



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

Monday, December 11, 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 MIRACLE RUN 6H
47-061-01924-00-00

Extended lateral length

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: MIRACLE RUN 6H
Farm Name: BYRON LANE RAPP
U.S. WELL NUMBER: 47-061-01924-00-00
Horizontal 6A New Drill
Date Modification Issued: 12/11/2023

Promoting a healthy environment.

12/15/2023

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

1) Well Operator: Northeast Natural Energy 494498281 Monongalia Battelle Wadestown
Operator ID County District Quadrangle

2) Operator's Well Number: 6H Well Pad Name: Miracle Run

3) Farm Name/Surface Owner: Byron Lane Rapp Public Road Access: Route 13/Zeb Haught Rd

4) Elevation, current ground: 1,520' Elevation, proposed post-construction: 1,458'

5) Well Type (a) Gas Oil Underground Storage

Other

(b) If Gas Shallow Deep

Horizontal

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus, 8,109', 110', 5.200 psi

8) Proposed Total Vertical Depth: 8,107'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 30,687'

11) Proposed Horizontal Leg Length: 22,035'

12) Approximate Fresh Water Strata Depths: 50', 1,262'

13) Method to Determine Fresh Water Depths: offset wells

14) Approximate Saltwater Depths: 1,600', 2,600'

15) Approximate Coal Seam Depths: 500', 1,260'

16) Approximate Depth to Possible Void (coal mine, karst, other): NA

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No

(a) If Yes, provide Mine Info: Name: Marion County Coal Company Mine
Depth: 1,260
Seam: Pittsburgh
Owner: Marion Co. Coal Resources Inc.

*CK# 5168
\$ 2500.00*

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Digitally signed by Gayne Knitowski, Inspector
Date: 2023.11.03 08:12:54 -0400

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	1,485*	1,455*	CTS
Coal							
Intermediate	9-5/8"	New	J-55	36	2,730'	2,700'	CTS
Production	5-1/2"	New	P-110	20	30,687'	30,657'	7,394
Tubing	2-7/8"	New	P-110	6.5	NA		
Liners							

*covering red rock formation

Gayne Knitowski, Inspector
 Digitally signed by Gayne Knitowski, Inspector
 Date: 2023.11.09 08:13:19 -0500

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"	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	2,800	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	0.271	13,870	NA	NA	NA
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

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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): 52.95

22) Area to be disturbed for well pad only, less access road (acres): 6.43

23) Describe centralizer placement for each casing string:

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

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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.

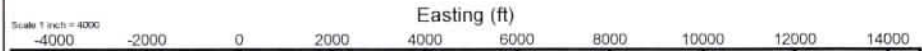
*Note: Attach additional sheets as needed.

NORTHEAST NATURAL ENERGY, LLC

Location: Monongalia County, WV
 Field: Monongalia
 Facility: Miracle Run Pad

Slot: Slot #06
 Well: Miracle Run 6H
 Wellbore: Miracle Run 6H PWB

Scale 1 inch = 4000'



Wellbore: Miracle Run 6H PWB	Well System: NNEE1 (Landed) Westing LP, Western Zone (2017), US 26
True vertical depth and reference to Ground Level (GL)	Depth Reference: Surface
Reference to Right-ascension and reference to Ground Level (GL)	Scale: True Vertical
Ground Level (GL) to Mean Sea Level (MSL)	Coordinates are in the International Time
Mean Sea Level to Ground Level (MSL) to Slot #06	Depth are in feet
Other wellbore IDs are referenced to each parent wellbore ID	Created by: nneecol on 2023-10-04 (Database: NNEE_WB_20230903_DWG)

Location Information					
Facility Name	Grid East (US Ft)	Grid North (US Ft)	Latitude	Longitude	
Miracle Run Pad	1737889.810	412328.340	39°37'45.0221"N	80°19'7.5870"W	
Slot	Local N (ft)	Local E (ft)	Grid North (US Ft)	Grid East (US Ft)	Latitude
Slot #06	14.85	12.81	1737903.420	412342.960	39°37'45.1881"N

Well Profile Data							
Design Comment	MD (ft)	Inc. (°)	TVD (ft)	Local N (ft)	Local E (ft)	GLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	27.550	0.00	0.00	0.00	0.00
Srft. Casing (Est)	1455.00	0.000	27.550	1455.00	0.00	0.00	0.00
Int. Casing (Est)	2700.00	0.000	27.550	2700.00	0.00	0.00	0.00
KOP	2850.00	0.000	27.550	2850.00	0.00	0.00	0.00
Start Hold	3536.30	13.728	27.550	3529.76	72.54	37.84	-39.44
Curve KOP	7444.71	13.728	27.550	7208.54	894.77	406.78	-486.49
Landing Pt	8651.82	90.000	146.373	8107.00	364.82	969.86	225.01
BHL	30686.91	90.000	146.373	8107.00	-17953.01	13202.42	0.00

