

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

API 47 - 061 - 01768-00-00 County Monongalia District Clay  
Quad Blacksville Pad Name Jenkins Field/Pool Name \_\_\_\_\_  
Farm name Lois A. Jenkins Irrevocable Trust Well Number Jenkins 14H  
Operator (as registered with the OOG) Northeast Natural Energy LLC  
Address 707 Virginia Street E., Suite 1200 City Charleston State WV Zip 25304

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4395825.4 Easting 573769.6  
Landing Point of Curve Northing 4396016.6 Easting 574210.8  
Bottom Hole Northing 4393264.2 Easting 575892.2

Elevation (ft) 1114 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 7/17/2017 Date drilling commenced 8/8/2017 Date drilling ceased 3/24/2018  
Date completion activities began 6/22/2018 Date completion activities ceased 7/12/2018  
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 1034' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 2182' Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 710' Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

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Reviewed by: MJK 4/23/2019

Reviewed

WR-35  
Rev. 8/23/13

API 47-061 - 01768-00-00 Farm name Lois A. Jenkins Irrevocable Trust Well number Jenkins 14H

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	N/A	N/A	Y
Surface	17-1/2"	13-3/8"	1,120'	N	J-55	N/A	Y, 370 bbl; grouted CTS
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,280'	N	J-55	N/A	Y, 36 bbl
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	19,405'	N	P-110	N/A	N, est 1,263'
Tubing	N/A	2-7/8"	N/A	N	N-80	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			N/A			
Surface	Class A	1125	15.2	1.23	1,429	CTS	8
Coal							
Intermediate 1	Class A	800	15.6	1.22	895	CTS	8
Intermediate 2							
Intermediate 3							
Production	50:50 Poz	3,619	14.5	1.21	4,292	1,263'	48
Tubing	NZ			NA			

Drillers TD (ft) 19,435 Loggers TD (ft) 19,405  
 Deepest formation penetrated Marcellus Plug back to (ft) NA  
 Plug back procedure \_\_\_\_\_

Kick off depth (ft) 5,814'

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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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	Please See	Attached			

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)
	Please	See	Attached					
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PRODUCING FORMATION(S)	DEPTHS		
Marcellus	7,921	TVD	19,405 MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 3553 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 2988 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 <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		<i>See Attached</i>

Please insert additional pages as applicable.

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

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

Cementing Company BJ Services  
Address 11211 FM 2920 Rd City Tomball State TX Zip 77375

Stimulating Company Producers Service Corporation  
Address 109 Graham Street City Zanesville State OH Zip 43701

Please insert additional pages as applicable. RECEIVED  
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Completed by Hollie Medley Telephone 304-212-0422  
Signature *Hollie Medley* Title Regulatory Manager Date 3-25-19 APR 15 2019

Lithology/Formation	Top Depth in FT Name TVD	Bottom Depth in FT TVD	Describe rock type and record quantity and type of fluid (freshwater, brine, oil, gas, H2S, etc)
sand/shale	0	310	sand/shale
Sand	310	350	gray sand
coal	350	355	coal - (Washington)
shale	355	374	gray shale
coal	374	377	coal
shale	377	475	red and gray shale
shale	475	590	gray sandstone and shale interbedded
coal	590	598	coal - (Waynesburg)
sand/shale	598	710	brown sand/shale
coal	710	718	coal - (Pittsburgh)
sand/shale	718	1100	brown sand/shale
sand/shale	1100	1200	sand/shale interbedded
red shale	1200	1650	red rock - clay rich
sand/shale	1650	1880	brown sand/shale
Big Lime	1880	1935	limestone
Siltstone	1935	2000	siltstone
Big Injun	2000	2030	sandstone
sandstone/siltstone	2030	2700	interbedded sandstone and siltstone
red rock	2700	2950	clay rich red shale
sandstone/siltstone	2950	3852	interbedded sandstone and siltstone
sandstone	3852	3925	sandstone
siltstone/shale	3925	6100	interbedded brown siltstone and shale
shale	6100	6225	gray shale
silt/shale	6225	7190	mixed brown siltstone and brown/gray shale
Middlesex	7202	7425	light gray shale
Burkett	7425	7629	gray shale
Geneseo	7629	7686	black shale
Tully	7686	7744	limestone
Mahantango	7744	7860	gray shale
Marcellus	7860	7976	Black shale

