

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

Harold D. Ward, Cabinet Secretary www.dep.wv.gov

Tuesday, January 10, 2023 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 SULLIVAN 7H

47-061-01919-00-00

Change Lateral Direction/ Add Leases

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: SULLIVAN 7H

Farm Name: ALAN SULLIVAN

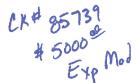
U.S. WELL NUMBER: 47-061-01919-00-00

Horizontal 6A New Drill

Date Modification Issued: 01/10/2023

Promoting a healthy environment.

WW-6B (04/15)



API NO. 47- 061 _ 01919		
OPERATOR WELL NO. 7H	/	
Well Pad Name: Sullivan		

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

1) Well Operator: Northeast N	Natural Energy	494498281	Monongalia	Clay	Grant Town
		Operator ID	County	District	Quadrangle
2) Operator's Well Number: 71	1	Well Pad	Name: Sulliva	an	
3) Farm Name/Surface Owner:	Alan Sullivan	Public Road	d Access: Rou	te 27/1	
4) Elevation, current ground:	1,520' El	evation, proposed p	ost-construction	on: 1,476'	
5) Well Type (a) Gas X	Oil	Unde	rground Storag	ge	
Other					
(b)If Gas Sha	allow X	Deep			
	rizontal X				
6) Existing Pad: Yes or No No					
7) Proposed Target Formation(s Marcellus, 8,247', 87', 5200 ps		ipated Thickness as	nd Expected Pr	essure(s):	
8) Proposed Total Vertical Dept	h: 8,247				
9) Formation at Total Vertical I	Depth: Marcellus	3			
10) Proposed Total Measured D	epth: 22,031'				
11) Proposed Horizontal Leg Le	ength: 12,450'				
12) Approximate Fresh Water S	strata Depths:	50', 1,262'			
13) Method to Determine Fresh	Water Depths:	Orillers logs from o	offset wells	o	RECEIVED
14) Approximate Saltwater Dep	ths: 2,050', 2,58	0'			JAN 0 9
15) Approximate Coal Seam De	epths: 500', 1,26	0'			همان لي وي
16) Approximate Depth to Poss	ible Void (coal m	ine, karst, other):	NA	{ Envir	N Department of onmental Protection
17) Does Proposed well location directly overlying or adjacent to		ms Yes	No	X	
(a) If Yes, provide Mine Info:	Name: N/A				
	Depth:				
	Seam:				
	Owner:				
	Gayne Knitov	Digitally signed by Gayne Knimwski			

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API NO. 47-_061 _ 01919

OPERATOR WELL NO. 7H
Well Pad Name: Sullivan

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	24"	New	NA	NA	100	100 ~	GTS
Fresh Water	13-3/8"	New	J-55	54.5	1,505	1,475* /	CTS <
Coal							
Intermediate	9-5/8"	New	J-55	36	2,680	2,650	CTS
Production	5-1/2"	New	P-110	20	22,031'	22,001'	5,344
Tubing	2-7/8"	New	P-110	6.5	NA		
Liners							

*depth to cover Red Rock formation

Gayne Knitowski

Digitally signed by Gayne Knitowski Date: 2023.01.06 16:28:50 -05'00'

TYPE			Wall		Antinimated		0
	Size (in)	Wellbore Diameter (in)	Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	24"	28	0.375	NA	NA	Type 1	1.18
Fresh Water	13-3/8"	17-1/2"	0.380	2,730	500	Class A or L	1.19
Coal							
Intermediate	9-5/8"	12-3/8"	0.395	3,520	2800	Class A or L	1.19
Production	5-1/2"	8-3/4"	0.361	14,360	11,400	50:50 POZ	1.07
Tubing	2-7/8"	NA	0.217	13,870	NA	NA	NA
Liners							

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Kind:	WV Department of Environmental Protection
Sizes:	
Depths Set:	

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OPERATOR WELL NO. 7H Well Pad Name: Sullivan

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

Utilize auger rig to set cellar & conductor. The conductor will be grouted with cement to surface. Mobilize top hole drilling rig. Drill surface section on air. Run surface (freshwater & coal string) casing to desired depth. The surface section will not penetrate sea level. Surface casing will be cemented to surface. Drill intermediate section on air. Run intermediate casing to desired depth. Intermediate casing will be cemented to surface. Drill on air the production section to the start of the curve (KOP). The well will be loaded with synthetic oil base drilling mud (SOBM). Demobilize top hole rig. Mobilize horizontal drilling rig. Finish drilling the production section utilizing MWD surveys and geosteering practices to maintain the wellbore in the Marcellus shale and prevent anti-collision. Production casing will be ran to TD and cement top will be inside the intermediate casing.

