

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

API 47-061-01752 County Monongalia District Clay
Quad Blacksville Pad Name Fisher Field/Pool Name Fisher
Farm name Aaron K. Fisher Well Number Fisher 4H
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 4394337.6 Easting 567419.4
Landing Point of Curve Northing 4394138.2 Easting 567644.8
Bottom Hole Northing 4392570.6 Easting 5688656.5

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

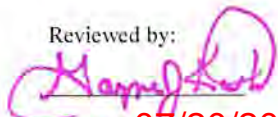
Mud Type(s) and Additive(s)
Synthetic Based Mud - Horizontal Section: BIO-BASE 365, CALCIUM CHLORIDE POWDER, G-SEAL PLUS, HRP, LIME, M-I WATE (BARITE),
M-I-X II MEDIUM, MEGADRIL P SYSTEM, MEGADRIL P SYSTEM RENTAL, MEGAMUL, SAFE-CARB 250, VERSATHIN HF, VERSAWET, VG-PLUS, VINSEAL MEDIUM, WALNUT NUT PLUG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

Date permit issued 8/29/2016 Date drilling commenced 3/16/2017 Date drilling ceased 5/10/2017
Date completion activities began 6/16/2017 Date completion activities ceased 7/3/2017
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 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: 
07/20/2018

API 47-061 - 01752 Farm name Aaron K. Fisher Well number Fisher 4H

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"	1,412'	N	54.5	N/A	Y 59 Bbl.
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,640'	N	40	N/A	Y 20 Bbl.
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	15,271'	N	20	N/A	N, EST. 1,640'
Tubing	N/A	2-7/8"	N/A	N	6.5	N/A	N/A
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	4,500 PSI Grout	-	-	3 Yds	-	-	-
Surface	Premium NE-1 + Additives	1,095	15.2	1.27	1386.802	Surface	8
Coal							
Intermediate 1	Class A + 1%	882	15.6	1.19	1044.313	Surface	8
Intermediate 2							
Intermediate 3							
Production	50:50 Class A + Additives	2,986	14.5	1.19	3503.5	1,640'	48
Tubing							

Drillers TD (ft) 15,315 Loggers TD (ft) 15,285

Deepest formation penetrated Marcellus Plug back to (ft) _____

Plug back procedure _____

Kick off depth (ft) 7,180'

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 _____

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

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- 061 - 01752 Farm name Aaron K. Fisher Well number Fisher 4H

PRODUCING FORMATION(S)	DEPTHS		
Marcellus	8,281'	TVD	15,315' MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3,469 psi Bottom Hole _____ psi DURATION OF TEST 48 hrs

OPEN FLOW Gas 4,805 mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY Estimated Orifice Pilot

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

Please insert additional pages as applicable.

Drilling Contractor Nabors
Address 1957 Jefferson Rd. City Rices Landing State PA Zip 15357

Logging Company Baker Hughes
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Cementing Company Baker Hughes
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Stimulating Company BJ Services
Address 1036 E. Main St. City Bridgeport State WV Zip 26330

Please insert additional pages as applicable.

Completed by Hollie Medley Telephone 304-212-0422
Signature Hollie Medley Title Regulatory Manager Date 5-18-18