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Jenkins 14H Stimulation Report									
Stage Number	Report Date	Avg Treating Rate (BPM)	Avg Treating Pressure (psi)	Breakdown Pressure (psi)	ISIP (psi)	Total Proppant Amount (lbs)	Flush Volume (bbls)	Total Clean Fluid (Bbls)	Amount Water (bbls)
1	6/23/2018	80	8,846	7,555	5,763	300,880	434	8,288	8,722
2	6/23/2018	81	9,200	8,208	5,826	349,900	428	7,713	8,141
3	6/23/2018	79	9,896	7,702	5,441	352,220	417	8,450	8,867
4	6/24/2018	79	9,984	7,612	6,474	348,730	414	7,633	8,047
5	6/24/2018	80	9,864	7,148	5,990	349,560	412	7,750	8,162
6	6/24/2018	81	9,635	6,941	5,705	351,960	405	7,921	8,326
7	6/25/2018	80	9,676	7,027	5,903	351,660	402	8,192	8,594
8	6/25/2018	83	9,403	6,766	5,820	350,620	399	7,865	8,264
9	6/25/2018	78	9,314	6,591	5,756	353,420	395	7,701	8,096
10	6/26/2018	81	9,400	6,599	6,003	349,360	392	7,791	8,183
11	6/26/2018	78	9,261	7,417	5,702	451,920	405	9,974	10,379
12	6/27/2018	79	9,433	6,885	5,700	351,080	382	7,785	8,167
13	6/27/2018	84	9,528	6,834	5,976	349,020	377	7,311	7,688
14	6/27/2018	82	9,268	7,250	5,532	352,900	370	7,268	7,638
15	6/28/2018	80	9,105	6,369	6,358	352,300	373	7,845	8,218
16	6/28/2018	81	8,703	6,689	5,700	353,380	367	7,400	7,767
17	6/28/2018	80	9,325	6,871	5,685	350,960	361	7,384	7,745
18	6/29/2018	81	8,655	6,464	5,762	349,940	355	7,244	7,599
19	6/29/2018	80	9,489	7,174	5,758	349,300	354	7,434	7,788
20	6/29/2018	80	8,609	7,050	5,882	350,540	348	7,657	8,005
21	6/30/2018	81	8,713	6,955	6,161	348,880	342	7,672	8,014
22	6/30/2018	80	9,622	7,059	5,662	349,600	338	7,401	7,739
23	6/30/2018	77	9,511	7,749	5,643	449,000	341	9,368	9,709
24	7/1/2018	83	8,981	7,328	6,428	349,220	330	7,413	7,743
25	7/1/2018	79	9,292	6,752	5,641	349,200	328	7,626	7,954
26	7/2/2018	80	8,827	7,048	6,022	350,060	321	7,456	7,777
27	7/2/2018	79	8,237	7,040	5,785	349,860	314	7,478	7,792
28	7/2/2018	79	9,030	7,345	5,627	349,780	310	7,460	7,770
29	7/2/2018	79	8,594	7,193	5,920	350,260	306	7,598	7,904
30	7/3/2018	81	8,404	6,802	5,992	349,100	300	7,603	7,903
31	7/3/2018	81	9,085	7,119	5,953	350,360	294	7,668	7,962
32	7/4/2018	82	8,715	7,588	6,182	350,280	292	7,552	7,844
33	7/4/2018	79	8,776	7,888	5,790	349,560	288	8,053	8,341
34	7/4/2018	80	8,193	6,991	5,961	349,780	284	7,229	7,513
35	7/5/2018	81	8,055	7,132	5,879	350,000	277	7,392	7,669
36	7/5/2018	80	8,886	7,281	5,632	305,180	377	6,552	6,929
37	7/5/2018	80	8,087	7,469	6,097	350,280	271	7,172	7,443
38	7/6/2018	83	8,550	7,038	5,933	347,380	267	7,225	7,492
39	7/6/2018	80	8,931	6,980	5,981	255,011	770	7,491	8,261
40	7/7/2018	81	8,259	7,401	5,970	350,600	256	7,307	7,563
41	7/7/2018	84	8,596	7,531	5,935	349,880	251	7,309	7,560
42	7/7/2018	80	8,369	7,312	5,749	349,400	247	7,305	7,552
43	7/8/2018	80	8,164	7,725	6,077	350,620	241	7,362	7,603
44	7/8/2018	83	8,159	6,344	5,953	350,160	238	6,953	7,191
45	7/8/2018	80	8,390	7,481	6,313	349,940	232	6,690	6,922
46	7/9/2018	80	8,011	7,624	6,377	348,680	230	7,087	7,317
47	7/9/2018	81	8,378	7,962	6,187	349,160	227	7,297	7,524
48	7/9/2018	80	7,903	7,213	6,040	350,760	220	6,952	7,172
49	7/10/2018	80	8,137	7,263	5,969	352,160	217	7,101	7,318
50	7/10/2018	81	8,182	7,249	6,089	354,180	211	7,316	7,527
51	7/10/2018	83	7,791	7,369	5,859	351,480	207	6,845	7,052
52	7/11/2018	82	7,950	7,426	5,945	350,020	203	7,049	7,252
53	7/11/2018	80	8,478	8,049	5,614	350,520	197	7,227	7,424

