



**west virginia** department of environmental protection

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

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
www.dep.wv.gov

July 24, 2014

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-6101678, issued to NORTHEAST NATURAL ENERGY LLC, 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 all 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 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.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-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) 926-0499 ext. 1654.



James Martin  
Chief

Operator's Well No: CAMPBELL 5H  
Farm Name: CAMPBELL, ELLEN F.  
**API Well Number: 47-6101678**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 07/24/2014

Promoting a healthy environment.

07/25/2014

## 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.

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### CONDITIONS

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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 fifty (50) 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. 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.
8. 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.
9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to [DEPOOGNotify@wv.gov](mailto:DEPOOGNotify@wv.gov) within 30 days of commencement of drilling.

**WEST VIRGINIA 811**

TWO WORKING DAYS PRIOR TO EXCAVATION, THE CONTRACTOR MUST CONTACT THE WV ONE CALL SYSTEM, INC., 1-800-245-4848 (WV ONE CALL TICKET#1404402841 )

# CAMPBELL WELL PAD CLAY DISTRICT, MONONGALIA COUNTY, WV JULY 2014

APPROVED  
WVDEP OOG  
5/17 7/24/2014

PLANS PREPARED BY:  
**BOORD BENCHEK & ASSOCIATES, INC.**  
ENGINEERING, SURVEYING, CONSTRUCTION AND MINING SERVICES  
SOUTHPOINTE, PA 15317 PHONE: 724-746-1055

OWNER



**northeast**

NATURAL ENERGY

NORTHEAST NATURAL ENERGY, LLC  
707 VIRGINIA STREET SUITE 1200  
CHARLESTON, WV 253 01

API#6101677  
API#6101678

- SHEET INDEX  
1. TITLE SHEET  
2-3. EVACUATION ROUTE/PREVAILING WIND  
4. E&S CONTROL LAYOUT OVERVIEW  
5-15. E&S CONTROL LAYOUT  
16. E&S CONTROL AND SITE PLAN OVERVIEW  
17-27. E&S CONTROL AND SITE PLAN  
28. WELL PAD CROSS-SECTIONS  
29. COASTAL ACCESS ROAD PROFILE  
30. COASTAL ACCESS ROAD AND CAMPBELL ACCESS ROAD PROFILES  
31. CAMPBELL ACCESS ROAD PROFILE  
32-37. COASTAL ACCESS ROAD CROSS-SECTIONS  
38-43. CAMPBELL ACCESS ROAD CROSS-SECTIONS  
44-46. DETAIL SHEET  
47. JERSEY BARRIER INSTALLATION PLAN  
48. CROSS-SECTIONS C-C', D-D' & E-E'  
49. RECLAMATION PLAN OVERVIEW  
50-60. RECLAMATION PLAN

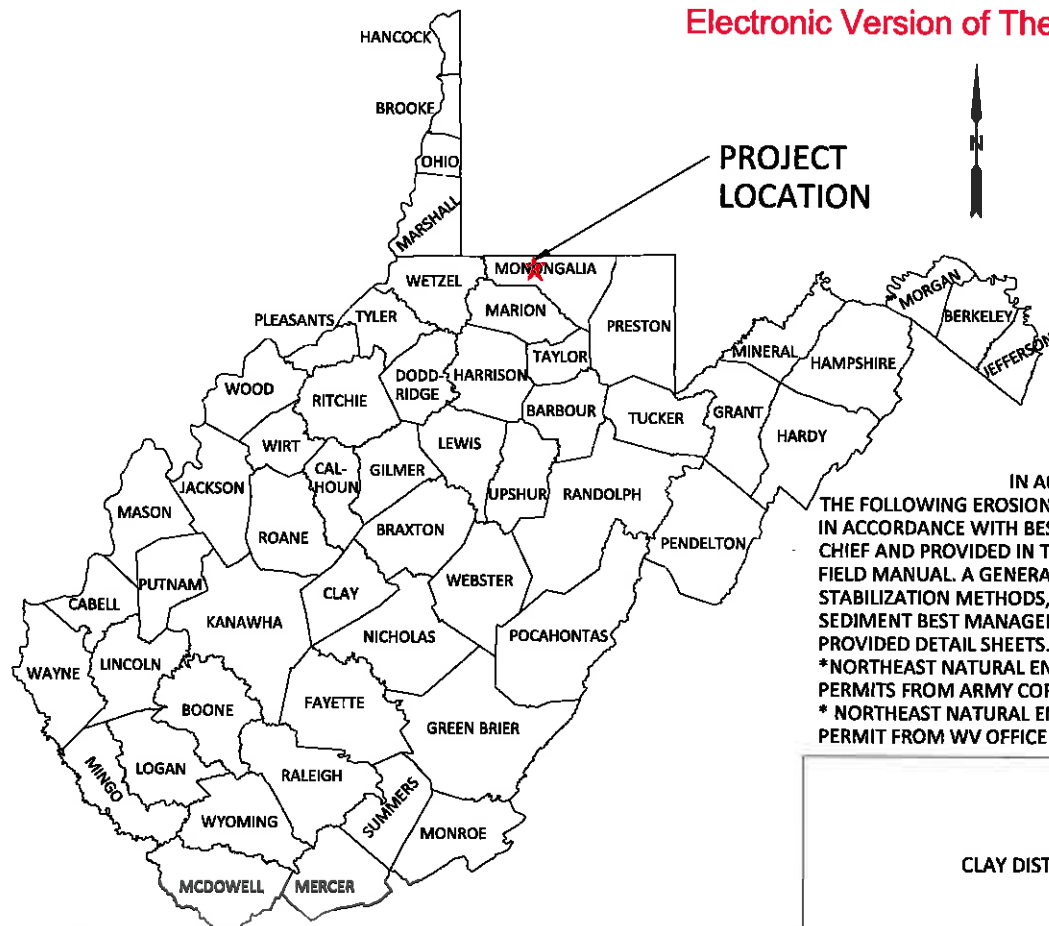
TOTAL DISTURBED AREA: 72.1 AC.  
ROAD DISTURBED AREA: 59.4 AC.  
WELL PAD DISTURBED AREA: 12.7 AC.



