

MAY - 1 2020

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

WV Department of
Environmental Protection

API 47 - 061 - 01848 County Monongalia District Clay
Quad Blacksville, WV Pad Name Lemley Field/Pool Name _____
Farm name Clarence W. Jr. & Charlotte E. Lemley Well Number 12H
Operator (as registered with the OOG) Northeast Natural Energy LLC
Address 707 Virginia St. 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 4391571.6 Easting 573963.4
Landing Point of Curve Northing 4391175.9 Easting 573356.9
Bottom Hole Northing 4387795.5 Easting 575601.9

Elevation (ft) 1,539 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

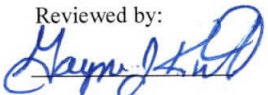
Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine

Mud Type(s) and Additive(s)
SYNTHETIC BASED MUD FOR 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 8/29/2019 Date drilling commenced 9/29/19 Date drilling ceased 12/1/19
Date completion activities began 2/2/20 Date completion activities ceased 2/22/20
Verbal plugging (Y/N) N Date permission granted NA Granted by NA

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

Freshwater depth(s) ft 440', 1060' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2,140' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 500', 630', 740', 1060' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

4/8/2020

API 47-061 - 01848

Farm name Clarence W. Jr. & Charlotte E. Lemley Well number 12H

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"	50'	N	NA	NA	CTS
Surface	17"	13-3/8"	1,312'	N	54.5	NA	CTS, 35 bbl
Coal							
Intermediate 1	12.25"	9-5/8"	2,639'	N	36	NA	CTS, 33 bbl
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	22,470'	N	20	NA	TOC 2,190
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	4500 psi ready mix	36		.75	27	CTS	48
Surface	Class A	1,000	15.6	1.18	1,179	CTS	8
Coal							
Intermediate 1	Class A	999	15.6	1.18	1,179	CTS	8
Intermediate 2							
Intermediate 3							
Production	Class A	4,135	14.5	1.16	4,785	2,190'	48
Tubing							

Drillers TD (ft) 22,521'

Loggers TD (ft) 22,491'

Deepest formation penetrated Marcellus

Plug back to (ft) NA

Plug back procedure NA

Kick off depth (ft) 6,885'

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 _____

API 47- 061 - 01848 Farm name Clarence W. Jr. & Charlotte E. Lemley Well number 12H

PERFORATION RECORD

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

Please insert additional pages as applicable.

API 47- 061 - 01848

Farm name Clarence W. Jr. & Charlotte E. Lemley Well number 12H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>8,129'</u> TVD	<u>22,521'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3,081 psi Bottom Hole 4,318 psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 3,644 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	

See Attached	0		0		

Please insert additional pages as applicable.

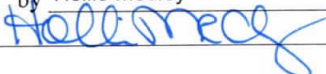
Drilling Contractor Patterson-UT1
 Address 4000 Town Center Blvd, Suite 240 City Canonsburg State PA Zip 15317

Logging Company Bakers Hughes
 Address 837 Phillippi Pike City Clarksburg State WV Zip 26301

Cementing Company NextTier
 Address 4000 Town Center Blvd City Canonsburg State PA Zip 15317

Stimulating Company ProFrac
 Address 800 Mountain View Drive City Smithfield State PA Zip 15478

Please insert additional pages as applicable.

Completed by Hollie Medley Telephone 304-212-0422
 Signature  Title Regulatory Manager Date 04/23/2020

