

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

RECEIVED  
Office of Oil and Gas

DEC 06 2021

WV Department of  
Environmental Protection

API 47 - 061 - 01845 County Monongalia District Clay  
Quad Blacksville, WV Pad Name Lemley Field/Pool Name \_\_\_\_\_  
Farm name Clarence W. Jr. & Charlotte E. Lemley Well Number 9H  
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 4391580.1 Easting 573988.2  
Landing Point of Curve Northing 4391877.3 Easting 574185.3  
Bottom Hole Northing 4394259.7 Easting 572322.8

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

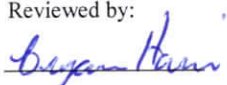
Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine

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 5/31/2019 Date drilling commenced 1/24/2021 Date drilling ceased 3/7/2021  
Date completion activities began 5/31/2021 Date completion activities ceased 6/13/2021  
Verbal plugging (Y/N) NA 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 440', 1,060' 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', 1,060' Cavern(s) encountered (Y/N) depths \_\_\_\_\_ N  
Is coal being mined in area (Y/N) \_\_\_\_\_ N

Reviewed by:  
  
01/21/2022

API 47-061 - 01845 Farm name Clarence W. Jr. & Charlotte E. Lemley Well number 9H

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"	52'	N		NA	Y
Surface	17-1/2"	13-3/8"	1,442'	N	54.5	NA	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,585'	N	36	NA	Y, 30 bbl
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	18,692'	N	20	NA	Y
Tubing							
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 ready mix	36				CTS	48
Surface	Class A	1,779	15.6	1.18	2,099	CTS	8
Coal							
Intermediate 1	Class A	880	15.6	1.19	1,045	CTS	8
Intermediate 2							
Intermediate 3							
Production	50:50 poz	3,390	14.5	1.16	3,923	2,063	48
Tubing							

Drillers TD (ft) 18,718' Loggers TD (ft) 18,688'

Deepest formation penetrated Marcellus Plug back to (ft) NA

Plug back procedure NA

Kick off depth (ft) 7,013'

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 - 01845 Farm name Clarence W. Jr. & Charlotte E. Lemley Well number 9H

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.



### Lemley 9H Stimulation Summary

Stage Number	Report Date	ISIP (psi)	Breakdown Pressure (psi)	Avg Treating Pressure (psi)	Avg Treating Rate (BPM)	Pad Volume (bbls)	Total Clean Fluid (Bbls)	Flush Volume (bbls)
1	5/31/2021	5,679	8,052	9,238	85	415	6,827	6,827
2	5/31/2021	5,470	6,414	9,723	89	100	9,374	407
3	5/31/2021	6,282	7,320	9,581	86	68	9,198	1,218
4	6/1/2021	6,265	6,928	9,556	89	100	9,414	402
5	6/1/2021	6,265	7,253	9,515	86	105	10,166	10,061
6	6/2/2021	6,356	6,551	9,645	89	43	9,751	395
7	6/2/2021	5,919	6,961	9,409	87	120	9,498	389
8	6/2/2021	5,266	7,544	9,392	87	28	9,483	386
9	6/3/2021	5,919	7,252	9,387	90	50	9,339	9,339
10	6/3/2021	6,642	6,750	9,505	88	110	9,548	375
11	6/4/2021	6,286	6,692	9,399	90	22	9,514	372
12	6/4/2021	6,446	6,097	9,384	90	49	9,501	362
13	6/4/2021	6,441	7,352	9,155	90	20	9,233	362
14	6/5/2021	5,813	7,742	9,223	90	30	9,389	358
15	6/5/2021	6,003	5,430	8,992	90	30	9,708	353
16	6/5/2021	6,101	6,346	8,938	90	250	9,764	344
17	6/5/2021	6,267	7,833	9,282	90	20	9,282	344
18	6/6/2021	5,895	6,584	9,144	90	20	9,492	340
19	6/6/2021	5,895	5,778	9,077	90	109	9,442	332
20	6/6/2021	5,006	7,158	9,577	88	50	7,195	461
21	6/6/2021	4,945	7,094	9,110	88	13	9,090	503
22	6/7/2021	5,106	6,172	9,310	83	22	11,330	322
23	6/7/2021	5,226	7,059	9,118	90	52	8,761	321
24	6/7/2021	6,258	7,078	9,031	90	50	8,260	315
25	6/7/2021	6,184	7,018	8,867	90	26	8,564	305
26	6/8/2021	5,784	7,874	8,918	90	17	8,031	300
27	6/8/2021	5,360	7,046	8,990	86	160	9,098	297
28	6/8/2021	5,504	6,914	8,787	90	55	8,273	291
29	6/8/2021	5,511	7,919	8,637	90	14	9,360	290
30	6/9/2021	5,480	7,233	8,670	89	14	9,540	520
31	6/9/2021	6,095	6,558	8,516	90	58	9,595	282
32	6/9/2021	5,916	6,770	8,631	85	50	9,400	274
33	6/9/2021	4,799	6,357	8,612	92	50	9,209	369
34	6/9/2021	5,417	7,234	8,526	95	41	9,274	265
35	6/10/2021	5,712	7,856	9,340	79	19	11,476	261
36	6/10/2021	5,858	6,860	8,459	90	29	9,728	259
37	6/10/2021	6,206	8,018	8,494	90	13	9,589	252
38	6/11/2021	6,410	7,472	8,395	90	13	9,207	247
39	6/11/2021	5,993	7,090	8,201	90	14	9,332	247
40	6/11/2021	5,954	6,303	8,332	90	12	9,244	243
41	6/11/2021	5,565	6,516	8,125	90	7	9,325	238
42	6/11/2021	4,851	6,650	8,251	89	5	9,068	360
43	6/12/2021	5,952	7,785	8,057	90	12	9,250	225
44	6/12/2021	5,607	7,187	7,997	90	16	9,171	221
45	6/12/2021	5,958	8,292	7,819	90	8	9,221	221
46	6/12/2021	5,314	7,166	8,052	90	4	9,240	216
47	6/12/2021	6,054	7,710	7,667	90	11	9,152	208
48	6/13/2021	5,751	7,821	7,746	90	28	9,151	203
49	6/13/2021	5,924	7,236	7,553	90	14	9,029	203
50	6/13/2021	5,223	7,527	7,740	90	7	9,178	198

