



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

Jim Justice , Governor
Austin Caperton , Cabinet Secretary
www.dep.wv.gov

Friday, November 03, 2017
WELL WORK PERMIT
Horizontal 6A / New Drill

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

Re: Permit approval for MEPCO 10H
47-061-01788-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless 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: MEPCO 10H
Farm Name: MEPCO LLC
U.S. WELL NUMBER: 47-061-01788-00-00
Horizontal 6A / New Drill
Date Issued: 11/3/2017

Promoting a healthy environment.

11/03/2017

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

PERMIT CONDITIONS

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

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

1) Well Operator: NORTHEAST NATURAL ENERGY LLC 494498281 MONONGALIA CLAY BLACKSVILLE
Operator ID County District Quadrangle

2) Operator's Well Number: MEPCO 10H Well Pad Name: MEPCO

3) Farm Name/Surface Owner: MEPCO LLC Public Road Access: CR 29/7

4) Elevation, current ground: 1,451.18' Elevation, proposed post-construction: 1424.00'

5) Well Type (a) Gas X Oil NA Underground Storage NA
Other NA

(b) If Gas Shallow X Deep NA
Horizontal X

6) Existing Pad: Yes or No NO

YJK 10/26/2017

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
MARCELLUS; 8,222'; 103'; 3600 PSI

8) Proposed Total Vertical Depth: 8,222'

9) Formation at Total Vertical Depth: MARCELLUS

10) Proposed Total Measured Depth: 17,256.94'

11) Proposed Horizontal Leg Length: 8,356'

12) Approximate Fresh Water Strata Depths: 50', 1,307'

13) Method to Determine Fresh Water Depths: DRILLER'S LOG FROM OFFSET WELLS

14) Approximate Saltwater Depths: 1,947', 2,589'

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15) Approximate Coal Seam Depths: 662', 1,305'

OCT 27 2017

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

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

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

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	52.78	40'	40'	CTS
Fresh Water	13 3/8"	NEW	J-55	54.6	1,423'	1,400'	CTS
Coal							
Intermediate	9 5/8"	NEW	J-55	40	2,680'	2,650'	CTS
Production	5 1/2"	NEW	P-110	20	17,256.94'	17,236.94'	4,016 CU. FT.
Tubing	2 3/8"	NEW	P-110	4.7	NA	8,500'	NA
Liners							

MGK 10/26/2017

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"	30"	.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"	.395"	3,950	3,000	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"	1,570	3,600	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:

Drilling and completion of a horizontal Marcellus well. The well will be drilled on air to an approximate depth of 6,800' TVD/MD. The well will then be horizontally drilled on fluid from KOP to approximately 8,222' TVD / 17,256.94' MD along a 147 degree 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. After fracture treatment,

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 23.18

22) Area to be disturbed for well pad only, less access road (acres): 7.07

23) Describe centralizer placement for each casing string:

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

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

Surface string cement will be a Class A + 3% bwoc Calcium Chloride Fresh Water blend. Intermediate string cement will be a Class A Cement + 0.3% bwoc Calcium Chloride + Fresh Water. Production string cement will be (50:50) Poz (Fly Ash):Type I Cement with a gas migration additive.

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25) Proposed borehole conditioning procedures:

Surface string will use a 35.0 bbls Gel Pill + LCM + 25 lbs Cello Flake + 20 lbs/bbl Bentonite + 80 lbs Fed Seal @ 8.4 ppg & 10 bbls fresh water spacer prior to cement. Intermediate string will use a 35.0 bbls Gel Pill + LCM + 25 lbs Cello Flake + 20 lbs/bbl Bentonite + 80 lbs Fed Seal @ 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, Bulk + 1 gal/bbl SS-2 @ 13.5 ppg spacer prior to cement.

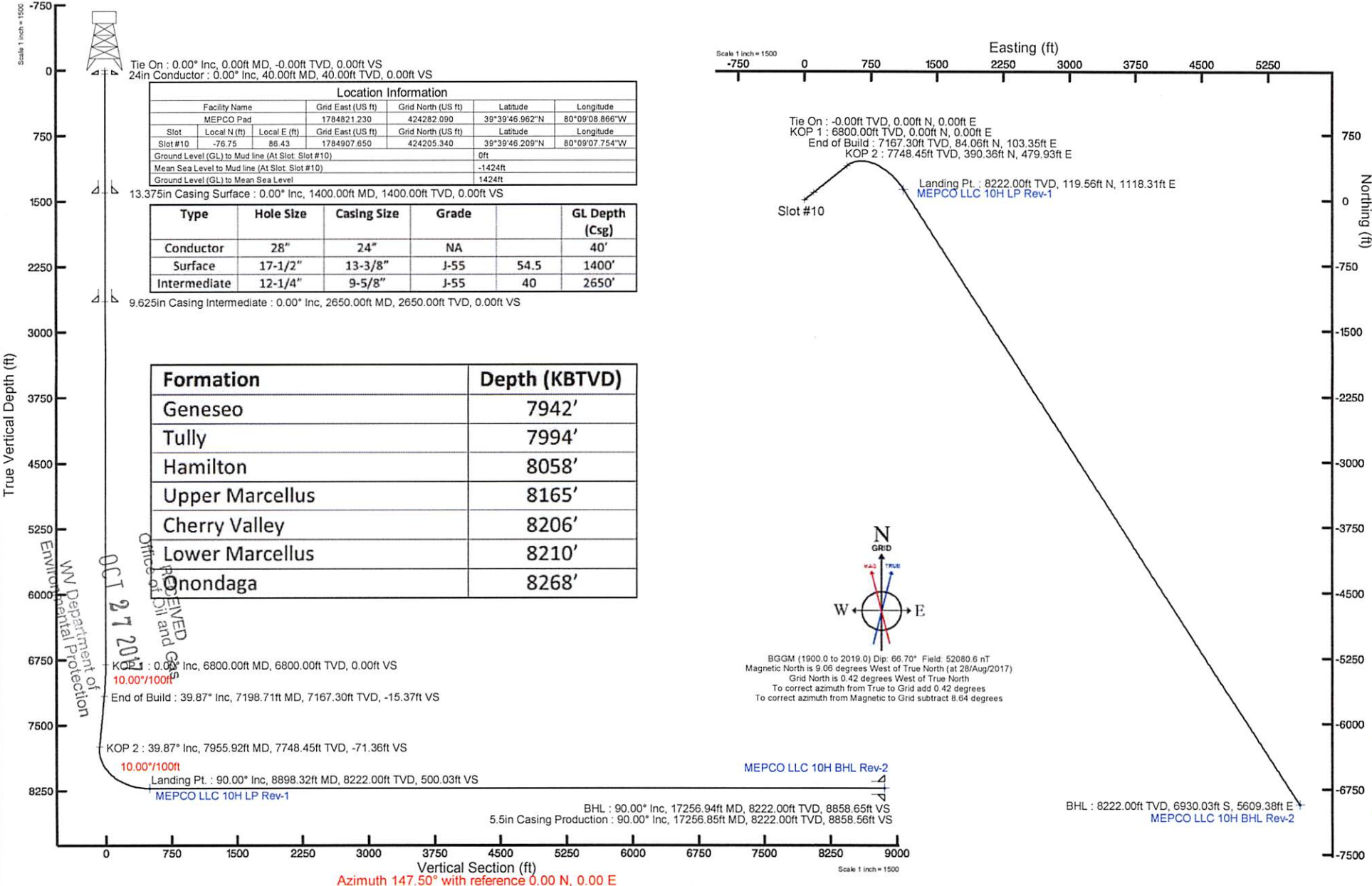
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*Note: Attach additional sheets as needed.