Lemley 12H Perforation Information

Stage Number	Report Date	Cluster 5 Bottom TD	Cluster 1 Top TD	Total Shots
1	2/2/20	22,337	0	0
2	2/3/20	22,135	22,294	40
3	2/3/20	21,934	22,093	40
4	2/3/20	21,733	21,892	40
5	2/3/20	21,531	21,690	40
6	2/4/20	21,330	21,489	40
7	2/4/20	21,129	21,288	40
8	2/4/20	20,928	21,087	40
9	2/4/20	20,727	20,886	40
10	2/5/20	20,525	20,684	40
11	2/5/20	20,324	20,483	40
12	2/5/20	20,123	20,282	40
13	2/6/20	19,922	20,081	40
14	2/6/20	19,721	19,880	40
15	2/6/20	19,520	19,679	40
16	2/7/20	19,318	19,477	40
17	2/7/20	19,117	19,276	40
18	2/7/20	18,916	19,075	40
19	2/8/20	18,715	18,874	40
20	2/8/20	18,514	18,673	40
21	2/8/20	18,312	18,471	40
22	2/9/20	18,111	18,270	40
23	2/9/20	17,910	18,069	40
24	2/9/20	17,709	17,868	40
25	2/10/20	17,508	17,667	40
26	2/10/20	17,307	17,466	40
27	2/10/20	17,105	17,264	40
28	2/11/20	16,904	17,063	40
29	2/11/20	16,703	16,862	40
30	2/11/20	16,502	16,661	40
31	2/12/20	16,301	16,460	40
32	2/12/20	16,100	16,258	40
33	2/12/20	15,898	16,057	40
34	2/13/20	15,697	15,856	40
35	2/13/20	15,496	15,655	40
36	2/13/20	15,295	15,454	40
37	2/14/20	15,094	15,253	40
38	2/14/20	14,892	15,051	40
39	2/14/20	14,691	14,850	40
40	2/15/20	14,490	14,649	40
41	2/15/20	14,289	14,448	40
42	2/16/20	14,088	14,247	40
43	2/16/20	13,887	14,045	40
44	2/17/20	13,685	13,844	40
45	2/17/20	13,484	13,643	40
46	2/17/20	13,283	13,442	40
47	2/17/20	13,082	13,241	40
48	2/18/20	12,881	13,040	40
49	2/18/20	12,679	12,838	40
50	2/18/20	12,478	12,637	40
51	2/18/20	12,277	12,436	40
52	2/19/20	12,076	12,235	40
53	2/19/20	11,875	12,034	40
54	2/19/20	11,674	11,833	40
55	2/19/20	11,472	11,631	40
56	2/20/20	11,271	11,430	40
57	2/20/20	11,070	11,229	40
58	2/20/20	10,869	11,028	40
59	2/20/20	10,668	10,827	40
60	2/21/20	10,466	10,625	40
61	2/21/20	10,265	10,424	40
62	2/21/20	10,064	10,223	40
63	2/21/20	9,863	10,022	40
64	2/22/20	9,662	9,821	40
65	2/22/20	9,461	9,620	40
66	2/22/20	9,259	9,418	40
67	2/22/20	9,058	9,217	40