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### Lemley 9H - Perforation Summary

Stage Number	Report Date	Cluster 5 Bottom TD	Cluster 1 Top TD	Total Shots
1	5/31/2021	18,583	0	0
2	5/31/2021	18,382	18,539	40
3	5/31/2021	18,182	18,340	40
4	6/1/2021	17,983	18,140	40
5	6/1/2021	17,783	17,941	40
6	6/2/2021	17,584	17,741	40
7	6/2/2021	17,384	17,542	40
8	6/2/2021	17,184	17,342	40
9	6/3/2021	16,985	17,142	40
10	6/3/2021	16,785	16,943	40
11	6/4/2021	16,586	16,743	40
12	6/4/2021	16,386	16,544	40
13	6/4/2021	16,186	16,344	40
14	6/5/2021	15,987	16,145	40
15	6/5/2021	15,787	15,945	40
16	6/5/2021	15,588	15,745	40
17	6/5/2021	15,388	15,546	40
18	6/6/2021	15,189	15,346	40
19	6/6/2021	14,989	15,147	40
20	6/6/2021	14,789	14,947	40
21	6/6/2021	14,590	14,747	40
22	6/7/2021	14,390	14,548	40
23	6/7/2021	14,191	14,348	40
24	6/7/2021	13,991	14,149	40
25	6/7/2021	13,781	13,949	40
26	6/8/2021	13,592	13,750	40
27	6/8/2021	13,392	13,550	40
28	6/8/2021	13,193	13,350	40
29	6/8/2021	12,993	13,151	40
30	6/9/2021	12,794	12,951	40
31	6/9/2021	12,594	12,752	40
32	6/9/2021	12,394	12,552	40
33	6/9/2021	12,195	12,353	40
34	6/9/2021	11,995	12,153	40
35	6/10/2021	11,796	11,953	40
36	6/10/2021	11,596	11,754	40
37	6/10/2021	11,397	11,554	40
38	6/11/2021	11,197	11,355	40
39	6/11/2021	10,997	11,155	40
40	6/11/2021	10,798	10,955	40
41	6/11/2021	10,598	10,756	40
42	6/11/2021	10,399	10,556	40
43	6/12/2021	10,199	10,357	40
44	6/12/2021	9,999	10,157	40
45	6/12/2021	9,800	9,958	40
46	6/12/2021	9,600	9,758	40
47	6/12/2021	9,401	9,558	40
48	6/13/2021	9,201	9,359	40
49	6/13/2021	9,002	9,159	40
50	6/13/2021	8,802	8,960	40

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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



Ticket #: 0

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

Job Times				
Date:	On Loc: 01/24/21	Job Start: 01/24/21	Job End: 01/26/21	Off Loc: 01/26/21
Time:	8:00AM	10:00AM	11:00AM	

Customer and Well Information					
Customer: NORTHEAST		Well Name:		Well #: 9H	Well Type: GAS
County:	State: WV	AFE #/API #:		PO #/Permit #:	Well Class:
Field:		Lease: LEMLEY		Rig Name/# : DECKER #8	
Wellbore Information					
Bit Size (Inches): 22	Well MD (ft):	Well TVD (ft): 1506	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): 40	
Casing/Liner/Tubing					
Size (Inches): 13 3/8	Weight (lb/ft): 54.5	Thread: BT	Grade:	Total Footage (ft): 1442	
Job					
Job Type: SURFACE		Connection to Well: PLUG CONTAINER		Top Plug: YES	
Lift Pressure (PSI): 532	Max Annulus Pressure (PSI):		Mix Water Temp (F°): 60	Bottom Plug: No	
Casing/Tubing Secured : YES		Pipe Rotated: No	Cement Return to Surface (bbl):	Top Job (bbl): 231	
Pipe Reciprocated : No	Circulation Lost:	Job Completed: yes	TOP JOB		

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Event Summary					
Activity Description (Job Marker)	Dens PPG	Press PSI	Rate bpm	Total bbl	Time
ON LOCATION	0.00	0.00	0.00		
PSI TEST	0.00	1500.00	0.00		
WATER SPACER	0.00		6.00	230.00	
GEL SPACER	0.00		6.00	25.00	
CEMENT	15.60		5.50	163.00	
START DISPLACEMENT	0.00		5.00	216.00	
BUMP PLUG	0.00				
OFF LOCATION	0.00	0.00	0.00		

**Notes**  
 PUMP 230 BBLS H2O 25 GEL 10 H2O 163 BBL CEMENT AT MINE 50% EX DISP CLASS A TOP JOB 10 BBLS ON BASKET 221 BBL CEMENT TO SURFACE

Customer or Authorized Representative:	Service Supervisor:
	DANNY GUM
X	X

Cement Job Log



NexTier Completion Solutions  
 3990 Rogerdale Rd., Houston, TX 77042  
 (713)325-6000