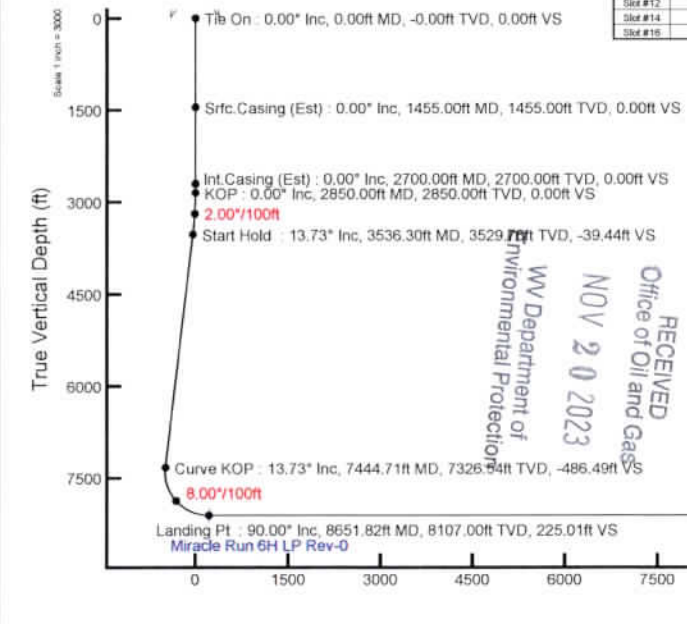
Targets						
Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US Ft)	Grid North (US Ft)
Miracle Run 6H Ex-01 Rev-2	3488.01	8102.00	-17953.01	13202.42	1737889.81	412328.34
Miracle Run 6H LP Rev-0	8651.82	8107.00	364.82	225.01	1737903.42	412342.96

Survey Program			
Station	Code	Comments	Created
0.00	TIE ON	Well System: NNEE1 (Landed) Westing LP, Western Zone (2017), US 26	2023-09-03
1455.00	Srft. Casing (Est)	Well System: NNEE1 (Landed) Westing LP, Western Zone (2017), US 26	2023-09-03
2700.00	Int. Casing (Est)	Well System: NNEE1 (Landed) Westing LP, Western Zone (2017), US 26	2023-09-03
2850.00	KOP	Well System: NNEE1 (Landed) Westing LP, Western Zone (2017), US 26	2023-09-03
3536.30	Start Hold	Well System: NNEE1 (Landed) Westing LP, Western Zone (2017), US 26	2023-09-03
7444.71	Curve KOP	Well System: NNEE1 (Landed) Westing LP, Western Zone (2017), US 26	2023-09-03
8651.82	Landing Pt	Well System: NNEE1 (Landed) Westing LP, Western Zone (2017), US 26	2023-09-03
30686.91	BHL	Well System: NNEE1 (Landed) Westing LP, Western Zone (2017), US 26	2023-09-03

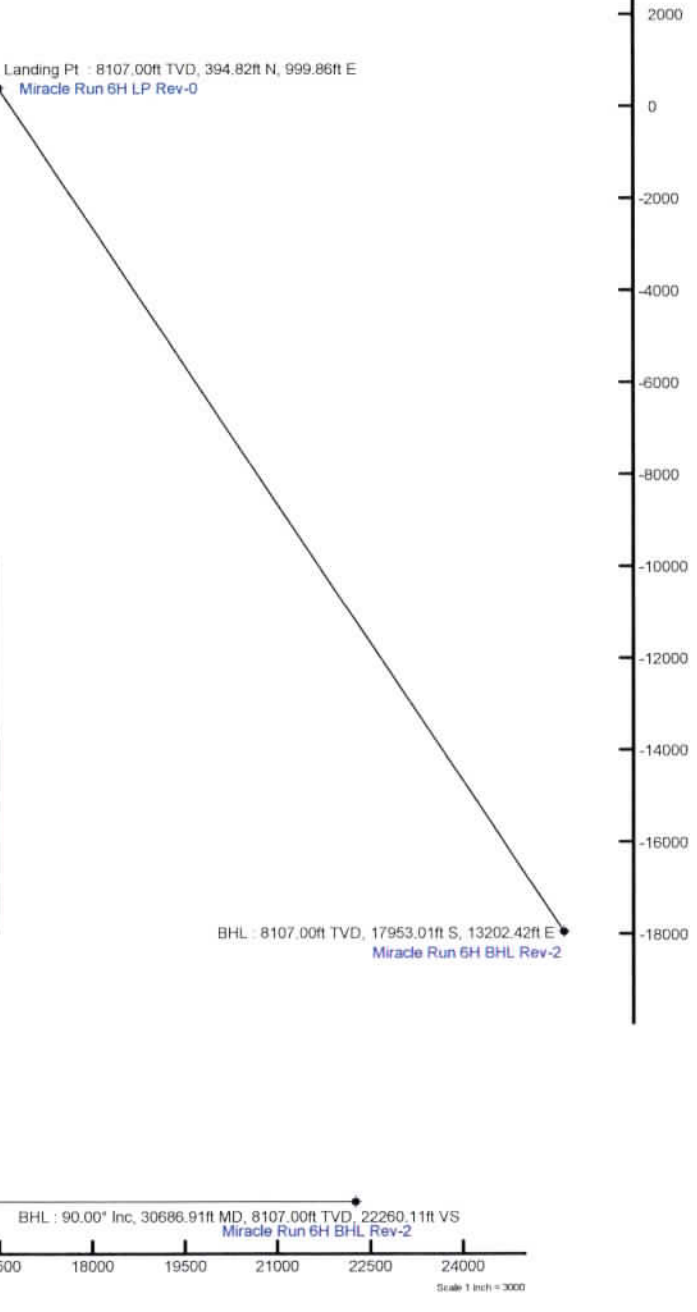
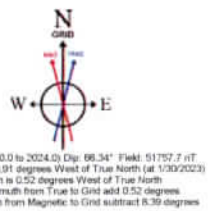