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

07/20/2018

CEMENT JOB REPORT



PRESSURE/RATE DETAIL						EXPLANATION
TIME HR-MIN.	PRESSURE - PSI		RATE BPM	Bbl. FLUID PUMPED	FLUID TYPE	SAFETY MEETING: BJ CREW <input checked="" type="checkbox"/> CO. REP. <input checked="" type="checkbox"/>
	PIPE	ANNULUS				TEST LINES 4330 PSI
						CIRCULATING WELL - RIG <input type="checkbox"/> BJ <input checked="" type="checkbox"/>
12:09	156	0	3.5	10	WATER	FRESH WATER SPACER
12:10	0	0	0	0	CEMENT	BATCH UP CEMENT / 68 DEG F
12:16	425	0	4.9	15	CEMENT	RATE AND PRESSURE CHECK
12:25	400	0	4.7	50	CEMENT	RATE AND PRESSURE CHECK
12:35	340	0	4.2	100	CEMENT	RATE AND PRESSURE CHECK
12:47	400	0	4.5	150	CEMENT	RATE AND PRESSURE CHECK
13:00	383	0	4.7	200	CEMENT	RATE AND PRESSURE CHECK
13:10	0	0	0	248	CEMENT	FINISH CEMENT
13:15	0	0	0	0	WATER	DROP PLUG / BEGIN DISPLACEMENT
13:18	150	0	4	10	WATER	RATE AND PRESSURE CHECK
13:25	300	0	6.6	50	WATER	RATE AND PRESSURE CHECK
13:33	340	0	6.6	100	WATER	RATE AND PRESSURE CHECK
13:40	590	0	6.6	150	WATER	RATE AND PRESSURE CHECK
13:48	714	0	6.6	200	WATER	RATE AND PRESSURE CHECK
13:51	558	0	2.8	209	WATER	BUMP PLUG
13:56	1214	0	0	0	=====	CHECK FLOATS / HELD / 1 BBL BACK
00:00	0	0	0	0	=====	GOOD RETURNS THROUGHT JOB
00:00	0	0	0	0	=====	59 BBL CEMENT BACK TO SURFACE
00:00	0	0	0	0	=====	THANKS, BRAD AND CREW

BUMPED PLUG <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	PSI TO BUMP PLUG 558	TEST FLOAT EQUIP. <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	BBL.CMT RETURNS/ REVERSED 59	TOTAL BBL. PUMPED 771	PSI LEFT ON CSG 0	SPOT TOP OUT CEMENT <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	SERVICE SUPERVISOR SIGNATURE: <i>Bradley Miller</i>
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Customer: NORTHEAST NATURAL ENERGY LLC	Date: 4/3/2017	Serv. Supervisor: Jason Beeson
Cust. Rep.: jamie	Ticket #: JWV1704-0004	Serv. Center Jane Lew, WV
Lease: Fisher 4H	API Well #:	County: Monongalia State: WV
Well Type:	Rig: Nabors X08	Type of Job: Intermediate Casing

Materials Furnished by C&J ENERGY SERVICES

Plugs	Casing Hardware	Physical Slurry Properties					
		Sacks of Cement	Fluid Dens (lb/gal)	Yield (cuft/sk)	Mix Water (gal/sk)	Fluid Volume (bbbls)	Mix Water (bbbls)
Spacer 1: CJ810 PureScrub Spacer		-	13			50	
Spacer 2:							
Scavenger							
Lead							
Tail: CJ910 + 1% CJ110		882	15.6	1.19	5.22	186	110

Displacement Chemicals:

OPEN HOLE DATA				TUBULAR DATA							
SIZE (in)	EXCESS (%)	DEPTH (ft)	TYPE (CSG/BCDP)	OD (in)	WEIGHT (lbs/ft)	THREAD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)
12 1/4		1268	Casing	9 5/8	40		2640		8.84		

PREVIOUS CASING DATA				PERFORATED INTERVAL DATA				CASING EQUIPMENT DEPTHS			
SIZE (in)	WEIGHT (lbs/ft)	ID (in)	DEPTH (ft)	TOP	BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP
13 3/8	54.5	12.61	1412					45	2595		

WELL FLUID		DISPLACEMENT FLUID			DIFF PRESS (psi)	CSG LIFT (psi)	MAX PRESS (psi)	WATER ON LOC (bbl)
TYPE	DENSITY	VOLUME	TYPE	DENSITY				
water base	9.3 ppg	196.5 bbl	fresh	8.3 ppg	980	1451	2500	1000

