6	bbl	8.33				

Caution: Displacement quantities and densities are estimates ONLY! Do not use them for the actual job.

RECEIVED  
Office of Oil and Gas  
MAY 31 2018  
WV Department of  
Environmental Protection

# HALLIBURTON

## Job Log

Seq. No.	Activity	Date	Time	Comments
1	Arrive At Loc	8/29/2017	18:00:00	Arrive At Loc and the rig was still pulling drill pipe went and talk to the company man and Ron and was released from loc till 2230 we arrived back on loc at 1030 pm they had not started running casing yet. we started racking in at 2330
2	Safety Meeting - Assessment of Location	8/29/2017	22:30:00	
3	Safety Meeting - Pre Rig-Up	8/30/2017	01:00:00	
4	Safety Meeting - Pre Job	8/30/2017	08:00:00	
5	Start Job	8/30/2017	08:22:51	
6	Test Lines	8/30/2017	08:27:01	tested lines to 500 then to 5000 psi
7	Pump Spacer 1	8/30/2017	08:32:02	pumped 25 bbl gel spacer
8	Pump Spacer 2	8/30/2017	08:39:09	pumped 10 bbl water to clean gel out of pump and lines
9	Pump Lead Cement	8/30/2017	08:45:43	pumped 190 bbl cement (920 sacks) density 15.6 yield 1.209 water 5.42 down hole temp 87 deg f
10	Drop Top Plug	8/30/2017	09:29:20	dropped 3rd party 9 5/8 top plug
11	Pump Displacement	8/30/2017	09:29:21	pumped 196.5 bbl displacement started getting spacer back to surface at 170 bbl into displacement and received cement back to surface at 193 bbl into displacement for a total of 3 bbl cement back to surface
12	Bump Plug	8/30/2017	10:10:56	plug landed at 196.5 bbl into displacement land pressure was 1100 took pressure to 1600 psi and held for 5 min then released pressure back to the truck and received 1 bbl back floats held
13	End Job	8/30/2017	10:24:20	
14	Safety Meeting - Pre Rig-Down	8/30/2017	11:30:00	
15	Depart Location	8/30/2017	13:00:00	

RECEIVED  
Office of Oil and Gas  
MAY 31 2018  
WV Department of  
Environmental Protection



# Cementing Treatment



<b>Start Date</b>	10/29/2017	<b>Well</b>	Aaron K Fisher 7H
<b>End Date</b>	10/29/2017	<b>County</b>	MONONGALIA
<b>Client</b>	NORTHEAST NATURAL ENERGY LLC	<b>State/Province</b>	WV
<b>Client Field Rep</b>	Joshua Grim	<b>API</b>	47-061-01736
<b>Service Supervisor</b>	Daniel Hensley	<b>Formation</b>	
<b>Field Ticket No.</b>	NNE - Fisher 7H - 5.5" Production Casing	<b>Rig</b>	Patterson 334
<b>District</b>	Bridgeport, WV	<b>Type of Job</b>	Long String

## WELL GEOMETRY

Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	TVD (ft)	Excess(%)	Grade	Thread
Previous Casing	8.84	9.63	40.00	2,580.00	2,580.00	0.00	J-55	
Open Hole	8.50			16,198.00	8,303.00	10.00		
Casing	4.78	5.50	20.00	16,146.00	8,303.00		P-110	
Open Hole	8.75			6,596.00	6,596.00	10.00		
Open Hole	8.50			16,198.00	8,303.00	10.00		

Shoe Length (ft): 45

## HARDWARE

<b>Bottom Plug Used?</b>	Yes	<b>Tool Type</b>	Float Collar
<b>Bottom Plug Provided By</b>	Non BJ	<b>Tool Depth (ft)</b>	16,122.00
<b>Bottom Plug Size</b>	5.500	<b>Max Tubing Pressure - Rated (psi)</b>	
<b>Top Plug Used?</b>	Yes	<b>Max Tubing Pressure - Operated (psi)</b>	
<b>Top Plug Provided By</b>	Non BJ	<b>Max Casing Pressure - Rated (psi)</b>	8,800.00
<b>Top Plug Size</b>	5.500	<b>Max Casing Pressure - Operated (psi)</b>	6,000.00
<b>Centralizers Used</b>	No	<b>Pipe Movement</b>	None
<b>Centralizers Quantity</b>		<b>Job Pumped Through</b>	Manifold
<b>Centralizers Type</b>		<b>Top Connection Thread</b>	BTC
<b>Landing Collar Depth (ft)</b>	16,125	<b>Top Connection Size</b>	5.5