Hole and Casing Sections										
Name	Start MD (ft)	Stop MD (ft)	Start TVD (ft)	Stop TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US Ft)	Grid North (US Ft)	Wellbore	Well Path
0.00 Open Hole	0.00	1300.00	1302.00	0.00	1300.00	0.00	0.00	0.00	0.00	Miracle Run 6H PWB
2850 Casing	0.00	1850.00	1852.00	0.00	1850.00	0.00	0.00	0.00	0.00	Miracle Run 6H PWB
17.50 Open Hole	1850.00	1465.00	1852.00	1465.00	0.00	0.00	0.00	0.00	0.00	Miracle Run 6H PWB
17.50 Casing Surface	0.00	1465.00	1465.00	0.00	1465.00	0.00	0.00	0.00	0.00	Miracle Run 6H PWB
1465.00 Casing Intermediate	1465.00	2700.00	1465.00	2700.00	0.00	0.00	0.00	0.00	0.00	Miracle Run 6H PWB
2700.00 Casing Intermediate	2700.00	3536.30	2700.00	3536.30	0.00	0.00	0.00	0.00	0.00	Miracle Run 6H PWB
3536.30 Open Hole	3536.30	8651.82	3536.30	8651.82	0.00	0.00	1465.00	225.01	0.00	Miracle Run 6H PWB
8.00 Casing Production	0.00	30686.91	13202.42	0.00	30686.91	13202.42	1737889.81	412328.34	0.00	Miracle Run 6H PWB

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #02	Miracle Run 2H	Miracle Run 2H PWB	Miracle Run 2H Ex-01
Slot #04	Miracle Run 4H (Pilot)	Miracle Run 4H (Pilot) PWB	Miracle Run 4H (Pilot) Ex-00
Slot #04	Miracle Run 4H (STO1)	Miracle Run 4H (STO1) PWB	Miracle Run 4H (STO1) Ex-01
Slot #06	Miracle Run 6H	Miracle Run 6H PWB	Miracle Run 6H Ex-01
Slot #08	Miracle Run 8H	Miracle Run 8H PWB	Miracle Run 8H Ex-01
Slot #10	Miracle Run 10H	Miracle Run 10H PWB	Miracle Run 10H Ex-01
Slot #12	Miracle Run 12H	Miracle Run 12H PWB	Miracle Run 12H Ex-01
Slot #14	Miracle Run 14H	Miracle Run 14H PWB	Miracle Run 14H Ex-01
Slot #16	Miracle Run 16H	Miracle Run 16H PWB	Miracle Run 16H Ex-01