Lemley 12H Stimulation Information

Stage Number	Report Date	ISIP (psi)	Breakdown Pressure (psi)	Avg Treating Pressure (psi)	Avg Treating Rate (BPM)	Pad Volume (bbbls)	Total Clean Fluid (Bbbls)	Total Proppant Amount (lbs)	Flush Volume (bbbls)
1	2/2/20	5,730	0	8,552	74	642	8,543	291,680	501
2	2/3/20	5,400	0	9,403	77	251	10,665	450,460	495
3	2/3/20	6,051	6,765	9,920	78	5	9,208	450,080	490
4	2/3/20	5,842	6,402	9,806	84	29	9,363	450,360	486
5	2/3/20	6,130	6,270	9,710	84	915	9,961	443,440	487
6	2/4/20	5,812	6,500	9,662	85	934	9,949	450,460	478
7	2/4/20	5,950	6,203	10,101	86	45	9,009	449,980	480
8	2/4/20	5,480	6,459	9,910	85	34	9,450	450,480	471
9	2/4/20	5,671	6,870	9,688	82	946	9,919	450,200	412
10	2/5/20	6,505	6,343	9,862	87	23	9,446	450,600	462
11	2/5/20	6,297	6,486	9,937	87	23	9,053	449,920	460
12	2/5/20	6,168	6,899	9,974	87	845	9,813	453,300	453
13	2/6/20	6,061	7,066	9,912	84	383	9,283	451,540	448
14	2/6/20	5,448	6,630	10,003	85	28	9,179	450,220	442
15	2/6/20	5,954	6,688	10,042	85	80	9,180	450,060	440
16	2/7/20	6,680	6,663	9,710	84	63	9,336	450,680	435
17	2/7/20	6,582	6,822	9,871	86	93	9,036	450,300	427
18	2/7/20	6,151	6,720	9,786	90	438	9,220	453,880	427
19	2/8/20	6,598	6,556	9,510	87	62	9,099	450,640	420
20	2/8/20	6,403	6,204	9,632	89	50	8,660	450,420	415
21	2/8/20	6,022	6,500	9,582	88	418	9,149	454,180	409
22	2/9/20	6,485	6,400	9,769	90	32	8,832	450,440	410
23	2/9/20	6,045	6,178	9,637	89	451	8,725	450,680	403
24	2/9/20	5,999	6,500	9,448	91	397	9,089	450,020	396
25	2/10/20	5,869	6,231	9,656	89	74	8,759	450,760	395
26	2/10/20	6,036	6,358	9,647	90	70	8,781	450,000	390
27	2/10/20	5,701	6,300	9,312	90	392	9,536	452,400	382
28	2/11/20	6,181	6,850	9,338	90	33	8,719	450,940	400
29	2/11/20	5,680	6,268	9,063	89	67	8,626	450,340	375
30	2/11/20	5,935	6,092	9,140	91	365	9,083	450,360	369
31	2/12/20	5,013	6,250	9,196	90	367	9,072	437,060	202
32	2/12/20	6,002	6,451	9,227	90	30	8,697	450,900	360
33	2/12/20	5,950	6,345	9,207	89	25	8,635	451,020	358
34	2/13/20	6,492	6,456	9,317	89	52	8,656	450,980	352
35	2/13/20	6,159	6,667	9,641	93	31	8,594	450,400	350
36	2/13/20	6,127	6,058	9,479	94	22	8,455	450,080	344
37	2/14/20	6,163	6,314	9,454	94	26	8,694	450,520	340
38	2/14/20	6,014	6,883	9,133	89	71	8,782	454,400	335
39	2/14/20	5,900	5,308	8,940	87	39	7,961	450,780	362
40	2/15/20	5,996	6,112	8,915	90	578	9,149	450,060	330
41	2/15/20	6,168	6,234	8,867	90	27	8,772	453,580	323
42	2/16/20	6,160	6,714	9,005	89	31	8,496	450,720	316
43	2/16/20	6,185	6,594	9,400	87	29	8,535	450,100	310
44	2/17/20	5,846	6,625	9,457	87	33	8,614	450,260	310
45	2/17/20	6,329	6,473	9,331	89	59	8,754	450,520	304
46	2/17/20	6,767	6,282	9,051	90	55	8,695	450,240	300
47	2/17/20	6,269	6,788	8,797	85	45	8,685	450,460	293
48	2/18/20	5,998	6,970	8,886	87	33	8,626	451,180	290
49	2/18/20	6,044	6,240	8,521	90	37	8,698	450,240	286
50	2/18/20	6,102	6,560	8,840	89	40	8,647	450,560	283
51	2/18/20	6,444	6,325	8,658	87	28	8,459	450,500	276
52	2/19/20	6,015	7,002	8,887	89	68	8,659	449,940	273
53	2/19/20	6,016	6,468	8,783	90	79	8,754	450,240	268
54	2/19/20	6,567	6,384	8,483	88	24	8,497	449,740	263
55	2/19/20	6,217	6,377	8,524	88	14	8,392	450,560	258
56	2/20/20	6,345	6,046	8,376	88	11	8,427	450,520	255
57	2/20/20	5,944	6,407	8,342	90	79	8,695	450,500	251
58	2/20/20	5,644	6,226	8,231	90	62	8,500	450,900	245
59	2/20/20	5,475	6,358	8,446	87	88	8,390	450,180	241
60	2/21/20	5,730	6,000	8,238	88	59	8,614	450,520	350
61	2/21/20	6,246	5,821	8,329	90	57	8,558	450,520	231
62	2/21/20	6,386	6,172	8,334	90	58	8,534	450,180	229
63	2/21/20	6,040	6,272	7,965	88	82	8,548	450,180	223
64	2/22/20	6,173	6,627	8,145	86	70	8,545	452,140	220
65	2/22/20	6,171	6,088	7,937	90	30	8,483	450,400	216
66	2/22/20	6,174	6,269	7,849	90	28	8,282	457,140	209
67	2/22/20	5,186	6,482	8,166	88	18	9,586	457,260	205