Time	Rate (bbl/min)	Csg. Press. (psi)	Tbg. Press. (psi)	Ann. Press. (psi)	Stg. Vol. (bbl)	Cum. Vol. (bbl)	Stage Details
3:30 PM						0	arrived on location
4:00 PM						0	spot trucks rig up
5:45 PM						0	safety meeting
6:05 PM						0	rig up head
6:20 PM						0	psi test to 2500
6:25 PM	5.5	270			50	50	spacer @ 13 ppg
6:37 PM	5.75	330			187	237	cement slurry @15.6
6:45 PM	5.8	440				237	cement slurry @15.6
6:57 PM	5.8	460				237	cement slurry @15.6
7:07 PM						237	shut down drop plug
7:09 PM	7	250				433.5	start displacement
7:18 PM	7	204			196.5	433.5	displacement
7:30 PM	7	858				433.5	spacer to surface @ 126bbl
7:36 PM	5	995				433.5	cement to surface @ 176
7:39 PM	3	1000				433.5	slow rate
7:40 PM	0	1540				433.5	plug down
7:45 PM	0	0					float held 1.5 bbl return
7:50 PM							rig down
9:00 PM							leave location

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Left Yard	4/3/17 1:00 PM			Left Loc.	4/3/17 9:00 PM		
Arrived Loc.	4/3/17 3:30 PM			Returned Yard			
Bumped Plug (psi)	Final Differential (psi)	Floats Held (Y/N)	PSI Left on Casing	Cement to Surface (bbl)	Full Circ. During Job (Y/N)	Max Pump Pressure (psi)	Jason Beeson Service Supervisor
Yes	1000	Yes	0	20	Yes	1500	

