

west virginia department of environmental protection

Office of Oil and Gas 601 57th Street, S.E. Charleston, WV 25304 (304) 926-0450 fax: (304) 926-0452

Austin Caperton, Cabinet Secretary www.dep.wv.gov

Thursday, August 29, 2019 PERMIT MODIFICATION APPROVAL Horizontal 6A / New Drill

NORTHEAST NATURAL ENERGY LLC 707 VIRGINIA STREET EAST STE 1200 CHARLESTON, WV 25301

Re:

Permit Modification Approval for LEMLEY 12H

47-061-01848-00-00

Change in freshwater casing.

NORTHEAST NATURAL ENERGY LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926-0450.

James A. Martin

Chief

Operator's Well Number: LEMLEY 12H

Farm Name: CLARENCE W. LEMLEY JR. & CHORLOTTE E. L

H I (DED. 47.061.01949.00.00

U.S. WELL NUMBER: 47-061-01848-00-00

Horizontal 6A New Drill

Date Modification Issued:

Promoting a healthy environment.

WW-6B (04/15)

API NO. 47-061	_ 01848
OPERATOR W	/ELL NO. 12H
Well Pad Nar	me: Lemley

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS WELL WORK PERMIT APPLICATION

1) Well Operat	or: Northe	ast Natural	Energy 📙	494498281	Monongalia	Clay	Blacksville, WV
				Operator ID	County	District	Quadrangle
2) Operator's V	Vell Numbe	r: <u>12H</u>		Well Pad	Name: Lemle	² y	
3) Farm Name/	Surface Ow	/ner: Clarence W	Jr & Charlotte E	Public Road	d Access: Stat	e Route 2	2
4) Elevation, co	urrent groun	nd: 1,560'	Ele	evation, proposed	post-construction	on: 1540'	
5) Well Type	(a) Gas Other	X	_ Oil	Unde	erground Storag		·
	(b)If Gas	Shallow	X	Deep			
6) Existing Pac	l: Yes or No	Horizontal No	X		Gayne Knitowsk	Digitally signed by Gayne Knitowski Date: 2019.08.29 07:50:18 -04'00'	
7) Proposed Ta	•		n(s), Antici	ipated Thickness a	nd Expected Pr	ressure(s):	
8) Proposed To	tal Vertical	Depth: 8,20	06'				
9) Formation a			Marcellus				
10) Proposed T	otal Measu	red Depth:	22,873'		_	RECEIVI	no to the second of the second
11) Proposed F	Horizontal L	eg Length:	13,323'		OFFICE	OF OIL	AND GAS
12) Approxima	ite Fresh Wa	ater Strata De	epths:	500', 1,070'		AUG 29	2019
13) Method to 14) Approxima				Orillers Log from (1'	Offset Wells		
15) Approxima	ate Coal Sea	m Depths: 5	500', 1,070	D'			
16) Approxima	ate Depth to	Possible Voi	d (coal mi	ne, karst, other):	1,063' - 1,070'		
17) Does Propo directly overly				ms Yes	No	Х	
(a) If Yes, pro	ovide Mine	Info: Name	e:				
		Depth	1:				
		Seam	:				
		Owne	er:				

W	W-6B	
(0	4/15)	

API NO. 47- 061 __ - 01848 OPERATOR WELL NO. 12H

Well Pad Name: Lemley

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	<u>Grade</u>	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	24"	New	NA	94.71	40'	40'	GTS
Fresh Water	13-3/8"	New	J-55	54.5	1,220'	1,170'	CTS
Coal							
Intermediate	9-5/8"	New	J-55	36	2,591'	2,561'	CTS
Production	5-1/2"	New	P-110	20	22,903'	22,873'	5402 cu ft.
Tubing							
Liners							

Gayne Digitally signed by Gayne Knitowski Date: 2019.08.29 07:50:41 -04'00'

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	24"	38"	.375"	415		4,500 psi grout	NA
Fresh Water	13-3/8"	17-1/2"	.38"	2,760	2,000	Class A	1.23
Coal							
Intermediate	9-5/8"	12-1/4"	.352"	3,520	2,800	Class A	1.3
Production	5-1/2"	8-3/4"	.361"	12,530	9,700	50:50 poz	1.21
Tubing	2-7/8"	NA	.217"	10,570	RECEIVE	NA	NA
Liners				DFFI	CE OF OIL		

AUG 29 2019

PACKERS

Kind:		
Sizes:		
Depths Set:		

WW-6B	
(10/14)	

API NO. 47-_061 _ - 01848

OPERATOR WELL NO. _12H

Well Pad Name: Lemley

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drilling and completion of a horizontal Marcellus well. The well will be drilled on air to an approximate depth of 5,600 TVD/MD. The well will then be horizontally drilled on synthetic based mud from the KOP to approximately 8,206 TVD/22,873' MD along a 147° azimuth.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Multi-stage / high-rate slickwater fracture treatment using various size sands as proppant. First stage will be initiated via pressurization against a burst disc ran in the production casing string or perforated with coiled tubing. Subsequent stages will be perforated with pumped down guns ran on wireline. Individual stages will be isolated with composite frac plugs. Maximum pump rate during any stage will be 110 BPM with a maximum allowable surface pressure of 9,500 PSI. Composite bridge plugs will be set at the end of the last stage to isolate the treated formation.