Lemley Completion lithology

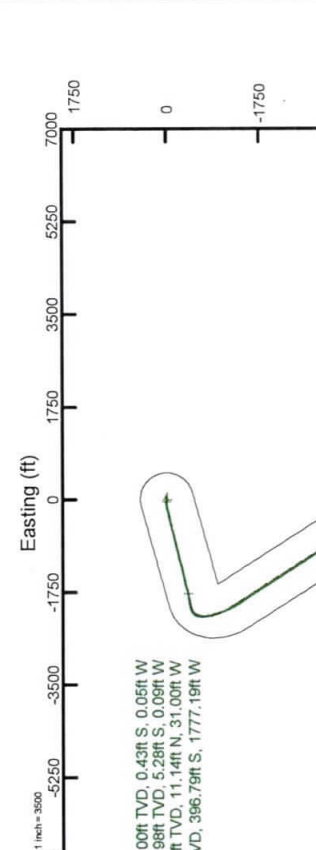
Lithology/Formation	Top Depth in FT TVD	Bottom Depth in FT TVD	Describe rock type and record quantity and type of fluid (freshwater, brine, oil, gas, H2S, etc)
Sand/silt	0	180	Sand/silt
silt/red shale	180	390	silt/red shale
siltstone/sandstone/limestone	390	440	siltstone/sandstone/limestone
limestone/siltstone/sandstone	440	500	limestone/siltstone/sandstone
coal	500	510	coal
siltstone/limestone/shale	510	630	siltstone/limestone/shale
coal	630	640	coal
siltstone/sandstone	640	740	siltstone/sandstone
coal	740	750	coal
sandstone/siltstone/limestone	750	1060	sandstone/siltstone/limestone
coal-Pittsburgh	1060	1070	coal-Pittsburgh
sandstone/limestone	1070	1190	sandstone/limestone
red shale/siltstone	1190	1480	red shale/siltstone
Limestone/siltstone	1480	1730	Limestone/siltstone
sandstone	1730	1860	sandstone
sandstone/siltstone/red shale	1860	2050	sandstone/siltstone/red shale
siltstone/sandstone	2050	2110	siltstone/sandstone
sandstone	2110	2140	sandstone
sandstone/siltstone/red shale	2140	2300	sandstone/siltstone/red shale
Big Lime	2300	2420	Big Lime
Big Injun Sandstone	2420	2520	Big Injun Sandstone
siltstone/sandstone	2520	2810	siltstone/sandstone
Berea Sandstone	2810	2820	Berea Sandstone
Upper Devonian Sands/silts	2820	3350	Upper Devonian Sands/silts
shale/siltstone	3350	7514	shale/siltstone
Middlesex shale/silt	7514	7737	Middlesex shale/silt
Burkett shale	7737	7918	Burkett shale
Geneseo shale	7918	7969	Geneseo shale
Tully Limestone	7969	8044	Tully Limestone
Hamilton shale	8044	8129	Hamilton shale
Marcellus shale	8129	TD	Marcellus shale

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
Lemley Pad	1788033.100	427062.900	80°08'15.2590"W
Slot	Local E (ft)	Grid East (US ft)	Latitude
Slot 12H	0.80	1789013.102	39°40'14.7439"N
Slot 12H	-20.00	427063.704	39°40'14.7504"N
Patterson 334 (KB) to Ground level (At Slot: Slot 12H)			
Mean Sea Level to Ground level (At Slot: Slot 12H)			
Patterson 334 (KB) to Mean Sea Level			
25ft			
-1534ft			
1559ft			

Comments	
API: 47-061-01848-0000	
BH Job #: 110087513A	
Rig: Patterson 334	
Duration: 11/23/2019 - 11/29/2019	



NORTHEAST NATURAL ENERGY, LLC	
Location: Monongalia County, WV	Slot: Slot 12H
Field: Monongalia	Well: Lemley 12H
Facility: Lemley Pad	Wellbore: Lemley 12H PWB
Plot reference wellbore is Lemley 12H PWB Rev-0.0	Grid System: NAD83 / Lambert West Virginia SP, Northern Zone (7701), US feet
True vertical depths are referenced to Patterson 334 (KB)	North Reference: Grid north
Reference wellbore measured depths are referenced to Patterson 334 (KB)	Scale: True distance
Patterson 334 (KB) to Mean Sea Level: 1559 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: Slot 12H): -1534 feet	Depths are in feet
Other wellbore MDs are referenced to each plot's default MD datum	Created by: shapiro on 2019-12-02, Database: VA_MPL_EASTERN_MD



Scale 1 inch = 3000

Javins Inertial Gyro <17 1/2"> (125-1325) : 125.00ft TVD, 0.43ft S, 0.05ft W
 Javins Inertial Gyro <12 1/4"> (1425-2675) : 1424.98ft TVD, 5.28ft S, 0.09ft W
 Halliburton MWD HDGM <8 3/4"> (2700-7239) : 2699.48ft TVD, 11.14ft N, 31.00ft W
 BH AT Curve <8 1/2"> (7294-22494) : 6885.88ft TVD, 396.79ft S, 1777.19ft W