*Andrew Benchek* 7-16-14

ANDREW BENCHEK  
P.E.

Electronic Version of These Plans May Be Viewed at: [Q:\OIL GAS\SAY FILES\REVIEWS](#)

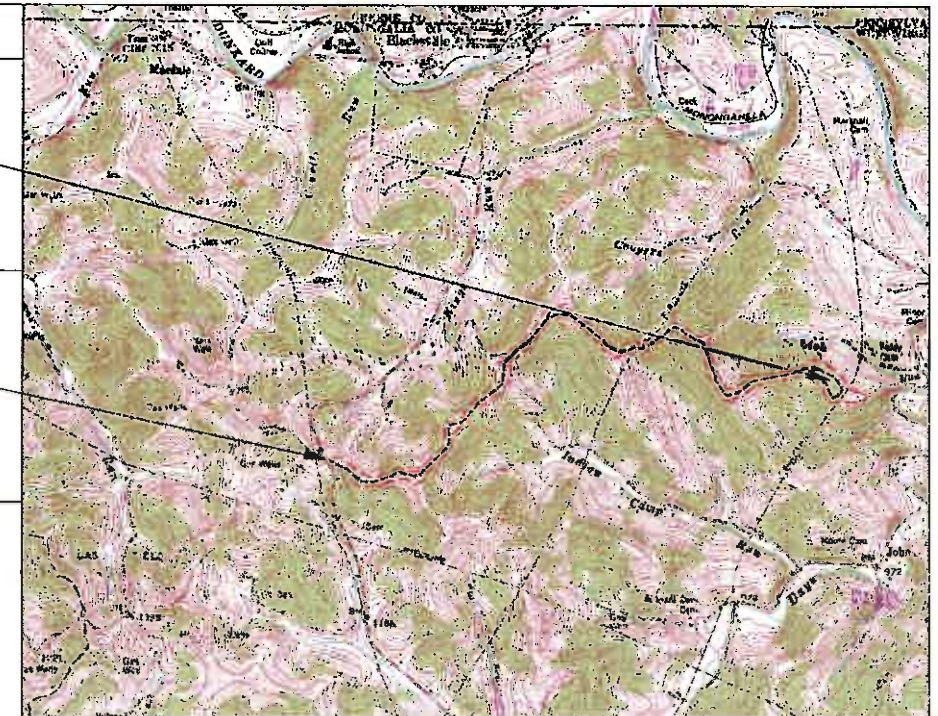


IN ACCORDANCE WITH WV 35 CSR 8 THE FOLLOWING EROSION & SEDIMENT CONTROL PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES ESTABLISHED BY THE CHIEF AND PROVIDED IN THE OFFICE'S EROSION AND SEDIMENT CONTROL FIELD MANUAL. A GENERAL CONSTRUCTION SEQUENCE, DESCRIPTION OF STABILIZATION METHODS, AND DETAILS & SPECIFICATIONS FOR EROSION & SEDIMENT BEST MANAGEMENT PRACTICES HAVE BEEN INCLUDED IN THE PROVIDED DETAIL SHEETS.  
\*NORTHEAST NATURAL ENERGY, LLC. TO OBTAIN NWP-39 AND NWP-14 PERMITS FROM ARMY CORPS OF ENGINEERS AS NECESSARY.  
\* NORTHEAST NATURAL ENERGY, LLC. TO OBTAIN STREAM ENCROACHMENT PERMIT FROM WV OFFICE OF LAND AND STREAMS AS NECESSARY.

**COORDINATES**

CENTER OF WELLS  
(NAD 83)  
LAT: 39° 41' 59.6"  
LONG: 80° 11' 01.7"  
(NAD 27)  
LAT: 39° 41' 59.0"  
LONG: 80° 11' 02.2"

SITE ENTRANCE  
(NAD 83)  
LAT: 39° 41' 42.7"  
LONG: 80° 13' 22.7"  
(NAD 27)  
LAT: 39° 41' 41.9"  
LONG: 80° 13' 23.1"



1"=2000'