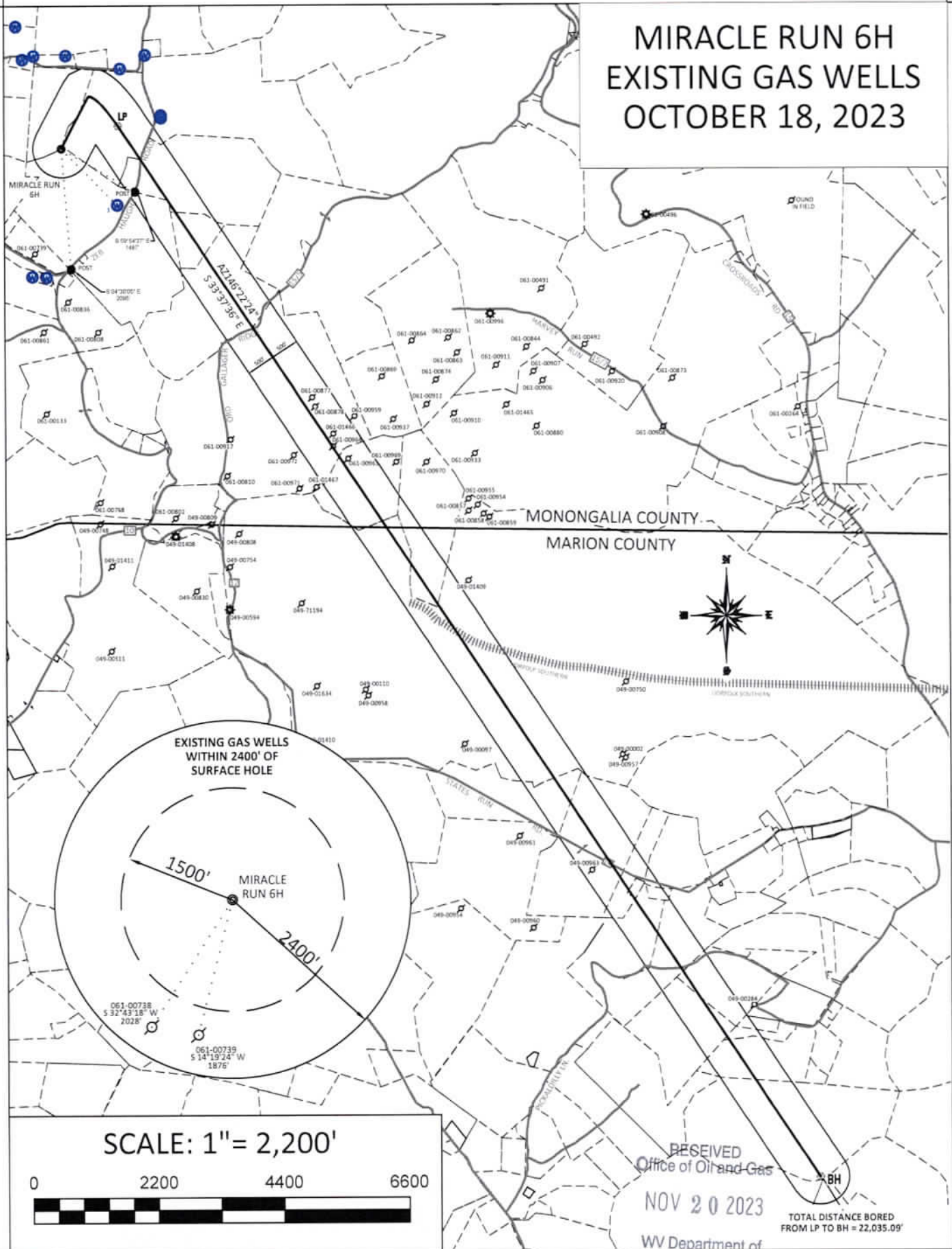


- Do not cross (any limiting boundary); red, bold, solid
- Lease boundary, advisory; black, bold, solid
- Regulatory boundary, advisory; black, bold, dashed
- Geologic boundary, advisory; blue, bold, dashed
- Geologic target boundary, advisory; blue, normal, solid
- Driller's target boundary, advisory; green, normal, solid
- Other type of boundary, advisory; green, bold, dashed



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MIRACLE RUN 6H EXISTING GAS WELLS OCTOBER 18, 2023