CEMENT JOB REPORT



CUSTOMER NORTHEAST NATURAL ENER		DATE 09-MAY-17	F.R. # 10011219964	SERV. SUPV. Brian Lough									
LEASE & WELL NAME Fisher 4H 5-1/2 Longstring - API 47061017520000		LOCATION DAYBROOK		COUNTY-PARISH-BLOCK Monongalia West Virginia									
DISTRICT Clarksburg		DRILLING CONTRACTOR RIG # Nabors Rig		TYPE OF JOB Long String									
SIZE & TYPE OF PLUGS		LIST-CSG-HARDWARE		MECHANICAL BARRIERS		MD	TVD	HANGER TYPES		MD	TVD		
Cement Plug, Rubber, Top 5-1/2 in		Float Collar, AI Flap, 5-1/2 - 8rd											
5-1/2" Btm Cem Plug, Nitri cvr, Phen		Guide Shoe, Cement Nose, 5-1/2 i											
MATERIALS FURNISHED BY BJ				LAB REPORT NO.		PHYSICAL SLURRY PROPERTIES							
						SACKS OF CEMENT	SLURRY WGT PPG	SLURRY YLD FT	WATER GPS	PUMP TIME HR:MIN	Bbl SLURRY	Bbl MIX WATER	
UltraBond 10							13.7				50		
50:50 Class A + Additives						2,986	14.5	1.19	5.17		624	363.96	
Fresh Water							8.34				337.20		
Sugar Water- (200 LBS OF SUGAR)							8.34				10		
Available Mix Water		750 Bbl.		Available Displ. Fluid		750 Bbl.		TOTAL		1021.20	363.96		
HOLE			TBG-CSG-D.P.						COLLAR DEPTHS				
SIZE	% EXCESS	DEPTH	ID	OD	WGT.	TYPE	MD	TVD	GRADE	SHOE	FLOAT	STAGE	
8.5	10	15247	4.778	5.5	20	CSG	15247	8787		15270	15246		
LAST CASING			PKR-CMT RET-BR PL-LINER			PERF. DEPTH			TOP CONN		WELL FLUID		
ID	OD	WGT	TYPE	MD	TVD	BRAND & TYPE	DEPTH	TOP	BTM	SIZE	THREAD	TYPE	WGT.
8.8	9.625	40		2640	2640					5.5	BUTT	OIL BASED MUD	12.5
DISPL. VOLUME		DISPL. FLUID		CAL. PSI	CAL. MAX PSI	OP. MAX	MAX TBG PSI		MAX CSG PSI		MIX WATER		
VOLUME	UOM	TYPE		WGT.	BUMP PLUG	TO REV.	SQ. PSI	RATED	Operator	RATED	Operator		
337.2	BBLs	Fresh Water		8.34	4000	0	0	0	0	10112	6000	TANKS	
EXPLANATION: TROUBLE SETTING TOOL, RUNNING CSG, ETC. PRIOR TO CEMENTING:													
PRESSURE/RATE DETAIL						EXPLANATION							
TIME HR:MIN.	PRESSURE - PSI		RATE BPM	Bbl. FLUID PUMPED	FLUID TYPE	SAFETY MEETING: BJ CREW <input checked="" type="checkbox"/> CO. REP. <input checked="" type="checkbox"/>							
	PIPE	ANNULUS				TEST LINES 8000 PSI							
						CIRCULATING WELL - RIG <input checked="" type="checkbox"/> BJ <input checked="" type="checkbox"/>							
10:20						ARRIVE ON LOCATION. JOB TIME ASAP							
10:21						SPOT EQUIPMENT ON LOCATION							
10:40						SAFETY MEETING WITH BJ CREW							
11:00						RIG INTO WELL & TANKS							
12:30						SAFETY MEETING WITH RIG CREW & CO.MAN							
13:29	840		5.7	5	H2O	LINE FILL							
13:30	0		.5	.5	H2O	PRESSURE TEST BJ IRON TO 8000 PSI							
13:34	760		5.6	49	PREFLUSH	ULTRABOND 10 MIXED TO 13.7 #/GAL							
13:48	0					SHUT DOWN / DROP BOTTOM PLUG							
13:53	1000		6.5	624	CEMENT	2984 SACKS OF 50/50 POZ CLASS A CEMENT+ .4% R-3+ 1% EC-1+ .75/100 SACKS FP-13L+ .3% MPA-170. TOP OF CEMENT AT 550'. TEMP WAS 70 DEGREE'S							
15:25	0					SHUT DOWN / FLUSH LINES / SPOT SUGAR / DROP PLUG							
15:29	1200		7	10	SUGAR	SUGAR WATER LAUNCHING TOP PLUG & STARTING DISPLACEMENT							
15:31	1500		6	329	H2O	TREATED H2O DISPLACEMENT							
16:10	4235		5.4	285	H2O	DUMP RETURNS TO THE 1/2 ROUND. 25 BBL SPACER RETURNS TO SURFACE							
16:31	5220		4.1	340	H2O	LAND PLUG							
16:36	0					RELEASE PRESSURE TO PUMPER. 5 1/2 BBLs RETURNS OF H2O							

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CEMENT JOB REPORT



PRESSURE/RATE DETAIL						EXPLANATION		
TIME HR:MIN.	PRESSURE - PSI		RATE BPM	Bbl. FLUID PUMPED	FLUID TYPE	SAFETY MEETING: BJ CREW <input checked="" type="checkbox"/> CO. REP. <input checked="" type="checkbox"/>		
	PIPE	ANNULUS				TEST LINES 8000 PSI		
						CIRCULATING WELL - RIG <input checked="" type="checkbox"/> BJ <input checked="" type="checkbox"/>		
						ON RELEASE		
16:40	0					FLOATS HELD. / END JOB.		
BUMPED PLUG	PSI TO BUMP PLUG	TEST FLOAT EQUIP.	BBL.CMT RETURNS/ REVERSED	TOTAL BBL. PUMPED	PSI LEFT ON CSG	SPOT TOP OUT CEMENT	SERVICE SUPERVISOR SIGNATURE:	
<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	4000	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	0	1030	0	Y <input checked="" type="checkbox"/> N		