NORTHEAST NATURAL ENERGY, LLC

Location: Monongalia County, WV
 Field: Monongalia
 Facility: MEPCO Pad

Slot: Slot #10
 Well: MEPCO LLC 10H
 Wellbore: MEPCO LLC 10H PWB



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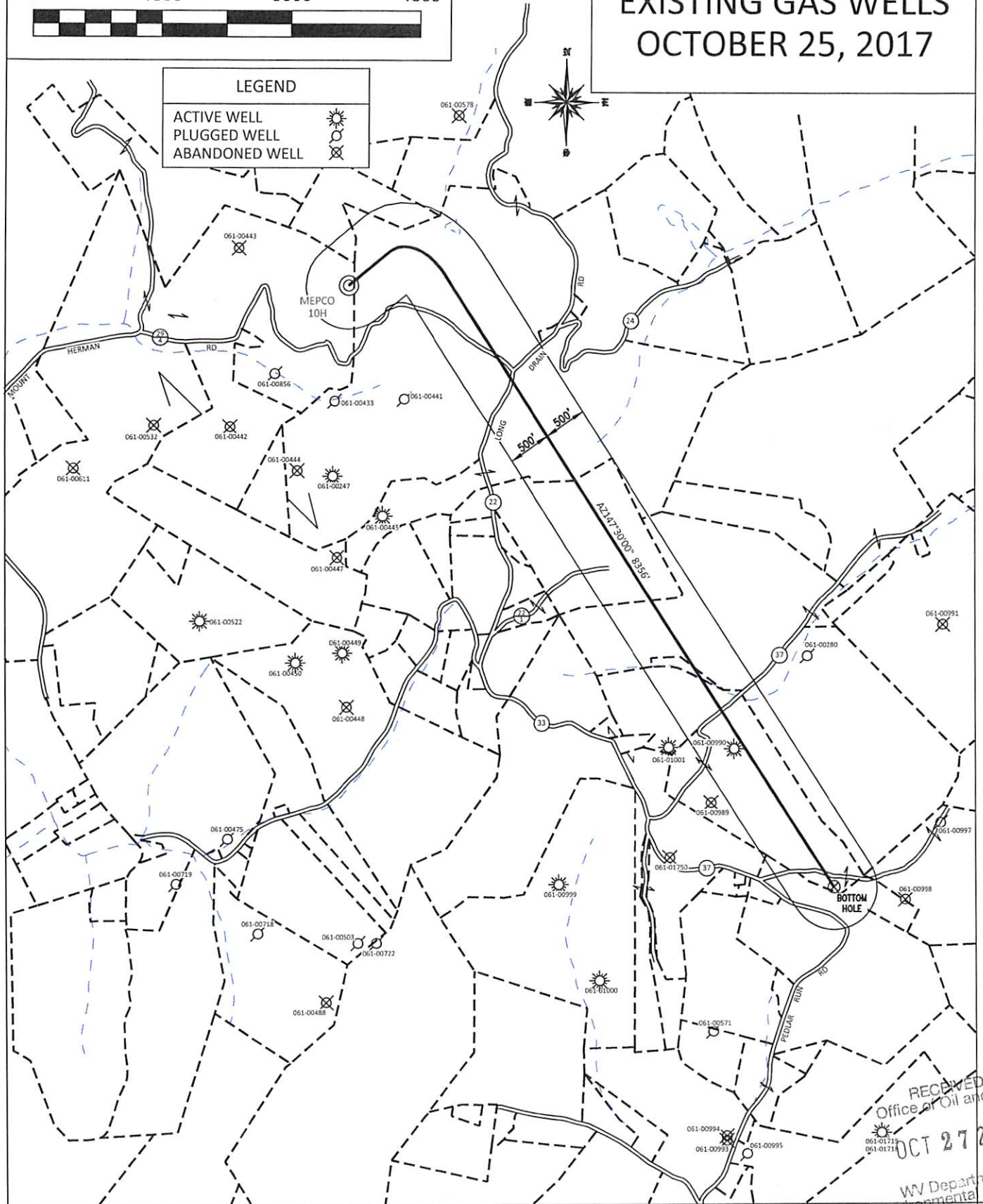
61-01788

SCALE: 1" = 1,500'



MEPCO 10H EXISTING GAS WELLS OCTOBER 25, 2017

LEGEND	
ACTIVE WELL	
PLUGGED WELL	
ABANDONED WELL	



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**AREA OF REVIEW
MEPCO 10H**

UNIT (API NUMBER)	WELL NAME	WELL NUMBER	OPERATOR	WV DEP STATUS	TD	Comments
4706100990	Barrackman	5	Northeast Natural Energy LLC	Inactive	2,594'	Permit to Plug 9/28/2015

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name NORTHEAST NATURAL ENERGY LLC OP Code 494498281

Watershed (HUC 10) JAKES RUN OF DUNKARD CREEK Quadrangle BLACKSVILLE

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

If so, please describe anticipated pit waste: NA

Will a synthetic liner be used in the pit? Yes No If so, what ml.? NA

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number UNKNOWN AT THIS TIME, TBD)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

Will closed loop system be used? If so, describe: YES, PLEASE SEE ATTACHMENT "A"

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. AIR-VERTICAL; OIL BASED-CURVE & HORIZONTAL

-If oil based, what type? Synthetic, petroleum, etc. SYNTHETIC OIL BASED MUD

Additives to be used in drilling medium? ORGANOPHILIC CLAY VISCOSIFIERS, LIME, UNSATURATED FATTY ACIDS, CaCl, BARITE, EMULSIFIERS, MICA LCM, WATER LOSS AGENTS

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. REMOVED OFFSITE - PLEASE SEE ATTACHMENT "A"