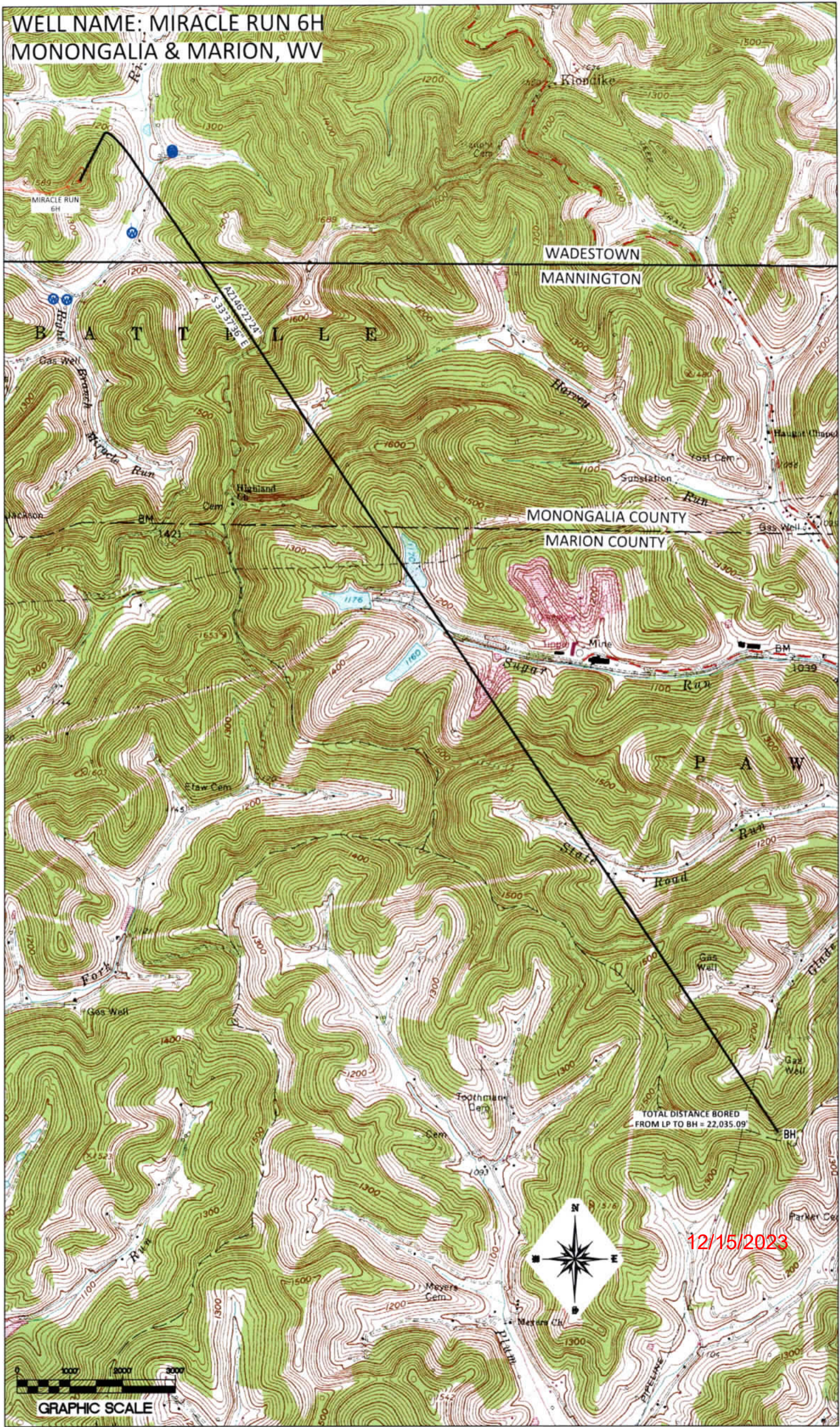


12/15/2023

MIRACLE RUN 6H AREA OF REVIEW

API Number	Well Name	Well Number	Operator	Latitude (NAD 83)	Longitude (NAD 83)	TMP	TVD'	Producing Formation
049-00963	Joseph P Fluharty Est	NA	Consolidation Coal Co.	39.59492	-80.2856	16-01-02	3285'	Plugged
061-00877	Consol Coal Co	NA	Consolidation Coal Co.	39.617396	-80.303092	1-27-20	NA	Plugged 9/28/1988
061-00878	Consol Coal	NA	Consolidation Coal Co.	39.616961	-80.302905	1-27-20	NA	Plugged 1/31/1989
061-00959	Consol Coal	NA	Consolidation Coal Co.	39.616526	-80.300467	1-27-20	NA	Plugged 5/23/1990
061-00963	Consol Coal	NA	Consolidation Coal Co.	39.614496	-80.300842	1-26-03	NA	Plugged 6/7/1990
061-00964	Consol Coal	NA	Consolidation Coal Co.	39.615076	-80.301780	1-27-20	NA	Plugged 7/3/1990
061-01466	Consol Coal Co	L-84	CNX Gas Co. LLC (North)	39.615656	-80.301780	1-27-20	965'	Plugged
061-01467	Consol Coal Co	L-86	CNX Gas Co. LLC (North)	39.613112	-80.302795	1-27-20	1195'	Plugged 11/28/2014

WELL NAME: MIRACLE RUN 6H
MONONGALIA & MARION, WV



TOTAL DISTANCE BORED
FROM LP TO BH = 22,035.09'

12/15/2023

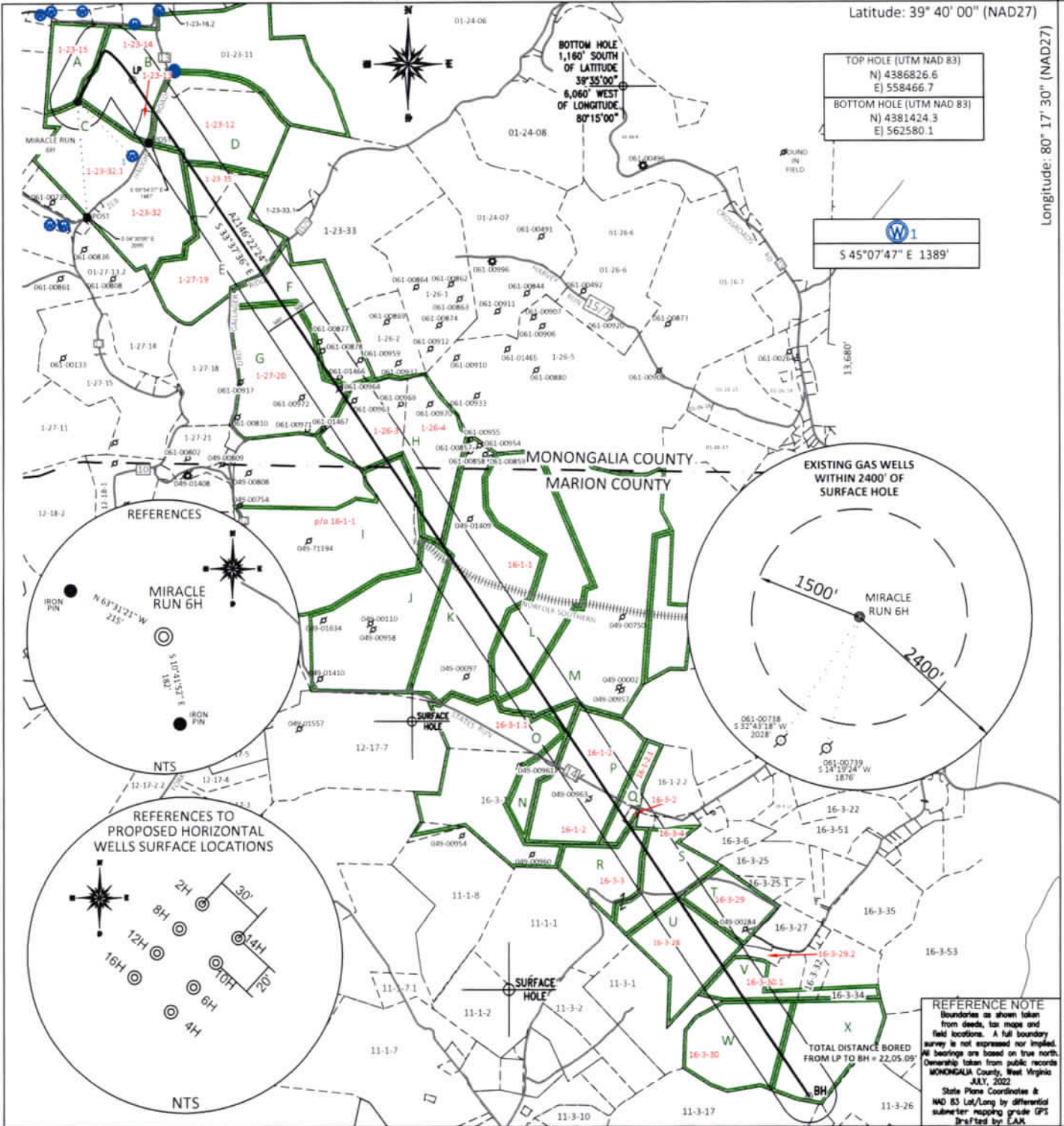


SURFACE HOLE DEC. LONG: 80.318928
SURVEYED LONG: 80°19'08.1"