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Jenkins 14H - Perforation Record				
Stage Number	Report Date	Cluster 5 Bottom TD	Cluster 1 Top TD	Total Shots
1	6/23/2018	19,267	0	0
2	6/23/2018	19,061	19,221	40
3	6/23/2018	18,858	19,018	40
4	6/24/2018	18,655	18,815	40
5	6/24/2018	18,452	18,612	40
6	6/24/2018	18,249	18,410	40
7	6/25/2018	18,046	18,207	40
8	6/25/2018	17,843	18,004	40
9	6/25/2018	17,641	17,801	40
10	6/26/2018	17,438	17,598	40
11	6/26/2018	17,235	17,395	40
12	6/27/2018	17,032	17,192	40
13	6/27/2018	16,829	16,989	40
14	6/27/2018	16,626	16,786	40
15	6/28/2018	16,423	16,583	40
16	6/28/2018	16,220	16,381	40
17	6/28/2018	16,017	16,178	40
18	6/29/2018	15,814	15,975	40
19	6/29/2018	15,612	15,772	40
20	6/29/2018	15,409	15,569	40
21	6/30/2018	15,206	15,366	40
22	6/30/2018	15,003	15,163	40
23	6/30/2018	14,800	14,960	40
24	7/1/2018	14,597	14,757	40
25	7/1/2018	14,394	14,554	40
26	7/2/2018	14,191	14,352	40
27	7/2/2018	13,988	14,149	40
28	7/2/2018	13,785	13,946	40
29	7/2/2018	13,583	13,743	40
30	7/3/2018	13,380	13,540	40
31	7/3/2018	13,177	13,337	40
32	7/4/2018	12,974	13,134	40
33	7/4/2018	12,771	12,931	40
34	7/4/2018	12,568	12,728	40
35	7/5/2018	12,365	12,525	40
36	7/5/2018	12,162	12,323	40
37	7/5/2018	11,959	12,120	40
38	7/6/2018	11,756	11,917	40
39	7/6/2018	11,554	11,714	40
40	7/7/2018	11,351	11,511	40
41	7/7/2018	11,148	11,308	40
42	7/7/2018	10,945	11,105	40
43	7/8/2018	10,742	10,902	40
44	7/8/2018	10,539	10,699	40
45	7/8/2018	10,336	10,497	40
46	7/9/2018	10,133	10,294	40
47	7/9/2018	9,930	10,091	40
48	7/9/2018	9,727	9,888	40
49	7/10/2018	9,525	9,685	40
50	7/10/2018	9,322	9,482	40
51	7/10/2018	9,119	9,279	40
52	7/11/2018	8,916	9,076	40
53	7/11/2018	8,713	8,873	40

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API Permit #: 47-061-01768

Customer: Northeast Natural Energy

Lease and Well Name: Jenkins #14-H

A.P.E #: 100387-802

Job Type: 13 3/8"

Cement Operator: Harry Braddon

Date Cemented: 8/8/2017

Drilling Contractor: Highlands #14



Cement Slurry Information										
No. of Sacks	Cement Blend Composition			Yield (ft <sup>3</sup> /sk)	Mix Water (gal/sk)	Density (lb/gal)	(bbl) Mix Water	(ft <sup>3</sup> ) Of Slurry	(bbl) Of Slurry	
1125	Type 1 + 2% CaCl <sub>2</sub>			1.27	6.78	15.2	154	1429	254	
							Totals	154	1429	254

Wellbore Information										
	How/Used	Diameter (in)	Weight (lb/ft)	Top (ft)	Bottom (ft)	Collapse/Burst Pressure (psi)			Requested TOC (ft)	0'
Casing	New	13 3/8	54.6	0'	1090'				TVD (ft)	1080'
Previous Casing	New	24		0'	40'				Displacement Depth (ft)	1038'
Tubing or Drillpipe									Displacement (bbl)	160.0
Open Hole		17 1/2		40'	1110'					
Open Hole										

Pumping Returns			Cement Slurry Temperature Record (°F)					Fluid Information	
Spacer or Gel Sweep Return Seen At Surface	no	Cement Blend 1	Reading 1	Reading 2	Reading 3	Average	Mix Water Temp (°F)	72	
Cement Returns Seen at Surface	no	Cement Blend 2	82	82	84	83	Displacement Fluid Type	Water	
Amount of Cement Returns (BBL)	n/a	Cement Blend 3					Displacement Fluid Temp (°F)	75	
							Displacement Fluid Density (lb/gal)	8.3	