Customer: <b>NORTHEAST NATURAL ENERGY LLC</b>		Date: <b>28-Feb-21</b>		Serv. Supervisor: <b>Michael Franco</b>	
Cust. Rep.:		Ticket #: <b>BPA 2102-0039</b>		Serv. Center: <b>Black Lick - 1571</b>	
Well Name: <b>Lemley 9H</b>		API Well #: <b>47-061-01845</b>		County: <b>Monongalia</b>	State: <b>WV</b>
Well Type:		Rig: <b>Patterson 277</b>		Type of Job: <b>CM-INTER. CASING</b>	

Materials Furnished by NexTier									
Plugs	Casing Hardware	Physical Slurry Properties							
		Sacks of Cement	Fluid Density (lb/gal)	Excess	Yield (cuft/sk)	Mix Water (gal/sk)	Fluid Volume (bbbls)	Fluid Volume (cuft)	Mix Water (bbbls)
12.0 lb/gal PureScrub Spacer w/Surfactant	+7.0 PPB NFP-702+1.0 GPB NTC-885		12		5.74	31.43	50.00	-	
15.6 lb/gal Cement	100 % NCM-910 +1.0 % NAC-110	880	15.6	30%	1.19	5.24	186.17	1,045.35	110
Fresh Water Displacement			8.33			-	198.69	-	
0						-		-	
						-		-	
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Displacement Chemicals:

OPEN HOLE DATA					TUBULAR DATA							
12.375 in. O.H. 1,442 to 2,610 ft					9.625 in. 36#, ( 0 to 2,610 ft)							
Ambient Tmp.	Bulk Tmp.	Slurry 1 Tmp.	Slurry 2 Tmp.	Slurry 3 Tmp.	Slurry 4 Tmp.	SIZE WEIGHT	THRD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)
	57.0 °F					9.625 36#	BTC	2585	J-55	8.921	3520	2020

PREVIOUS CASING DATA			PERFORATED INTERVAL DATA				CASING EQUIPMENT DEPTHS			
13.375 in. 54.5# ( 0 to 1,442 ft)			TOP	BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP
							2588	2539		

WELL FLUID		DISPLACEMENT FLUID					DIFF PRESS	CSG LIFT	MAX PRESS	Mix H2O Chlorides (ppm)	Mix H2O pH	Mix H2O Temp	WATER ON LOC (bbl)
TYPE	DENSITY	VOLUME	TYPE	DENSITY		(psi)	(psi)	(psi)					
OBM	11.0 ppg	196.2 bbl	OBM	11 ppg		650	1065		2 ppm	6	42.0 °F	1600	
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	Additional Hrs Charged (hrs)	Casing Reciprocation	Rathole Length (ft)		
No	750.00	N	750.00	30.00		Yes		No	3.00	No	56'		

Comments/Additional Details:

<i>Michael Franco</i>	<i>28-Feb-21</i>
Service Supervisor	Date

01/21/2022

<b>NEXTier</b>											
<b>Customer:</b>	NORTHEAST NATURAL ENERGY LLC			<b>Date:</b>	28-Feb-21		<b>Serv. Supervisor:</b>	Michael Franco			
<b>Cust. Rep.:</b>				<b>Ticket #:</b>	BPA 2102-0039		<b>Serv. Center:</b>	Black Lick - 1571			
<b>Well Name:</b>	Lemley 9H	<b>RTS Date:</b>	28-Feb-2021	<b>API Well #:</b>	47-061-01845		<b>County:</b>	Monongalia	<b>State:</b>	WV	
<b>Well Type:</b>		<b>RTS Time:</b>	10:00 AM	<b>Rig:</b>	Patterson 277		<b>Type of Job:</b>	CM-INTER. CASING			
<b>Left Yard:</b>	28-Feb-21	7:00 AM	<b>Left Loc.:</b>	28-Feb-21	9:30 PM	<b>Start Pump:</b>	28-Feb-21	6:16 PM			
<b>Arrived Loc.:</b>	28-Feb-21	10:00 AM	<b>Returned Yd.:</b>	01-Mar-21	12:30 AM	<b>End Pump:</b>	28-Feb-21	7:49 PM			
<b>TIME</b>	<i>Rate</i>	<i>Csg. Press.</i>	<i>Tbg. Press.</i>	<i>Ann. Press.</i>	<i>Sig. Vol.</i>	<i>Cum. Vol.</i>	<i>Stage Num.</i>	<b>Stage Details</b>			
	(bbl/min)	(psi)	(psi)	(psi)	(bbl)	(bbl)	Stage #				
7:00 AM								Left Yard or Current Location			
10:00 AM								ARRIVE ON LOCATION			
10:00 AM							1	ARRIVE ON LOCATION			
10:45 AM							1	pre rig up safety meeting			
12:00 PM							1	rig up			
5:38 PM							1	pre job safety meeting			
6:16 PM	5	150	150		5.0 bbl	5.0 bbl	1	fill lines			
6:18 PM		2100	2100				1	pressure test			
6:24 PM	5	350	350		50.0 bbl	55.0 bbl	1	mix and pump spacer @ 12 ppg verified with scales			
6:34 PM	6	400	400		186.0 bbl	241.0 bbl	1	mix and pump cement @ 15.6 ppg verified with scales			
7:09 PM							1	shut down reelease plug			
7:11 PM	7	0-750	0-750		200.0 bbl	441.0 bbl	1	pump displacement			
7:49 PM		750	750				1	shut down plug did not land			
7:52 PM							1	pre rig down safety meeting			
8:05 PM							1	rig down			
9:30 PM							1	leave location			

01/21/2022

**Cement Job Log**



NexTier Completion Solutions  
3960 Rogerdale Rd., Houston, TX 77042  
(713)325-6000