**TITLE SHEET**  
CAMPBELL WELL PAD  
CLAY DISTRICT, MONONGALIA COUNTY, WV

**SHEET**  
1  
OF  
60

07/25/2014

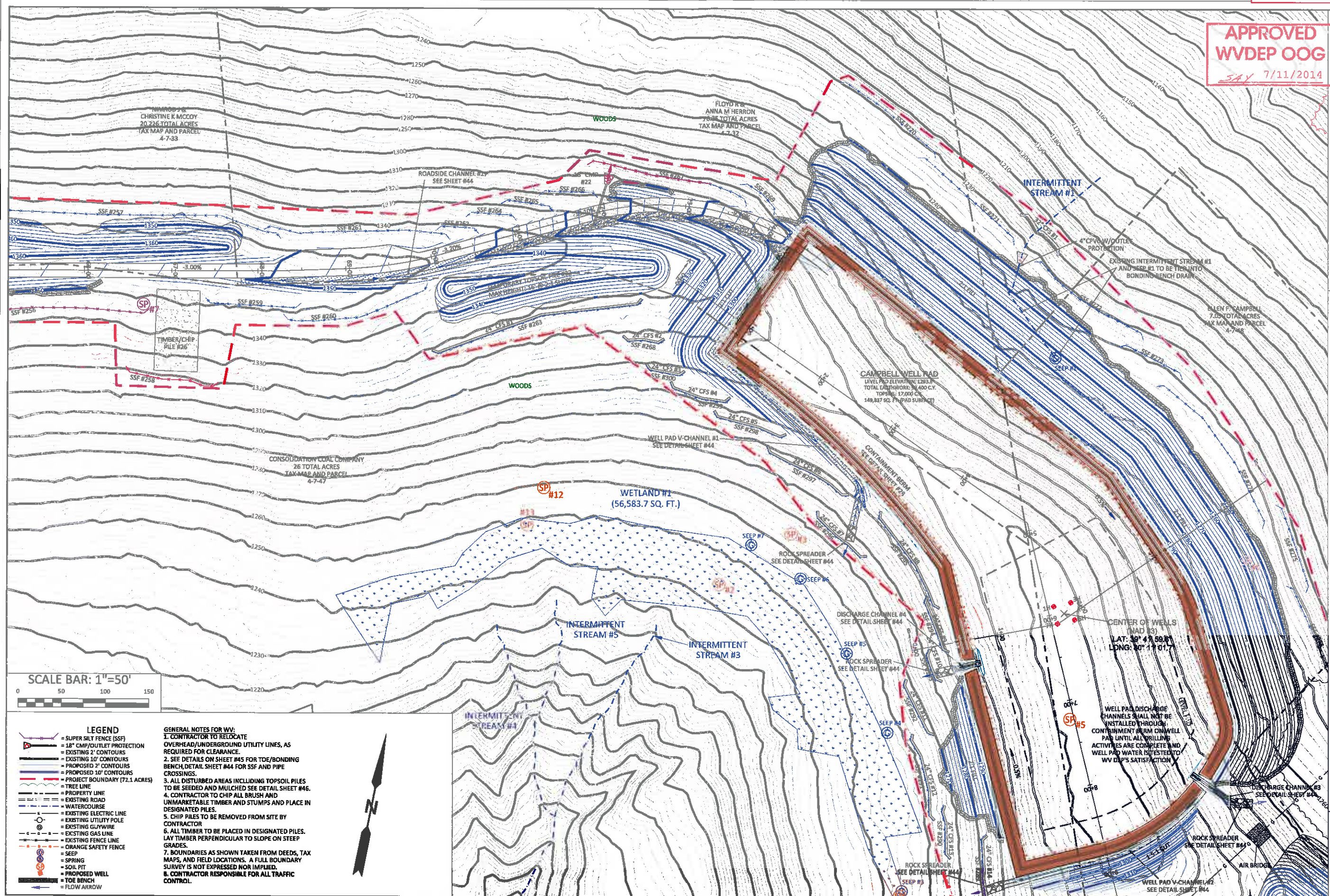
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WVDEP OOG  
SAY 7/11/2014

BOORD, BENCHEK and ASSOC., INC.  
Engineering, Surveying, Construction,  
and Mining Services  
Southpointe, PA 15317 Phone: 724-746-1055

E&S CONTROL AND SITE PLAN

THIS DOCUMENT WAS PREPARED BY:  
BOORD, BENCHEK AND ASSOC., INC.  
FOR: NORTHEAST NATURAL ENERGY, LLC.

DATE:  
APRIL 2014  
CAMPBELL WELL PAD  
CLAY DISTRICT,  
MONONGALIA  
COUNTY, WV



- LEGEND**
- - - SUPER SIFT FENCE (SSF)
  - - - 18" CHIP/OUTLET PROTECTION
  - - - EXISTING 2' CONTOURS
  - - - EXISTING 10' CONTOURS
  - - - PROPOSED 2' CONTOURS
  - - - PROPOSED 10' CONTOURS
  - - - PROJECT BOUNDARY (72.1 ACRES)
  - - - TREE LINE
  - - - PROPERTY LINE
  - - - EXISTING ROAD
  - - - WATERCOURSE
  - - - EXISTING ELECTRIC LINE
  - - - EXISTING UTILITY POLE
  - - - EXISTING GUYWIRE
  - - - EXISTING GAS LINE
  - - - EXISTING FENCE LINE
  - - - ORANGE SAFETY FENCE
  - SEEP
  - SPRING
  - SOIL PIT
  - PROPOSED WELL
  - TOE BENCH
  - FLOW ARROW

- GENERAL NOTES FOR WV:**
1. CONTRACTOR TO RELOCATE OVERHEAD/UNDERGROUND UTILITY LINES, AS REQUIRED FOR CLEARANCE.
  2. SEE DETAILS ON SHEET #45 FOR TOE/BONDING BENCH, DETAIL SHEET #44 FOR SSF AND PIPE CROSSINGS.
  3. ALL DISTURBED AREAS INCLUDING TOPSOIL PILES TO BE SEEDED AND MULCHED SEE DETAIL SHEET #46.
  4. CONTRACTOR TO CHIP ALL BRUSH AND UNMARKETABLE TIMBER AND STUMPS AND PLACE IN DESIGNATED PILES.
  5. CHIP PILES TO BE REMOVED FROM SITE BY CONTRACTOR
  6. ALL TIMBER TO BE PLACED IN DESIGNATED PILES. LAY TIMBER PERPENDICULAR TO SLOPE ON STEEP GRADES.
  7. BOUNDARIES AS SHOWN TAKEN FROM DEEDS, TAX MAPS, AND FIELD LOCATIONS. A FULL BOUNDARY SURVEY IS NOT EXPRESSED NOR IMPLIED.
  8. CONTRACTOR RESPONSIBLE FOR ALL TRAFFIC CONTROL.