RECEIVED  
Office of Oil and Gas  
MAY 31 2018  
WV Department of  
Environmental Protection

# Cementing Treatment



## CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	Solids Present at End of Circulation	No
Circulation Prior to Job	No	10 sec SGS	
Circulation Time (min)		10 min SGS	
Circulation Rate (bpm)		30 min SGS	
Circulation Volume (bbls)		Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)		Gas Units	
Mud Density Out (ppg)	12.50		
PV Mud In			
PV Mud Out			
YP Mud In			
YP Mud Out			

## TEMPERATURE

Ambient Temperature (°F)		Slurry Cement Temperature (°F)	51.50
Mix Water Temperature (°F)	50.50	Flow Line Temperature (°F)	

RECEIVED  
Office of Oil and Gas  
MAY 31 2018  
WV Department of  
Environmental Protection

## BJ FLUID DETAILS

Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	MultiBond 13.5 ppg	13.5000					74.0000
Spacer / Pre Flush / Flush	UltraBond 10 13.5 ppg	13.5000					100.0000
Tail Slurry	Single Slurry 14.5 ppg	14.5000	1.1859	5.18	3,207	3,795.0000	675.8000
Displacement 1	Inhibited Water	8.3400				0.0000	20.0000
Displacement	Treated Water	8.3400				0.0000	337.7000

# Cementing Treatment



Final						
-------	--	--	--	--	--	--

Fluid Type	Fluid Name	Component	Concentration	UOM
Spacer / Pre Flush / Flush	MultiBond 13.5 ppg	13.5 ppg IntegraGUARD Multi	100.00	PCT
Spacer / Pre Flush / Flush	MultiBond 13.5 ppg	RETARDER, R-3	1.10	PPB
Spacer / Pre Flush / Flush	MultiBond 13.5 ppg	FOAM PREVENTER, FP-13L	0.03	GPB
Spacer / Pre Flush / Flush	UltraBond 10 13.5 ppg	SURFACTANT, S-5	3.50	GPB
Spacer / Pre Flush / Flush	UltraBond 10 13.5 ppg	IntegraGuard RHEO 10	100.00	PCT
Spacer / Pre Flush / Flush	UltraBond 10 13.5 ppg	WEIGHTING ADDITIVE, BARITE	284.62	PPB
Tail Slurry	Single Slurry 14.5 ppg	CEMENT, CLASS A	50.00	PCT
Tail Slurry	Single Slurry 14.5 ppg	CEMENT, FLY ASH (POZZOLAN)	50.00	PCT
Tail Slurry	Single Slurry 14.5 ppg	RETARDER, R-3	0.30	BWOB
Tail Slurry	Single Slurry 14.5 ppg	BONDING AGENT, EC-1	1.00	BWOB
Tail Slurry	Single Slurry 14.5 ppg	FOAM PREVENTER, FP-13L	0.75	GALS/100SK
Tail Slurry	Single Slurry 14.5 ppg	SPECIAL ADDITIVE, MPA-170	0.30	BWOB
Displacement 1	Inhibited Water	RETARDER, SUGAR, GRANULAR	200.00	LBS
Displacement 1	Inhibited Water	BIOCIDE, ALPHA 1427	0.80	GPT
Displacement 1	Inhibited Water	SCALE CONTROL, FraCare SI 720	0.25	GPT
Displacement Final	Treated Water	SCALE CONTROL, FraCare SI 720	0.25	GPT
Displacement Final	Treated Water	BIOCIDE, ALPHA 1427	0.80	GPT

RECEIVED  
Office of Oil and Gas  
MAY 31 2018  
WV Department of  
Environmental Protection

## TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
10/29/2017 10:45 AM	UltraBond 10 13.5 ppg	5.00	100.00		1,000.00	
10/29/2017 11:02 AM	MultiBond 13.5 ppg	5.00	74.00		1,500.00	
10/29/2017 11:25 AM	Single Slurry 14.5 ppg	5.00	675.80		3,000.00	

# Cementing Treatment



10/29/2017 1:19 PM	Inhibited Water	7.00	20.00	3,000.00	
10/29/2017 1:25 PM	Treated Water	5.00	337.70	4,100.00	plug bumped held 5 min flowed 5 bbl to truck

	Min	Max	Avg
Pressure (psi)	0.00	4,100.00	
Rate (bpm)	0.00	8.00	6.00

## DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	
Calculated Displacement Volume (bbls)	356.00	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	358.00	Amount of Spacer to Surface	83.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amount Bled Back After Job	5.00
Bump Plug Pressure (psi)	4,100.00	Total Volume Pumped (bbls)	
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	No
Cement returns During Job	None	Lost Circulation During Cement Job	No

## CEMENT PLUG

Bottom of Cement Plug?	Yes	Wiper Balls Used?	No
Wiper Ball Quantity		Plug Catcher	No
Number of Plugs			

## SQUEEZE

Injection Rate (bpm)	Fluid Density (ppg)
Injection Pressure (psi)	ISIP (psi)
Type of Squeeze	FSIP (psi)
Operators Max SQ Pressure (psi)	

RECEIVED  
Office of Oil and Gas  
MAY 31 2018  
WV Department of  
Environmental Protection

# Cementing Treatment



## COMMENTS

---

### Treatment Report

PUMPED 100 BBL ULTRABOND @ 13.5PPG, 74 BBL MULTIBOND @ 13.5PPG DROPPED BOTTOM PLUG, PUMPED 674 BBL CEMENT @ 14.5 PPG, SHUTDOWN CLEANED LINES DROPPED TOP PLUG, DISPLACED 20 BBL SUGAR WATER 337 BBL TREATED WATER, 358 BBL TOTAL PLUG BUMPED PSI TO 4100 HELD 5 MIN FLOWED 5 BBL TO TRUCK FLOATS HELD PSI BACK UP TO 1000 PSI RELEASED PSI

### Job Summary

RECEIVED  
Office of Oil and Gas  
MAY 31 2018  
WV Department of  
Environmental Protection  
5 of 5



District: Bridge Port  
 Supervisor: Daniel Hensley  
 Engineer

Customer Name: NORTHEAST  
 Well Name: FISHER 7H  
 Job Type: Long String

Seq No.	Start Date/Time	Category	Event	Equipment	Event ID	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbbls)	Pipe Pressure (psi)	Comments
1	10-29-17 5:20am	Mobilization	Arrive on Location		48					arrived on location/location time was 6am
2	10-29-17 5:30am	Operational	Spot Units		49					tight spot for equipment
3	10-29-17 6:30am	Operational	Rig Up		50					prime up trucks and mix spacer
4	10-29-17 9:35am	Operational	Prime Up		52					
5	10/29/2017 10:00	Operational	Safety Meeting		53					
6	10-29-17 10:35am	Operational	Pressure Test		54		1	3	6000	ultrabond @ 13.5ppg
7	10-29-17 10:45am	Operational	Pump Spacer		56		5	74		multibond @ 13.5ppg
8	10-29-17 11:02am	Operational	Pump Spacer		56		5	100		
9	10-29-17 11:18am	Operational	Drop Bottom Plug		57					
10	10-29-17 11:25am	Operational	Pumping Cement		61		6	674		scaled @ 14.5ppg
11	10-29-17 1:15pm	Operational	Clean Pumps and Lines		62					
12	10-29-17 1:19pm	Operational	Drop Top Plug		63		7	3000		
13	10-29-17 1:20pm	Operational	Pump Displacement		64					
14	10-29-17 2:00pm	Operational	Spacer Back to Surface		65					83 bbl to surface
15	10-29-17 2:21pm	Operational	Land Plug		67					bumped to 4100 held 5 min
16	10-29-17 2:29pm	Operational	Check Floats		68					flowed 5 bbl to truck floats held
17	10-29-17 2:32pm	Operational	End Pumping		69					wash up truck
18	10-29-17 3:30pm	Operational	Rig Down		73					
19	10-29-17 5:00pm	Mobilization	Leave Location		74					
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										
42										