Scale 1 inch = 3000

Projection to Bit : 8203.33ft TVD, 12480.92ft S, 5169.76ft E

Projection to Bit : 91.38" Inc, 22521.00ft MD, 8203.33ft TVD, 13304.01ft VS
 5.5in Casing Production : 91.38" Inc, 22521.00ft MD, 8203.33ft TVD, 13304.01ft VS

Scale 1 inch = 3000

Vertical Section (ft)

Azimuth 147.50° with reference 0.00 N, 0.00 E

Scale 1 inch = 3000

Javins Inertial Gyro <17 1/2"> (125-1325) : 0.50" Inc, 125.00ft MD, 125.00ft TVD, 0.34ft VS

13.375in Casing Surface : 0.26" Inc, 1325.00ft MD, 1324.98ft TVD, 4.86ft VS

Javins Inertial Gyro <12 1/4"> (1425-2675) : 0.91" Inc, 1425.00ft MD, 1424.98ft TVD, 4.40ft VS

Halliburton MWD HDGM <8 3/4"> (2700-7239) : 2.32" Inc, 2700.00ft MD, 2699.48ft TVD, -26.05ft VS

9.625in Casing Intermediate : 2.32" Inc, 2703.00ft MD, 2702.47ft TVD, -26.16ft VS

BH AT Curve <8 1/2"> (7294-22494) : 26.00" Inc, 7294.00ft MD, 6885.88ft TVD, -620.23ft VS

Scale 1 inch = 3000

Vertical Section (ft)

Azimuth 147.50° with reference 0.00 N, 0.00 E



Ticket #: 0

Remit to:
 Lightning Energy Services
 104 Heliport Loop Road
 Bridgeport, WV 26330

Job Times				
	On Loc:	Job Start:	Job End:	Off Loc:
Date:	09/30/19	09/30/19	09/30/19	09/30/19
Time:	2:00PM	5:13PM	8:45PM	10:00PM

Customer and Well Information					
Customer: NORTHEAST		Well Name: LEMELY		Well #: 12 H	Well Type: GAS
County:	State: WV	AFE #/API #: 100503-602		PO #/Permit #:	Well Class:
Field:		Lease: LEMLEY		Rig Name/#: Dicker rig 8	
Wellbore Information					
Bit Size (Inches): 17 1/2	Well MD (ft):	Well TVD (ft): 1370	BHST (F°):	BHCT (F°):	Deviation (°):
Drilling Fluid Type:	Drilling Fluid Density (ppg):		Packer Depth (ft):	Treating Down:	
Previous Casing/Liner					
Size (Inches): 24	Weight (lb/ft):	Thread:	Grade:	Total Footage (ft): 50	
Casing/Liner/Tubing					
Size (Inches): 13 3/8	Weight (lb/ft): 54.5	Thread:	Grade:	Total Footage (ft): 1312	
Job					
Job Type:		Connection to Well: YES		Top Plug: YES	
Lift Pressure (PSI): 482	Max Annulus Pressure (PSI):		Mix Water Temp (F°):	Bottom Plug: No	
Casing/Tubing Secured : YES		Pipe Rotated: No	Cement Return to Surface (bbl): 35	Top Job (bbl):	
Pipe Reciprocated : No	Circulation Lost: no	Job Completed: yes			



Ticket #:
0

Remit to:
Lightning Energy Services
104 Heliport Loop Road
Bridgeport, WV 26330

Job Times				
	On Loc:	Job Start:	Job End:	Off Loc:
Date:	10/03/19	10/04/19	10/04/19	10/04/19
Time:	11:00am	12:33am	2:40am	4:00am