07/25/2014

61-01678

WW-6B  
(9/13)

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: Campbell 5H Well Pad Name: Campbell

3) Farm Name/Surface Owner: Ellen F. Campbell Public Road Access: State Route 218 (Daybrook Road)

4) Elevation, current ground: 1,320' Elevation, proposed post-construction: 1,293.6'

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 Associated Pressure(s):  
Marcellus ; 8,027' ; 105' ; 3,600psi

8) Proposed Total Vertical Depth: 8,027'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 15,665'

11) Proposed Horizontal Leg Length: 6,801'

12) Approximate Fresh Water Strata Depths: 300' , 1,100'

13) Method to Determine Fresh Water Depths: Driller's Log from Offset Wells

14) Approximate Saltwater Depths: 1,400' , 2,100'

15) Approximate Coal Seam Depths: 1,000'

16) Approximate Depth to Possible Void (coal mine, karst, other): N/A

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: Adjacent Mine - Federal No. 2

Depth: 1,000'

Seam: Pittsburgh

Owner: Patriot Coal Corporation

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WW-6B  
(9/13)

18)

CASING AND TUBING PROGRAM

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	24"	New	NA	52.78	60'	60'	GTS
Fresh Water	13 3/8"	New	J-55	54.5	1,280'	1,250'	CTS
Coal							
Intermediate	9 5/8"	New	J-55	40	2,330'	2,300'	CTS
Production	5 1/2"	New	P-110	20	15,665'	15,600'	3,536
Tubing	2 7/8"	New	J-55	6.5	NA		NA
Liners							

Northeast Natural Energy will not  
set freshwater casing beyond  
elevation without prior approval  
from the WDEP Office of Oil & Gas Mgt.

HM 7-21-14

JK 7-21-14

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	24"	24"	.25	2,200	Grout	NA
Fresh Water	13 3/8"	17 1/2"	.38"	2,760	Class A	1.23
Coal						
Intermediate	9 5/8"	12 1/4"	.395"	3,950	Class A	1.3
Production	5 1/2"	8 3/4"	.361"	12,530	50:50 Poz	1.21
Tubing	2 7/8"	NA	.217"	7,260	NA	NA
Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

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JUL 21 2014

WV Department of  
Environmental Protection

**Northeast Natural Energy LLC Mine Contingency Plan**

On all wells drilled, Northeast Natural Energy LLC ("NNE") has contingency strategies in place should an unanticipated void or mine be encountered while drilling the surface section of the well. If encountered, any accumulated gases will be diverted a safe distance away from the drilling operations through the blooey line and/or flare.

All casings programs submitted to the state incorporate the use of a 24" conductor over the previously used 20" that has long been the industry standard for a typical Marcellus design. The use of 24" conductor casing allows the use of a 22" bit to ream the surface hole, and drill 50' below the void to run a string of 18-5/8" 87.50#/ft J-55 through the section when needed.

The 18-5/8" would be set 30-50' below the void with cement baskets placed directly above and below. The section of pipe below the void would be cemented using the displacement method and 100% excess. The section above the void would be cemented simultaneously using a two-stage DV tool or separately by using remedial top fill techniques and 30% excess.

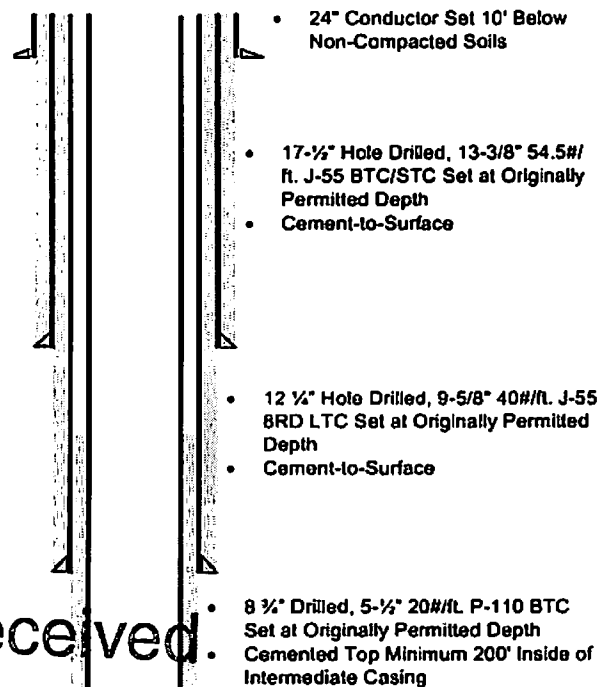
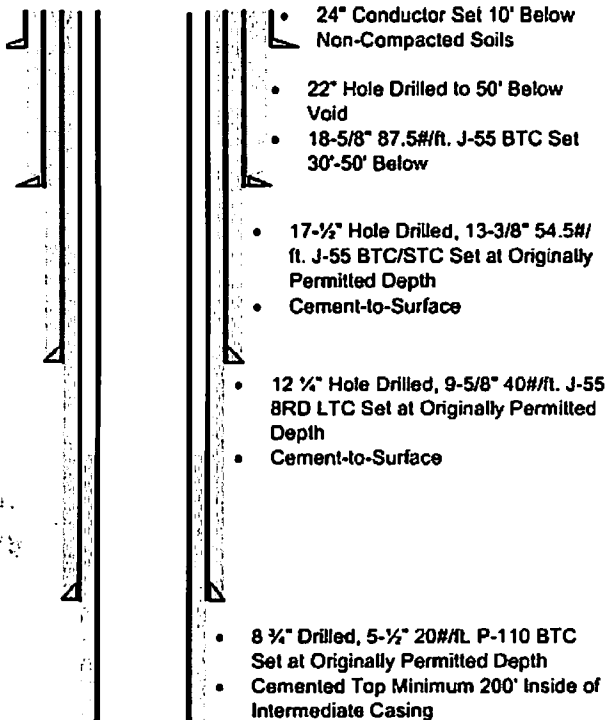
With the use of these string sizes and techniques, the surface and intermediate strings do not need to be altered. After a proper WOC time, the surface section of the well would continue to be drilled with a 17-1/2" bit and the 13-3/8" 54.50#/ft freshwater casing would be set at the originally permitted depth.