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) _____

-Landfill or offsite name/permit number? PLEASE SEE ATTACHMENT "A"

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature Hollie M Medley
Company Official (Typed Name) HOLLIE M MEDLEY
Company Official Title REGULATORY MANAGER



Subscribed and sworn before me this 10th day of August, 20 17

Shana Kennedy Notary Public

My commission expires Dec. 29, 2021

NORTHEAST NATURAL ENERGY LLC

Proposed Revegetation Treatment: Acres Disturbed 12.80 Prevegetation pH 5-7

Lime 2 Tons/acre or to correct to pH 7

Fertilizer type 19-19-19

Fertilizer amount 300 lbs/acre

Mulch 2 Tons/acre

Seed Mixtures

Temporary				Permanent			
Seed Type		lbs/acre		Seed Type		lbs/acre	
Orchard Grass		46		Orchard Grass		46	
Red Clover		8		Red Clover		8	
Tetraploid Perennial Rye 16				Tetraploid Perennial Rye 16			
Timothy 15	Annual Rye	15		Timothy 15	Annual Rye	1	

Attach:

Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Maureen J Kimlawick

Comments: _____

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Title: Inspector

Date: 8/10/2017

Field Reviewed? () Yes () No

Attachment A to WW-9

Northeast Natural Energy LLC (“NNE”) plans to utilize a closed loop process for its drilling of the MEPCO 10H well. Return flow from the well will be separated into its liquid and solid form. Liquids will be held in steel tanks and reused in the drilling and completion process or disposed of at an approved facility listed below. Solids removed from the stream will be diverted to steel half-round tanks where they will be solidified on site and taken to disposal as they are accumulated.

MEPCO 10H Drill Cuttings will be taken to disposal at one or more of the following disposal/approved waste facilities, unless listed facilities are no longer approved to accept waste at time of disposal:

- Westmoreland Landfill (Tervita) – Belle Vernon, PA (Permit # 100277)
- Meadowfill Landfill (Waste Management) – Bridgeport, WV (Permit # SWF 103298)
- Max Environmental – Yukon, PA (PAD004835146 and 301071)
- Max Environmental – Bulger, PA (PAD059087072 and 301359)
- Chestnut Valley Landfill (Advanced Disposal) – Export, PA (Permit # 101421)

NNE plans to reuse and recycle all flowback fluid and/or reach out to other operators in the area who may be able to reuse and recycle such fluid. However, in the event that reuse is not obtainable the fluid will be disposed of at one, or multiple, of the following disposal/approved waste facilities unless listed facilities are no longer approved to accept waste at time of disposal:

- Fairmont Brine Processing (WV NPDES #0116408)
- Green Hunter M. E. Elder 1 Disposal Well (Permit # 47-085-05151)
- Green Hunter Mason 1 Disposal Well (Permit #47-085-09721)
- Green Hunter Warren Disposal Well (Permit #34-121-2-3995)
- Green Hunter Travis Unit Disposal Well (Permit #34-121-2-4086)
- Viking Energy Corporation 20320 Disposal Well (Permit#47-039-02210)
- Ohio Oil Gathering Killbuck Disposal Well (Permit #34-075-24527)
- Ohio Oil Gathering Moran Disposal Well (Permit #34-089-24792)
- Ohio Oil Gathering Bells Run Disposal Well (Permit #34-167-29395)
- Ohio Oil Gathering Long Run Disposal Well (Permit #34-167-29658)
- Ohio Oil Gathering Newell Run Disposal Well (Permit #34-167-29685)
- Appalachian Oil Purchaser Greens Run Disposal Well (Permit #2D0732540)
- Appalachian Oil Purchaser BW#4 Disposal Well (Permit # 2D0732523)

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northeast

NATURAL ENERGY

MEPCO 10H

SITE SAFETY PLAN

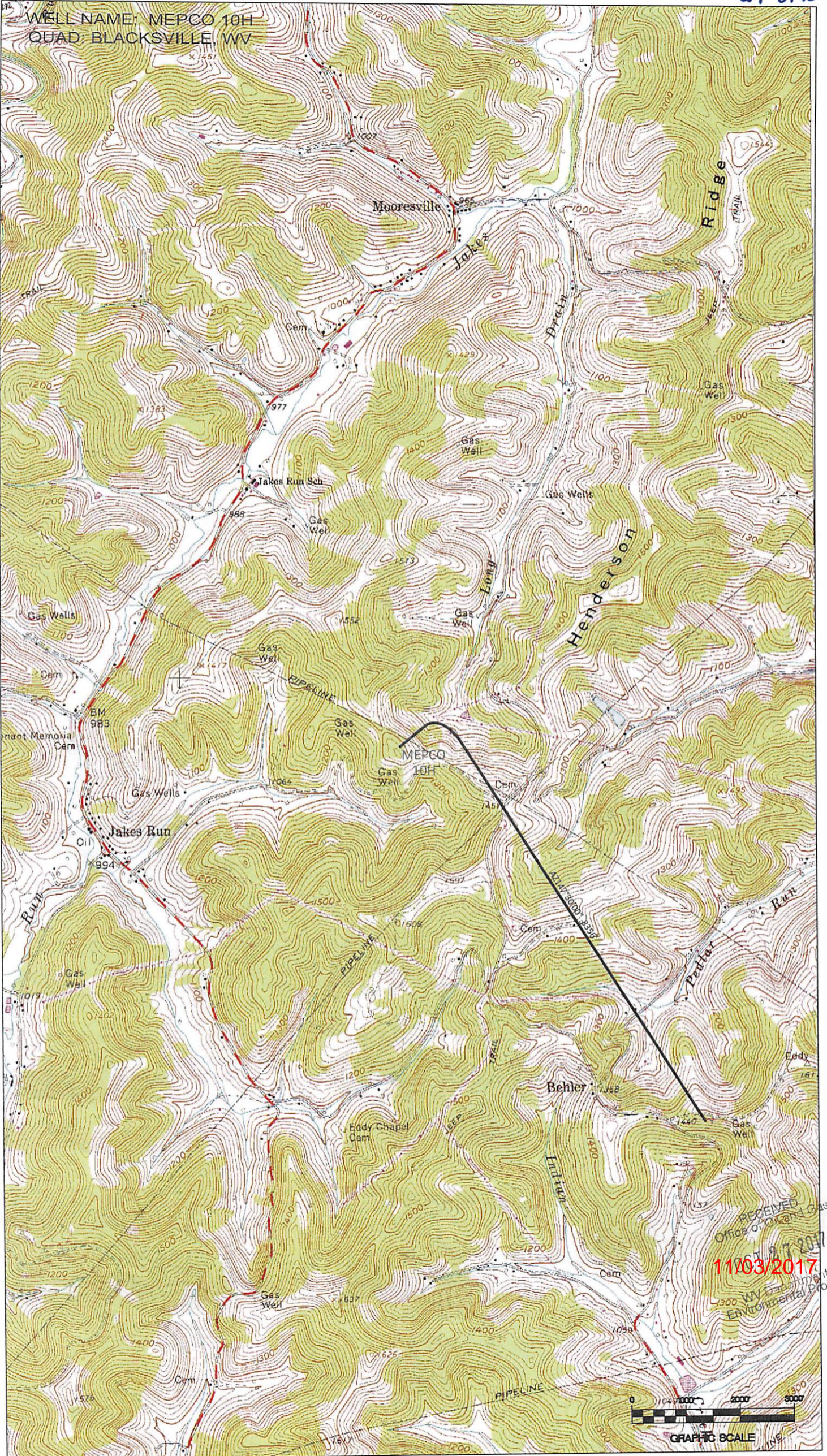
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8/10/2017 6101788