Office of Oil and Gas  
 RECEIVED  
 MAY 31 2018  
 Environmental Protection

## Perforation Record

Stage No.	Report Date	Perforated from MD Ft.	Perforated to MD Ft.	Number of Perforations	Formation
1	12/16/2017		16,041	40	Marcellus
2	12/19/2017	16,003	15,840	40	Marcellus
3	12/19/2017	15,802	15,640	40	Marcellus
4	12/20/2017	15,602	15,440	40	Marcellus
5	12/21/2017	15,402	15,239	40	Marcellus
6	12/21/2017	15,201	15,039	40	Marcellus
7	12/22/2017	15,001	14,839	40	Marcellus
8	12/22/2017	14,801	14,639	40	Marcellus
9	12/23/2017	14,601	14,438	40	Marcellus
10	12/23/2017	14,400	14,238	40	Marcellus
11	12/26/2017	14,200	14,038	40	Marcellus
12	12/27/2017	14,000	13,837	40	Marcellus
13	12/28/2017	13,799	13,637	40	Marcellus
14	12/28/2017	13,599	13,437	40	Marcellus
15	12/29/2017	13,399	13,237	40	Marcellus
16	12/30/2017	13,198	13,036	40	Marcellus
17	12/31/2017	12,998	12,836	40	Marcellus
18	12/31/2017	12,798	12,636	40	Marcellus
19	1/2/2018	12,598	12,435	40	Marcellus
20	1/2/2018	12,397	12,235	40	Marcellus
21	1/3/2018	12,197	12,035	40	Marcellus
22	1/4/2018	11,997	11,835	40	Marcellus
23	1/7/2018	11,796	11,634	40	Marcellus
24	1/7/2018	11,596	11,434	40	Marcellus
25	1/8/2018	11,396	11,234	40	Marcellus
26	1/8/2018	11,196	11,033	40	Marcellus
27	1/8/2018	10,995	10,833	40	Marcellus
28	1/9/2018	10,795	10,633	40	Marcellus
29	1/9/2018	10,595	10,432	40	Marcellus
30	1/9/2018	10,394	10,232	40	Marcellus
31	1/10/2018	10,194	10,032	40	Marcellus
32	1/10/2018	9,994	9,832	40	Marcellus
33	1/11/2018	9,794	9,631	40	Marcellus
34	1/11/2018	9,593	9,431	40	Marcellus

RECEIVED  
 Office of Oil and Gas  
 MAR 31 2018  
 WV Department of  
 Environmental Protection