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

A cement bond log will determine the top of production casing cement.

The production casing will be pressure tested. The hydraulic fracturing equipment will then open the toe sleeves and begin pumping the first stage. The plug-and-perf method will be used for the remaining stages. The max anticipated pressure during frac is 11,200psi and a max rate of 90bpm. After frac, the drillout rig will drill all plugs out of the well. Land production tubing at desired depth. Then flowback well until ready to turn in line to production facilities.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 28.65

22) Area to be disturbed for well pad only, less access road (acres): 15.32

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23) Describe centralizer placement for each casing string:

WV Department of Environmental Protection

Surface: shoe track & every 3rd joint to surface

Intermediate: shoe track & every 3rd joint to surface

Production: Rigid bow centralizers at shoe track & every other joint in the lateral to KOP. Bow springs from KOP to surface every third joint.

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

Surface: Class A or L Cement + Max 3% bwoc Calcium Chloride Fresh Water blend. Intermediate: Class A or L Cement + Max 3% bwoc Calcium Chloride + Fresh Water. Production: 50:50 Poz (Fly Ash & Class A or L) plus additives such as defoamer, retarder, & fluid loss to meet well specific requirements

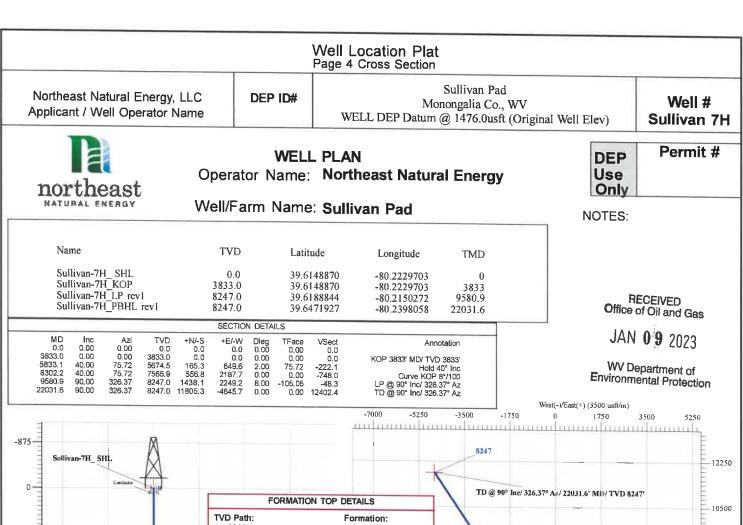
25) Proposed borehole conditioning procedures:

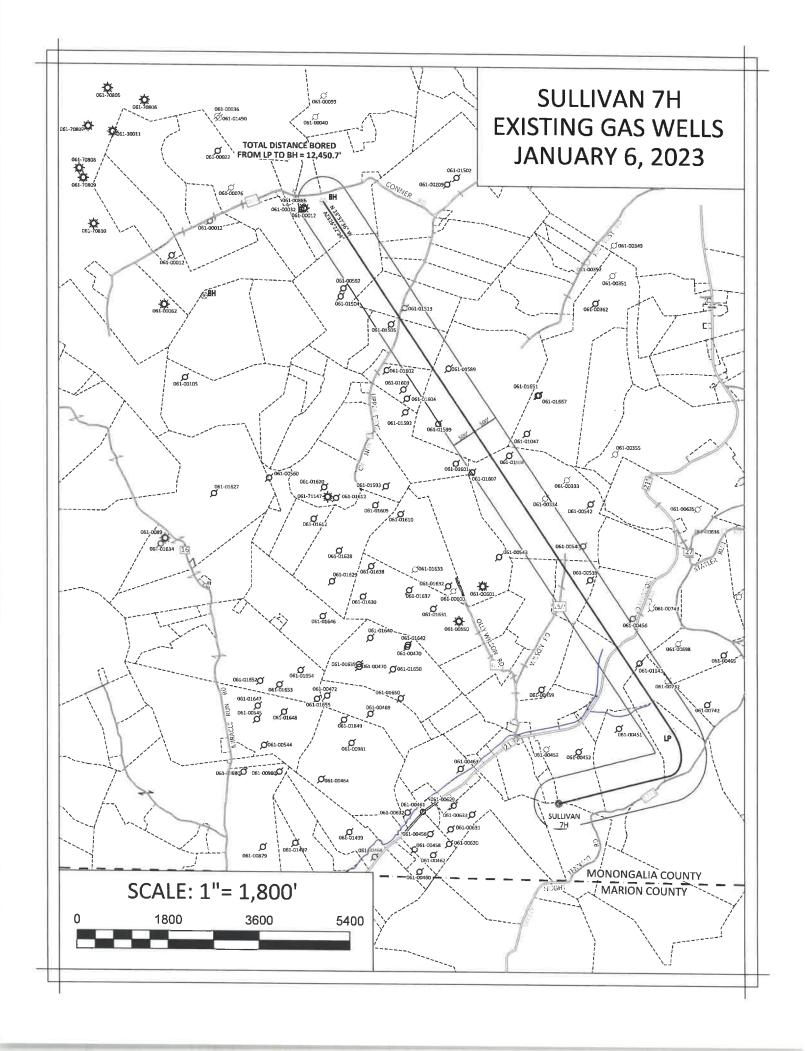
Surface & intermediate on air will utilize high volumetric flow rates of air to ensure the wellbore is clean prior to TOH.

Production section will utilize synthetic oil based drilling mud to properly clean the wellbore. At TD, pump rate and rotation will be maximized and tripping will not begin until shakers flow clean. Production casing will be circulated prior to cementing to ensure a prepared wellbore for cement.

*Note: Attach additional sheets as needed.

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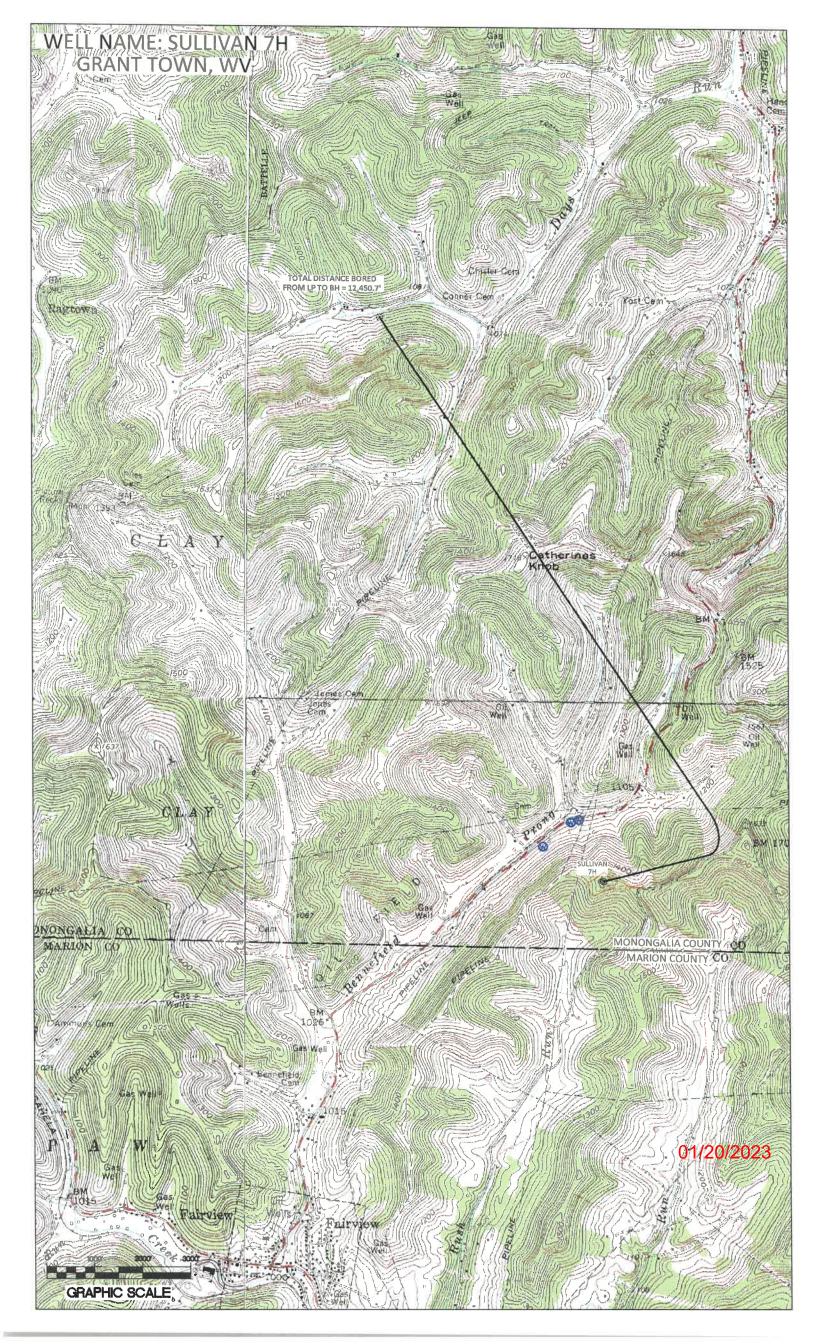
Sullivan 7H AREA OF REVIEW