- 21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 23.73
- 22) Area to be disturbed for well pad only, less access road (acres): 8.39
- 23) Describe centralizer placement for each casing string:

Surface and intermediate casing strings will have bow spring centralizers placed every third joint (~120') from the shoe joint to surface. Production casing will have rigid body centralizers placed at a minimum of every fourth joint (~160') from TD to surface.

OFFICE OF OIL AND GAS

24) Describe all cement additives associated with each cement type:

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Surface string cement will be a Type 1 + Max 3% bwoc Calcium Chloride Fresh Water blend. Intermediate string cement will be a Type 1 Cement + Max 3% bwoc Calcium Chloride + Fresh Water. Production string cement will be (50:50) Poz (Fly Ash):Type I Cement with a gas migration additive.

25) Proposed borehole conditioning procedures:

Surface string will use a 25.0 bbls Gel Pill + LCM + 25 lbs Cello Flake + 20 lbs/bbl Bentonite @ 8.4 ppg & 10 bbls fresh water spacer prior to cement. Intermediate string will use a 25.0 bbls Gel Pill + LCM + 25 lbs Cello Flake + 20 lbs/bbl Bentonite @ 8.4 ppg & 10 bbls fresh water spacer prior to cement. Production string will use a 50.0 bbls SealBond 25 + 1 gal/bbl US-40 + 275 lbs/bbl Barite + 1 gal/bbl SS-2 Spacer @ 13.5 ppg prior to cement.

*Note: Attach additional sheets as needed.

API NO. 47-061 - 01848	3
OPERATOR WELL NO.	12H
Well Pad Name: Lemley	

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

VOLUNTARY STATEMENT OF NO OBJECTION

Instructions to Persons Named on Page WW-6A

The well operator named on page WW-6A is applying for a permit from the State of West Virginia to conduct oil or gas well work. Well work permits are valid for twenty-four (24) months. Please contact the listed well operator and the Office of Oil and Gas if you do not own any interest in the listed surface tract.

Comment and Waiver Provisions

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary.

Pursuant to West Virginia Code § 22-6A-8(b) No permit may be issued less than thirty days after the filing date of the application for any well work except plugging or replugging; and no permit for plugging or replugging may be issued less than five days after the filing date of the application except a permit for plugging or replugging a dry hole: *Provided*, That if the applicant certifies that all persons entitled to notice of the application under the provisions of subsection (b), section ten of this article have been served in person or by certified mail, return receipt requested, with a copy of the well work application, including the erosion and sediment control plan, if required, and the well plat, and further files written statements of no objection by all such persons, the secretary may issue the well work permit at any time.

I, Mas	VOLUNTARY STAT	ad the Instructi	ions to Persons No	amed on Page WW 6A and the accordated
provisions list	ted above, and that I have received copies of	a Notice of A	pplication, an Apr	olication for a Well Work Permit on Form
WW-6A and	attachments consisting of pages one (1) thr	rough 3	including	the erosion and sediment control plan if
required, and	the well plat, all for proposed well work on th	e tract of land	as follows:	and station and seament control plan, if
State:	West Virginia		Dastin	573963.4
County:	Monongalia	UTM NAC	Northing:	
District:	Clay	Public Roa		County Route 22/Long Drain Road
Quadrangle:	Blacksville		used farm name:	
Watershed:	Dunkard Creek			
*Please check	the box that applies		FOR EXECUTI	ION BY A NATURAL PERSON
□ SURFAC	CE OWNER		Signature:	
□ SURFAC	E OWNER (Road and/or Other Disturban	nce)	Print Name:	
□ SURFAC	FECUVED FOLLAND G	AS	***************************************	ION DV A CORPORATION FITS
COAL O	WNER OR LESSEE		Company: Cons	ON BY A CORPORATION, ETC.
□ COAL O	PERATOR AUG 29 2019		By:/ 1040h	mith Rgas relations manyer
□ WATER	PURVEYOR		Signature: Mu	
□ OPERAT	OR OF ANY NATURAL GAS STORAG	GE FIELD	Date: 8-78-1	9

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer www.gov.



August 29, 2019

WV DEP Office of Oil and Gas Attn: Taylor Brewer, Assistant Chief -Permitting 601 57th Street SE Charleston, WV 25304 - 2345 OFFICE OF OIL AND GAS

AUG 29 2019



Re: Permit Modifications: 061-01850, 061-01847, 061-01848

Dear Mr. Brewer,

Northeast Natural Energy has started top hole drilling on its Lemley well pad starting with its Lemley 14H (061-01861) well. While drilling this well, it became evident that the coal and freshwater were more shallow than originally anticipated. Please find enclosed the mud loggers report and drillers log indicating the water and mine void encountered.

Therefore, NNE would like to request an expedited approval to shorten its Surface/Coal casing on remaining wells. Please find enclosed revised, inspector approved WW-6B forms for the permitted Lemley 2H (061-01850), 6H (061-01847) and 12H (061-01848) wells. Additionally, enclosed please find waivers of approval from the current coal owner, Murray Energy.

Should you have any questions, please feel free to contact me at 304-212-0422 or by email at hmedley@nne-llc.com.

Sincerely,

Hollie M. Medley

Regulatory Manager

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