Customer and Well Information					
Customer: NORTHEAST		Well Name: LEMELY		Well #: 12 H	Well Type: GAS
County:	State: WV	AFE #/API #: 100503-602	PO #/Permit #:	Well Class:	
Field:		Lease: LEMLEY	Rig Name/# : Dicker rig 8		
Wellbore Information					
Bit Size (Inches): 12 3/8	Well MD (ft):	Well TVD (ft): 2709	BHST (F°):	BHCT (F°):	Deviation (°):
Drilling Fluid Type:	Drilling Fluid Density (ppg):	Packer Depth (ft):	Treating Down:		
Previous Casing/Liner					
Size (Inches): 13 3/8	Weight (lb/ft): 54.5	Thread:	Grade:	Total Footage (ft): 1312	
Casing/Liner/Tubing					
Size (Inches): 9 5/8	Weight (lb/ft): 36	Thread:	Grade:	Total Footage (ft): 2639	
Job					
Job Type:		Connection to Well: YES		Top Plug: YES	
Lift Pressure (PSI): 1300	Max Annulus Pressure (PSI):	Mix Water Temp (F°):		Bottom Plug: No	
Casing/Tubing Secured : YES	Pipe Rotated: No	Cement Return to Surface (bbl): 33	Top Job (bbl):		
Pipe Reciprocated : No	Circulation Lost: no	Job Completed: yes			

Cement Job Log

NEXTIER		Customer: NORTHEAST NATURAL ENERGY LLC		Date: 29-Nov-19	Serv. Supervisor: Jason Beeson						
Cust. Rep.: Jamie Czeneski		Ticket #: JWV1912-0001		Serv. Center: Jane Lew - 3044							
Lease: Lemley		API Well #: 47-061-01848		County: Monongalia	State: WV						
Well Type: Gas Production		Rig: Patterson 334		Type of Job: CM-PROD. CASING							
Materials Furnished by C&J ENERGY SERVICES											
Plugs	Casing Hardware			Physical Slurry Properties							
		Sacks of Cement	Fluid Density (lb/gal)	Excess	Yield (cuft/sk)	Mix Water (gal/sk)	Fluid Volume (bbbl)	Mix Water (bbbl)			
13.5 ppg PureScrub Space w/Surfactant	+7.0 PPB CJX157011+55.0 PPB CJ111+1.1 GPB CJ880						100.00				
14.5 ppg Cement	50 % CJ010-74+50 % CJ910 +0.2 % CJX157011+0.25 % CJFCP013+0.1 % CH415+0.15 % CJ504+0.15 % CJ540			4135	14.5	1.16	4.90	852.99	482		
Displacement							498.16				
0											
Displacement Chemicals:											
OPEN HOLE DATA			TUBULAR DATA								
8.75 in. O.H. (2,690 to 7,229 ft)		5.5 in. 20#, (0 to 22,521 ft)		SIZE WEIGHT	THRD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)	
8.6 in. O.H. (7,229 to 22,521 ft)				5.5 20#	blc	22470					
Mix Cem. Temperature *F	Lead Tmp	Middle Temp	Tail Temp								
42.0 *F			58.0 *F								
PREVIOUS CASING DATA			PERFORATED INTERVAL DATA				CASING EQUIPMENT DEPTHS				
9.625 in. 36# (0 to 2,690 ft)			TOP	BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP	
							42	2242B			
WELL FLUID		DISPLACEMENT FLUID			DPP PRESS (psi)	CSG LIFT (psi)	MAX PRESS (psi)		Total Number of Runs	WATER ON LOC (psi)	
TYPE	DENSITY	VOLUME	TYPE	DENSITY	2508	692B	6000		1	2100	
sobm	12.4 ppg	498 bbl	fresh	8.3 ppg							
Bumped Plug	Final Differential (psi)	Floats Held (Y/N)	PSI Left on Casing	Cement to Surface (bbl)	Top of Cement (ft)	Full Circ. During Job (Y/N)	Max Pump Pressure (psi)	Casing Rotation	Standby Charged (hrs)	Casing Reciproaction	Wireline Co.
											0
Comments/Special Customer Instructions											
								<i>Jason Beeson</i> Service Supervisor		29-Nov-19 Date	

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/2/2020
Job End Date:	2/22/2020
State:	West Virginia
County:	Monongalia
API Number:	47-061-01848-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Lemley 12H
Latitude:	39.67076400
Longitude:	-80.13764300
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	8,384
Total Base Water Volume (gal):	25,998,177
Total Base Non Water Volume:	0