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WELL NAME: MEPCO 10H
QUAD: BLACKSVILLE, WV



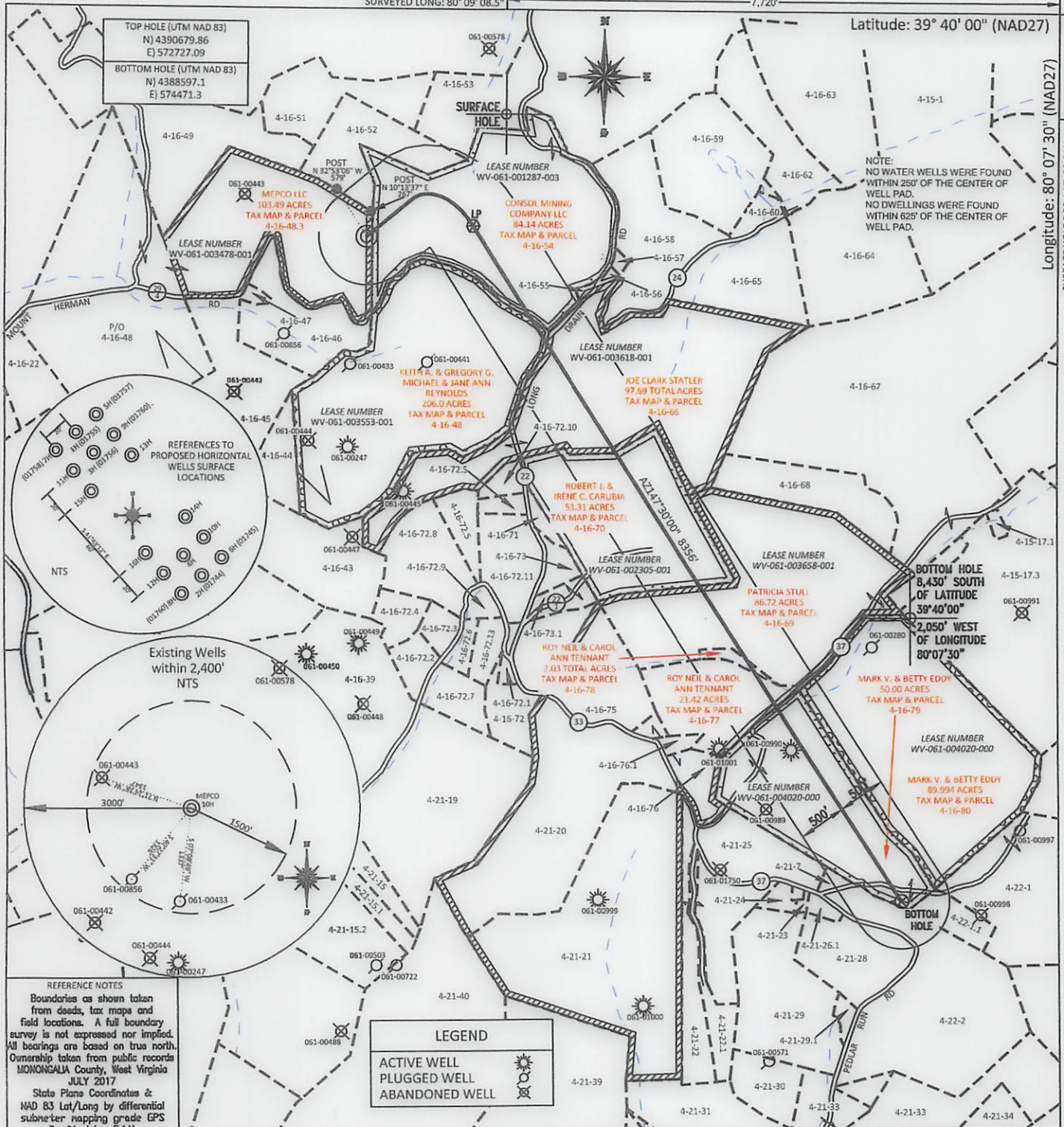
SURFACE HOLE DEC. LONG: 80.152360
 SURVEYED LONG: 80° 09' 08.5"

7.720'

Latitude: 39° 40' 00" (NAD27)

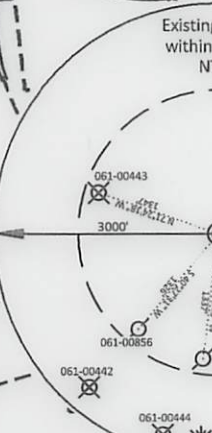
Longitude: 80° 07' 30" (NAD27)

SURFACE HOLE DEC. LAT: 39.662756
 SURVEYED LAT: 39° 39' 45.9"



TOP HOLE (UTM NAD 83)
 N) 4390679.86
 E) 572727.09
 BOTTOM HOLE (UTM NAD 83)
 N) 4388597.1
 E) 574471.3

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.