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Perforation Record

Stage No.	Report Date	Perforated from MD Ft.	Perforated to MD ft.	Number of Perforations	Formation
1	6/15/2017		15,118	40	Marceullus
2	6/15/2017	15,085	14,941	40	Marceullus
3	6/16/2017	14,908	14,764	40	Marceullus
4	6/17/2017	14,731	14,587	40	Marceullus
5	6/17/2017	14,554	14,411	40	Marceullus
6	6/17/2017	14,377	14,057	40	Marceullus
7	6/18/2017	14,200	14,059	40	Marceullus
8	6/18/2017	14,023	13,880	40	Marceullus
9	6/18/2017	13,846	13,740	40	Marceullus
10	6/18/2017	13,670	13,526	40	Marceullus
11	6/19/2017	13,493	13,349	40	Marceullus
12	6/19/2017	13,316	13,172	40	Marceullus
13	6/20/2017	13,139	12,995	40	Marceullus
14	6/21/2017	12,962	12,819	40	Marceullus
15	6/22/2017	12,785	12,642	40	Marceullus
16	6/22/2017	14,023	13,902	40	Marceullus
17	6/22/2017	12,431	12,288	40	Marceullus
18	6/23/2017	12,254	12,111	40	Marceullus
19	6/23/2017	12,078	11,934	40	Marceullus
20	6/23/2017	11,901	11,757	40	Marceullus
21	6/24/2017	11,724	11,580	40	Marceullus
22	6/24/2017	11,547	11,403	40	Marceullus
23	6/24/2017	11,370	11,226	40	Marceullus
24	6/25/2017	11,193	11,050	40	Marceullus
25	6/25/2017	11,016	10,873	40	Marceullus
26	6/25/2017	10,839	10,696	40	Marceullus
27	6/25/2017	10,662	10,519	40	Marceullus
28	6/26/2017	10,486	10,342	40	Marceullus
29	6/26/2017	10,309	10,165	40	Marceullus
30	6/26/2017	10,132	9,988	40	Marceullus
31	6/27/2017	9,955	9,811	40	Marceullus
32	6/27/2017	9,778	9,634	40	Marceullus
33	6/27/2017	9,601	9,458	40	Marceullus
34	6/27/2017	9,424	9,281	40	Marceullus
35	6/28/2017	9,247	9,104	40	Marceullus
36	6/28/2017	9,070	8,927	40	Marceullus
37	6/29/2017	8,894	8,750	40	Marceullus