*\*The diagram below visually shows the alternative casing plan should an unanticipated void be encountered.*

U :  
cas.  
5/8  
ca.  
5/8

**Casing Schematic w/ Mine String**

**Casing Schematic w/o Mine String**



Received

MAY 21 2014

WW-6B  
(9/13)

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 7,200' TVD/MD. Well will then be horizontally drilled from KOP to approximately 8,027' TVD / 15,665' MD along a 323 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): 72.1

22) Area to be disturbed for well pad only, less access road (acres): 12.7

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.

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.

\*Note: Attach additional sheets as needed.

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WV Department of  
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Page 3 of 3  
05/25/2014

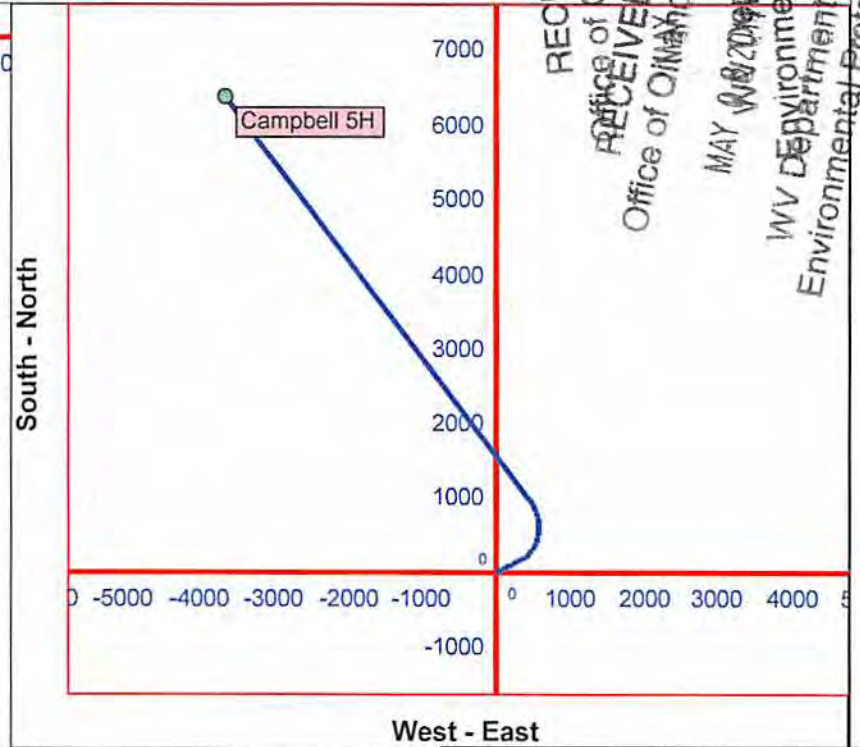
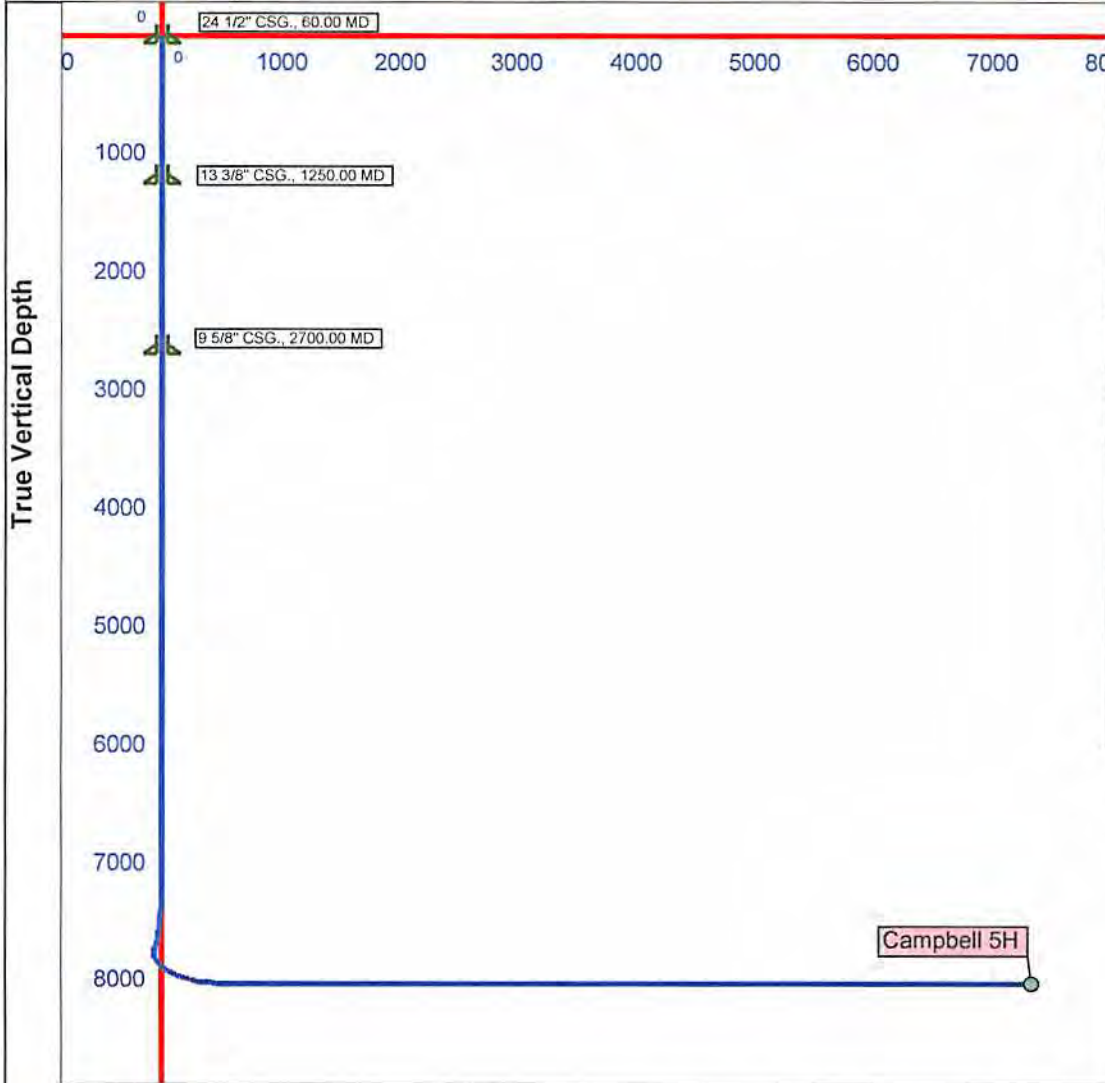