Customer: <b>NORTHEAST NATURAL ENERGY LLC</b>	Date: <b>13-Mar-21</b>	Serv. Supervisor: <b>Michael Franco</b>
Cust. Rep.:	Ticket #: <b>BPA-2103-0023</b>	Serv. Center: <b>Black Lick - 1571</b>
Well Name: <b>Lemley 9H</b>	API Well #: <b>47-061-01845</b>	County: <b>Monongalia</b> State: <b>WV</b>
Well Type:	Rig: <b>Patterson 277</b>	Type of Job: <b>CM-PROD. CASING</b>

Materials Furnished by NexTier		Physical Slurry Properties							
Plugs	Casing Hardware	Sacks of Cement	Fluid Density (lb/gal)	Excess	Yield (cuft/sk)	Mix Water (gal/sk)	Fluid Volume (bbls)	Fluid Volume (cuft)	Mix Water (bbls)
13.5 lb/gal PureScrub Spacer w/Surfactant	+15.0 PPB NAC-111+7.0 PPB NFP-702+1.0 GPB NSU-887L+0.35 GPB NSU-883L	105	13.5		5.64	26.35	80.00	592.23	66
14.5 lb/gal Cement	50 % NCM-910+50 % NPZ-010 +0.2 % NFP-702+0.15 % NAS-504+0.2 % NRT-213+0.15 % NFL-549+0.1 % NTC-405	3390	14.5		1.16	4.90	698.68	3,923.11	395
Fresh Water Displacement			8.33			-	413.25	-	
0						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
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						-		-	
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						-		-	
						-		-	

Displacement Chemicals:

OPEN HOLE DATA			TUBULAR DATA									
<b>8.75 in. O.H. 2,610 to 7,364 ft</b> <b>8.5 in. O.H. 7,364 to 18,637 ft</b>			<b>5.5 in. 20#, ( 0 to 18,637 ft)</b>		SIZE WEIGHT	THRD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)	
Ambient Tmp.	Bulk Tmp.	Slurry 1 Tmp.	Slurry 2 Tmp.	Slurry 3 Tmp.	Slurry 4 Tmp.	5.5 20#	BTC	18692	P-110	4.778	12640	11080
		64.0 °F										

PREVIOUS CASING DATA	PERFORATED INTERVAL DATA			CASING EQUIPMENT DEPTHS				
<b>9.625 in. 36# ( 0 to 2,610 ft)</b>	TOP	BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP
					18692	18692		

WELL FLUID		DISPLACEMENT FLUID				DIFF PRESS	CSG LIFT	MAX PRESS	Mix H <sub>2</sub> O Chlorides (ppm)	Mix H <sub>2</sub> O pH	Mix H <sub>2</sub> O Temp	WATER ON LOC (bbl)
TYPE	DENSITY	VOLUME	TYPE	DENSITY	TYPE	(psi)	(psi)	(psi)				
Obm	12.5 ppg	414.9 bbl	H <sub>2</sub> O	8.3 ppg		2865	12760		3 ppm	7	51.0 °F	2000
Bumped Plug	Final Differential (psi)	Floets 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	Additional Hrs Charged (hrs)	Casing Reciprocation	Rathole Length (ft)	
Yes	3,450.00	Y	-	-	2,063	Yes		No		No	22'	

Comments/Additional Details:  
Top of cement 2063' Top of spacer 393' 19 bbl Drilling mud left in hole

<i>Michael Franco</i> <small>Service Supervisor</small>	<i>13-Mar-21</i> <small>Date</small>
--	---

**01/21/2022**

Cement Job Log

NEXTIER									
Customer:	NORTHEAST NATURAL ENERGY LLC			Date:	13-Mar-21	Serv. Supervisor:	Michael Franco		
Cust. Rep.:				Ticket #:	BPA-2103-0023	Serv. Center:	Black Lick - 1571		
Well Name:	Lemley 9H	RTS Date:	13-Mar-2021	API Well #:	47-061-01845	County:	Monongalia	State:	WV
Well Type:		RTS Time:	7:45 PM	Rig:	Patterson 277	Type of Job:	CM-PROD. CASING		
Left Yard:	Date: 13-Mar-21	Time: 4:30 PM	Left Loc.:	Date: 14-Mar-21	Time: 7:00 AM	Start Pump:	Date: 14-Mar-21	Time: 12:17 AM	
Arrived Loc.:	Date: 13-Mar-21	Time: 7:45 PM	Returned Yd.:	Date: 14-Mar-21	Time: 11:00 AM	End Pump:	Date: 14-Mar-21	Time: 4:41 AM	
TIME	Rate	Csg. Press.	Tbg. Press.	Ann. Press.	Stg. Vol.	Cum. Vol.	Stage Num.	Stage Details	
	(bbl/min)	(psi)	(psi)	(psi)	(bbl)	(bbl)	Stage #		
4:30 PM								Left Yard or Current Location	
7:45 PM								ARRIVE ON LOCATION	
7:45 PM							1	ARRIVE ON LOCATION	
8:00 PM							1	pre rig up safety meeting	
8:30 PM							1	rig up as far as we could	
11:20 PM							1	pre job saety meeting	
11:40 PM							1	rig up rig floor	
12:17 AM	4	900			5.0 bbl	5.0 bbl	1	fill lines	
12:17 AM							1	release bottom plug	
12:30 AM		4800					1	pressure test	
12:33 AM		9100					1	pressure test	
12:59 AM	5	900			80.0 bbl	85.0 bbl	1	mix and pump spacer @ 13.5 ppg verified with scales	
1:28 AM	7	1520			700.0 bbl	785.0 bbl	1	mix and pump cement @ 14.5 ppg verified with scales	
3:20 AM							1	shut down, wash lines, release plug	
3:38 AM	9	460			414.9 bbl	1199.9 bbl	1	pump displacement	
4:36 AM	3	3450-4600					1	land plug 1000 psi over hold 5 minutes	
4:41 AM		4600					1	release pressure 6 bbl flow back	
4:45 AM							1	pre rig down safety meeting	
4:55 AM							1	rig down	
7:00 AM							1	leave location	