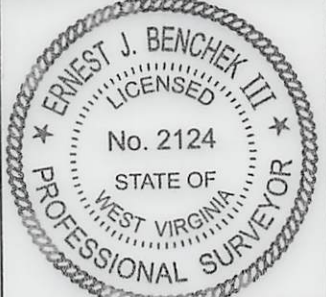


REFERENCE NOTES
 Boundaries as shown taken
 from deeds, tax maps and
 field locations. A full boundary
 survey is not expressed nor implied.
 All bearings are based on true north.
 Ownership taken from public records
 MONONGALIA County, West Virginia
 JULY 2017
 State Plane Coordinates &
 NAD 83 Lat/Long by differential
 submeter mapping grade GPS
 Drafted by EAM

LEGEND
 ACTIVE WELL
 PLUGGED WELL
 ABANDONED WELL

FILE #: NNE15
 DRAWING #: 2829
 SCALE: PLAT: 1" = 1500'
TICK: 1" = 2000'
 MINIMUM DEGREE
 OF ACCURACY: 1/200
 PROVEN SOURCE SUBMETER MAPPING
 OF ELEVATION: 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:
 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: MEPCO LLC
 OIL & GAS ROYALTY OWNER: NORTHEAST NATURAL ENERGY LLC
 LEASE NUMBERS: _____
 TARGET FORMATION: MARCELLUS
 WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

DATE: OCTOBER 25, 2017
 OPERATOR'S WELL #: MEPCO 10H
 API WELL #: 47 61 01788 H6A
 STATE COUNTY PERMIT
 PROPOSED ELEVATION: 1,423.5'
 QUADRANGLE: BLACKSVILLE
 ACREAGE: 103.49 +/-
 ACREAGE: 794.794 +/- **11/03/2017**
 DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): _____
 ESTIMATED DEPTH: TVD: 8,222' TMD: 17,256.94'
 DESIGNATED AGENT: JOHN ADAMS
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

WW-60
(7-01)

DATE: August 14th, 20 17
OPERATOR'S
WELL NO. MEPCO 2H, 4H, 6H, 8H, 10H 12H, 14H

API NO: 47-
State County Permit No.

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

A F F I D A V I T

State of West Virginia

County of Monongalia

I, Jeannie Morgan Johnson (the designated owner or operator, or authorized representative thereof), after being duly sworn, do declare that the undersigned is authorized by the owner of the working interest in the well permit application to which this affidavit is attached to state that (he, she, or it) shall tender to the owner of the oil and gas in place not less than one-eighth of the total amount paid to or received by or allowed to the owner of the working interest at the wellhead for the oil or gas so extracted, produced, or marketed before deducting the amount to be paid or set aside for the owner of the oil or gas in place, or all such oil or gas to be extracted, produced, or marketed from the well. West Virginia Code 22-6-8(e).

Signed: Jeannie Morgan Johnson

Taken, subscribed and sworn to before me this 14th day of August, 20 17.

Brenda Malone-Pence
Notary Public

My Commission expires: _____



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61-01788

WW-6A1

OPERATOR'S WELL NO.

MEPCO 10H

NNE LEASE NUMBER	GRANTOR, LESSOR, ETC	GRANTEE, LESSEE, ETC	ROYALTY	BK/PG
WV-061-003478-001	LORING, GARY G.	NORTHEAST NATURAL ENERGY LLC	DEED	1521/99
WV-061-004001-000	JOHN W AND AMANDA WRIGHT	*SOUTH PENN OIL CO	0.125 OR GREATER	39/202
WV-061-004002-000	NIMROD AND NANCY TENNANT	*SOUTH PENN OIL CO	0.125 OR GREATER	39/361
WV-061-001287-003	ASHCRAFT, RICKY LYNN	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1370/313
WV-061-001287-004	ASHCRAFT, CHARLES FRANCIS	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1371/437
WV-061-001291-001	CRANE, SHIRLEY MARIE ASHCRAFT	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1370/316
WV-061-001291-002	ASHCRAFT, JAMES PATRICK	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1370/319
WV-061-001291-003	STATLER, DORIS PAULINE	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1485/760
WV-061-001291-004	ASHCRAFT, JOHN RICHARD	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1488/417
WV-061-001291-005	THE HENRIETTA HANULA TRUST	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1510/387
WV-061-001291-014	VARNER, JOY	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1485/771
WV-061-001291-015	KETCHEM, JOYCE	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1487/371
WV-061-001291-016	KING, CHRISTINA J.	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1487/372
WV-061-001291-018	BANE, JANET S.	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1510/244
WV-061-001291-019	TENNANT, HARRY R.	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1485/175
WV-061-004001-000	WRIGHT, JOHN W.	*SOUTH PENN OIL CO	0.125 OR GREATER	39/202
WV-061-003553-001	GARY G LORING	NORTHEAST NATURAL ENERGY LLC	DEED	1529/705
WV-061-004327-001	REED ENERGY SERVICES LLC	NORTHEAST NATURAL ENERGY LLC	DEED	1577/831
WV-061-004001-000	JOHN W AND AMANDA WRIGHT	*SOUTH PENN OIL CO	0.125 OR GREATER	39/202
WV-061-003618-001	SHUMAN, INC	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1539/411
WV-061-002305-001	MARILYN DARLENE AND TULASI JOSHI	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1508/579
WV-061-002305-002	NANCY ARLENE PRICE	*CHESAPEAKE APPALACHIA LLC	0.125 OR GREATER	1530/155
WV-061-003467-001	MARILYN DARLENE AND TULASI JOSHI	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1534/152
WV-061-004003-000	NOAH WRIGHT	*JW SCOTT	0.125 OR GREATER	25/443
WV-061-003658-001	MICHAEL L AND TERRY A STRAIGHT	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1542/110
WV-061-003658-002	SHARON L BEST	NORTHEAST NATURAL ENERGY LLC	DEED	1541/421
WV-061-003658-003	DOUGLAS J KENNETT	NORTHEAST NATURAL ENERGY LLC	DEED	1547/797
WV-061-003658-004	DAVID L STRAIGHT AND ELIZABETH STRAIGHT	NORTHEAST NATURAL ENERGY LLC	DEED	1556/552
WV-061-003658-005	GENE LEWIS SHERMAN	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1565/538
WV-061-003658-006	DONALD LEWIS WILDMAN	NORTHEAST NATURAL ENERGY LLC	DEED	1588/363
WV-061-003658-007	DAVID LEE WILDMAN AND SHARON B WILDMAN	NORTHEAST NATURAL ENERGY LLC	DEED	1588/366
WV-061-004020-000	MARK V EDDY AND BETTY A EDDY	NORTHEAST NATURAL ENERGY LLC	DEED	1505/572
WV-061-003658-001	MICHAEL L AND TERRY A STRAIGHT	NORTHEAST NATURAL ENERGY LLC	DEED	1542/110
WV-061-003658-002	SHARON L BEST	NORTHEAST NATURAL ENERGY LLC	DEED	1541/421
WV-061-003658-003	DOUGLAS J KENNETT	NORTHEAST NATURAL ENERGY LLC	DEED	1547/797
WV-061-003658-004	DAVID L STRAIGHT AND ELIZABETH STRAIGHT	NORTHEAST NATURAL ENERGY LLC	DEED	1556/552
WV-061-003658-005	GENE LEWIS SHERMAN	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1565/538
WV-061-003658-006	DONALD LEWIS WILDMAN	NORTHEAST NATURAL ENERGY LLC	DEED	1588/363
WV-061-003658-007	DAVID LEE WILDMAN AND SHARON B WILDMAN	NORTHEAST NATURAL ENERGY LLC	DEED	1588/366
WV-061-004020-000	MARK V EDDY AND BETTY A EDDY	NORTHEAST NATURAL ENERGY LLC	DEED	1505/572
WV-061-004017-000	JARRETT WILDMAN, ET AL	*JW SCOTT	0.125 OR GREATER	27/145
WV-061-003658-001	MICHAEL L AND TERRY A STRAIGHT	NORTHEAST NATURAL ENERGY LLC	DEED	1542/110
WV-061-003658-002	SHARON L BEST	NORTHEAST NATURAL ENERGY LLC	DEED	1541/421
WV-061-003658-003	DOUGLAS J KENNETT	NORTHEAST NATURAL ENERGY LLC	DEED	1547/797
WV-061-003658-004	DAVID L STRAIGHT AND ELIZABETH STRAIGHT	NORTHEAST NATURAL ENERGY LLC	DEED	1556/552
WV-061-003658-005	GENE LEWIS SHERMAN	NORTHEAST NATURAL ENERGY LLC	0.125 OR GREATER	1565/538
WV-061-003658-006	DONALD LEWIS WILDMAN	NORTHEAST NATURAL ENERGY LLC	DEED	1588/363
WV-061-003658-007	DAVID LEE WILDMAN AND SHARON B WILDMAN	NORTHEAST NATURAL ENERGY LLC	DEED	1588/366
WV-061-004020-000	MARK V EDDY AND BETTY A EDDY	NORTHEAST NATURAL ENERGY LLC	DEED	1505/572
WV-061-004017-000	JARRETT WILDMAN, ET AL	*JW SCOTT	0.125 OR GREATER	27/145
WV-061-004020-000	MARK V EDDY AND BETTY A EDDY	NORTHEAST NATURAL ENERGY LLC	DEED	1505/572
WV-061-004011-000	HEZEKIAH BARRICKMAN	*JW SCOTT	0.125 OR GREATER	24/450