7,680'

Latitude: 39° 40' 00" (NAD27)

Longitude: 80° 17' 30" (NAD27)



SURFACE HOLE DEC. LAT: 39.629132 SURVEYED LAT: 39°37'44.9"

FILE #: NNE20
DRAWING #: 3093
SCALE: PLAT: 1" = 2600'
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 Diposal Production Deep
 Gas Liquid Injection Storage Shallow
WATERSHED: DUNKARD CREEK
COUNTY/DISTRICT: MONONGALIA / BATTELLE
SURFACE OWNER: BYRON LANE RAPP
OIL & GAS ROYALTY OWNER: _____
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
WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC
ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
CITY: CHARLESTON STATE: WV ZIP CODE: 25301

DATE: NOVEMBER 15, 2023
OPERATOR'S WELL #: MIRACLE RUN 6H
API WELL #: 47 61 01924
STATE COUNTY PERMIT
CURRENT ELEVATION: 1,522'
PROPOSED ELEVATION: 1,458'
QUADRANGLE: WADESTOWN
ACREAGE: 1872.25 +/-
ACREAGE: 56.46 **12/15/2023**
ESTIMATED DEPTH: TVD: 8,107' TMD: 30,686'
DESIGNATED AGENT: JOHN ADAMS
ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
CITY: CHARLESTON STATE: WV ZIP CODE: 25301

PROPERTY INDEX	
1-23-12	CNX LAND LLC
1-23-13	JOHN E BARR SR
1-23-14	CLAUDE S & JONI L ANDERSON
1-23-15	CLAUDE S & JONI L ANDERSON
1-23-32	BYRON LANE RAPP
1-23-32.1	BYRON LANE RAPP
1-23-35	CNX LAND LLC
1-27-19	CNX LAND LLC
1-27-20	CONSOL MINING COMPANY LLC
1-26-3	CONSOL MINING COMPANY LLC
1-26-4	CONSOL MINING COMPANY LLC
16-1-1	MARION COUNTY COAL RESOURCES INC
16-3-1.1	DAVE L & DIANA L MCDUGAL
16-1-2	JAMES A TENNANT & KIM M DENSON
16-1-2.1	GREGORY N & JULIE A TENNANT
16-3-2	MAYNARD A KNOTTS
16-1-2	JAMES A TENNANT & KIM M DENSON
16-3-4	WACO OIL & GAS
16-3-3	RALPH & ZORA SHRIVER
16-3-28	CHARLES L & SUSAN L UNDERWOOD
16-3-29	CHARLES L & SUSAN L UNDERWOOD
16-3-29.2	MATTHEW PAUL SICKLES
16-3-30.1	CHESTER L & SUSAN L MICHAEL
16-3-30	CHARLES L & SUSAN L UNDERWOOD

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LEASE INDEX			
A	WV-061-003830-005	M	WV-049-004839-001
B	WV-061-003828-007	N	WV-049-086187-001
C	WV-061-005463-023	O	WV-049-086187-001
D	WV-061-003829-005	P	WV-049-086168-003
E	WV-061-000198-001-LOI	Q	WV-049-086168-003
F	WV-061-006138-005	R	WV-061-000198-001-LOI
G	WV-061-004692-002	S	WV-049-086145-001
H	WV-061-003844-025	T	WV-049-106399-002
I	WV-061-000198-001-LOI	U	WV-049-106192-001
J	WV-049-004839-001; WV-049-004839-002	V	WV-049-106436-001
		W	WV-049-106399-001
K	WV-061-006503-001	X	WV-049-106399-001
L	WV-049-106389-002		

12/15/2023

FILE #: NEE20

DRAWING #: 3093

SCALE: N/A

DATE: NOVEMBER 15, 2023

OPERATOR'S WELL #: MIRACLE RUN 6H

API WELL #: 47 61 01924
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
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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
 By: Hollie Medley *Hollie Medley*
 Its: Regulatory Manager