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/31/2021
Job End Date:	6/13/2021
State:	West Virginia
County:	Monongalia
API Number:	47-061-01845-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Lemley 9H
Latitude:	39.67083700
Longitude:	-80.13735400
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	8,411
Total Base Water Volume (gal):	19,993,620
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	Northeast Natural Energy LLC	Carrier/Base Fluid	Water	7732-18-5	100.00000	87.55862	
Sand	U.S. Well Services	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	11.68258	
HCL Acid (5% to 7.5%)	U.S. Well Services	Bulk Acid	Water	7732-18-5	95.00000	0.62343	
			Hydrogen Chloride	7647-01-0	7.50000	0.05715	
Clearal 268	U.S. Well Services	Anti-Bacterial Agent	Non-hazardous substances	Proprietary	90.00000	0.02750	
			Glutaraldehyde	111-30-8	20.00000	0.00648	
			Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00092	
			Alkyl dimethyl benzyl ammonium chloride	68391-01-5	3.00000	0.00092	
StimSTREAM SC-405	U.S. Well Services	Scale Inhibitor	Non-hazardous substances	Proprietary	70.00000	0.01852	
			Diethylenetriamine penta (methylene phosphonic acid) (DTPMP)	15827-60-8	10.00000	0.00265	

			2-Phosphono-1,2,4-butanetricarboxylic acid (PBTC)	37971-36-1	10.00000	0.00265
			Citric acid	77-92-9	10.00000	0.00265
CFR-H-2800	U.S. Well Services	Friction Reducer				
			Hydrotreated Light Distillates	64742-47-8	30.00000	0.01197
			Alcohols, C11-14-iso-, C13-rich, ethoxylated	78330-21-9	5.00000	0.00246
StimSTREAM FR 9800	U.S. Well Services	Friction Reducer				
			Alkanes, C16-20-iso-	90622-59-6	25.00000	0.00061
			Butene, homopolymer	9003-29-6	25.00000	0.00061
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00007
AI-303	U.S. Well Services	Acid Corrosion Inhibitor				
			Ethylene glycol	107-21-1	40.00000	0.00010
			Cinnamaldehyde	104-55-2	20.00000	0.00004
			Formic acid	64-18-6	20.00000	0.00003
			Butyl cellosolve	111-76-2	20.00000	0.00003
			Polyether	60828-78-6	10.00000	0.00002
			Acetophenone,thiourea,formaldehyde polymer	68527-49-1	5.00000	0.00001

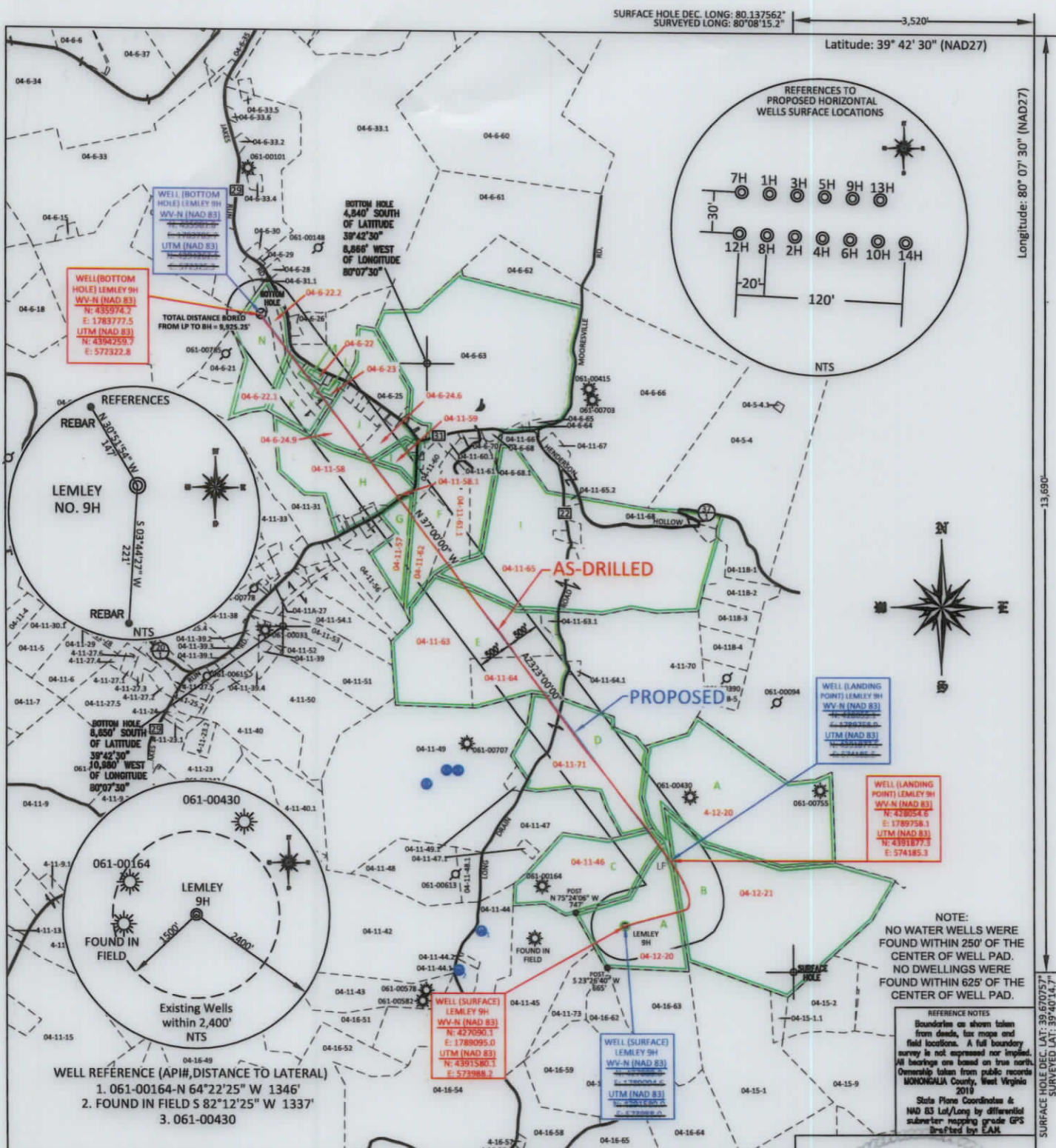
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