Time	Rate (bpm)	Volume (bbl)	Pressure (psi)	Event or Stage Description
8:00				act, talk to co. man, wait on rig,
2:19				Spot trucks, rig in, hold jsa
2:25	3.0	3	31	Pump Fresh Water
2:30			500	Test oped
2:32			1490	Pressure test iron
3:07	5.0	170	64	Pump Fresh Water
3:18	5.0	50	68	Mix and pump gel w/ barosol and celofake
3:20	5.0	10	61	Pump Fresh Water
4:06	5.0	230	155	Mix and Pump Lead Cement
4:51				Drop plug on the fly
4:54	4.5 - 3	188	37- 536	Displace plug w/ fresh water, plug lands, shut in psi
5:10	2.5	6	33	Mix and pump cement to grout backside
6:19	2.0	20	31	Wait one hr, mix and pump cement to surface
7:00				wash up rack out
8:00				clean and leave site

Comments:

hole circulated briefly @ 370 bbl @ dropping plug, grouted cement to surface  
job done per co. man

Thank You for your Business

UWS Cement Operator Signature:

Harry Braddon

Customer Representative Signature:





**NORTHEAST NATURAL ENERGY LLC**

Monongalia County  
West Virginia  
United States of America

SO Number: 904229094

Project Name: Jenkins  
Well Number: 14H

**Post Job Summary**  
**9 5/8" Intermediate Casing**

Prepared for: Northeast Natural Energy Engineering

Date: 8/18/2017

Submitted by:  
Derek Anderson

**HALLIBURTON**

**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	1087				
12-1/4" Open Hole			12.25			1087	2280				50
9-5/8" Intermediate Casing	9.625	40	8.835	LTC	J-55	0	2269	0	2269	45	

# Cementing Treatment



Start Date	3/23/2018	Well	47-061-01768
End Date	3/23/2018	County	MONONGALIA
Client	NORTHEAST NATURAL ENERGY LLC	State/Province	WV
Client Field Rep	Jamie Czermeski	API	47-061-01768
Service Supervisor	Michael Romans	Formation	
Field Ticket No.	FT-04995-DOZM5B60202-89551	Rig	Patterson 334
District	Bridgeport, WV	Type of Job	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	2,263.00	2,263.00	0.00	J-55	
Open Hole	8.50			19,435.00	7,979.00	0.00		
Casing	4.78	5.50	20.00	19,422.00	7,979.00		Q-125	
Open Hole	8.75			5,805.00	5,805.00			

Shoe Length (ft): 33

## HARDWARE

Bottom Plug Used?	Yes	Tool Type	Float Collar
Bottom Plug Provided By	Non BJ	Tool Depth (ft)	19,389.00
Bottom Plug Size	5.500	Max Tubing Pressure - Rated (psi)	
Top Plug Used?	Yes	Max Tubing Pressure - Operated (psi)	
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	
Top Plug Size	5.500	Max Casing Pressure - Operated (psi)	
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity		Job Pumped Through	Manifold
Centralizers Type		Top Connection Thread	BTC
Landing Collar Depth (ft)	19,389	Top Connection Size	5.5

## CIRCULATION PRIOR TO JOB

# Cementing Treatment



Well Circulated By	Rig	Solids Present at End of Circulation	No
Circulation Prior to Job	Yes	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)			
PV Mud In			
PV Mud Out			
YP Mud In			
YP Mud Out			

## TEMPERATURE

Ambient Temperature (°F)	40.00	Slurry Cement Temperature (°F)	58.00
Mix Water Temperature (°F)	55.00	Flow Line Temperature (°F)	

## BJ FLUID DETAILS

Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Planned Top of Fluid (Ft)	Length (Ft)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	IntegraGuard RHEO 10 13.5 ppg	13.5000			0.00				100.0000
Tail Slurry	Single Slurry 14.5 ppg	14.5000	1.1861	5.18	1,263.00	18,210.00	3,619	4,292.0000	764.4000
Displacement 1	Inhibited Water	8.3400			18,527.00			0.0000	20.0000
Displacement Final	Treated Water	8.3400			0.00			0.0000	410.9000