### Stimulation Report

Stage No.	Report Date	Avg Treating Rate (BPM)	Avg Treating Pressure (psi)	Breakdown Pressure (psi)	ISIP (psi)	Total Amount of Proppant (lbs)	Total Clean Fluid (Bbls)
1	12/16/2017	86	7,936	4,760	4,351	298,440	5,909
2	12/19/2017	86	8,003	5,374	4,620	501,160	10,482
3	12/19/2017	85	7,756	5,047	3,736	500,700	10,044
4	12/20/2017	85	7,877	4,932	4,135	500,920	10,602
5	12/21/2017	84	7,757	5,866	4,588	499,460	10,545
6	12/21/2017	84	8,312	5,467	3,775	500,600	10,291
7	12/22/2017	83	7,914	4,118	3,827	500,313	9,920
8	12/22/2017	85	8,269	5,783	4,270	501,380	9,830
9	12/23/2017	87	8,124	6,016	5,115	500,820	9,686
10	12/23/2017	85	8,631	5,963	4,887	513,580	9,463
11	12/26/2017	82	8,028	5,814	5,378	507,680	10,194
12	12/27/2017	83	8,673	5,534	4,969	487,860	9,576
13	12/28/2017	82	8,323	6,769	5,599	500,200	9,890
14	12/28/2017	83	8,502	6,421	5,606	500,200	9,715
15	12/29/2017	84	8,747	5,853	5,214	501,320	10,100
16	12/30/2017	82	8,341	6,423	6,078	513,260	10,310
17	12/31/2017	83	8,610	6,079	5,670	501,480	9,954
18	12/31/2017	85	8,529	6,266	5,670	507,620	9,840
19	1/2/2018	85	8,464	6,292	6,115	507,500	9,893
20	1/2/2018	85	8,235	5,520	5,496	502,280	9,583
21	1/3/2018	83	8,024	6,379	5,684	500,740	11,059
22	1/4/2018	81	6,834	6,834	5,740	506,560	10,412
23	1/7/2018	82	8,991	6,833	5,959	519,840	9,749
24	1/7/2018	81	8,717	6,759	5,617	500,620	10,098
25	1/8/2018	83	8,221	6,519	6,166	500,580	9,738
26	1/8/2018	81	7,979	6,347	5,612	498,320	9,329
27	1/8/2018	84	8,225	6,880	6,086	501,215	9,971
28	1/9/2018	84	8,103	7,242	6,111	506,380	9,806
29	1/9/2018	83	8,434	7,146	5,783	500,960	10,126
30	1/9/2018	85	8,558	6,447	6,215	503,420	9,911
31	1/10/2018	83	8,241	7,107	6,353	499,360	9,971
32	1/10/2018	85	8,191	6,712	5,961	500,300	9,796
33	1/11/2018	83	8,334	7,043	5,620	500,260	9,841
34	1/11/2018	86	8,507	7,278	5,917	500,420	9,818

RECEIVED  
 Office of Oil and Gas  
 MAY 31 2018  
 WV Department of  
 Environmental Protection



<b>Formation and Depths</b>					
<b>Lithology/Formation</b>	<b>Top Depth in FT Name TVD</b>	<b>Bottom Depth in FT TVD</b>	<b>Top Depth in FT MD</b>	<b>Bottom Depth in FT MD</b>	<b>Describe rock type and record quantity and type of fluid (freshwater, brine, oil, gas, H2S, etc)</b>
Gray Sand/Shale	0	245			sand/shale
Gray/Red Shale	245	335			shale
Gray Sand	335	350			sand
Coal	350	355			coal
Sand	355	375			sand
Coal	375	380			coal
Sand/Shale	380	1056			sand/shale
Coal	1056	1066			coal
Sand/Shale	1066	1135			sand/shale
Gray/Red Shale	1135	1670			shale
Sand	1670	1864			sand
Coal	1884	1890			coal
Sand/Shale	1890	1920			sand/shale
Coal	1920	1930			coal
Sand/shale	1930	2480			sand/shale
Sand	2480	2680			sand
Sand/shale	2680	3600			sand/shale
Sandstone/Shale/Siltstone	3600	6300			sandstone/shale/siltstone
Middlesex	7559	7773	8071	8427	shale
Burkett	7773	7955	8427	8737	shale
Geneseo	7955	7991	8737	8805	shale
Tully	7991	8040	8805	8898	limestone
Hamilton	8040	8153	8898	9168	shale
Marcellus	8153	8202	9168	9341	shale
Cherry Valley	8202	8204	9341	9351	limestone
Lower Marcellus	8204		9351		shale

RECEIVED  
 Office of Oil and Gas  
 MAY 31 2018  
 MW Department of  
 Environmental Protection