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

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

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

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

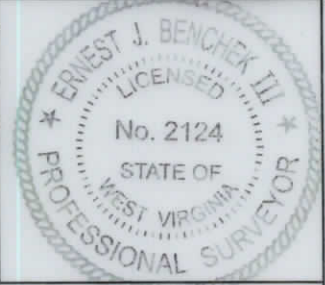


NOTE:  
NO WATER WELLS WERE FOUND WITHIN 250' OF THE CENTER OF WELL PAD.  
NO DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF WELL PAD.

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 2018  
State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS drilled by EAM

FILE #: NEE14  
DRAWING #: 2905  
SCALE: 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

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

WATERSHED: DUNKARD CREEK

COUNTY/DISTRICT: MONONGALIA / CLAY

SURFACE OWNER: CLARENCE W. LEMLEY JR. & CHARLOTTE E. LEMLEY

OIL & GAS ROYALTY OWNER: LEROY TENNANT, et al

LEASE NUMBERS:

DATE: DECEMBER 7, 2021

OPERATOR'S WELL #: LEMLEY 9H AS-DRILLED

API WELL #: 47 61 01845  
STATE COUNTY PERMIT

AS-BUILT  
ELEVATION: 1,549.47'

QUADRANGLE: BLACKSVILLE, WV

ACREAGE: 128.58 +/-

ACREAGE: 868.05 +/-

01/21/2022

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

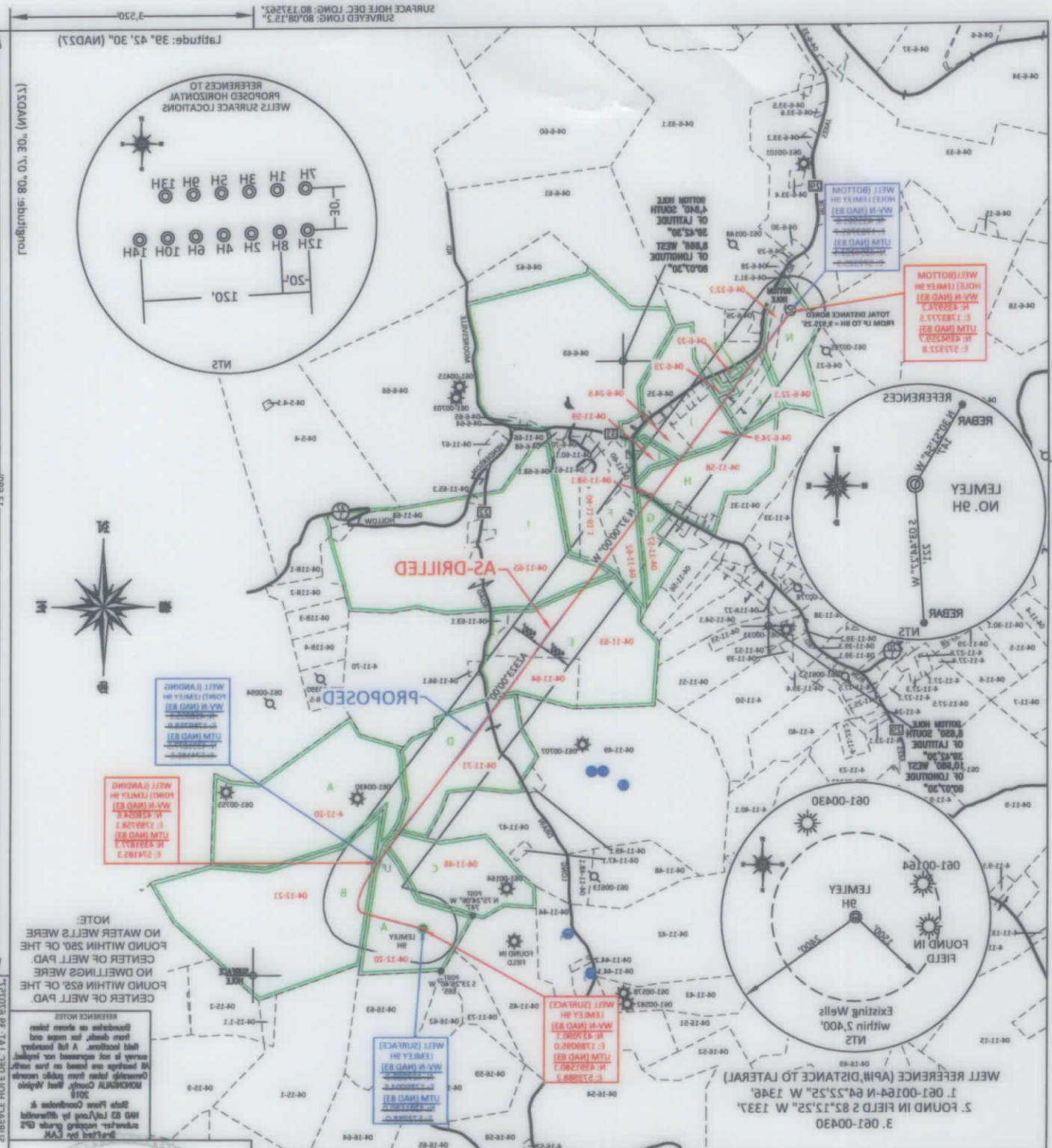
TARGET FORMATION: MARCELLUS

DRILLED DEPTH: TVD: 8,412' TMD: 18,718'