Fluid Type	Fluid Name	Component	Concentration	UOM
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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/22/2018
Job End Date:	7/11/2018
State:	West Virginia
County:	Monongalia
API Number:	47-061-01768-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Jenkins 14H
Latitude:	39.70910000
Longitude:	-80.13940000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,814
Total Base Water Volume (gal):	16,593,578
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	87.79375	None
Sand (Proppant)	Producers Service Corp	Proppant	Crystalline Silica (quartz)	14808-60-7	100.00000	11.66027	None
HC Acid (7.5%)	Producers Service Corp	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.07189	None
STIMLUBE HBVB	Producers Service Corp	Friction Reducer	Petroleum Distillates	64742-47-8	30.00000	0.01731	None
			Ammonium Acetate	631-61-8	10.00000	0.00577	None
SCAL16486A	Nalco-Champion	Scale Inhibitor	Amine Triphosphate	Proprietary	30.00000	0.00166	None
			Ethylene Glycol	107-21-1	30.00000	0.00166	None
BIOC11219A	Nalco-Champion	Biocide	Methanol	67-56-1	60.00000	0.00156	None
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00078	None
			Glutaraldehyde	111-30-8	10.00000	0.00026	None

PROHIB II	Producers Service Corp	Inhibitor					
			Acetic Acid	64-19-7	90.00000	0.00080	None
			2-Ethylhexanol	104-76-7	10.00000	0.00009	None
			Methanol	67-56-1	10.00000	0.00009	None
			Cocamide Diethanolamine	68603-42-9	5.00000	0.00004	None
			Diethanolamine	111-42-2	1.00000	0.00001	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	0.00577	
			Ethylene Glycol	107-21-1	30.00000	0.00166	
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00078	
			Glutaraldehyde	111-30-8	10.00000	0.00026	
			Methanol	67-56-1	10.00000	0.00009	
			2-Ethylhexanol	104-76-7	10.00000	0.00009	
			Cocamide Diethanolamine	68603-42-9	5.00000	0.00004	
			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%

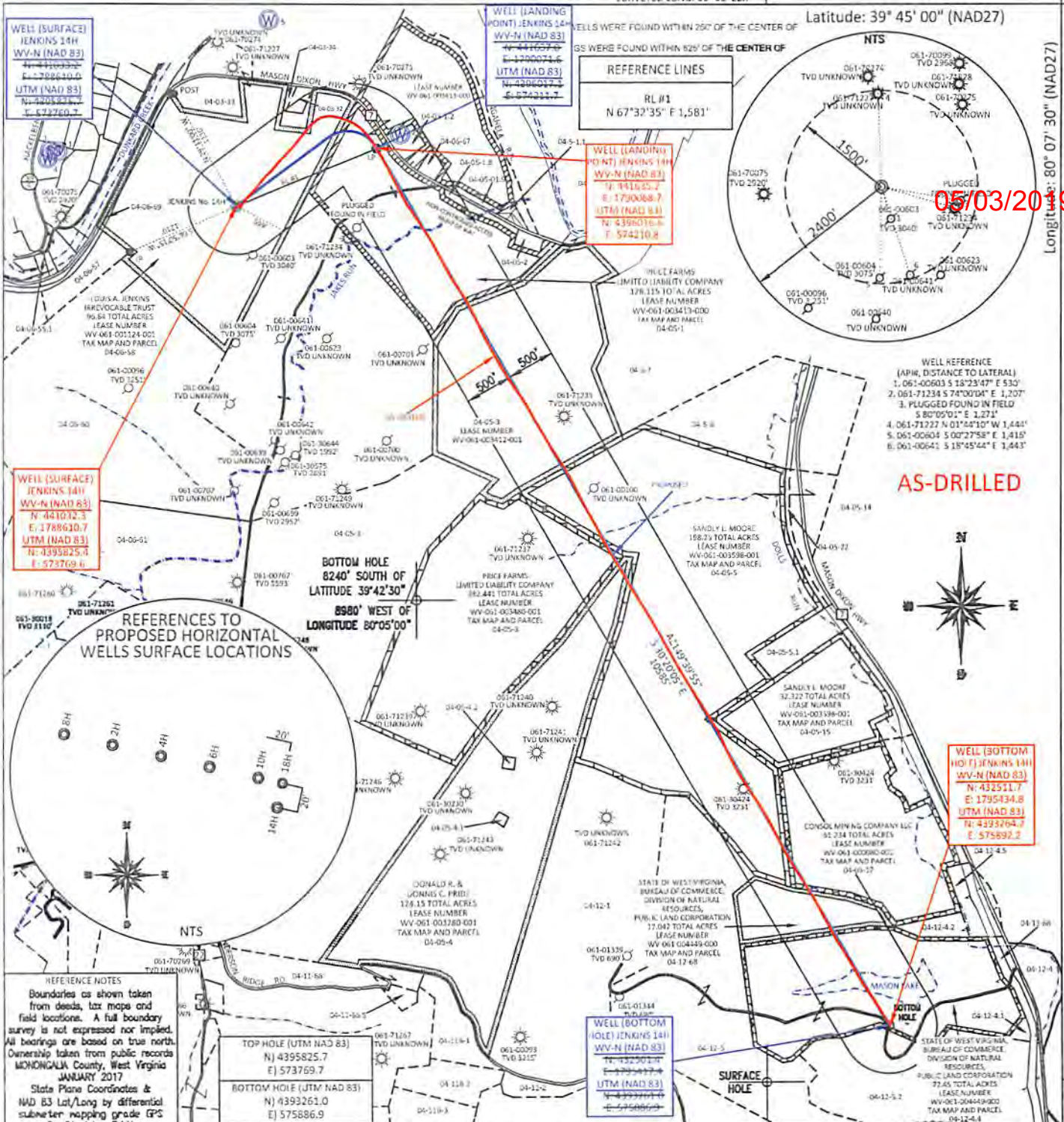
Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