*SEE ATTACHMENT

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11/03/2017

South Penn Oil Company
 Assignment
 DR 32/240
 South Penn Oil Company
 |
 South Penn Natural Gas Company
 Assingment
 DR 304/547
 South Penn Natural Gas Company
 |
 South Penn Oil Company
 Assignment
 DR 580/311
 South Penn Oil Company merged with
 Pennzoil Company and United Gas
 |
 Pennzoil United Inc.
 Assignment
 DR 672/665
 Pennzoil United Inc.
 |
 W. H. Allen
 Assignment
 DR 695/557
 W. H. Allen
 |
 Union Trust & Deposit Company
 Assignment
 DR 695/556
 W.H. Allen and James A. Allen

Edwin Associates, Inc.
 Assignment
 DR 754/594
 Union Trust National Bank, as successor by conversion of
 Union Trust & Deposit Company
 |
 Edwin Associates, Inc.
 Edwin Associates, Inc.
 |
 J. T. Carson
 Assignment
 DR 754/600
 J. T. Carson
 |
 Thompson/Texas Associates Partnership
 Assignment
 DR 754/606
 Thompson/Texas Associates Partnership, Thompson Pipe and Supply Company,
 Jack O. Thompson, Harold J. Arnsteen, Equidyne Investment Associates, Inc.,
 individually and as partners and/or joint venturers in that entity known as
 Thompson/Texas Associates Partnership
 |
 Mark Eddy
 Assignment
 AR 21/22
 Beth Eddy, Debbie Eddy and Melissa Eddy
 Assignment
 AR 21/582
 Beth Stewart, Debbie Morris and Melissa Matheny
 |
 Mark V. Eddy
 Assignment
 AR 102/275
 Mark V. Eddy & Betty Eddy (h&w) & Eddy Brothers
 |
 Northeast Natural Energy LLC
 Assignment
 AB 123/363

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Chesapeake Appalachia, LLC.



Northeast Natural Energy
Assignment
BK 120/769

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11/03/2017

J. W. Scott
Lease
DR 27/145
J. W. Scott

William Munhall and George P. Hukill
Assignment
DR 28/447

William Munhall and George P. Hukill and J. W. Scott, doing business as Mountain State Oil Company

South Penn Oil Company
Assignment
DR 32/240

South Penn Oil Company

South Penn Natural Gas Company
Assignment
DR 304/547

South Penn Natural Gas Company

South Penn Oil Company
Assignment
DR 580/311

South Penn Oil Company merged with Pennzoil Company on July 31, 1963

Pennzoil Company and United Gas Corporation

Pennzoil United Inc.
Assignment
DR 672/665

Pennzoil United Inc.

W. H. Allen
Assignment
DR 695/557

W. H. Allen

Union Trust & Deposit Company
Assignment
DR 695/556

W. H. Allen and James A. Allen

Edwin Associates, Inc.
Assignment
DR 754/594

Union Trust National Bank, as successor by conversion of Union Trust & Deposit Company

Edwin Associates, Inc.
Assignment
DR 754/598

Edwin Associates, Inc.

J. T. Carson
Assignment
DR 754/600

J. T. Carson

Thompson/Texas Associates Partnership
Assignment
DR 754/606

Thompson/Texas Associates Partnership, Thompson Pipe and Supply Company, Jack O. Thompson, Harold J. Arnsteen, Equidyne Investment Associates, Inc., individually and as partners and/or joint venturers in that entity known as Thompson/Texas Associates Partnership

Mark Eddy
Assignment
AR 21/22

Thompson/Texas Associates Partnership, Thompson Pipe and Supply Company, Jack O. Thompson, Harold J. Arnsteen, Equidyne Investment Associates, Inc., individually and as partners and/or joint venturers in that entity known as Thompson/Texas Associates Partnership

Beth Eddy, Debbie Eddy and Melissa Eddy
Assignment
AR 21/582

Beth Stewart, Debbie Morris and Melissa Matheny

Mark V. Eddy
Assignment
AR 102/275

Mark V. Eddy & Betty Eddy (h&w) & Eddy Brothers

Northeast Natural Energy LLC
Assignment
AB 123/363

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61-01788



July 14, 2017


WV Department of Environmental Protection
Office of Oil and Gas Management
601 57th Street, SE
Charleston, West Virginia 25304

RE: MEPCO 2H, 4H, 6H, 8H, 10H, 12H, 14H and 16H

Dear Permit Reviewer:

Please be advised that Northeast Natural Energy LLC has the right to drill, extract and produce the minerals beneath the roads identified as Horace Thorn Road (State Route 33), Noah Wright Road (State Route 22/1), Long Drain Road (State Route 22), Mt. Hermon Road (State Route 29/4) and Pedlar Run (State Route 37) on the enclosed survey plat.