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Stimulation Report

<u>Stage No.</u>	<u>Report Date</u>	<u>Avg Treating Rate (BPM)</u>	<u>Avg Treating Pressure (psi)</u>	<u>Breakdown Pressure (psi)</u>	<u>ISIP (psi)</u>	<u>Total Amount of Proppant (lbs)</u>	<u>Total Clean Fluid (Bbls)</u>
1	6/15/2017	78	8,542	9,350	5,360	304,406	6,701
2	6/15/2017	78	8,594	7,595	5,398	399,979	8,021
3	6/16/2017	79	8,832	7,789	5,664	403,477	7,827
4	6/17/2017	78	8,685	8,179	5,914	399,455	7,693
5	6/17/2017	80	8,844	8,197	5,860	401,251	7,624
6	6/17/2017	79	8,705	7,969	5,736	400,340	7,781
7	6/18/2017	79	8,569	7,655	6,148	401,016	7,609
8	6/18/2017	81	8,689	7,884	5,844	399,762	7,709
9	6/18/2017	80	8,504	7,806	6,040	401,687	7,494
10	6/18/2017	78	8,670	7,442	5,968	400,126	7,505
11	6/19/2017	78	8,711	8,759	5,894	399,594	7,730
12	6/19/2017	78	8,618	8,020	6,218	400,381	7,518
13	6/20/2017	81	8,566	8,539	6,014	400,686	7,585
14	6/21/2017	80	8,656	7,946	5,914	402,084	7,552
15	6/22/2017	80	8,644	8,040	6,047	398,505	7,615
16	6/22/2017	80	8,578	7,939	5,903	399,174	7,693
17	6/22/2017	80	8,532	8,082	6,235	405,224	7,556
18	6/23/2017	79	8,634	7,585	5,819	399,267	7,369
19	6/23/2017	80	8,803	7,769	5,967	400,485	7,407
20	6/23/2017	78	8,565	7,749	5,563	403,138	7,438
21	6/24/2017	81	8,441	7,750	5,734	397,206	7,019
22	6/24/2017	78	8,313	8,051	5,597	400,553	6,869
23	6/24/2017	78	8,211	8,121	5,938	372,388	7,075
24	6/25/2017	79	8,176	7,723	6,015	399,786	7,372
25	6/25/2017	80	8,151	7,961	5,828	396,281	6,595
26	6/25/2017	79	8,210	7,761	5,779	400,962	7,443
27	6/25/2017	80	8,207	8,363	6,030	401,220	7,393
28	6/26/2017	80	8,159	8,133	6,124	400,841	7,008
29	6/26/2017	79	8,124	7,942	6,170	399,634	7,235
30	6/26/2017	80	8,285	7,840	5,811	402,655	7,287
31	6/27/2017	81	8,045	7,917	5,959	397,363	6,912
32	6/27/2017	80	8,236	7,754	5,842	399,340	7,044
33	6/27/2017	81	7,920	6,962	5,753	400,876	7,369
34	6/27/2017	80	8,107	7,645	6,279	400,362	8,239
35	6/28/2017	79	7,849	7,071	5,876	395,280	6,824
36	6/28/2017	80	7,730	6,669	5,427	398,674	6,803
37	6/29/2017	79	8,356	6,000	5,965	404,060	11,837

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Formation and Depths

<u>Lithology/Formation</u>	<u>Top Depth in FT Name TVD</u>	<u>Bottom Depth in FT TVD</u>	<u>Top Depth in FT MD</u>	<u>Bottom Depth in FT MD</u>	<u>Describe rock type and record quantity and type of fluid (freshwater, brine, oil, gas, H2S, etc)</u>
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	7568	7786	7586	7863	shale
Burkett	7786	7979	7863	8125	shale
Geneseo	7979	8018	8125	8179	shale
Tully	8018	8065	8179	8249	limestone
Hamilton	8065	8180	8249	8474	shale
Marcellus	8180	8232	8474	8624	shale
Cherry Valley	8232	8234	8624	8632	limestone
Lower Marcellus	8234		8632		shale

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/16/2017
Job End Date:	6/29/2017
State:	West Virginia
County:	Monongalia
API Number:	47-061-01752-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Fisher 4H
Latitude:	39.69622400
Longitude:	-80.21364900
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	8,281
Total Base Water Volume (gal):	11,943,414
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier					
			Water	7732-18-5	100.00000	86.62647	
Sand, White	BJ Services	Proppant					
				Listed Below			

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HCl, 5.1 - 7.5%	BJ Services	Acidizing					
				Listed Below			
Other Chemical (s)	BJ Services	See Trade Name (s) List					
			Water	7732-18-5	92.50000	0.49659	
MaxPerm 30	BJ Services	Friction Reducer					
				Listed Below			
Ferrotrol 300L	BJ Services	Iron Control					
				Listed Below			
CI-14	BJ Services	Corrosion Inhibitor					
				Listed Below			
GBW-5	BJ Services	Breaker					
				Listed Below			
K-139	Nalco-Champion	Microbial Control					
				Listed Below			
EC6486A	Nalco-Champion	Scale Inhibitor					
				Listed Below			
Items above are Trade Names with the exception of Base Water. Items below are the individual ingredients.							
			Crystalline Silica (Quartz)	14808-60-7	100.00000	12.77668	
			Hydrochloric Acid	7647-01-0	7.50000	0.03754	