SURFACE HOLE DEC. LONG: 80.139634  
 SURVEYED LONG: 80° 08' 22.7"

Latitude: 39° 45' 00" (NAD27)

Longitude: 80° 07' 30" (NAD27)



05/03/2019

AS-DRILLED

FILE #: NNE16  
 DRAWING #: 2733  
 SCALE: PLAT: 1" = 1500'  
 TICK: 1" = 2000'  
 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 WVDEP  
 OFFICE OF OIL & GAS  
 601 57TH STREET  
 CHARLESTON, WV 25304

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

WATERSHED: DUNKARD CREEK  
 COUNTY/DISTRICT: MONONGALIA / CLAY  
 SURFACE OWNER: LOIS A. JENKINS IRREVOCABLE TRUST  
 OIL & GAS ROYALTY OWNER: LOIS A. JENKINS IRREVOCABLE TRUST, ET AL  
 LEASE NUMBERS:

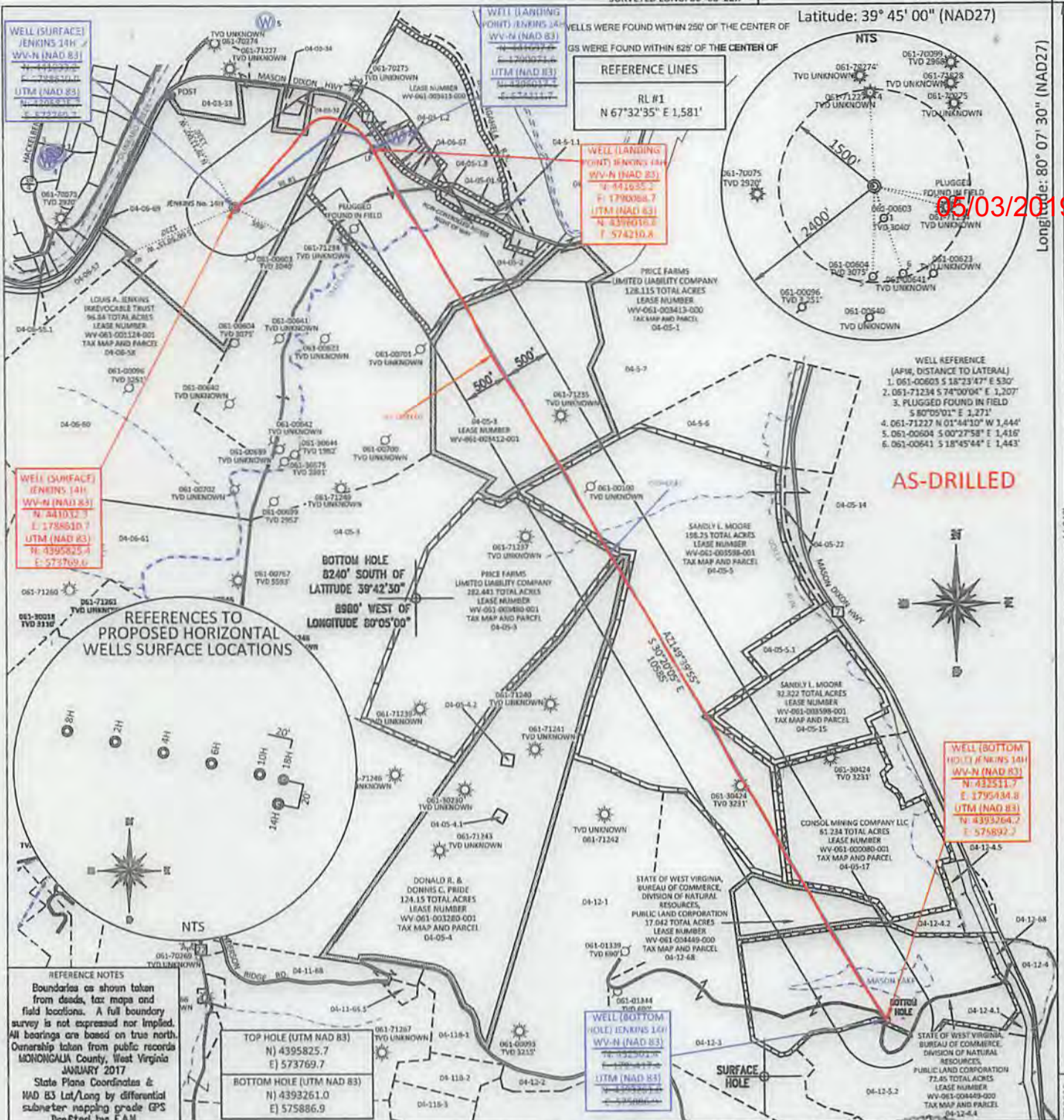
DATE: FEBRUARY 13, 2019  
 OPERATOR'S WELL #: JENKINS NO. 14H  
 API WELL #: 47 61  
 STATE COUNTY PERMIT  
 PROPOSED ELEVATION: 1,113.77'  
 CURRENT ELEVATION: 1,128'