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/16/2017
Job End Date:	1/12/2018
State:	West Virginia
County:	Monongalia
API Number:	47-061-01736-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Fisher 7H
Latitude:	39.69603600
Longitude:	-80.21383200
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	8,303
Total Base Water Volume (gal):	14,080,690
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	Company 1	Carrier/Base Fluid	Water	7732-18-5	100.00000	87.09411	None
Sand (Proppant)	Producers Service Corp	Proppant	Crystalline Silica (quartz)	14808-60-7	100.00000	12.51595	None
HC Acid (7.5%)	Producers Service Corp	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.04419	None
STIMLUBE HBVB	Producers Service Corp	Friction Reducer	Petroleum Distillates	64742-47-8	30.00000	0.02040	None
			Ammonium Acetate	631-61-8	10.00000	0.00680	None
BIOC 11219A	Nalco-Champion	Biocide	Methanol	67-56-1	60.00000	0.01246	None
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00623	None
			Glutaraldehyde	111-30-8	10.00000	0.00208	None
SCALE 16486A	Nalco-Champion	Scale Inhibitor	Amine Triphosphate	Proprietary	30.00000	0.00166	None
			Ethylene Glycol	107-21-1	30.00000	0.00166	None

Office RECEIVED  
 MAY 31 2018  
 Environmental Protection  
 Department of Oil & Gas

PROHIB II	Producers Service Corp	Inhibitor					
			Acetic Acid	64-19-7	90.00000	0.00050	None
			Methanol	67-56-1	10.00000	0.00006	None
			2-Ethylhexanol	104-76-7	10.00000	0.00006	None
			Cocamide Diethanolamine	68603-42-9	5.00000	0.00003	None
			Diethanolamine	111-42-2	1.00000	0.00001	None
PRO-DRB-LT	Producers Service Corp	Oxidizer					
			Ammonium Persulfate	7727-54-0	80.00000	0.00037	None
			Crystalline Silica in the form of Quartz	14808-60-7	15.00000	0.00007	None
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Ammonium Acetate	631-61-8	10.00000	0.00680	
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00623	
			Glutaraldehyde	111-30-8	10.00000	0.00208	
			Ethylene Glycol	107-21-1	30.00000	0.00166	
			Crystalline Silica in the form of Quartz	14808-60-7	15.00000	0.00007	
			Methanol	67-56-1	10.00000	0.00006	
			2-Ethylhexanol	104-76-7	10.00000	0.00006	
			Cocamide Diethanolamine	68603-42-9	5.00000	0.00003	
			Diethanolamine	111-42-2	1.00000	0.00001	

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

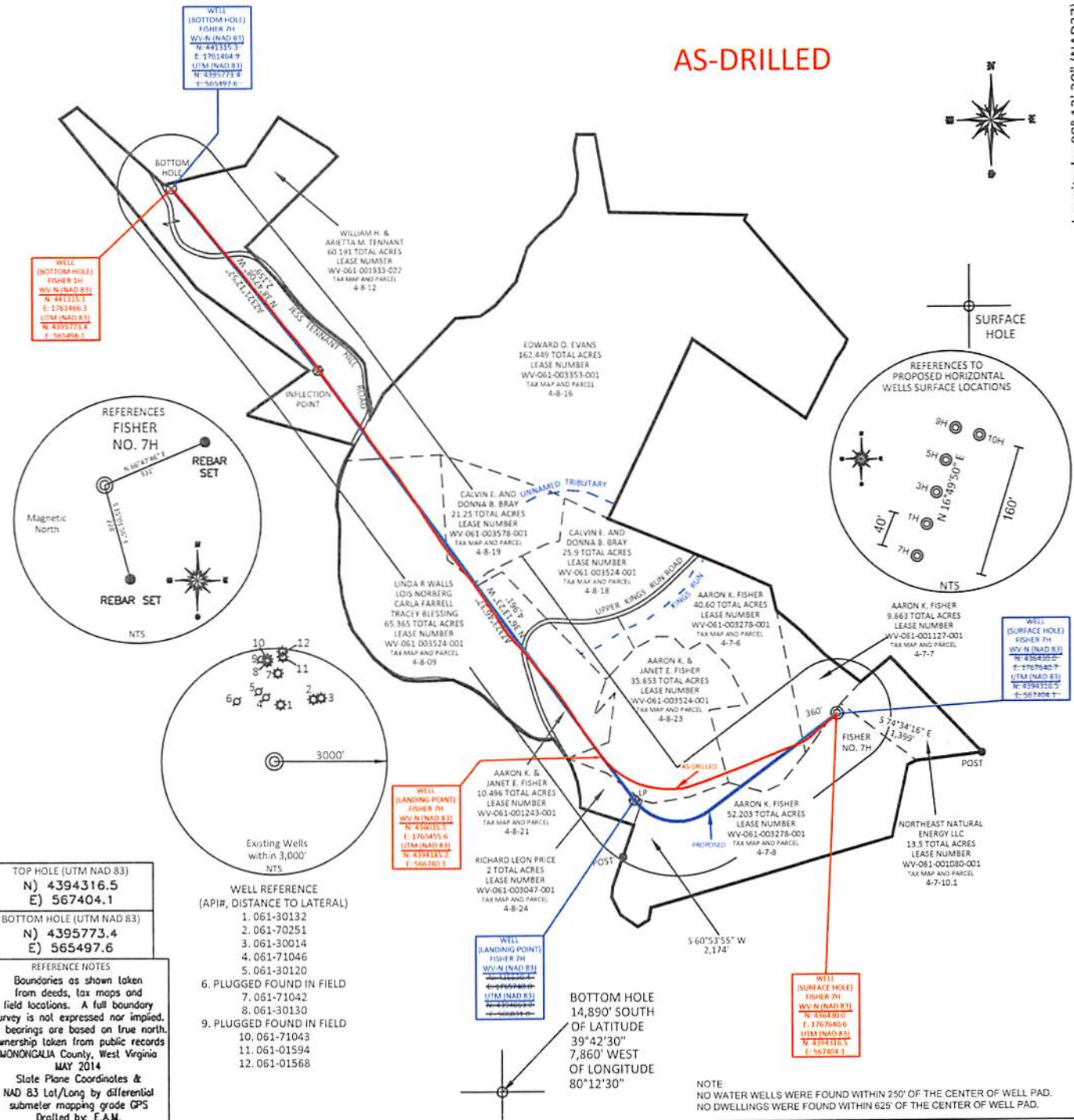
\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