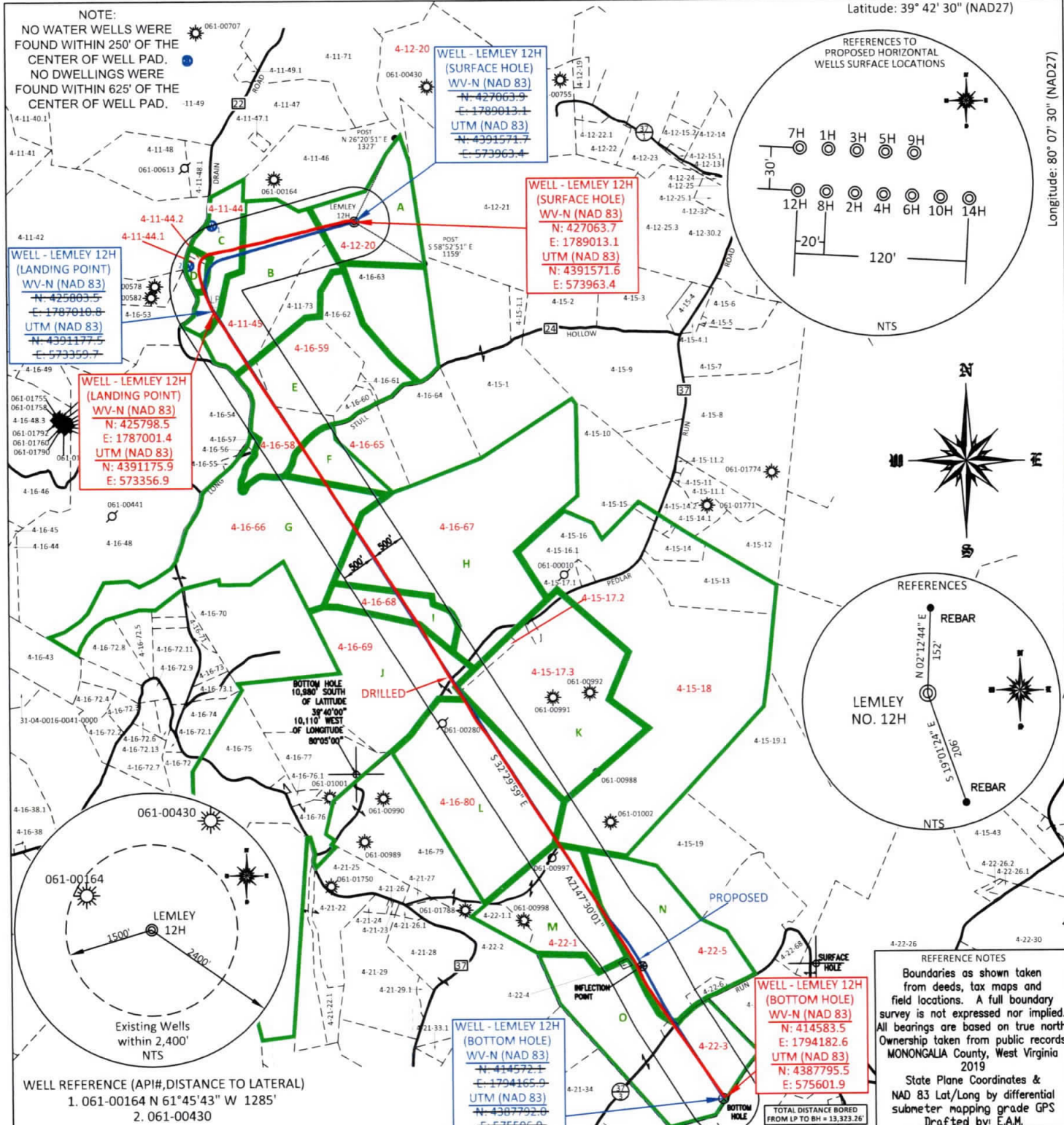
Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Service Abstract Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Northeast Natural Energy	Carrier/Base Fluid	Water	7732-18-5	100.00000	87.58436	None
Sand (100 Mesh Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	9.06861	None
Sand (40/70 White Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	3.05596	None
Hydrochloric Acid (7.5%)	PVS	Acidizing	Water	7732-18-5	85.00000	0.17520	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	36.00000	0.07420	None
StimSTREAM FR 9800	ChemStream	Friction Reducer	Alkanes, C16-20-iso-	90622-59-6	25.00000	0.01193	None
			Butene, homopolymer	9003-29-6	25.00000	0.01193	None
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00143	None
Clearal 268	ChemStream	Biocide	Non-hazardous substances	Proprietary	90.00000	0.01618	None