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





OF ELEVATION: GRADE GPS  
 PROVEN SOURCE SUBMETER MAPPING  
 OF ACCURACY: 1/200  
 MINIMUM DEGREE  
 SCALE: 1" = 200'  
 DRAWING #: 2905  
 FILE #: NE14

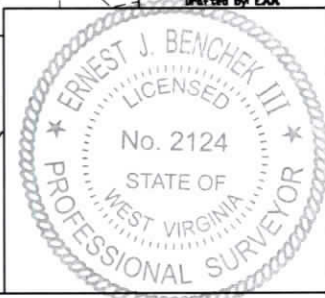
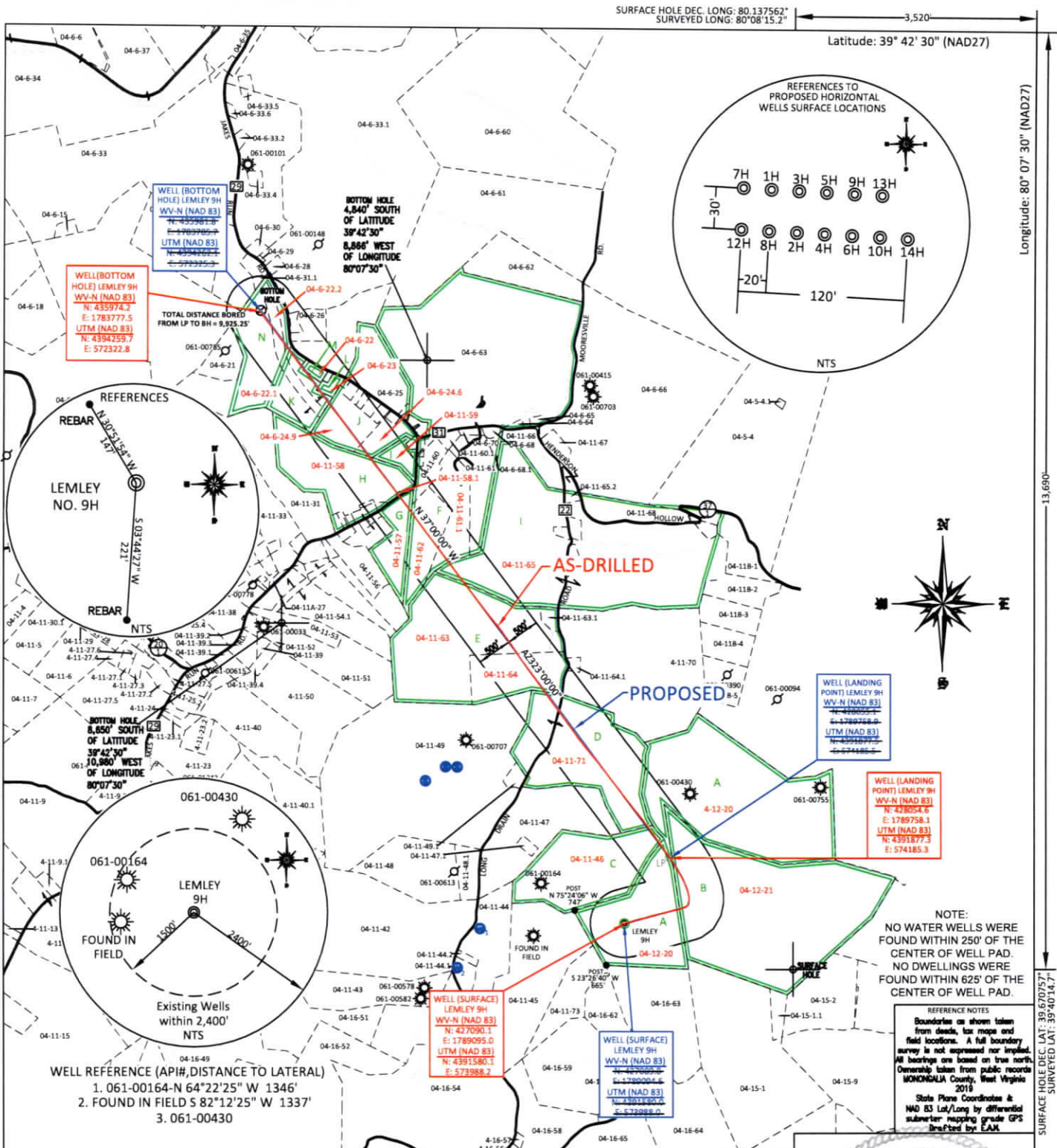
CITY: CHARLESTON STATE: WV ZIP CODE: 25301  
 WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC  
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200  
 DESIGNATED AGENT: JOHN ADAMS  
 DRILLED DEPTH: TMD: 8'412', TMD: 18'718'  
 CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY):  
 PLUG OFF FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
 DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
 OIL & GAS ROYALTY OWNER: LEROY TENNANT, et al  
 SURFACE OWNER: CLARENCE W. LEMLEY JR. & CHARLOTTE E. LEMLEY  
 COUNTY/DISTRICT: MONONGALIA / CLAY  
 WATERSHED: DUNKARD CREEK  
 Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow  
 CHARLESTON, WV 25304  
 601 25TH STREET  
 OFFICE OF OIL & GAS  
 WADP  
 UNITED STATES TOPOGRAPHIC MAPS  
 (+) DENOTES LOCATION OF WELL ON  
 DATE: DECEMBER 7, 2021