61-01678



Job Number:  
 Company: Northeast Natural Energy  
 Lease/Well: Campbell 5H  
 Location: Campbell  
 Rig Name: Pioneer 63  
 State/County: WV/ Mon  
 Country: US  
 API Number:

Elevation (To MSL): 1310.00 ft  
 RKB: 18.00 ft  
 Projection System: US State Plane 1983  
 Projection Group: West Virginia Northern Zone  
 Projection Datum: CLARKE 1866  
 Magnetic Declination: -8.89  
 Grid Convergence: -0.43620 W  
 Date: Thursday, May 01, 2014



	MD	TVD	Tully	
KOP	7,200	7,200	Hamilton	7,812
LP	8,863	8,027	Upper Marcellus	7,932
TD	15,665	8,027	Lower Marcellus	7,982
			Onondaga	8,037

Vertical Section (1000 Ft/Div) VSP: 324.33°

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 MAY 08 2014  
 WV Department of Environmental Protection  
 Environmental Protection

WW-9  
(9/13)

API Number 47- 61-01678  
Operator's Well No. Campbell 5H

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) Dunkard Creek Quadrangle Blacksville, WV

Elevation 1,320' County Monongalia District Clay

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: N/A

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

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 \_\_\_\_\_ )
- Handwritten:* 4/22/14

Will closed loop system be used? If so, describe: Yes - 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 - See Attachment A

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

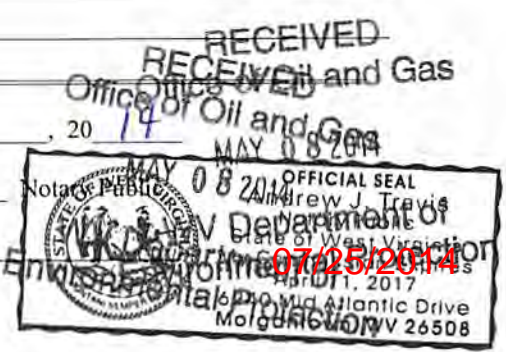
-Landfill or offsite name/permit number? See Attachment A

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 Medley  
Company Official (Typed Name) Hollie Medley  
Company Official Title Regulatory Coordinator

Subscribed and sworn before me this 15th day of April  
Andrew  
My commission expires April 11, 2017



Form WW-9

Operator's Well No. Campbell 5H

Northeast Natural Energy LLC

Proposed Revegetation Treatment: Acres Disturbed 72.1 Prevegetation pH TBD

Lime 2 Tons/acre or to correct to pH 7

Fertilizer type 19-19-19

Fertilizer amount 200 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 and Annual Rye- 15		Timothy - 15 and Annual Rye - 15	

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: [Signature]

Comments: Temp seed & mulch AS SOON AS POSSIBLE?

Title: Oil & Gas Inspector

Date: 4/22/14

Field Reviewed?  Yes  No

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MAY 08 2014  
WV Department of  
Environmental Protection  
07/25/2014  
Environmental Protection

Attachment A to WW-9

Northeast Natural Energy LLC ("NNE") plans to utilize a closed loop process for its drilling of the Campbell 5H 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.