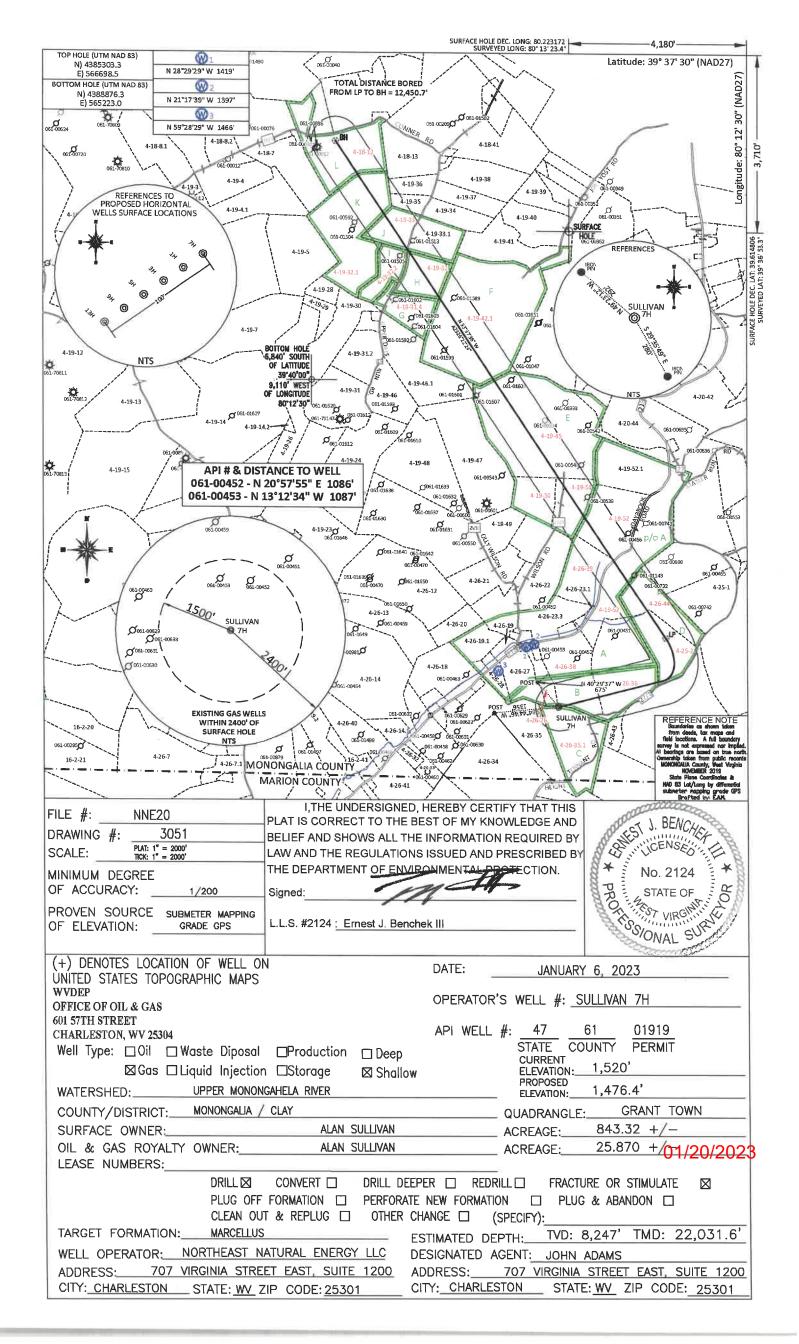
API Number	Well Name	Well Number	Operator	Latitude (NAD 83)	Longitude (NAD 83)	TMP	ΩΛΤ	Notes	
✓ 061-00732	Orvville W. Bell	NA	Eastern Associated / Peabody Coal Company	39.621601	-80.215444	4-26-44	NA	Plugged 11/14/83	
061-01143	NA	NA	Diversified Production LLC	39.622535	-80.217393	4-19-52	NA	NA	
× 061-00539	DL (Sanford) Toothman	2	South Penn Oil	39.627015	-80.220882	4-19-51	Fifth	NA	
061-00334	Daniel Toothman	14	Eastern Associated / Peabody Coal Company	39.631366	-80.224071	4-19-45	NA	NA	
061-01607	DL Toothman	12	Eastern Associated / Peabody Coal Company	39.632545	-80.228812	4-19-45	NA	Plugged 3/3/10	
061-01608	Rocky Barr	NA	Eastern Associated / Peabody Coal Company	39.633489	-80.226248	4-19-45	NA	Plugged 1/25/10	
061-01589	Thomas Zyra	NA	Eastern Associated / Peabody Coal Company	39.638128	-80.230583	4-19-42.1	NA	Plugged 6/1/09	
061-01505	Roxie Tennant	NA	Eastern Associated / Peabody Coal Company	39.640646	-80.234951	4-19-32.2	NA	Plugged 5/9/06	
061-01513	Bryan Tennant	NA	Eastern Associated / Peabody Coal Company	39.641333	-80.233713	4-19-33.1	NA	Plugged 7/17/06	
061-00886	Joseph Schumiloff	NA	Eastern Associated / Peabody Coal Company	39.646881	-80.241331	4-18-12	NA	Plugged 10/12/06	
061-00012	Kemble Tate	NA	Eastern Associated / Peabody Coal Company	39.644126	-80.250361	4-18-12	Fifth	Plugged 11/2/05	
061-00032	Mark Shriver	1	NA	39.646736	-80.24133	4-18-12	Bayard	NA	