QUADRANGLE: BLACKSVILLE  
 ACREAGE: 96.84 +/-  
 ACREAGE: 1012.844 +/-

TARGET FORMATION: MARCELLUS  
 ESTIMATED DEPTH: TVD: 7,908' TMD: 19,435'  
 WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC  
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200  
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301  
 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):

SURFACE HOLE DEC. LAT: 39.750028 SURVEYED LAT: 39° 47' 32.5"



05/03/2019

AS-DRILLED

REFERENCES TO PROPOSED HORIZONTAL WELLS SURFACE LOCATIONS

BOTTOM HOLE  
8240' SOUTH OF  
LATITUDE 39°42'30"  
8580' WEST OF  
LONGITUDE 80°05'00"

TOP HOLE (UTM NAD 83)  
N) 4395825.7  
E) 573769.7

BOTTOM HOLE (UTM NAD 83)  
N) 4393261.0  
E) 575886.9

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 JANUARY 2017  
State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS Drafted by EAJL

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



FILE #: NNE16  
DRAWING #: 2733  
SCALE: PLAT: 1" = 1500'  
TICK: 1" = 2000'  
MINIMUM DEGREE OF ACCURACY: 1/200  
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

(+) 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: LOIS A. JENKINS IRREVOCABLE TRUST  
OIL & GAS ROYALTY OWNER: LOIS A. JENKINS IRREVOCABLE TRUST, ET AL  
LEASE NUMBERS:

DATE: FEBRUARY 13, 2019  
OPERATOR'S WELL #: JENKINS NO. 14H  
API WELL #: 47 61 01768  
STATE COUNTY PERMIT  
PROPOSED ELEVATION: 1,113.77'  
CURRENT ELEVATION: 1,128'