Sincerely,


Jeannie Morgan Johnson, CPL
Vice President - Land Operations

4706101788

Enclosure

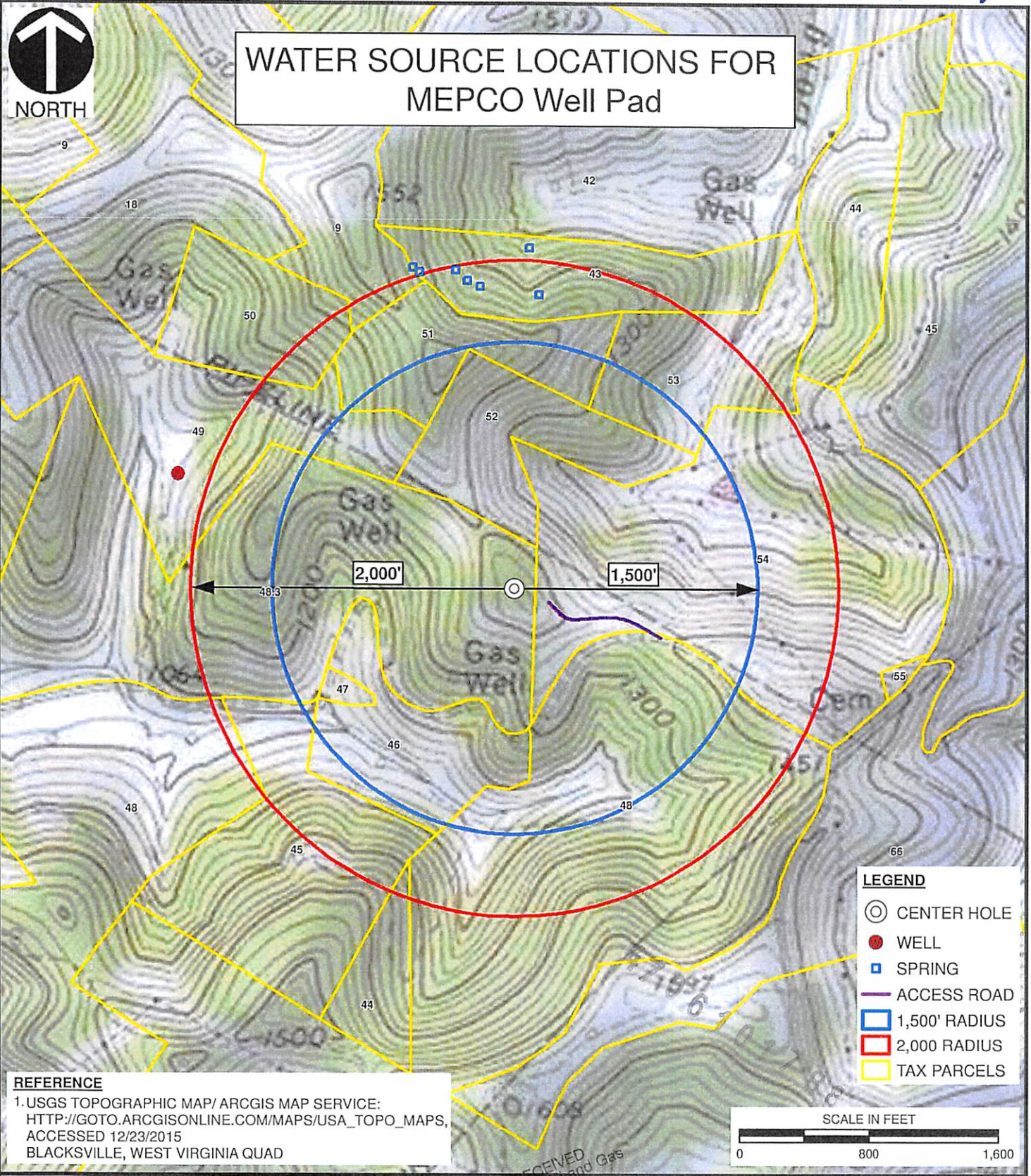
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Let-01288



NORTH

WATER SOURCE LOCATIONS FOR MEPCO Well Pad

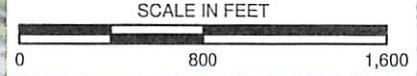


LEGEND

- ⊙ CENTER HOLE
- WELL
- SPRING
- ACCESS ROAD
- 1,500' RADIUS
- 2,000 RADIUS
- TAX PARCELS

REFERENCE

1. USGS TOPOGRAPHIC MAP/ ARCGIS MAP SERVICE:
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/USA_TOPO_MAPS](http://gto.arcgis.com/maps/usa_topo_maps),
 ACCESSED 12/23/2015
 BLACKSVILLE, WEST VIRGINIA QUAD



Civil & Environmental Consultants, Inc.
 600 Marketplace Suite 200 - Bridgeport, WV 26330-2820
 Ph: 304-933-3119 Toll: 855-488-9539 Fax: 304-933-3327
www.cecinc.com

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NORTHEAST NATURAL ENERGY LLC
 MEPCO PAD
 MORGAN COUNTY, WEST VIRGINIA

WATER SOURCES FOR MEPCO PAD

DRAWN BY: MAF	CHECKED BY: JDR	APPROVED BY: <small>* Hand signature on file</small> SAC*	FIGURE NO: WT
DATE: 12/21/2015	SCALE: 1" = 800'	PROJECT NO: 150-445.0021	11/03/2017

I:\Src-bridgeport\120151150-445-GIS\Maps\Task_0021150445_0021_WATER_WELL_TOPO.mxd 12/21/2015 (mfrank)

61-01788

MEPCO

Surface Owner of Water Well and/or Water Purveyor(s)

TMP 16-49

Diane K. Braun, co-executrix of James E. Fletcher Estate
44 Luther Park Road
Fairview, WV 26570

TMP 16-43

William D. Statler
578 Long Drain Road, Core, WV 26541

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11/03/2017

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF ENTRY FOR PLAT SURVEY

Notice Time Requirement: Notice shall be provided at least **SEVEN (7)** days but no more than **FORTY-FIVE (45)** days prior to entry

Date of Notice: 10/5/2015 **Date of Planned Entry:** 10/13/2015

Delivery method pursuant to West Virginia Code § 22-6A-10a

- PERSONAL SERVICE
 REGISTERED MAIL
 METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to West Virginia Code § 22-6A-10(a), Prior to filing a permit application, the operator shall provide notice of planned entry on to the surface tract to conduct any plat surveys required pursuant to this article. Such notice shall be provided at least seven days but no more than forty-five days prior to such entry to: (1) The surface owner of such tract; (2) to any owner or lessee of coal seams beneath such tract that has filed a declaration pursuant to section thirty-six, article six, chapter twenty-two of this code; and (3) any owner of minerals underlying such tract in the county tax records. The notice shall include a statement that copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, which statement shall include contact information, including the address for a web page on the Secretary's web site, to enable the surface owner to obtain copies from the secretary.