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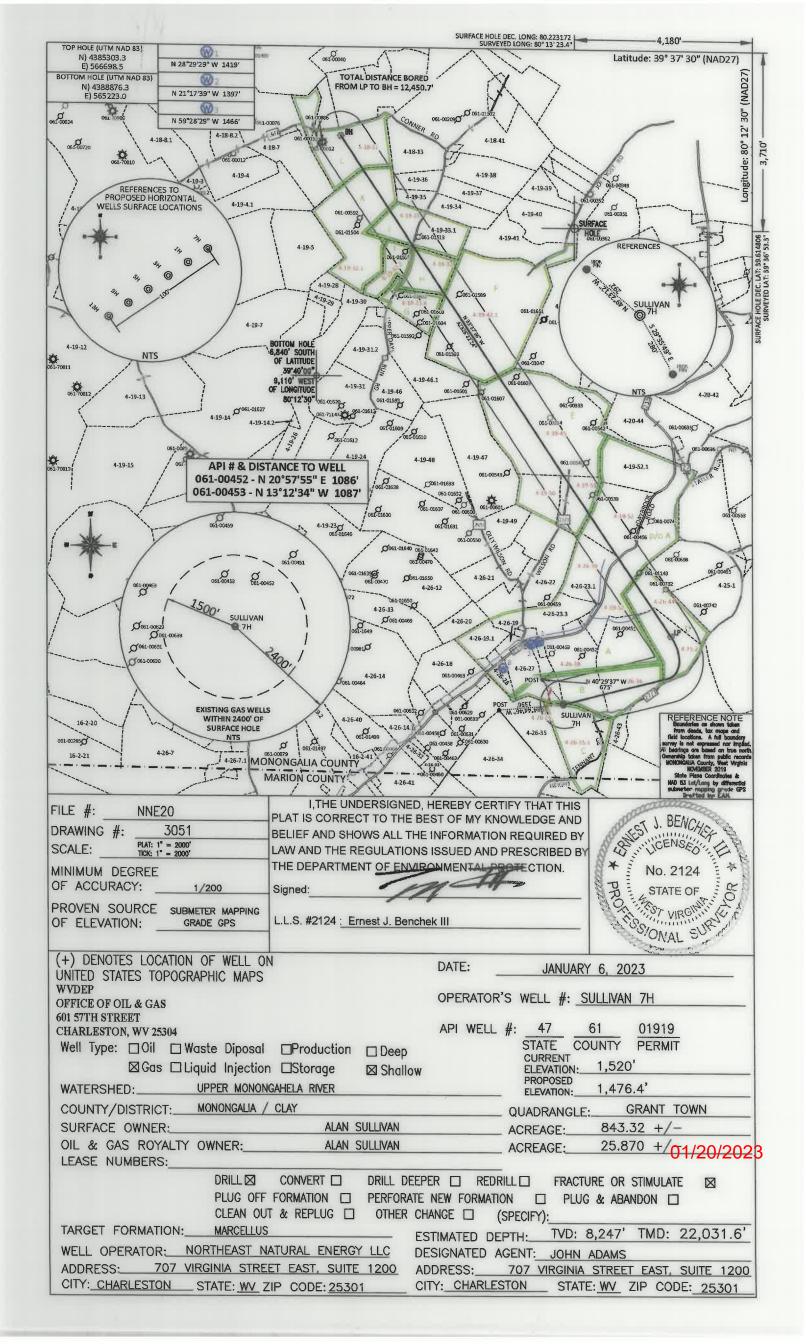