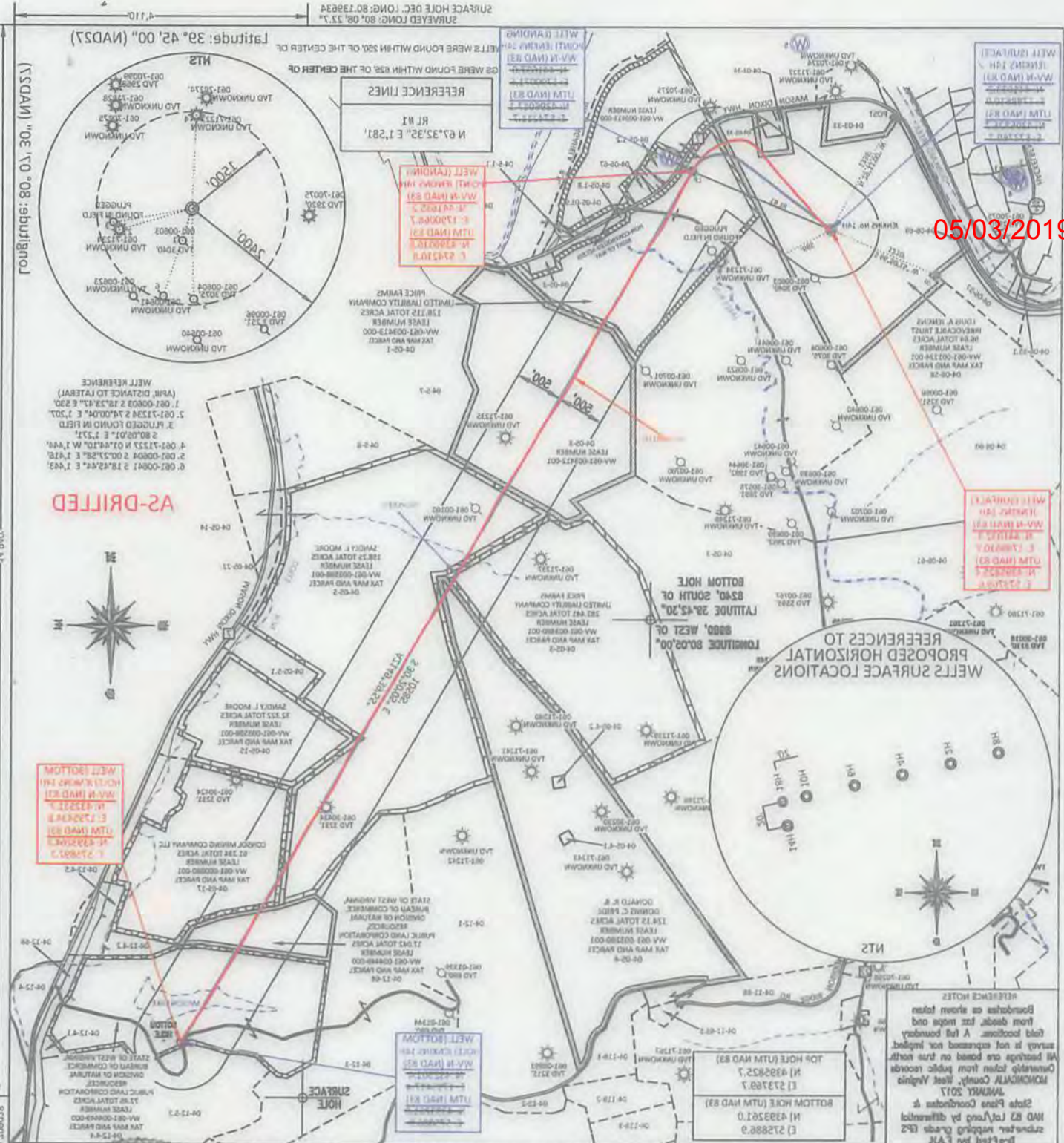
QUADRANGLE: BLACKSVILLE  
ACREAGE: 96.84 +/-  
ACREAGE: 1012.844 +/-

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

TARGET FORMATION: MARCELLUS  
ESTIMATED DEPTH: TVD: 7,908' TMD: 19,435'  
WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC  
DESIGNATED AGENT: JOHN ADAMS  
ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200  
CITY: CHARLESTON STATE: WV ZIP CODE: 25301



05/03/2019



I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS  
 PLAN 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.S. #2124 : Ernest J. Benchek III



CITY: CHARLESTON STATE: WV ZIP CODE: 25301

WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC  
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200

TARGET FORMATION: MARCELLUS  
 DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE

OIL & GAS ROYALTY OWNER: LOIS A. JENKINS IRREVOCABLE TRUST, ET AL  
 SURFACE OWNER: LOIS A. JENKINS IRREVOCABLE TRUST  
 COUNTY/DISTRICT: MONONGALIA \ CLAY  
 WATERSHED: DUNKARD CREEK

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

PROVEN SOURCE SUBMITTER MAPPING OF ELEVATION: GRADE GPS

OF ACCURACY: 1/200  
 MINIMUM DEGREE OF ACCURACY: 1/200  
 SCALE: 1" = 200'  
 DRAWING #: 2733  
 FILE #: NNE16

DATE: FEBRUARY 13, 2019

OPERATOR'S WELL #: JENKINS NO. 14H  
 API WELL #: 47  
 STATE COUNTY PERMIT #: 81 0178

ACREAGE: 102.844 +/-  
 ACREAGE: 98.84 +/-  
 QUADRANGLE: BLACKSVILLE  
 ELEVATION: 1,128'  
 CURRENT ELEVATION: 1,113.77'  
 PROPOSED ELEVATION: 1,113.77'

DESIGNATED AGENT: JOHN ADAMS  
 ESTIMATED DEPTH: TVD: 7,908', TMD: 19,435'

CITY: CHARLESTON STATE: WV ZIP CODE: 25301  
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200  
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