Campbell 5H 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:

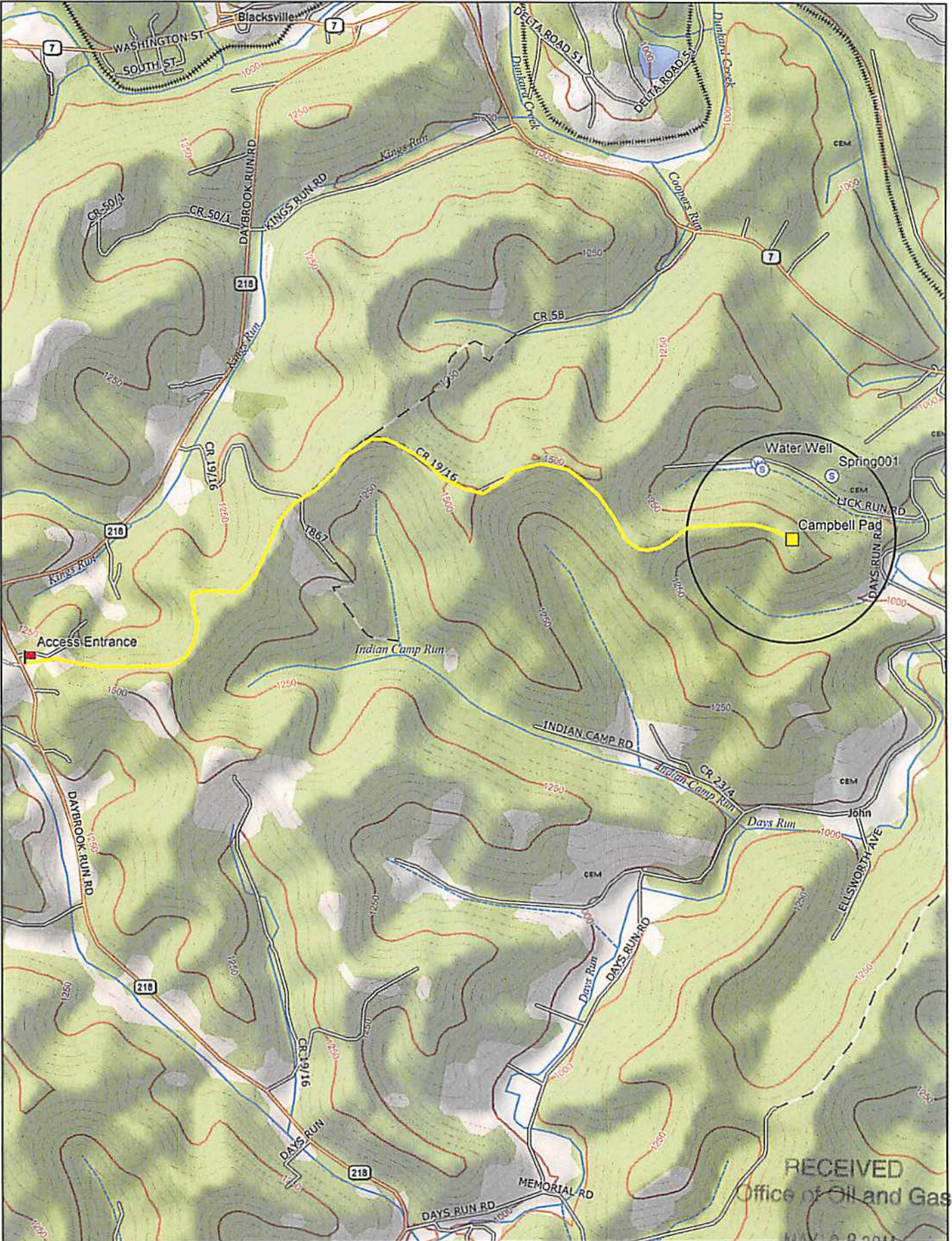
- Westmoreland Landfill (Tervita) – Belle Vernon, PA (Permit # 100277)
- Meadowfill Landfill (Waste Management) – Bridgeport, WV (Permit # SWF 103298)
- Max Environmental – Yukon, PA (PAD004835146 and 301071)
- Max Environmental – Bulger, PA (PAD059087072 and 301359)
- Chestnut Valley Landfill (Advanced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

- 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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WV Department of  
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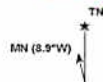
07/25/2014



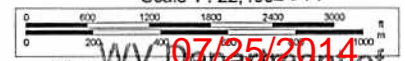
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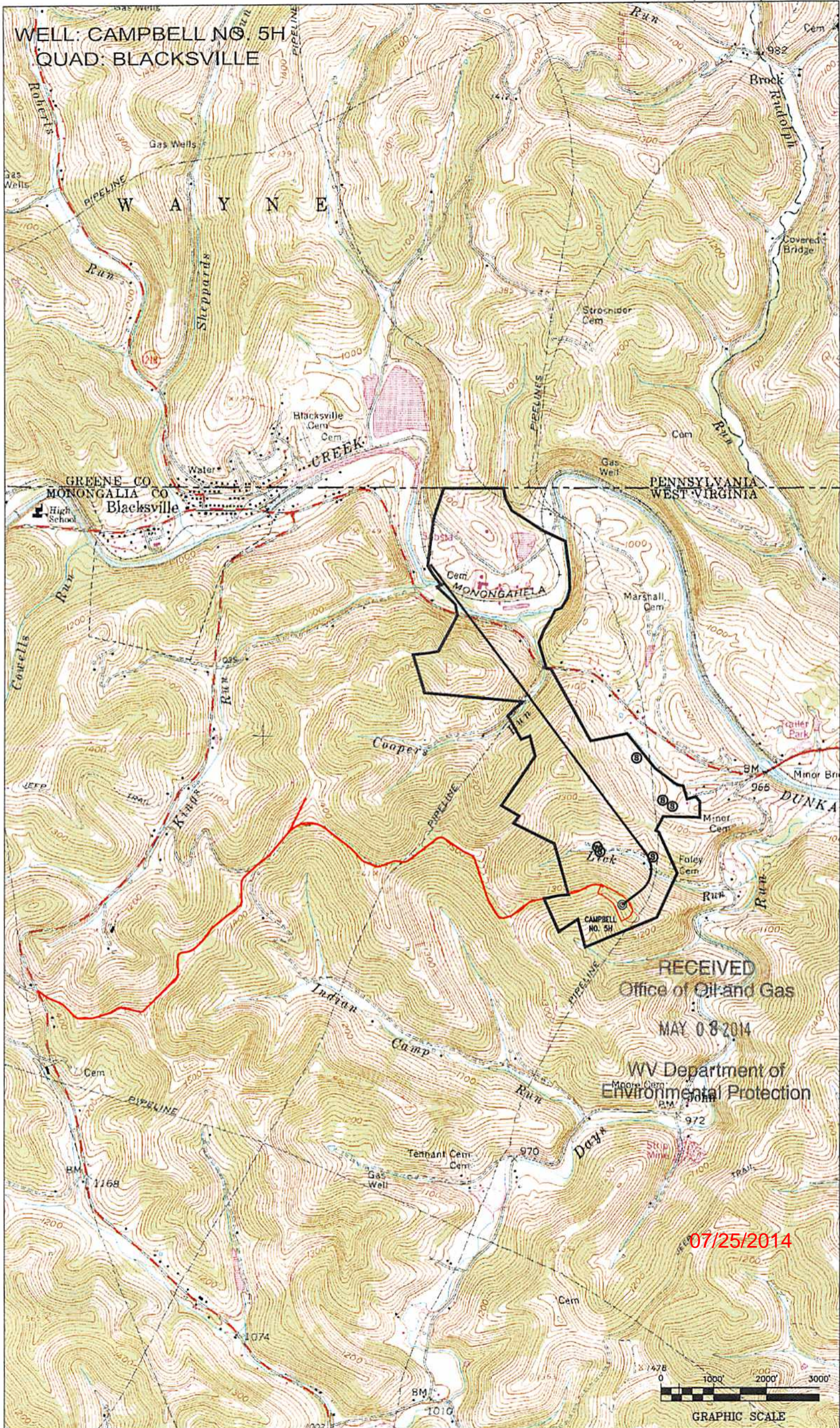