WW-6A1

Operators Well No. Miracle Run 6H

Tract	Lease Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book	Page
A	WV-061-003830-005 ✓	Claude S. Anderson and Joni L. Anderson	Northeast Natural Energy, LLC	12.5% or Greater	1578	343
A	WV-061-004540-003	Jerry Yost	Northeast Natural Energy, LLC	12.5% or Greater	1591	124
A	WV-061-004540-004	Gene Yost	Northeast Natural Energy, LLC	12.5% or Greater	1591	126
A	WV-061-004540-006	Eilene Kucix	Northeast Natural Energy, LLC	12.5% or Greater	1591	130
A	WV-061-004540-001	Gary Yost	Northeast Natural Energy, LLC	12.5% or Greater	1591	146
A	WV-061-004540-002	Mary Marlene Miller	Northeast Natural Energy, LLC	12.5% or Greater	1591	122
A	WV-061-004540-007	Roger Yost	Northeast Natural Energy, LLC	12.5% or Greater	1591	132
A	WV-061-004540-005	Larry Yost	Northeast Natural Energy, LLC	12.5% or Greater	1591	128
B	WV-061-003828-007 ✓	Ethel Aldene Efaw	Northeast Natural Energy, LLC	12.5% or Greater	1794	596
C	WV-061-005463-023 ✓	Michael Ray Efaw	Northeast Natural Energy, LLC	12.5% or Greater	1793	300
D	WV-061-003829-005 ✓	Jerry Lee Yost	Northeast Natural Energy, LLC	12.5% or Greater	1579	203
D	WV-061-003829-008	Eilene Yvonne Turner	Northeast Natural Energy, LLC	12.5% or Greater	1579	209
D	WV-061-003829-007	Larry Wayne Yost	Northeast Natural Energy, LLC	12.5% or Greater	1579	207
D	WV-061-003829-009	Mary Marlene Miller	Northeast Natural Energy, LLC	12.5% or Greater	1579	211
D	WV-061-003829-006	Glenn Roger Yost	Northeast Natural Energy, LLC	12.5% or Greater	1579	205
E	WV-061-000198-001-LOI	EQT Production Company	Northeast Natural Energy, LLC	12.5% or Greater	1829	725
F	WV-061-006138-005 ✓	William Morrell Cast, Jr.	Northeast Natural Energy, LLC	12.5% or Greater	1795	598
G	WV-061-004692-002 ✓	Angela R. Baker	Northeast Natural Energy, LLC	12.5% or Greater	1602	85
G	WV-061-004692-004	Ida Kathryn Wilson	Northeast Natural Energy, LLC	12.5% or Greater	1607	628
G	WV-061-004692-016	James Wilford Haught Sr.	Northeast Natural Energy, LLC	12.5% or Greater	1607	276
G	WV-061-004692-018	Rachel Anne Haught	Northeast Natural Energy, LLC	12.5% or Greater	1608	660
G	WV-061-004692-019	Terry L. Haught	Northeast Natural Energy, LLC	12.5% or Greater	1608	662
G	WV-061-004692-024	Rozenna J. Pack Picklesimer	Northeast Natural Energy, LLC	12.5% or Greater	1611	706
G	WV-061-004692-025	Donald A. Haught	Northeast Natural Energy, LLC	12.5% or Greater	1611	708
G	WV-061-004692-028	Buddy Joe Haught	Northeast Natural Energy, LLC	12.5% or Greater	1613	106
G	WV-061-004692-032	Betty Ann Dours Tamarac	Northeast Natural Energy, LLC	12.5% or Greater	1613	840
G	WV-061-004692-034	Dora Jean Pack Webster	Northeast Natural Energy, LLC	12.5% or Greater	1615	581
H	WV-061-003844-025	Pamela Fay Koon Mesmer	Northeast Natural Energy, LLC	12.5% or Greater	1600	69
H	WV-061-003844-024	Joe David Koon	Northeast Natural Energy, LLC	12.5% or Greater	1600	67
H	WV-061-003844-026	Lisa Gay Koon	Northeast Natural Energy, LLC	12.5% or Greater	1600	13
H	WV-061-003844-011	Pamela Lane Tennant	Northeast Natural Energy, LLC	12.5% or Greater	1560	96
H	WV-061-003844-010	Patricia Jane Tennant	Northeast Natural Energy, LLC	12.5% or Greater	1554	830
H	WV-061-003844-012	Kimberly Dawn Huggins Coker	Northeast Natural Energy, LLC	12.5% or Greater	1560	98
H	WV-061-003844-013	James David Tennant	Northeast Natural Energy, LLC	12.5% or Greater	1559	360