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)

RECEIVED  
 Office of Oil and Gas  
 MAY 31 2018  
 WV Department of Environmental Protection

AS-DRILLED



TOP HOLE (UTM NAD 83)  
N) 4394316.5  
E) 567404.1

BOTTOM HOLE (UTM NAD 83)  
N) 4395773.4  
E) 565497.6

REFERENCE NOTES  
Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings taken based on true north. Ownership taken from public records MONONGALIA County, West Virginia MAY 2014  
State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS  
Drafted by: E.A.M.

- WELL REFERENCE (API#, DISTANCE TO LATERAL)
- 0.061-30132
  - 0.061-70251
  - 0.061-30014
  - 0.061-71046
  - 0.061-30120
  - PLUGGED FOUND IN FIELD
  - 0.061-71042
  - 0.061-30130
  - PLUGGED FOUND IN FIELD
  - 0.061-71043
  - 0.061-01594
  - 0.061-01568

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed:   
L.L.S. #2124 : Ernest J. Benchek III



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP

OFFICE OF OIL & GAS  
601 57TH STREET  
CHARLESTON, WV 25304

Well Type:  Oil  Waste Diposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

WATERSHED: DUNKARD CREEK

COUNTY/DISTRICT: MONONGALIA / CLAY

SURFACE OWNER: AARON K. FISHER

OIL & GAS ROYALTY OWNER: HENRY P. AMES, III, ET AL

LEASE NUMBERS: \_\_\_\_\_

DATE: APRIL 13, 2018

OPERATOR'S WELL #: FISHER NO. 7H

API WELL #: 47 61  
STATE COUNTY PERMIT

AS-BUILT ELEVATION: 1,453'

QUADRANGLE: BLACKSVILLE

ACREAGE: 9.663 +/-

ACREAGE: 499.27 +/-

TARGET FORMATION: MARCELLUS

ESTIMATED DEPTH: TVD: 8,303.51' TMD: 16,189'

WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC

DESIGNATED AGENT: JOHN ADAMS

ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200

ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200

CITY: CHARLESTON STATE: WV ZIP CODE: 25301

CITY: CHARLESTON STATE: WV ZIP CODE: 25301

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
PLUG OFF FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY): \_\_\_\_\_