Scale 1 : 22,400



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WELL: CAMPBELL NO. 5H  
QUAD: BLACKSVILLE



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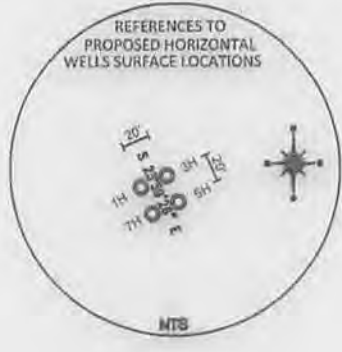
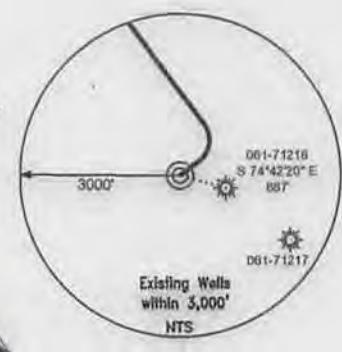
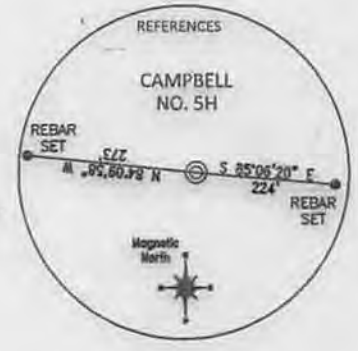
WV Department of  
Environmental Protection

07/25/2014





1	N 23°21'08" W 1,080'
2	N 23°47'49" W 1,178'
3	N 32°48'24" E 1,061'



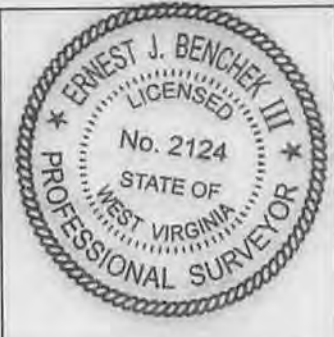
**REFERENCE NOTES**  
 Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Demographic taken from public records MONONGALIA County, West Virginia JUNE 2013  
 State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade: GPS  
 Drafted by: EAM

**NOTE**  
 NO WATER WELLS WERE FOUND WITHIN 250' OF THE CENTER OF WELL PAD  
 NO DWELLINGS WERE FOUND WITHIN 825' OF THE CENTER OF WELL PAD  
 NO DEEP WELLS WITHIN ONE MILE OF THE CENTER OF WELL PAD.

<b>TOP HOLE (UTM NAD 83)</b>
N) 4394754.0
E) 569979.0
<b>BOTTOM HOLE (UTM NAD 83)</b>
N) 4396893.8
E) 568835.8

FILE #: NNE12  
 DRAWING #: 2324  
 SCALE: PLAT: 1" = 1200'  
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

DATE: JULY 16, 2014  
 OPERATOR'S WELL #: CAMPBELL NO. 5H  
 API WELL #: 47 61 01678 H6A  
 STATE COUNTY PERMIT

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

WATERSHED: DUNKARD CREEK ELEVATION: 1,310'  
 COUNTY/DISTRICT: MONONGALIA / CLAY QUADRANGLE: BLACKSVILLE  
 SURFACE OWNER: ELLEN F. CAMPBELL ACREAGE: 7.05 07/25/2014  
 OIL & GAS ROYALTY OWNER: ELLEN FOLEY CAMPBELL, ET AL ACREAGE: 375.919 +/-  
 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 ESTIMATED DEPTH: TVD: 8,027 TMD: 15,665  
 WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC DESIGNATED AGENT: JOHN ADAMS  
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200  
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301 CITY: CHARLESTON STATE: WV ZIP CODE: 25301