/ 10 12	LEE ANNI CHUDAU GEE
4-18-12	LEE ANN SHUMILOFF
4-19-33	BRYAN D TENNANT
4-19-32	SHERI K CORDER
4-19-45	ROCKY & CATHY J BARR
4-19-51	AMANDA PAULETTE; LINDA JANE; TERESA DARLENE POLANSKY
4-26-44	RODNEY EDWARD & HEATHER ANNE ROBINSON
4-25-2	ORVILLE W BELL JR & RENEE D LOAR
4-26-36	LARRY NOLAN & LINDA MAE PAYTON
4-26-38	ADAM CLAY DARRAH
4-26-35.1	ALAN SULLIVAN
4-26-26	NNE MIDSTREAM LLC
4-19-32.1	JIMMY R & PAMELA K TENNANT; BILLY RAY & ROXANA CAHILL
4-19-32.2	JIMMY RANDALL TENNANT
4-19-31.4	PAMELA K TENNANT
4-19-42.1	THOMAS J & DIANN M ZYRA
4-19-50	ROCKY & CATHY J BARR
4-26-39	ADAM CLAY DARRAH
4-19-52	LARRY F & BRENDA KAY KUHN

	LEASE INDEX		
Α	WV-061-000160-001-ACT	Н	WV-061-004588-002
В	WV-061-000160-001-ACT		WV-061-006016-001
С	WV-061-005448-002	J	WV-061-005475-001
D	WV-061-005961-002	K	WV-061-006016-001
E	WV-061-004442-001	L	WV-061-004519-000
F	WV-061-000171-002		
G	WV-061-003931-010		

01/20/2023

FILE #: NEE20	DATE: JANUARY 6, 2023
DRAWING #:3051	OPERATOR'S WELL #: SULLIVAN 7H
SCALE:N/A	API WELL #: <u>47</u> <u>61</u> <u>01919</u> STATE COUNTY PERMIT



INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE Chapter 22, Article 6A, Section 5(a)(5) IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that -

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number

Grantor, Lessor, etc.

Grantee, Lessee, etc.