Notice is hereby provided to:

SURFACE OWNER(s)
 Name: SEE ATTACHMENT
 Address: _____

 Name: _____
 Address: _____

 Name: _____
 Address: _____

COAL OWNER OR LESSEE
 Name: SEE ATTACHMENT
 Address: _____

 MINERAL OWNER(s)
 Name: SEE ATTACHMENT
 Address: _____

*please attach additional forms if necessary

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(a), notice is hereby given that the undersigned well operator is planning entry to conduct a plat survey on the tract of land as follows:

State: <u>West Virginia</u>	Approx. Latitude & Longitude: <u>4390688.4; 572705 (UTM NAD 83)</u>
County: <u>Monongalia</u>	Public Road Access: <u>State Route 29/4</u>
District: <u>Clay</u>	Watershed: <u>Dunkard Creek</u>
Quadrangle: <u>Blacksville</u>	Generally used farm name: <u>MEPCO</u>

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: Northeast Natural Energy LLC
 Telephone: 304-212-0422
 Email: hmedley@nne-llc.com

Address: 707 Virginia Street E., Suite 1200
Charleston, WV 25301
 Facsimile: 304-241-5972

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 WV Department of
 Environmental Protection

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@wv.gov.

WW-6A3 ATTACHMENT

MEPCO

Surface Owner(s)

Consolidation Coal Company /
Attn: Melissa Wilson
Land Agent Depositions – Rentals
CNX Center
1000 Consol Energy Drive
Canonsburg, PA 15317

MEPCO, LLC /
Attn: Will Oliver
103 Corporate Drive, Suite 102
Morgantown, WV 26501

Surface Owner(s) (Road and/or Other Disturbance)

Consolidation Coal Company /
Attn: Melissa Wilson
Land Agent Depositions – Rentals
CNX Center
1000 Consol Energy Drive
Canonsburg, PA 15317

MEPCO, LLC /
Attn: Will Oliver
103 Corporate Drive, Suite 102 /
Morgantown, WV 26501

Coal Owner or Lessee

Consol Mining Company, LLC /
Attn: Analyst, Engineering and Operations Support – Coal /
CNX Center
1000 Consol Energy Drive
Canonsburg, PA 15317

Murray Energy Corp. /
Attn: Alex P. O'Neill
Coal – Oil and Gas Relations Manager
46226 National Road
St. Clairsville, OH 43950

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Mineral Owner

Telluric Company /
Attn: Joseph Swiger
143 Distributor Drive
Morgantown, WV 26508

A. Keith Michael /
241 Jefferson St.
Bridgeport, WV 26330

Gregory G. Michael /
1176 Sands Drive
Fairmont, WV 26554

Jane Ann Reynolds ↙
2 West Hill Drive
Fairmont, WV 26554

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**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF PLANNED OPERATION**

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 08/04/2017 **Date Permit Application Filed:** 08/14/2017

Delivery method pursuant to West Virginia Code § 22-6A-16(c)

CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)
(at the address listed in the records of the sheriff at the time of notice):

Name: Consolidation Coal Company
Address: CNX Center, 1000 Consol Energy Drive
Canonsburg, PA 15317

Name: MEPCO LLC
Address: 103 CORPORATE DRIVE, SUITE 102
MORGANTOWN, WV 26501

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83 Easting:	<u>572727.09</u>
County:	<u>Monongalia</u>	Northing:	<u>4390679.86</u>
District:	<u>Clay</u>	Public Road Access:	<u>County Route 29/4</u>
Quadrangle:	<u>Blacksville</u>	Generally used farm name:	<u>MEPCO</u>
Watershed:	<u>Jakes Run of Dunkard Creek</u>		

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This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator: Northeast Natural Energy LLC
Telephone: 304-212-0422
Email: hmedley@nne-llc.com

Address: 707 Virginia Street East, Suite 1200
Charleston, WV 25301
Facsimile: 304-241-5972

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@wv.gov.

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
 Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin
 Governor

Paul A. Mattox, Jr., P. E.
 Secretary of Transportation/
 Commissioner of Highways

January 6, 2016

James A. Martin, Chief
 Office of Oil and Gas
 Department of Environmental Protection
 601 57th Street, SE
 Charleston, WV 25304

Subject: DOH Permit for the Mepco Pad, Monongalia County
 Mepco 10H

47-061-01788

Dear Mr. Martin,

This well site will be accessed from a permit #04-2015-1144 issued to Northeast Natural Energy Corporation for access to the State Road for a well site located off of Monongalia County Route 29/4 SLS.

The operator has signed a DISTRICT WIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton

Gary K. Clayton, P.E.
 Regional Maintenance Engineer
 Central Office O&G Coordinator

Cc: Hollie Medley
 Northeast Natural Energy Corporation
 CH, OM, D-4
 File

Planned Additives to be used in Fracturing Stimulations

Trade Name	Purpose	Ingredients	Chemical Abstract Service Number (CAS#)
Water	Carrier	Water	7732-18-5
HCl, 10.1-15%	Acidizing	Hydrochloric Acid Water	7647-01-0 7732-18-5
Alpha 1427	Biocide	Alkyl Dimethyl Benzyl Ammonium Chloride (C12-16) Ethanol Glutaraldehyde Quaternary Ammonium Chloride Water	68424-85-1 64-17-5 111-30-8 7173-51-5 7732-18-5
Enzyme G-NE	Breaker	Hemicellulase Enzyme Concentrate Water	9025-56-3 7732-18-5
CI-14	Corrosion Inhibitor	Fatty Acids Methanol Olefin Polyoxyalkylenes Propargyl Alcohol	N.A. 67-56-1 N.A. N.A. 107-19-7
FRW-18	Friction Reducer	Hydrotreated Light Distillate	64742-47-8
GW-3LDF	Gelling Agent	Guar Gum Petroleum Distillate Blend	9000-30-0 CBI
Ferrotrol 300L	Iron Control	Citric Acid	77-92-9
Sand, White, 40/70	Proppant	Crystalline Silica (Quartz)	14808-60-7
Sand, White, 100 mesh	Proppant	Crystalline Silica (Quartz)	14808-60-7
Scaletrol 720	Scale Inhibitor	Diethylene Glycol	111-46-6

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