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			Acrylamide Modified Acrylic Polymer	38193-60-1	60.00000	0.03192	
			Petroleum distillates	64742-47-8	30.00000	0.01596	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	30.00000	0.00485	
			Sodium Chloride	7647-14-5	5.00000	0.00266	
			Sorbic, mono-(9Z)-9octadecenoate	1338-43-8	5.00000	0.00266	
			Oxyalkylated Alcohol	78330-21-9	5.00000	0.00266	
			Sorbitan monooleate ethoxylate	9005-65-6	5.00000	0.00266	
			Citric Acid	77-92-9	60.00000	0.00219	
			Glutaraldehyde	111-30-8	10.00000	0.00191	
			Ethylene Glycol	107-21-1	30.00000	0.00140	
			Amine Triphosphate	Proprietary	30.00000	0.00126	
			Methanol	67-56-1	100.00000	0.00085	
			Ethanol	64-17-5	5.00000	0.00066	
			Acetic acid	127-08-2	1.00000	0.00053	
			Polyoxyalkylenes	68951-67-7	30.00000	0.00026	
			Fatty Acids	61790-12-3	1.20000	0.00009	
			Modified Thiourea Polymer	68527-49-1	7.00000	0.00006	
			Tetrasodium EDTA	64-02-8	0.10000	0.00005	
			Acetic acid, Potassium Salt	64-19-7	0.10000	0.00005	
			Ammonium Persulfate	7727-54-0	100.00000	0.00004	
			Olefin	64743-02-8	5.00000	0.00004	
			Propargyl Alcohol	107-19-7	5.00000	0.00004	
			Formaldehyde	50-00-0	1.00000	0.00001	

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- * Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water
- ** Information is based on the maximum potential for concentration and thus the total may be over 100%
- *** if you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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)

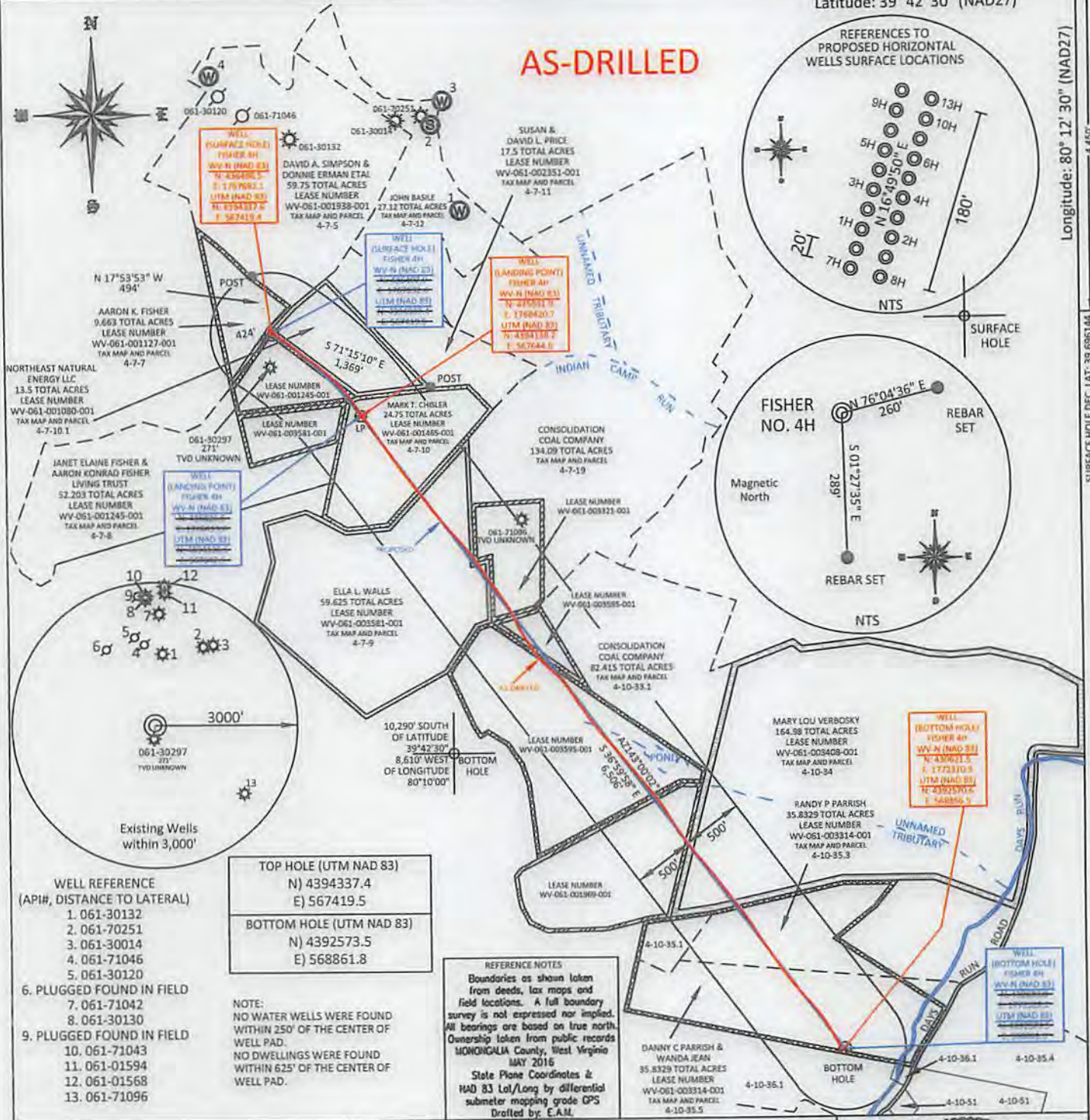
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07/20/2018