L.I.S. #2124 : Ernest J. Benchek III  
 Signed:  
 THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.  
 LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY  
 BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY  
 PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND  
 I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS



NOTE:  
 CENTER OF WELL PAD.  
 FOUND WITHIN 65% OF THE  
 NO DWELLINGS WERE  
 FOUND WITHIN 250' OF THE  
 CENTER OF WELL PAD.  
 NO WATER WELLS WERE  
 FOUND WITHIN 250' OF THE  
 CENTER OF WELL PAD.

SURFACE HOLE DEC. LONG: 80.08.12.3  
 SURVEYED LONG: 80.08.12.3  
 Latitude: 39.43.30" (NAD27)



FILE #: NEE14  
 DRAWING #: 2905  
 SCALE: 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]*

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 Gas  Liquid Injection  Storage  Shallow

WATERSHED: DUNKARD CREEK

COUNTY/DISTRICT: MONONGALIA / CLAY

SURFACE OWNER: CLARENCE W. LEMLEY JR. & CHARLOTTE E. LEMLEY

OIL & GAS ROYALTY OWNER: LEROY TENNANT, et al

LEASE NUMBERS:

DATE: DECEMBER 7, 2021

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 ELEVATION: 1,549.47'

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ACREAGE: 128.58 +/-  
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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

DRILLED DEPTH: TVD: 8,412' TMD: 18,718'

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

01/21/2022

PROPERTY OWNER INDEX	
4-12-20	CLARENCE W. LEMLEY JR. & CHARLOTTE E. LEMLEY
4-12-21	VINCENT KOLANKO, MARK SELLARO, & CRA PROPERTIES LLC
4-11-46	JAMES ALLEN JR. & CHANDRA DARLENE BENNETT
4-11-71	MELINDA WILEY
4-11-64	ALBERT D. & CAROLYN JONES
4-11-63	ALBERT D. & CAROLYN JONES
4-11-65	JOSEPH C. & LOUIE A. STATLER
4-11-61.1	KIMBERLY S. CLOUGH
4-11-62	MICHAEL W. THOMAS
4-11-57	AMELIA J. WILSON & JACK L. WILLIAMS
4-11-58.1	AMELIA J. WILSON & JACK L. WILLIAMS
4-11-58	PHYLLIS J. & NELLIE E. JOHNSON
4-11-59	BARBARA HARVEY
4-6-24.6	MARVIN D. & THELMA MILLIRON
4-6-24.9	EILEEN BANE
4-6-23	CHRISLER FAMILY REVOCABLE TRUST
4-6-22	KIMBERLY S. ROSE (LIFE-THELMA MCCABE)
4-6-22.1	TAYLOR E. & BRIANNA N. DITTMAN
4-6-22.2	TAYLOR E. & BRIANNA N. DITTMAN

LEASE INDEX			
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C	WV-061-002339-006	K	WV-061-005549-001
D	WV-061-003860-001	L	WV-061-005401-001
E	WV-061-003763-001	M	WV-061-005943-001
F	WV-061-002367-002	N	WV-061-005549-001
G	WV-061-003575-001		
H	WV-061-003641-001		

01/21/2022

FILE #: NEE14

DRAWING #: 2900

SCALE: N/A

DATE: DECEMBER 7, 2021

OPERATOR'S WELL #: LEMLEY 9H AS-DRILLED

API WELL #: 47 61 01845  
STATE COUNTY PERMIT

01/21/2022

PROPERTY OWNER INDEX	
4-6-22.2	TAYLOR E. & BRIANNA N. DITTMAN
4-6-22.1	TAYLOR E. & BRIANNA N. DITTMAN
4-6-22	KIMBERLY S. ROSE (LIFE-THELMA MCBEE)
4-6-23	CHRISLER FAMILY REVOCABLE TRUST
4-6-24.9	EILEEN BANE
4-6-24.8	MARVIN D. & THELMA MILLRON
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4-11-28	PHYLLIS J. & NELLIE E. JOHNSON
4-11-28.1	AMELIA J. WILSON & JACK L. WILLIAMS
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4-12-20	CLARENCE V. LEMLEY JR. & CHARLOTTE E. LEMLEY

LEASE INDEX		
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G	WV-061-003272-001	
F	WV-061-002367-002	N
E	WV-061-002763-001	M
D	WV-061-003860-001	L
C	WV-061-002339-006	K
B	WV-061-003252-001	J
A	WV-061-00126-002-WP	I
		WV-061-004942-001

SCALE: <u>1/4"</u> DRAWING #: <u>2900</u> FILE #: _____	DATE: <u>DECEMBER 7, 2021</u> OPERATOR'S WELL #: <u>LEMLEY SH AS-DRILLED</u> API WELL #: <u>47</u> STATE <u>61</u> COUNTY <u>PERMIT</u> <u>01842</u>
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D	WV-061-003860-001	L	WV-061-005401-001
E	WV-061-003763-001	M	WV-061-005943-001
F	WV-061-002367-002	N	WV-061-005549-001
G	WV-061-003575-001		
H	WV-061-003641-001		

01/21/2022

FILE #: NEE14  
DRAWING #: 2900  
SCALE: N/A

DATE: DECEMBER 7, 2021  
OPERATOR'S WELL #: LEMLEY 9H AS-DRILLED  
API WELL #: 47 61 01845  
STATE COUNTY PERMIT