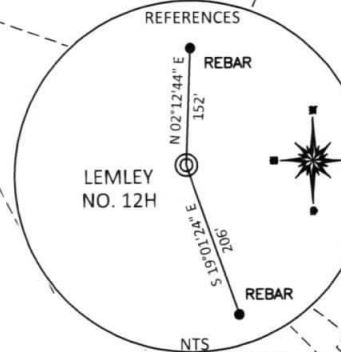
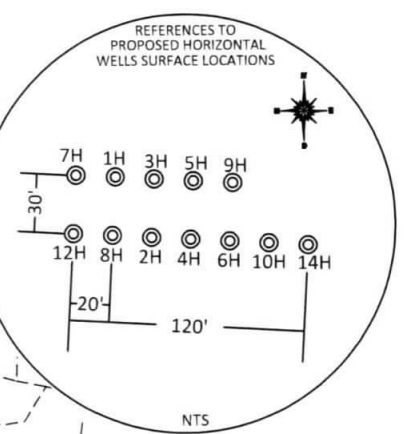
			Glutaraldehyde	111-30-8	20.00000	0.00360	None
			Alkyl dimethyl benzyl ammonium chloride	68391-01-5	3.00000	0.00054	None
			Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00054	None
StimSTREAM SC-398	ChemStream	Scale Inhibitor	Non-hazardous substances	Proprietary	100.00000	0.01762	None
			Bis(Hexamethylene Triamine Penta(Methylene Phosphonic Acid) (BHMT)	34690-00-1	10.00000	0.00176	None
ProFE 105	ProFrac	Iron Control	Citric Acid	77-92-9	50.50000	0.00037	None
			Water	7732-18-5	49.50000	0.00036	None
ProHib 100	ProFrac	Acid Inhibitor	Methyl alcohol	67-56-1	45.00000	0.00023	None
			Ethylene glycol	107-21-1	20.00000	0.00010	None
			Isouinolone	119-65-3	15.00000	0.00008	None
			N,N-Dimethylformamide	68-12-2	10.00000	0.00005	None
			Water	7732-18-5	10.00000	0.00005	None
			2-Butoxyethanol	111-76-2	5.00000	0.00003	None
Calcium Chloride	Solvey	Freezing-point depression	Calcium chloride	10043-52-4	100.00000	0.00040	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					
			Water	7732-18-5	85.00000	0.17520	
			Non-hazardous substances	Proprietary	100.00000	0.01762	
			Non-hazardous substances	Proprietary	90.00000	0.01618	
			Butene, homopolymer	9003-29-6	25.00000	0.01193	
			Ethoxylated alcohols (C-12-18)	68213-23-0	3.00000	0.00143	
			Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00054	
			Alkyl dimethyl benzyl ammonium chloride	68391-01-5	3.00000	0.00054	
			Water	7732-18-5	49.50000	0.00036	
			Ethylene glycol	107-21-1	20.00000	0.00010	
			Isouinolone	119-65-3	15.00000	0.00008	
			N,N-Dimethylformamide	68-12-2	10.00000	0.00005	
			Water	7732-18-5	10.00000	0.00005	
			2-Butoxyethanol	111-76-2	5.00000	0.00003	

* 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)



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.

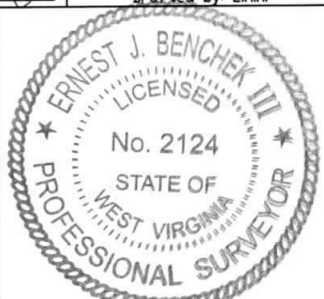


WELL REFERENCE (API#, DISTANCE TO LATERAL)
1. 061-00164 N 61°45'43" W 1285'
2. 061-00430

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 2019
State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS
Drafted by: E.A.M.

FILE #: NEE14
DRAWING #: 2908
SCALE: PLAT: 1" = 2000'
TICK MARK: 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

DATE: APRIL 20, 2020
OPERATOR'S WELL #: LEMLEY 12H AS-DRILLED
API WELL #: 47 61 01848
STATE COUNTY PERMIT

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

WATERSHED: DUNKARD CREEK AS-BUILT ELEVATION: 1,539.47'
COUNTY/DISTRICT: MONONGALIA / CLAY QUADRANGLE: BLACKSVILLE, WV
SURFACE OWNER: CLARENCE W. LEMLEY JR. & CHARLOTTE E. LEMLEY ACREAGE: 128.58 +/-
OIL & GAS ROYALTY OWNER: LEROY TENNANT, et al ACREAGE: 1425.341 +/-
LEASE NUMBERS:

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 AS-DRILLED DEPTH: TVD: 8,203' TMD: 22,521'
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