Royalty

Book/Page

See Attached

Acknowledgement of Possible Permitting/Approval In Addition to the Office of Oil and Gas

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

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The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Northeast Natural Energy

Hollie Medley

Its:

Regulatory Manager

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	WW-6A1			Operato	rs Well No.	. Sullivan
Tract	Lease Number	Grantur, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book	
# A	WV-061-000160-001-ACT	EQT Production Company	Northeast Natural Energy, LLC	12.5% Royalty or More	1775	Page 44
/ B	WV-061-000160-001-ACT	EQT Production Company	Northeast Natural Energy, LLC	12.5% Royalty or More	47778	
✓ C	WV-061-005448-002	Alan Sullivan	Northeast Natural Energy, LLC	12.5% Royalty or More	1775	44
<i>₀</i> D	WV-061-005961-002	Billy C. Haught	Northeast Natural Energy, LLC		1772	466
	WV-061-005961-001	Kenneth C. Haught	Northeast Natural Energy, ILC	12.5% Royalty or More	1780	602
/ E	WV-061-004442-001	Julia Kay Wilson Hill	Northeast Natural Energy, LLC	12.5% Royalty or More	1780	600
	WV-061-004442-005	Mikell Ann Wilson Reagan	Northeast Natural Energy, LLC	12.5% Royalty or More	1580	600
	WV-061-004442-001	Julia Kay Wilson Hill	Northeast Natural Energy, LLC	12.5% Royalty or More	1584	807
	WV-061-004442-004	Jo Ann Snyder	Northeast Natural Energy, LLC	12.5% Royalty or More	1580	600
	WV-061-004442-003	Marvin Lynn Wilson	Northeast Natural Energy, LLC	12.5% Royalty or More	1580	744
	WV-061-004442-002	Royal J. Burnett	Northeast Natural Energy, LLC	12.5% Royalty or More	1580	604
/ F	WV-061-000171-002	Reta Meredith Erdos		12.5% Royalty or More	1580	602
	WV-061-000171-005	Noah Charles Ammons	Northeast Natural Energy, LLC Northeast Natural Energy, LLC	12.5% Royalty or More	1526	158
	WV-061-004342-001	Randolph K. Ammons (Donnie Ray Ammons Heir)	Northeast Natural Energy, LLC	12.5% Royalty or More	1526	161
	WV-061-004328-001	Stone Hill Minerals Holdings, LLC (Eric Ammons Interest)	Northeast Natural Energy, LLC	12.5% Royalty or More	1575	542
	WV-061-004328-001	Stone Hill Minerals Holdings, LLC (Donny Ray Ammons, Ir. Interest (Donnie Ray Ammons Heir)	Northeast Natural Energy, LLC	12.5% Royalty or More	1576	499
	WV-061-004328-001	Stone Hill Minerals Holdings, LLC (Cristi Kwei interest (Donnie Ray Ammons Heir)	Northeast Natural Energy, LLC	12.5% Royalty or More	1576	499
≠ G	WV-061-003931-010	Randy D. Yost		12.5% Royalty or More	1576	499
/ H	WV-061-004588-002	Sheri K. Corder	Northeast Natural Energy, LLC	12.5% Royalty or More	1562	397
-1	WV-061-006016-001	Jimmy Randall Tennant	Northeast Natural Energy, LLC	12.5% Royalty or More	1787	36
/ 1	WV-D61-005475-001	Burns Family General Partnership	Northeast Natural Energy, LLC	12.5% Royalty or More	1787	72
	WV-061-004413-003	Ruth Burns	Northeast Natural Energy, LLC	12.5% Royalty or More	1647	171
	WV-061-004413-002	Nancy B. Lawler	Northeast Natural Energy, LLC	12.5% Royalty or More	1615	575
< K	WV-061-006016-001	Jimmy Randall Tennant	Northeast Natural Energy, LLC	12.5% Royalty or More	1615	573
	WV-061-006019-002	Roxana Cahifi	Northeast Natural Energy, LLC	12.5% Royalty or More	1787	72
	WV-061-006017-001	Pamela Kay Tennant	Northeast Natural Energy, LLC	12.5% Royalty or More	1788	512
	WV-061-006019-001	Billy Ray Tennant	Northeast Natural Energy, LLC	12.5% Royalty or More	1787	74
/ L	WV-061-004519-000	Joseph A. Shumiloff and Lee Ann Shumiloff	Northeast Natural Energy, LLC	12.5% Royalty or More	1787	78
	111 112 004325 000	Post Pri A: Silumon and Lee Aim andminon	Northeast Natural Energy, LLC	12.5% Royalty or More	1593	494

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