SURFACE HOLE DEC. LONG: 80.213855
 SURVEYED LONG: 80° 12' 49.9"
 Latitude: 39° 42' 30" (NAD27)

Longitude: 80° 12' 30" (NAD27)
 SURFACE HOLE DEC. LAT: 39.696144
 SURVEYED LAT: 39° 41' 46.1"

AS-DRILLED



- WELL REFERENCE (API#, DISTANCE TO LATERAL)
- 061-30132
 - 061-70251
 - 061-30014
 - 061-71046
 - 061-30120
 - PLUGGED FOUND IN FIELD
 - 061-71042
 - 061-30130
 - PLUGGED FOUND IN FIELD
 - 061-71043
 - 061-01594
 - 061-01568
 - 061-71096

TOP HOLE (UTM NAD 83)	N) 4394337.4
	E) 567419.5
BOTTOM HOLE (UTM NAD 83)	N) 4392573.5
	E) 568861.8

NOTE:
 NO WATER WELLS WERE FOUND WITHIN 250' OF THE CENTER OF WELL PAD.
 NO DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF WELL PAD.

REFERENCE NOTES
 Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Ownership taken from public records MONONGALIA County, West Virginia MAY 2016
 State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS
 Drafted by: E.A.M.

FILE #: NNE14
 DRAWING #: 2385
 SCALE: PLAT: 1" = 1200'
TICK: 1" = 200'
 MINIMUM DEGREE OF ACCURACY: 1/200
 PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

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: [Signature]
 L.L.S. #2124: Ernest J. Benchek III



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

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. 4H
 API WELL #: 47 61
 STATE COUNTY PERMIT

AS-BUILT ELEVATION: 1,453'
 QUADRANGLE: BLACKSVILLE
 ACREAGE: 9.663 +/-
 ACREAGE: 612.8918 +/-

TARGET FORMATION: MARCELLUS
 WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

ESTIMATED DEPTH: TVD: 8,281.11' TMD: 15,315'
 DESIGNATED AGENT: JOHN ADAMS
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 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): _____

07/20/2018