Tract	Lease Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book	Page
H	WV-061-003844-005	Mary L. Toothman	Northeast Natural Energy, LLC	12.5% or Greater	1575	623
H	WV-061-003844-003	Mary G. Price	Northeast Natural Energy, LLC	12.5% or Greater	1560	316
H	WV-061-003844-018	Howard James Fluharty	Northeast Natural Energy, LLC	12.5% or Greater	1597	381
H	WV-061-003844-020	Steve Fluharty	Northeast Natural Energy, LLC	12.5% or Greater	1598	710
H	WV-061-003844-017	Bruce Nelson Fluharty	Northeast Natural Energy, LLC	12.5% or Greater	1597	379
H	WV-061-003844-001	Connie Suprek	Northeast Natural Energy, LLC	12.5% or Greater	1560	151
H	WV-061-003844-027	Donna B. Jelovic	Northeast Natural Energy, LLC	12.5% or Greater	1608	646
H	WV-061-003844-028	E. Ruth Reese Revocable Trust	Northeast Natural Energy, LLC	12.5% or Greater	1608	648
H	WV-061-003844-015	Beverly Matheny	Northeast Natural Energy, LLC	12.5% or Greater	1596	496
H	WV-061-003844-016	Barbara Krushanksky	Northeast Natural Energy, LLC	12.5% or Greater	1596	498
H	WV-061-003844-007	Robert C. Rice	Northeast Natural Energy, LLC	12.5% or Greater	1554	836
H	WV-061-003844-009	Harry R. Rice	Northeast Natural Energy, LLC	12.5% or Greater	1554	832
H	WV-061-003844-008	Sandra Sue Rice McCarty	Northeast Natural Energy, LLC	12.5% or Greater	1554	838
H	WV-061-003844-006	Cecil H. Rice	Northeast Natural Energy, LLC	12.5% or Greater	1554	834
H	WV-061-003844-019	Fred Price	Northeast Natural Energy, LLC	12.5% or Greater	1597	383
H	WV-061-003844-002	Ronald J. Haught	Northeast Natural Energy, LLC	12.5% or Greater	1563	819
I	WV-061-000198-001-LOI	John W. Whetzel and Calla Whetzel	South Penn Oil Company	12.5% or Greater	70	35
I		**See Whetzel Leasehold Chain				
J	WV-049-004839-001; WV-049-004839-002	CSX Transportation, Inc.	Northeast Natural Energy	12.5% or Greater	1226	927
K	WV-061-006503-001	CNX Gas Company LLC	Northeast Natural Energy, LLC	12.5% or Greater	1817	466
L	WV-049-106389-002	Jeananne R. Allen	Marion Natural Energy LLC	12.5% or Greater	1324	27
M	WV-049-004839-001	CNX Gas Company LLC	Northeast Natural Energy, LLC	12.5% or Greater	1226	918
M	WV-049-004839-002	CSX Transportation, Inc.	Northeast Natural Energy, LLC	12.5% or Greater	1226	927
N	WV-049-086187-001	Bernard W. Toothman	NNE Land LLC	12.5% or Greater	1315	898
		NNE Land LLC	Marion Natural Energy LLC	Assignment book	64	938
		Marion Natural Energy LLC	Northeast Natural Energy	Assignment book	1330	528
O	WV-049-086187-001	Bernard W. Toothman	NNE Land LLC	12.5% or Greater	1315	898
		NNE Land LLC	Marion Natural Energy LLC	Assignment book	64	938
		Marion Natural Energy LLC	Northeast Natural Energy	Assignment book	1330	528
P	WV-049-086168-003	The Burns Family General Partnership	NNE Land LLC	12.5% or Greater	1318	59
		NNE Land LLC	Marion Natural Energy LLC	Assignment book	64	938
		Marion Natural Energy LLC	Northeast Natural Energy	Assignment book	1330	528
Q	WV-049-086168-003	The Burns Family General Partnership	NNE Land LLC	12.5% or Greater	1318	59
		NNE Land LLC	Marion Natural Energy LLC	Assignment book	64	938

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		Marion Natural Energy LLC	Northeast Natural Energy	Assignment book	1330	528
R	WV-061-000198-001-LOI	Patricia Ann Starkey	EQT Production Company	12.5% or Greater	1173	158
		EQT Production Company	Northeast Natural Energy, LLC		1829	725
S	WV-049-086145-001	Mike Ross, Inc.	NNE Land LLC	12.5% or Greater	1314	838
		NNE Land LLC	Marion Natural Energy LLC	Assignment book	64	938
		Marion Natural Energy LLC	Northeast Natural Energy	Assignment book	1330	528
S	WV-049-086145-002	Waco Oil and Gas	NNE Land LLC	12.5% or Greater	1314	840
		NNE Land LLC	Marion Natural Energy LLC	Assignment book	64	938
		Marion Natural Energy LLC	Northeast Natural Energy	Assignment book	1330	528
T	WV-049-106399-002	Tony C. Underwood	Marion Natural Energy LLC (75%) NNE Land LLC (25%)	12.5% or Greater	1324	53
		NNE Land LLC	Marion Natural Energy LLC	Assignment book	64	938
		Marion Natural Energy LLC	Northeast Natural Energy	Assignment book	1330	528
U	WV-049-106192-001	Larry Shriver	NNE Land LLC	12.5% or Greater	1315	871
		NNE Land LLC	Marion Natural Energy LLC	Assignment book	64	938
		Marion Natural Energy LLC	Northeast Natural Energy	Assignment book	1330	528
V	WV-049-106436-001	Pamela Whisler Cox	Marion Natural Energy LLC (75%) NNE Land (25%)	12.5% or Greater	1327	653
		NNE Land LLC	Marion Natural Energy LLC	Assignment book	64	938
		Marion Natural Energy LLC	Northeast Natural Energy	Assignment book	1330	528
W	WV-049-106399-001	Susan L. Underwood	Marion Natural Energy LLC (75%) NNE Land LLC (25%)	12.5% or Greater	1324	9
		NNE Land LLC	Marion Natural Energy LLC	Assignment book	64	938
		Marion Natural Energy LLC	Northeast Natural Energy	Assignment book	1330	528
X	WV-049-106399-001	Susan L. Underwood	Marion Natural Energy LLC (75%) NNE Land (25%)	12.5% or Greater	1324	9
		NNE Land LLC	Marion Natural Energy LLC	Assignment book	64	938
		Marion Natural Energy LLC	Northeast Natural Energy	Assignment book	1330	528

Tract	Lease Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book	Page
I	WV-061-000198-001-LOI	John W. Whetzel and Calla Whetzel	South Penn Oil Company	12.5% or Greater	70	35
		Pennzoil Compnay, Successor-in-interest to South Penn Oil Company	Pennzoil Products Company	Assignment Book	11	349
		Pennzoil Products Company	Pennzoil Exploration and Prodcution Company		949	854
		Devon Energy, successor-in-interest to Pennzoil Exploration and Production Company	East Resources, Inc.		965	371
		East Resources, Inc.	HG Energy, LLC		40	825
		HG Energy, LLC	American Energy - Marcellus, LLC		47	692
		Aascent Resources - Marcellus, LLC successor-in-interest to American Energy - Marcellus, LLC	EQT Production Company		52	99